

PESTICIDE USAGE IN NORTHERN IRELAND  
SURVEY REPORT 247

## NORTHERN IRELAND ARABLE CROPS 2012



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# PESTICIDE USAGE SURVEY REPORT 247

**NORTHERN IRELAND**

**ARABLE CROPS**

**2012**

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## The County Regions of Northern Ireland



## SUMMARY

This is the twelfth survey of pesticide usage practices on arable crops in Northern Ireland, providing comparative data to that obtained in the previous surveys in 1990, (Jess *et al.*, 1992), 1992 (Jess *et al.*, 1995), 1994 (Jess *et al.*, 1997), 1996 (Jess *et al.*, 2000), 1998 (Jess *et al.*, 2002), 2000 (Withers *et al.*, 2004), 2002 (Withers *et al.*, 2004), 2004 (Withers *et al.*, 2006) 2006 (Withers *et al.*, 2007), 2008 (Withers *et al.*, 2009) and 2010 (Withers *et al.*, 2011) .

Information on all aspects of pesticide usage was collected from 204 holdings throughout the Province, representing 23% of the total area of arable crops grown. Quantitative data has been adjusted to provide estimates of total pesticide usage.

The total area of arable crops grown in Northern Ireland in 2012 was 41,856 hectares which was similar to the cropping area recorded in 2006. This represented a decrease of 3% compared to that recorded in 2010 and a 32% reduction compared to that recorded in the first pesticide usage survey of the arable sector, in 1990. Approximately 44% of the arable cropping area in 2012 was in County Down, 23% in County Londonderry, 18% in County Antrim, 8% in County Armagh and 7% in County Tyrone. This distribution is similar to that recorded in 2010, 2008 and 2006. There was no significant area of arable cropping in County Fermanagh.

A total of 348 products (including 8 adjuvants), comprising 145 active ingredients were recorded in use on field crops in the survey.

During the period 2010 to 2012, applications of all pesticide groups increased, with the area of arable crops treated with pesticides increasing by 11%, to 374,845 spray-hectares. This was a similar level to that recorded in 2008. Fungicide applications increased by 6%, with chlorothalonil, either applied as a single active ingredient or in combination, the most frequently applied to cereal crops, especially spring barley and winter wheat. Herbicides and desiccant applications increased by 11%. Glyphosate was the most frequently applied, accounting for 26% of herbicide and desiccant applications. Insecticide applications increased by 7% when compared with 2010 and the weight applied increased by 75%. Pyrethroids were the most frequently applied insecticides representing 89% of all insecticide applications. Esfenvalerate was the most frequently applied insecticide, primarily to spring barley and winter wheat crops, to control aphids. Growth regulator applications increased by 32% when compared to 2010. The principal growth regulator used in 2012 was chlormequat, which is consistent with previous surveys conducted in 1998-2010. In 2012, growth regulators were applied primarily to spring barley, winter barley, spring wheat and, most frequently, to winter wheat. Due to the adverse weather conditions during 2012 molluscicide applications increased four-fold when compared with 2010. An estimated 80% of molluscicide applications were to control slugs mostly on maincrop potato crops. The total weight of pesticides applied to arable crops in 2012 decreased to 132 tonnes of active ingredients, representing a 3% reduction compared with 2010 and 22 % and 44% reduction when compared with 2008 and 2006, respectively. Seed treatment applications increased by 11% and the weight applied increasing by 21%. In keeping with 2008 and 2010 data, the formulation prochloraz/triticonazole was the most commonly applied cereal seed treatment in 2012. This contrasted with 2004 and 2006 where the single active ingredient fludioxonil was the most commonly applied to these crops. The formulation imazalil/pencycuron was the most commonly applied seed treatment on potatoes.

During 2012, regional pesticide usage was related to the area of arable crops grown in each county. Pesticides were applied to 98% of the total area of arable crops grown in Northern Ireland in 2010 with a range of 1 – 11 applications per crop.

Fungicides were applied to 42% of the pesticide-treated area, accounting for 44% of the total weight of pesticides used. Herbicides and desiccants were applied to 30% of the pesticide-treated area, representing 39% of the total weight of pesticides used. Insecticides accounted for 8% of the pesticide-treated area of arable crops, representing 3% of the weight of pesticides used. Molluscicide treatments represented less than 1% of both area of application and weight of pesticides applied. Growth regulator usage accounted for 9% of the pesticide-treated area and 13% of the weight of active ingredients applied. Seed treatments were applied to 10% of the area of arable crops grown in 2010, representing 2% of the weight of active ingredients applied.

Potato crops comprised 10% of the area of arable crops grown in Northern Ireland in 2010, accounting for 20% of the total pesticide-treated area. However, the weight of pesticides applied to potato crops represented 30% of the total weight of pesticides used on all arable crops. The total area of potatoes grown comprised 82% maincrop, 13% seed and 5% early potato crops. Potato crops accounted for 32% of the area of arable crops treated with fungicides and received 47% of the total weight of fungicides applied. Furthermore, applications of herbicides and desiccants to potato crops represented 15% of the area treated and 20% of the weight applied of this pesticide group. The most commonly recorded fungicide applied to potato crops was fluazinam. Fluazinam was used on 32% of the fungicide-treated area and accounted for 11% of the weight of fungicide active ingredients applied. It was used primarily in maincrop potatoes to control blight (*Phytophthora infestans*) and for general disease control.

This was the eighth survey in which the cultivation of pea and bean crops was recorded.

Data of pesticide applications to *Camelina* crops was recorded for the first time. *Camelina* is a genus within the Brassicaceae family and is commonly known as false flax. It is grown for its oil component.

In addition to information concerning field applications of pesticides to crops, data relating to post-harvest/storage treatments applied to farm-stored potatoes were collected. It was estimated that 68,804 tonnes of potatoes were stored on-farm, following the 2012 growing season. This represented a 41% decrease compared with 2010. Ware potatoes accounted for 81% of the total quantity of stored potatoes, with seed potatoes representing the remainder. No early potatoes were recorded as stored. County Antrim and County Down accounted for 38% and 37% of all potatoes stored, respectively. Overall, approximately 12% of stored potatoes received pesticide treatment. Furthermore, 39% of seed potatoes and 6% of ware potatoes received treatment. Overall, a total of 218 kilogrammes of treatments were applied to 8,134 tonnes of potatoes. The sprout suppressant chlorpropham was the only pesticide applied to an estimated 3,183 tonnes of stored ware potatoes in Northern Ireland in 2010. However, imazalil was applied to 4,951 tonnes of stored seed potatoes both as a single active ingredient and in combination with thiabendazole. Approximately 51% of all potatoes in 2010 were stored in 'refrigerated' buildings and 26% in 'barns'. Overall, 94% of potatoes were stored on-farm in boxes, while 6% were stored in bulk.

## DEFINITIONS AND NOTES

- 'Basic area' refers to the actual planted area of crop treated with a given pesticide.
- 'Treated area' refers to the total area treated with a pesticide, which includes all repeated applications to the basic area. This is measured in 'spray-hectares' (basic area x number of spray applications = spray hectares (spha)).
- 'Reasons for use' refers to the reasons given by the farmer for the use of a particular pesticide. These reasons may sometimes be inappropriate as they may have perceived treatment effects.
- 'Rounding'; due to rounding of figures there may be slight differences in totals both within and between tables.
- 'Spray applications' refers to the number of treatments of any pesticide type to the treated areas.
- 'Comparison tables'; due to restrictions imposed by the foot and mouth outbreak in February 2001 and the inability to complete farm visits, the 2000 report sample size was reduced by over one third. Due to this reduced sample size, data collected on the use of pesticide on potatoes, both grown and stored, was unreliable and had to be omitted from the report. Therefore, when comparisons are made between this, 2012 report, and previous reports, no comparisons can be made with the 2000 report in relation to total treatment of arable crops and both field and storage treatments of early, seed and maincrop potatoes.
- In 2008, the set-aside rate was reduced to zero and the requirement to set-aside land was abolished altogether with effect from 1 January 2009. However, producers may still voluntarily set land aside. For the purpose of this survey set-aside land is not recorded.



## INTRODUCTION

As a participant of the UK Working Party on Pesticide Usage Surveys, the Department of Agriculture and Rural Development for Northern Ireland (DARD), conducts a cyclical programme of surveys to examine pesticide usage in all sectors of the agricultural and horticultural industries. Principally, the data collected provides information for consideration by the Advisory Committee on Pesticides. However, pesticide usage data may also be used by those involved in residue testing, for public information, provision of data for research and evaluation of trends in pesticide usage.

This is the twelfth survey of pesticide usage on arable crops grown in Northern Ireland. Previous surveys reported on pesticide usage on arable crops grown in 1990 (Jess *et al.*, 1992), 1992 (Jess *et al.*, 1995), 1994 (Jess *et al.*, 1997), 1996 (Jess *et al.*, 2000), 1998 (Jess *et al.*, 2002), 2000 (Withers *et al.*, 2004), 2002 (Withers *et al.*, 2004), 2004 (Withers *et al.*, 2006), 2006 (Withers *et al.*, 2007), 2008 (Withers *et al.*, 2009) and 2010 (Withers *et al.*, 2011). Data from previous surveys are included in the report for comparative purposes.

A list of published Northern Ireland Pesticide Usage Survey reports is shown in Appendix 1.

## METHODS

The sample of holdings to be surveyed was selected from each of the six counties on the basis of the total area of arable crops grown, using data from the Northern Ireland Agricultural Census, June 2011 (Anon., 2012). However, due to sampling procedures and the distribution of arable crops in Northern Ireland, no holdings were visited in County Fermanagh. The arable crops grown comprised the following; barley, wheat, oats, spring and winter oilseed rape, peas and beans, *Camelina* and potatoes.

The sample was stratified into six size groups, according to the total area of cereal crops grown in each region. Holdings were selected at random within each of the size groups, the number of holdings being proportional to the total area of arable crops grown. Ware and seed potato crops were selected from their own defined size groups province wide.

The purpose of the survey was explained to the occupiers of selected holdings in preliminary correspondence. A total of 204 holdings were contacted during November 2012 to April 2013. A majority of data was collected by personal interview and the remainder by telephone interview. The data collected included; the area of crops grown, area treated, target crop, pesticides used and number of treatments applied. The growers' reasons for pesticide use were also included but may not always seem appropriate as they may have perceived treatment effects. Holdings selected in the original sample that were unable to provide data were replaced with those from the same county and size group held on a reserve list. During analysis, the sample data were raised to the total population level using raising factors calculated from the ratio of the number of farms sampled to the number of farms in the population within each region and size group. A further adjustment factor corrected the data in accordance with the areas of arable crops published in the Northern Ireland Agricultural Census, June 2012 (Anon., 2013). The total number of farms in each size group and the number of farms sampled are shown in Table 1.

The collected data were entered using Oracle, a relational database programme. Validated data were downloaded for analysis using SPSS software.

## Crops

Information was collected for spring barley, undersown barley, winter barley, spring wheat, winter wheat, undersown wheat, spring oats, undersown oats, winter oats, spring & winter oilseed rape, peas & beans, *Camelina*, seed potatoes, early potatoes and maincrop potatoes.

Data on pesticide usage on these crops were collected from 686 crops surveyed on 204 holdings. This accounted for 23% of crops (table 2).

Figure 1: Comparison of the areas of arable crops grown in Northern Ireland (ha), 1990 - 2012.

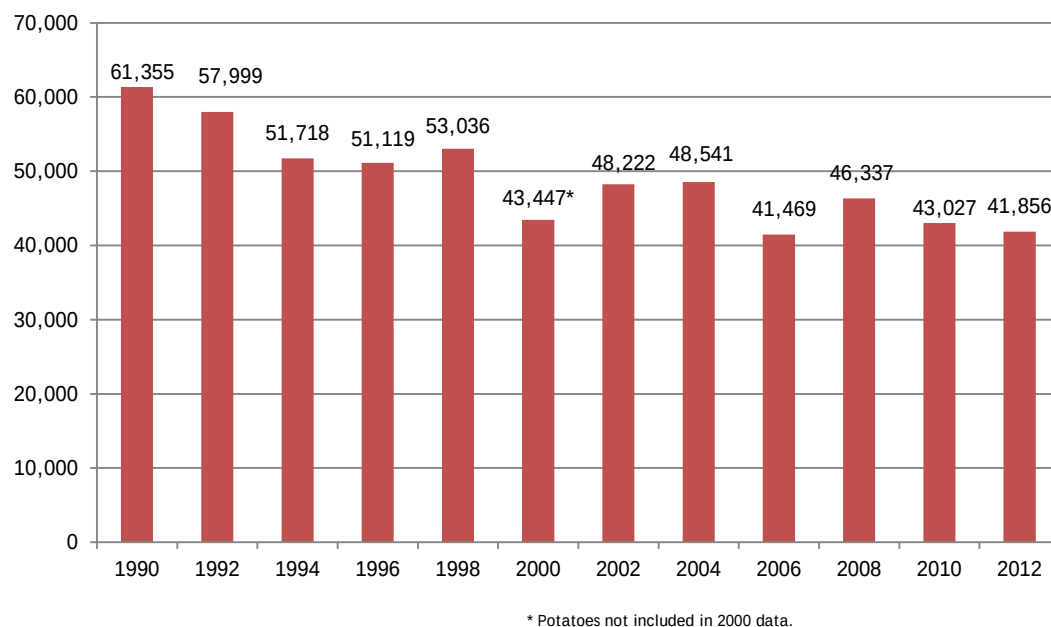


Figure 2: Regional distribution of arable crops grown in Northern Ireland (ha), 2012.

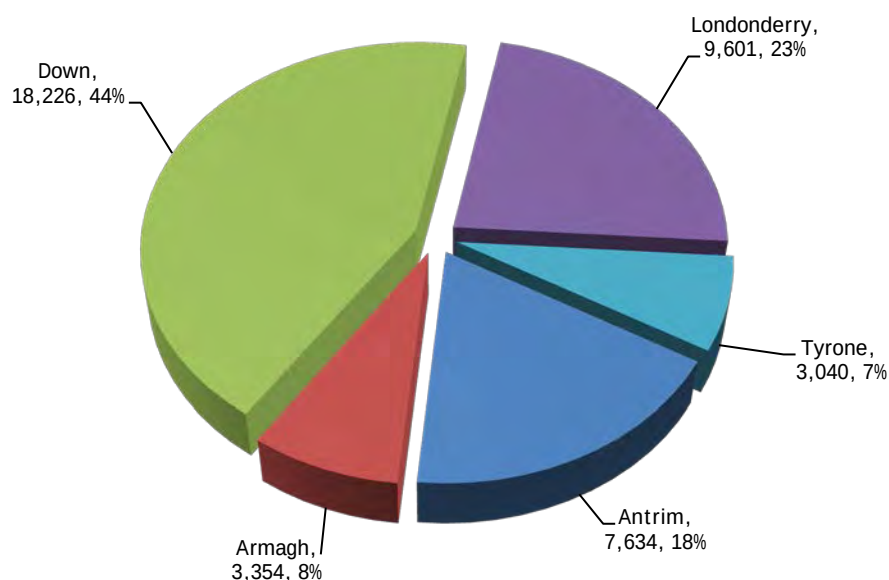


Figure 3: Regional distribution of individual arable crops grown in Northern Ireland (ha), 2012.

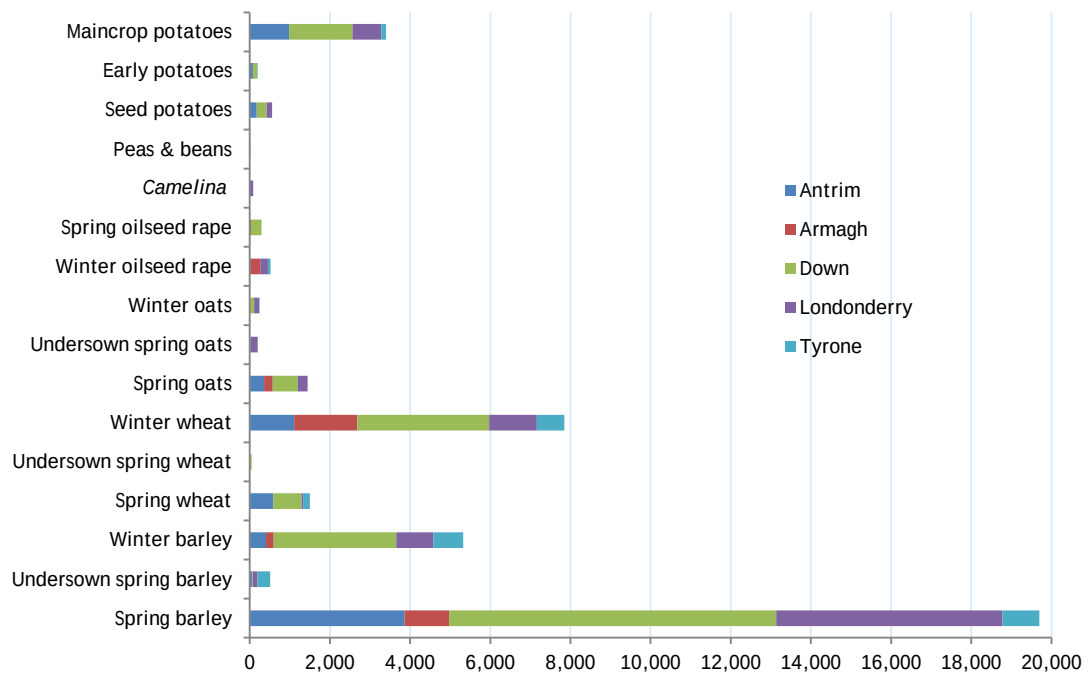


Figure 4: Areas of individual crops grown in Northern Ireland (ha), 2012.

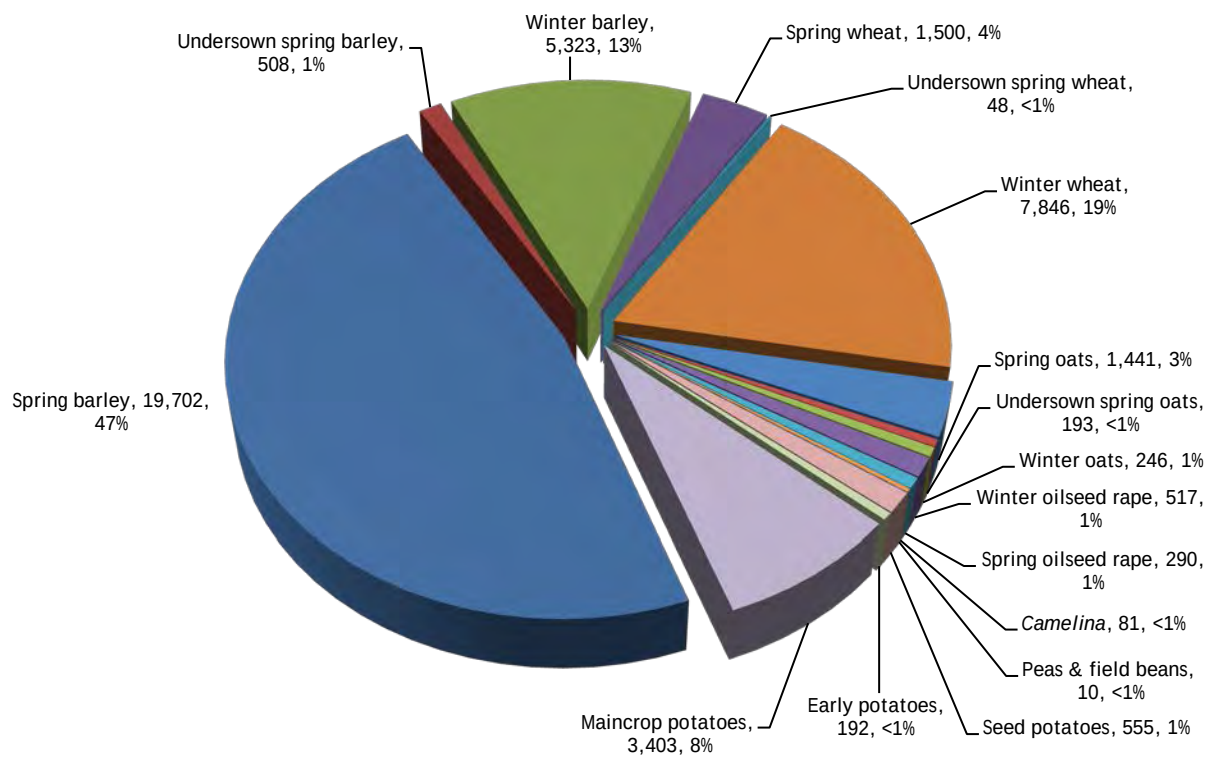


Figure 5: Comparison of the areas of cereal crops grown in Northern Ireland (ha), 1990 - 2012.

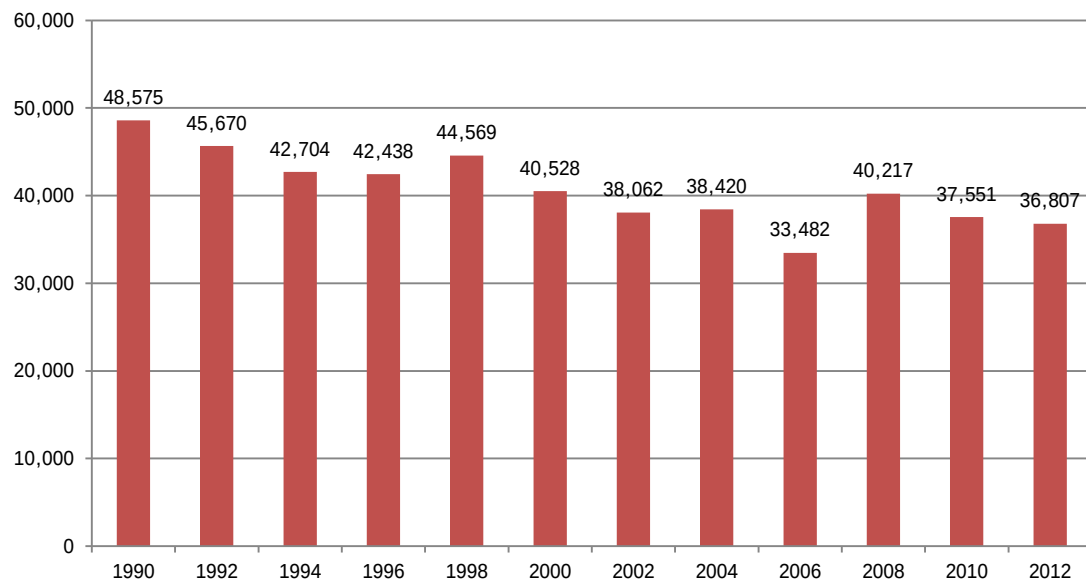


Figure 6: Regional distribution of cereal crops grown in Northern Ireland (ha), 2012.

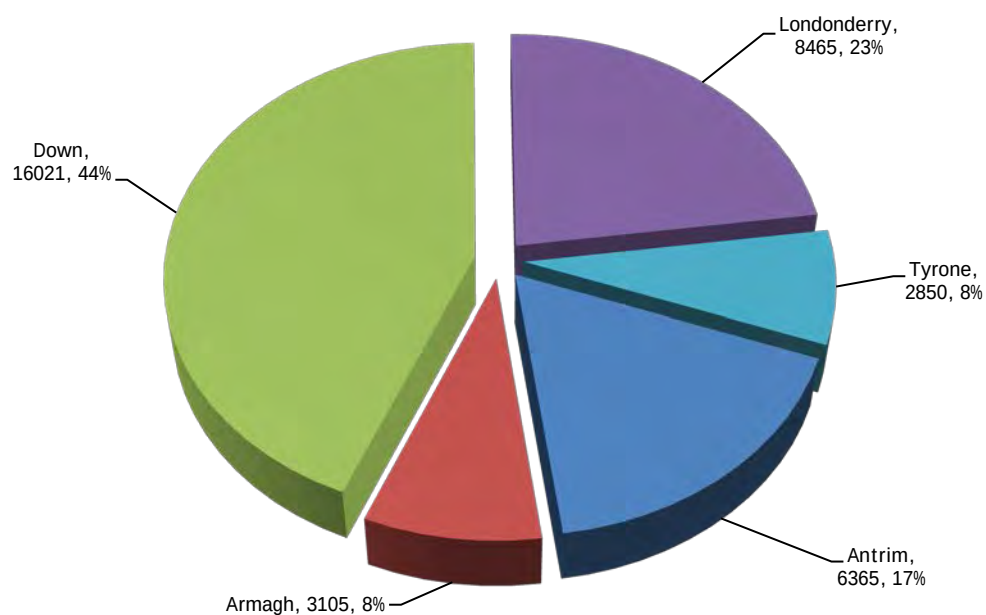


Figure 7: Comparison of the areas of potato crops grown in Northern Ireland (ha), 1990 - 2012.

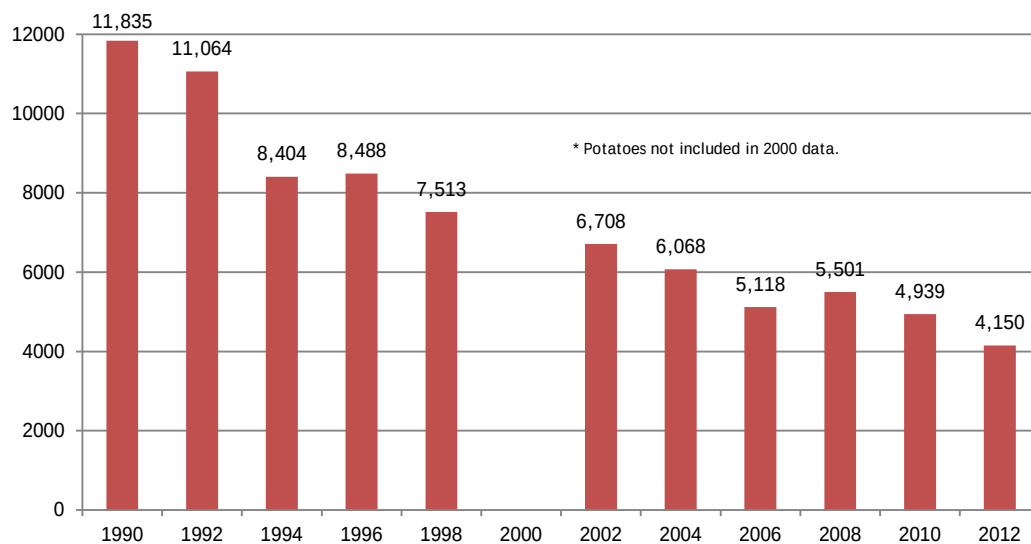


Figure 8: Regional distribution of potato crops grown in Northern Ireland (ha), 2012.

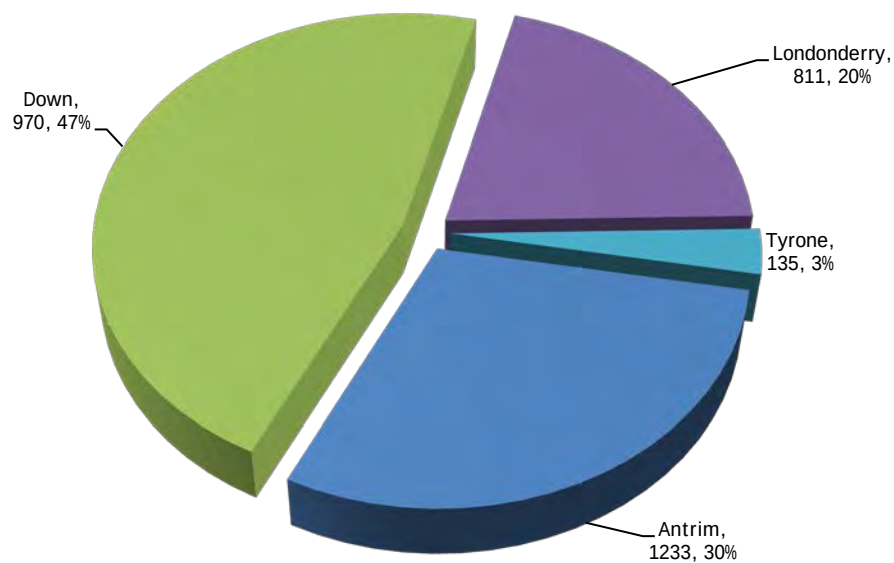
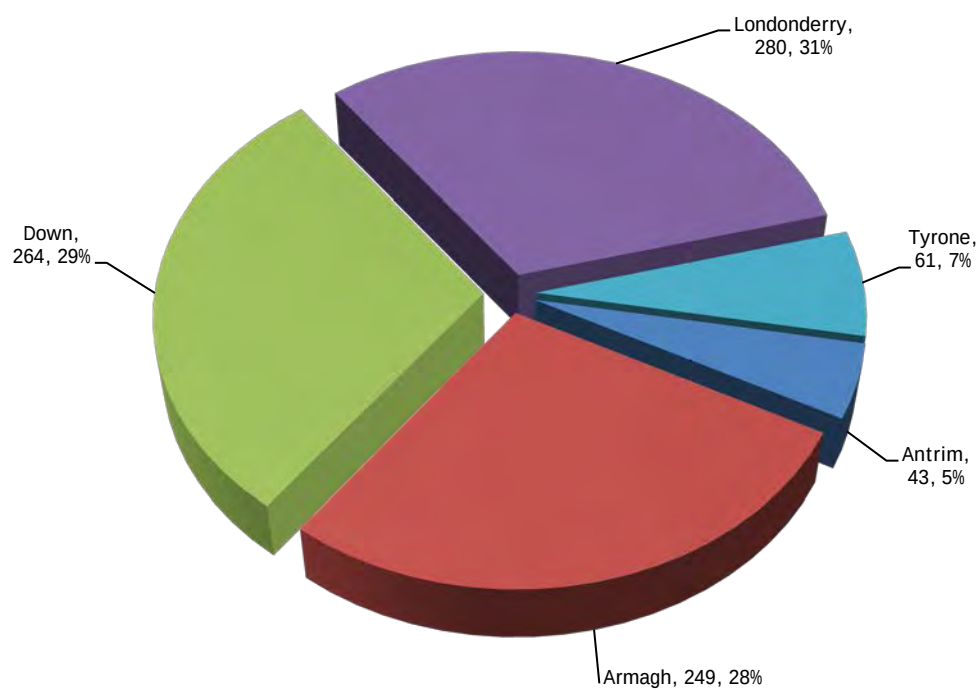


Figure 9: Regional distribution of other arable (oilseed rape, peas & field beans, *Camelina*) crops grown in Northern Ireland (ha), 2012.



## Pesticide usage

Figure 10: Comparison of the areas of arable crops treated in Northern Ireland (spha), 1990 - 2012.

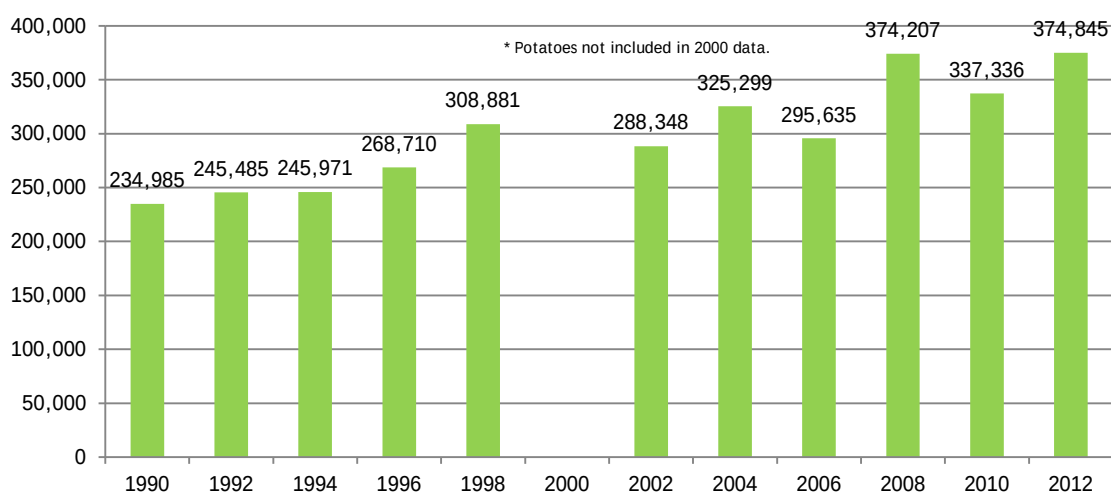


Figure 11: Pesticide usage (spha) on arable crops in Northern Ireland, 2012.

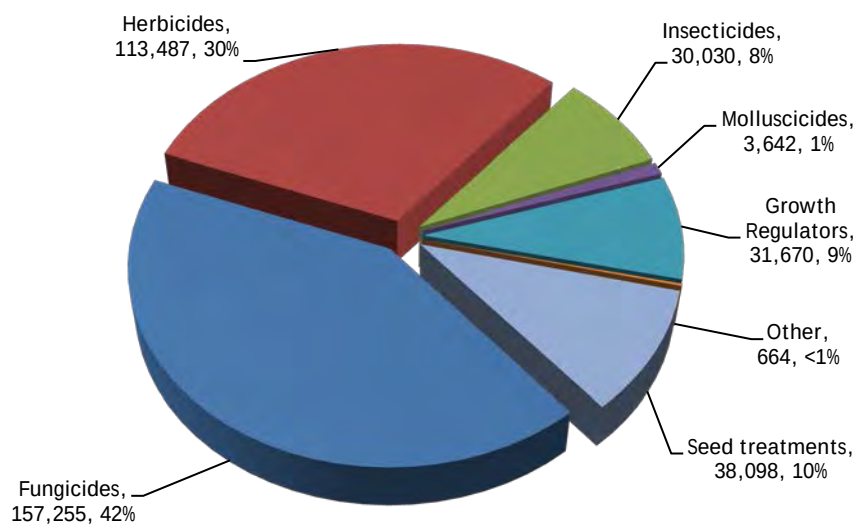


Figure 12: Comparison of the weight of pesticides applied (tonnes) to arable crops in Northern Ireland, 1990 - 2012.

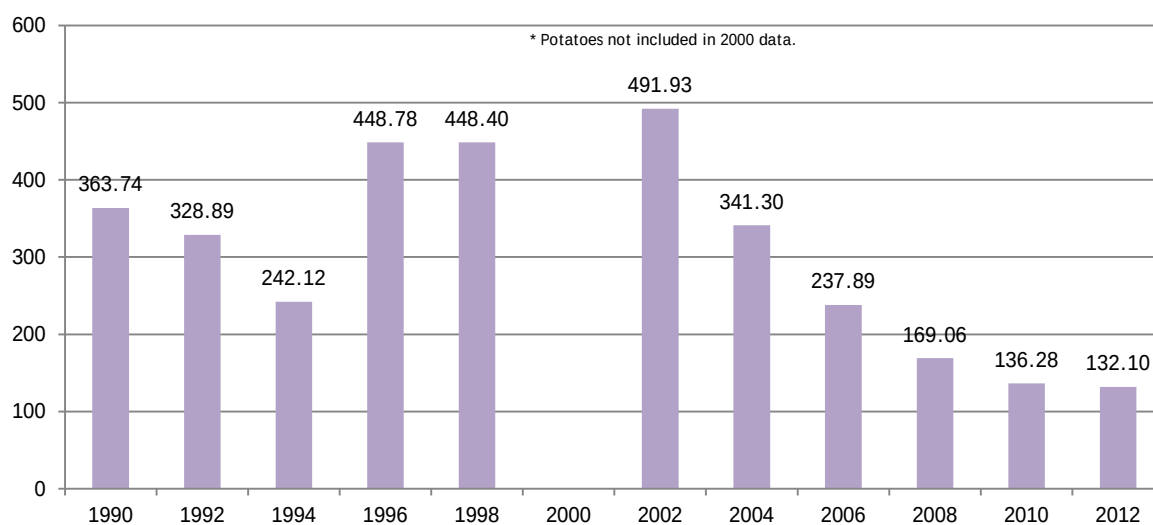


Figure 13: Weight (tonnes) of pesticides applied to arable crops in Northern Ireland, 2012.

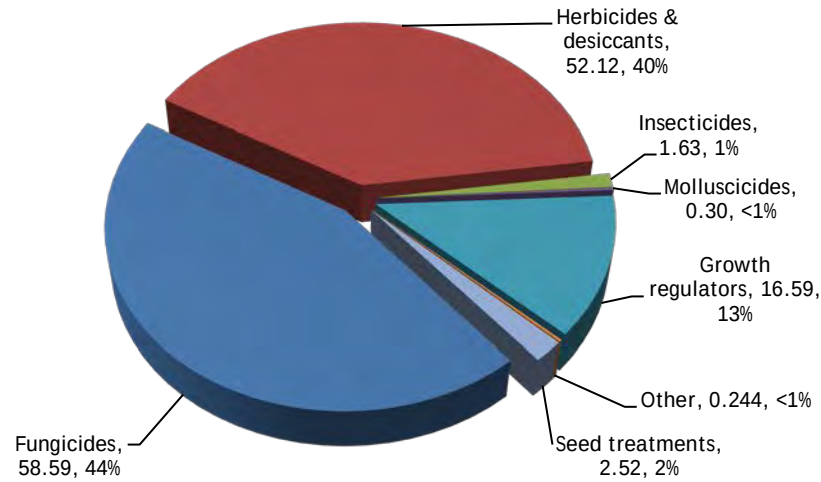


Figure 14: Area (spha) of arable crops treated with each pesticide type in Northern Ireland, 2012, by region.

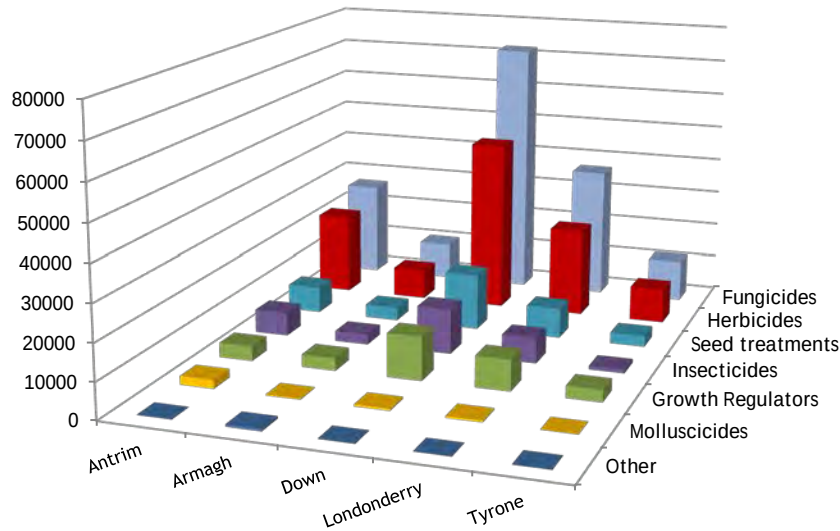


Figure 15: Weight (kg) of each pesticide type applied to arable crops in Northern Ireland, 2012, by region.

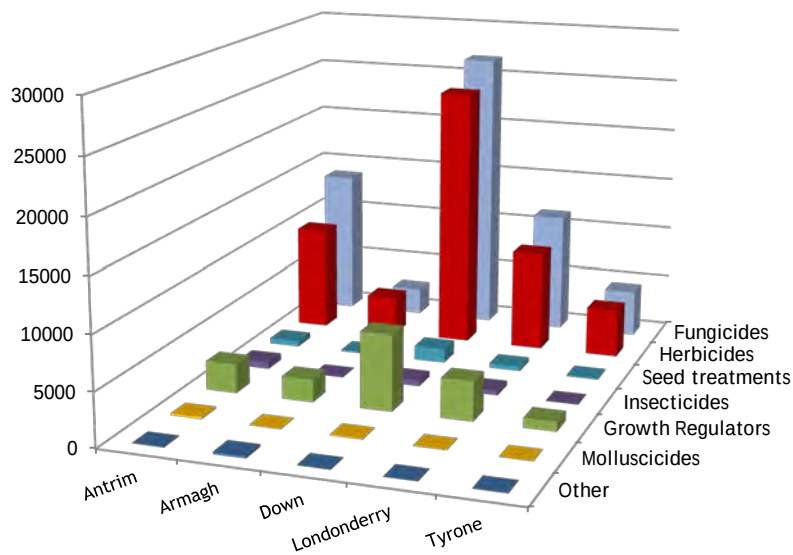




Figure 16: Comparison of the areas of cereal crops treated (spha) in Northern Ireland, 1990 - 2012.

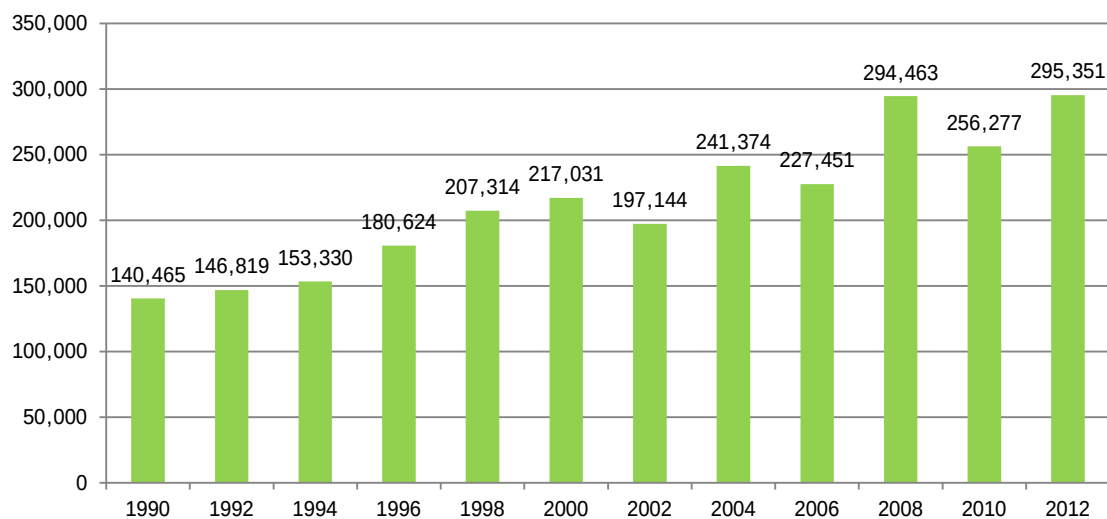


Figure 17: Pesticide usage (spha) on cereal crops in Northern Ireland, 2012.

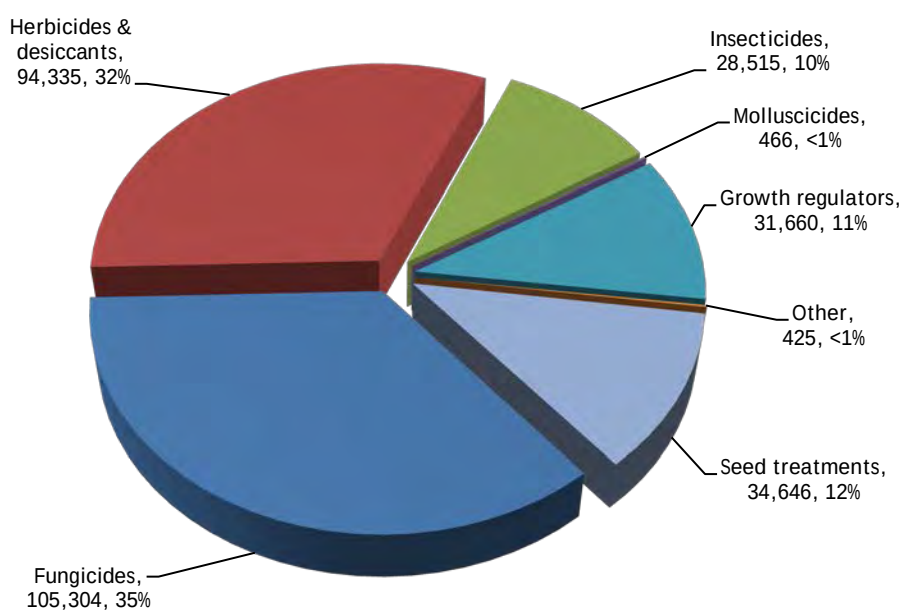


Figure 18: Comparison of the weight of pesticides applied (tonnes) to cereal crops in Northern Ireland, 1990 - 2012.

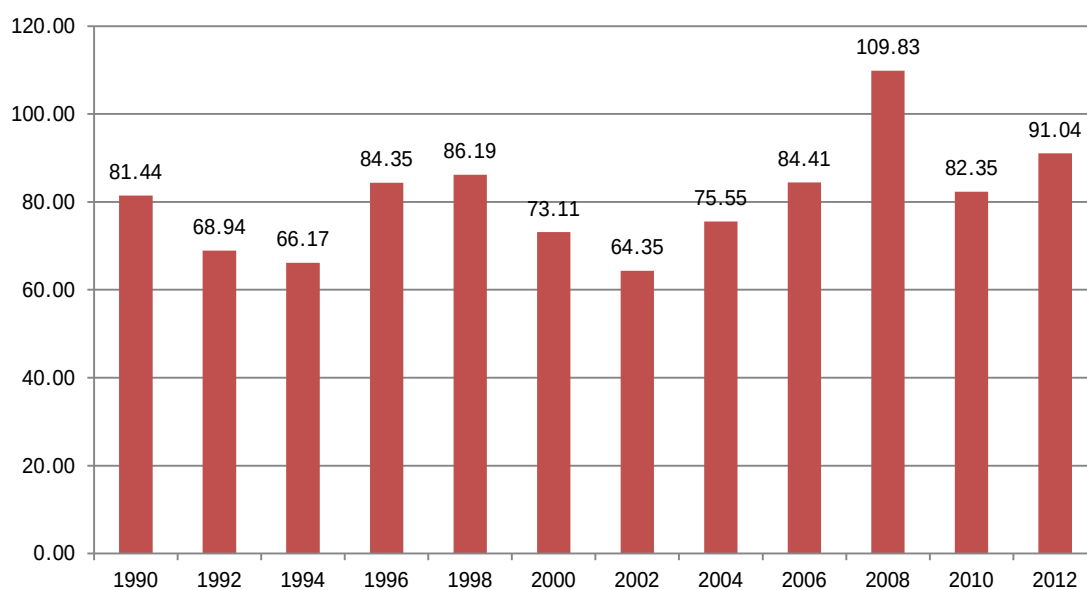


Figure 19: Weight of pesticides (tonnes) applied to cereal crops in Northern Ireland, 2012.

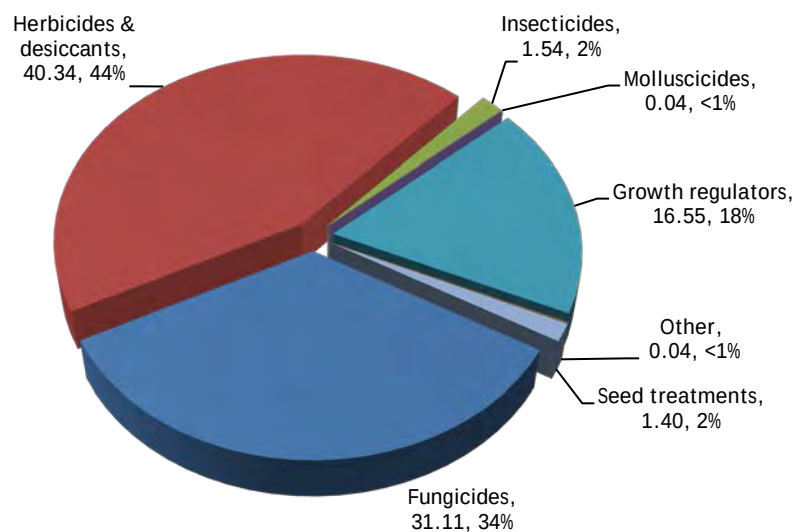


Figure 20: Pesticide usage (spha) on other arable crops in Northern Ireland, 2012.

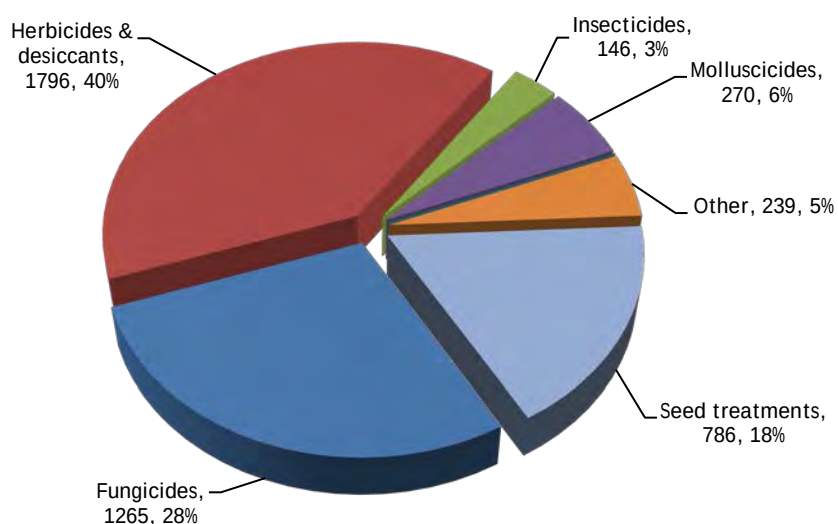


Figure 21: Weight of pesticides (kg) applied to other arable crops in Northern Ireland, 2012.

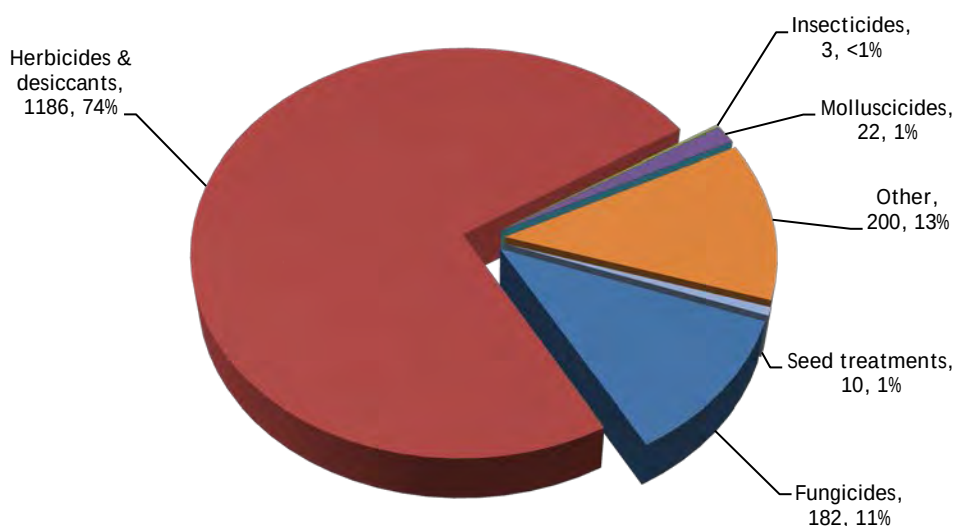


Figure 22: Comparison of the areas of potato crops treated (spha) in Northern Ireland, 1990 - 2012.

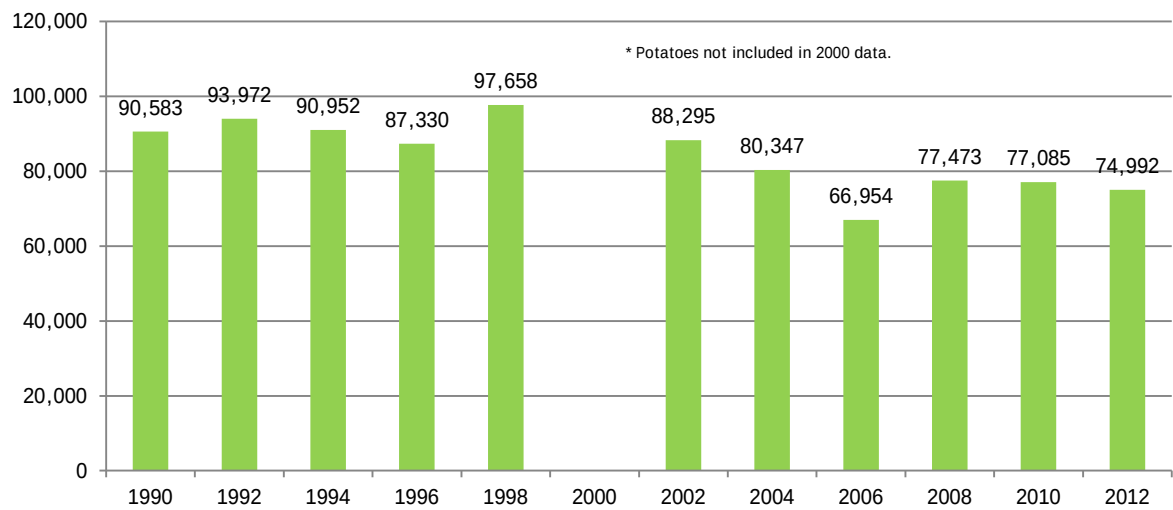


Figure 23: Pesticide usage (spha) on potato crops in Northern Ireland, 2012.

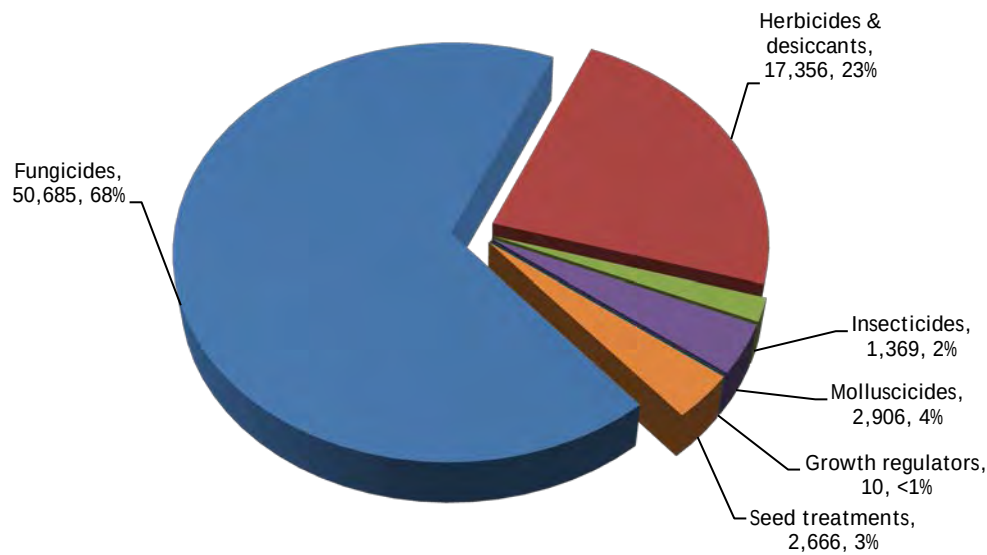


Figure 24: Comparison of the weight of pesticides applied (tonnes) to potato crops in Northern Ireland, 1990 - 2012.

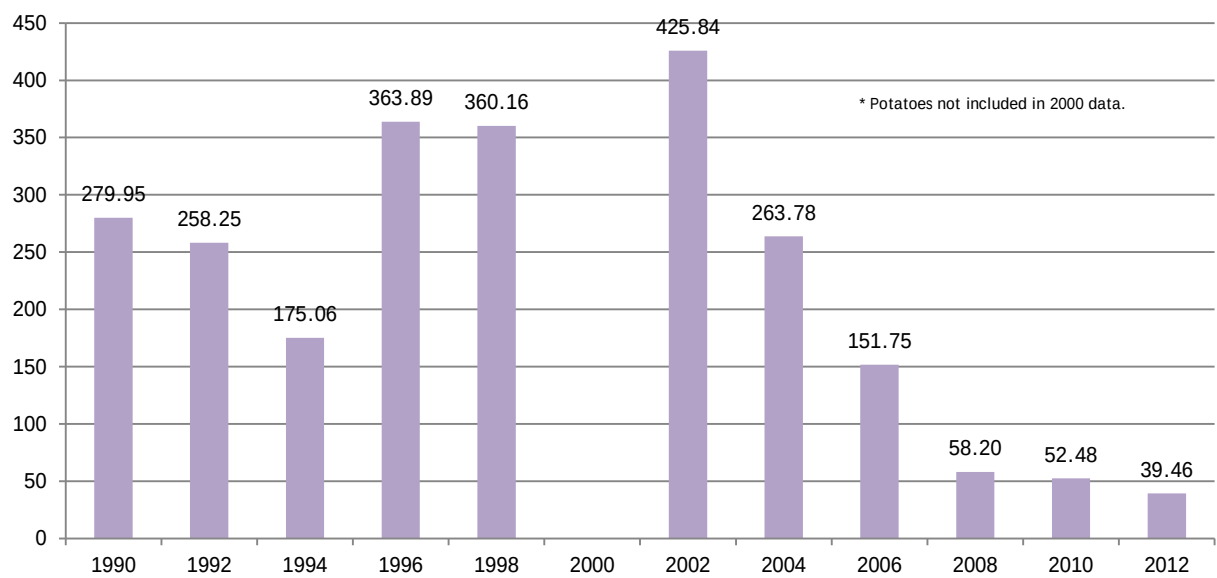
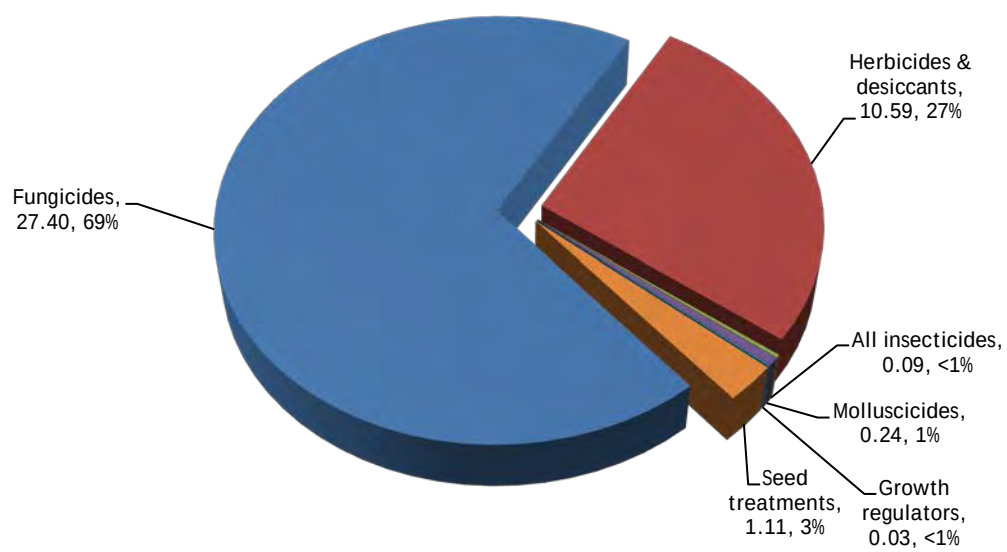


Figure 25: Weight of pesticides (tonnes) applied to potato crops in Northern Ireland,



### Pesticide usage on spring barley:

- 19,702 hectares of spring barley grown in Northern Ireland
- 138,523 treated hectares
- 39,826 kilograms applied
- 99% of the area of spring barley crops grown received a pesticide treatment
- Spring barley received on average 2.32 fungicide, 2.61 herbicide, 1.32 growth regulator and 1.09 insecticide applications

Figure 26: Comparison of the areas of spring barley crops grown in Northern Ireland (ha), 1990 - 2012.

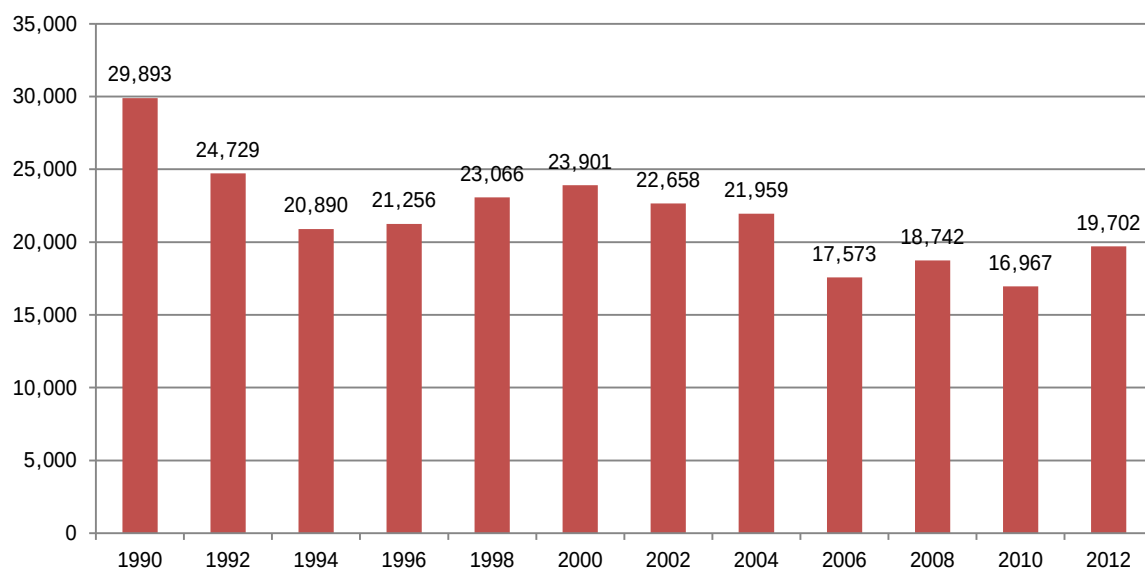


Figure 27: Regional distribution of spring barley crops grown in Northern Ireland (ha), 2012.

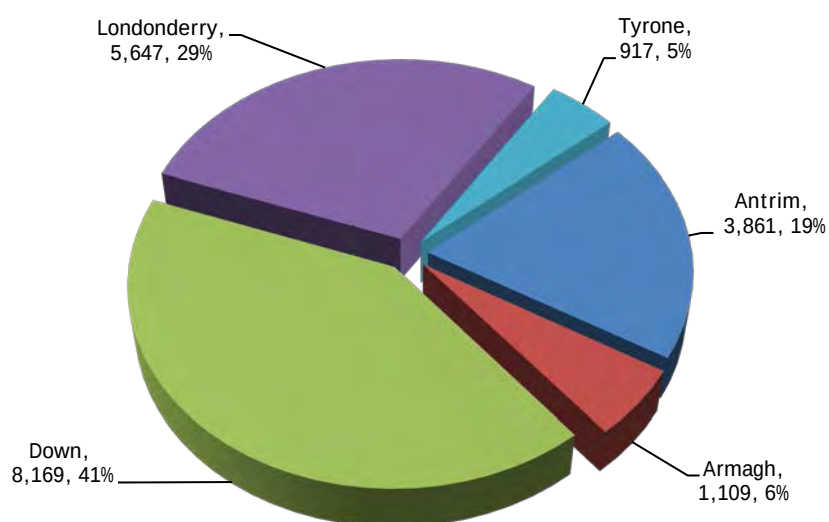


Figure 28: Pesticide usage (spha) on spring barley crops in Northern Ireland, 2012.

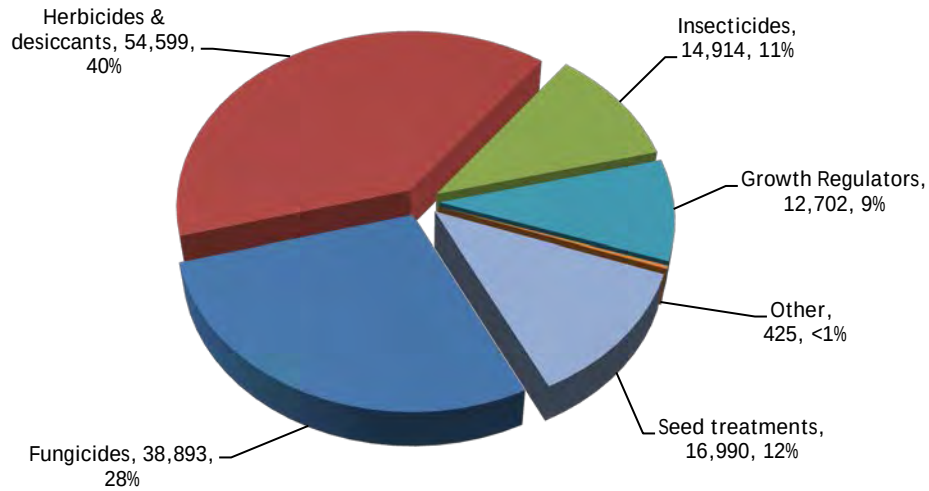


Figure 29: Weight of pesticides (kg) applied to spring barley crops in Northern Ireland, 2012.

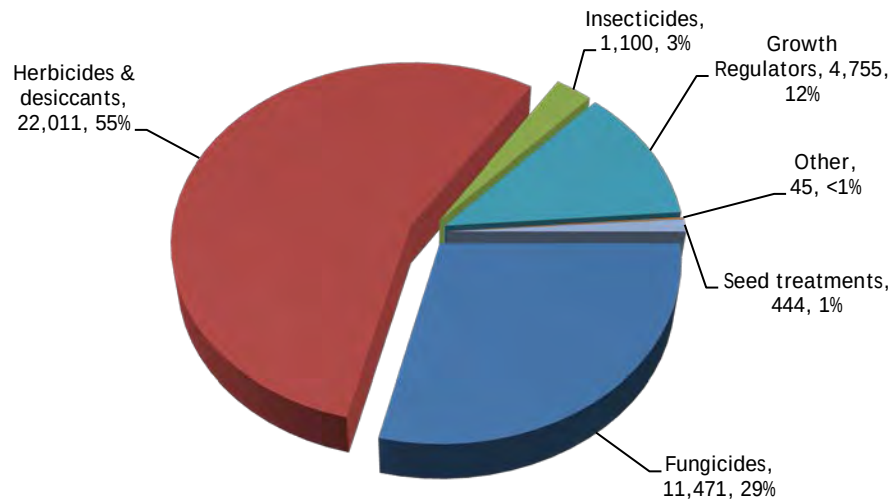
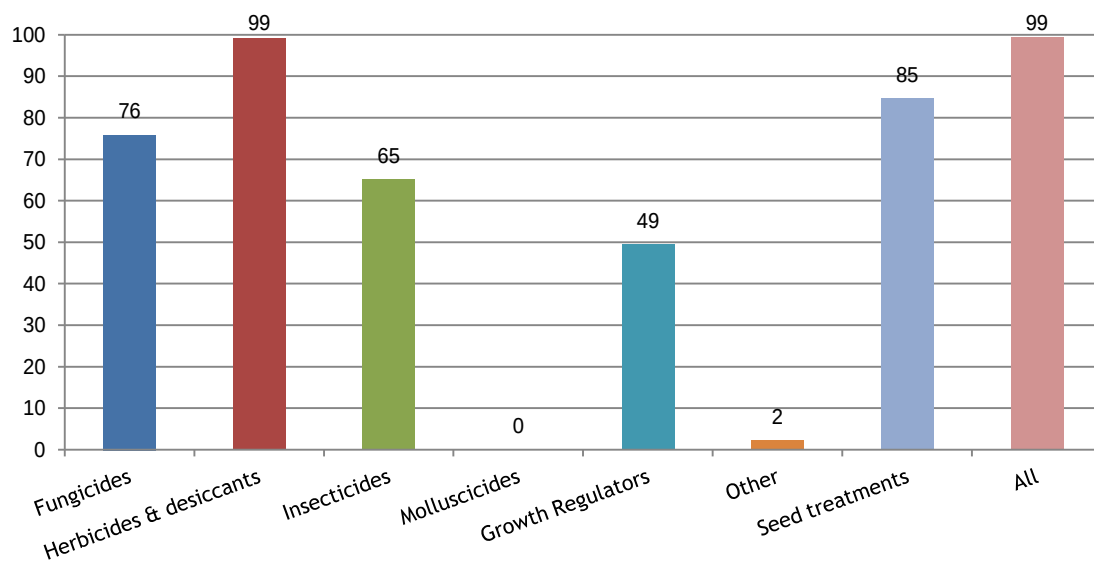


Figure 30: Proportional area (%) of spring barley crops treated with each pesticide group in Northern Ireland, 2012.

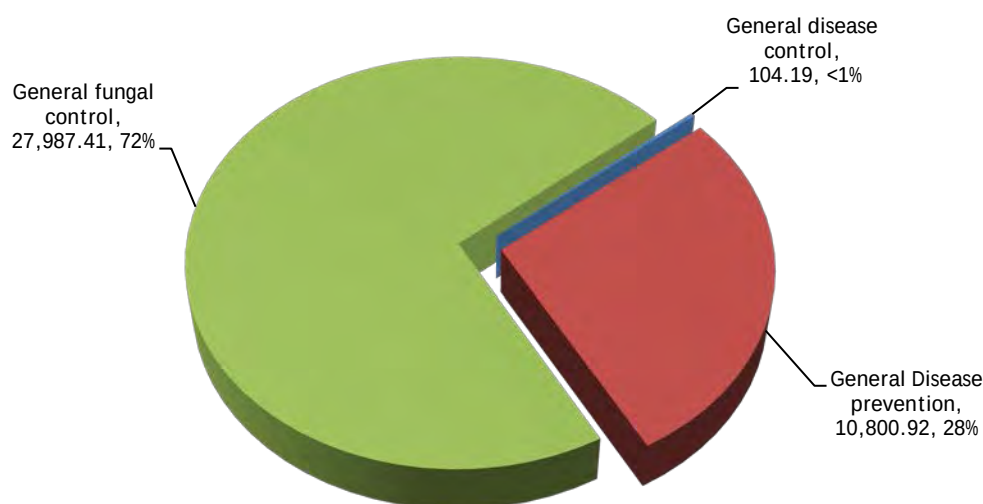


### ***Fungicides - spring barley***

- Basic area treated: 14,942 hectares
- Area treated: 38,893 spray hectares
- Weight of active substances applied: 11,471 kilogrammes
- 76% of the area grown treated with fungicides
- The most commonly applied active substances were:

|                                 | Treated area (spha) | Basic area treated (ha) | Quantity applied (kgs) | % of the treated area |
|---------------------------------|---------------------|-------------------------|------------------------|-----------------------|
| Chlorothalonil                  | 7,594.94            | 6,419.14                | 3,760.15               | 19.53                 |
| Fluoxastrobin/prothioconazole   | 3,591.81            | 3,168.49                | 597.74                 | 9.24                  |
| Prothioconazole/trifloxystrobin | 3,412.52            | 2,947.73                | 595.30                 | 8.77                  |
| Cyprodinil/isopyrazam           | 3,067.79            | 2,168.06                | 1,078.35               | 7.89                  |
| Prothioconazole                 | 2,246.25            | 1,699.45                | 241.40                 | 5.78                  |

Figure 31: Spring barley: reasons for fungicide use (spha), 2012.

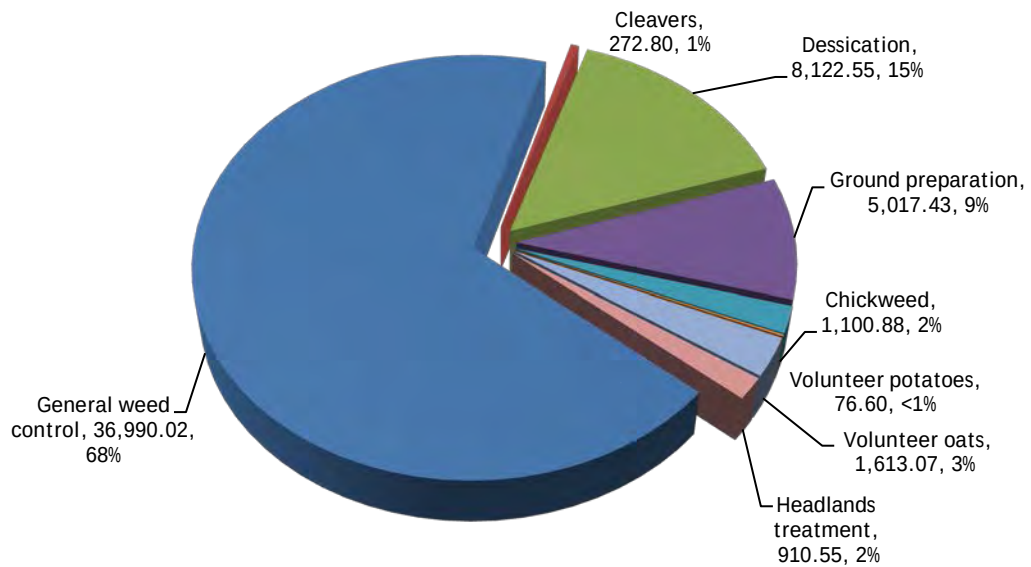


### ***Herbicide & desiccants - spring barley***

- Basic area treated: 19,517 hectares
- Area treated: 54,599 spray hectares
- Weight of active substances applied: 22,011 kilogrammes
- 99% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                                      | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Glyphosate                           | 14,957.87           | 12,657.54               | 10,042.61             | 27.40                 |
| Mecoprop-P                           | 7,987.61            | 7,833.31                | 7,959.66              | 14.63                 |
| Fluroxypyr                           | 6,069.37            | 6,057.48                | 796.43                | 11.12                 |
| Metsulfuron-methyl/tribenuron-methyl | 5,938.78            | 5,911.23                | 63.22                 | 10.88                 |
| Metsulfuron-methyl                   | 5,091.25            | 5,091.25                | 32.21                 | 9.32                  |

Figure 32: Spring barley: reasons for herbicide & desiccant use (spha), 2012.

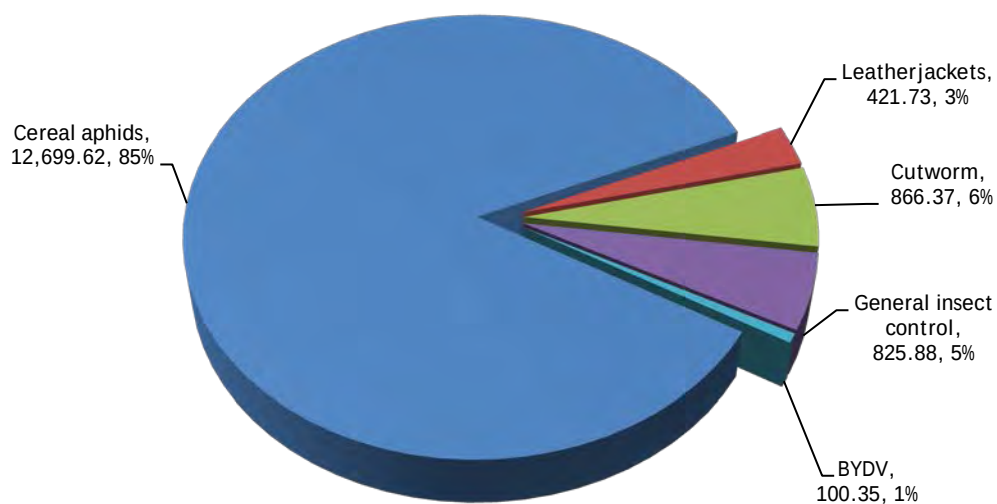


### ***Insecticides - spring barley***

- Basic area treated: 12,835 hectares
- Area treated: 14,914 spray hectares
- Weight of active substances applied: 1,100 kilogrammes
- 65% of the area grown treated with insecticides
- The most commonly applied active substances were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Esfenvalerate      | 7,612.70            | 6,478.07                | 31.03                 | 51.04                 |
| Lambda-cyhalothrin | 3,755.41            | 3,515.11                | 23.98                 | 25.18                 |
| Chlorpyrifos       | 1,774.01            | 1,774.01                | 1,010.97              | 11.89                 |
| Cypermethrin       | 1,198.56            | 841.80                  | 28.05                 | 8.04                  |
| Deltamethrin       | 226.42              | 187.85                  | 0.94                  | 1.52                  |

Figure 33: Spring barley: reasons for insecticide use (spha), 2012.





### ***Growth regulators - spring barley***

- Basic area treated: 9,746 hectares
- Area treated: 12,702 spray hectares
- Weight of active substances applied: 4,755 kilogrammes
- 49% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The most commonly applied active substances were:

|                                            | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Trinexapac-ethyl                           | 5,451.20            | 4,772.43                | 302.66                | 42.92                 |
| Chlormequat                                | 4,894.23            | 4,773.81                | 3,743.95              | 38.53                 |
| 2-chloroethylphosphonic acid               | 2,097.32            | 2,097.32                | 329.98                | 16.51                 |
| Chlormequat with choline chloride          | 221.87              | 221.87                  | 357.76                | 1.75                  |
| Chlormequat / 2-chloroethylphosphonic acid | 37.63               | 37.63                   | 20.32                 | 0.30                  |

### ***Seed treatments - spring barley***

- Area treated: 16,684 hectares
- Weight of active substances applied: 444 kilogrammes
- 85% of the area grown was sown with treated seed
- The most commonly applied active substances were:

|                            | Treated area (ha) | Quantity applied (kgs) | % of the treated area |
|----------------------------|-------------------|------------------------|-----------------------|
| Fludioxonil                | 6,547.78          | 58.85                  | 38.54                 |
| Prochloraz / triticonazole | 6,402.78          | 205.77                 | 37.69                 |
| Fludioxonil / flutriafol   | 2,107.30          | 34.34                  | 12.40                 |
| Unknown seed treatment     | 476.53            | .                      | 2.80                  |
| Carboxin / thiram          | 386.71            | 83.57                  | 2.28                  |

### Pesticide usage on undersown barley:

- 508 hectares of undersown barley grown in Northern Ireland
- 1,382 treated hectares
- 592 kilogrammes applied
- 100% of the area of undersown barley crops grown received a pesticide treatment
- Spring barley received on average 1.45 fungicide, 1.17 herbicide, 1 insecticide and 1 growth regulator applications

Figure 34: Comparison of the areas of undersown barley crops grown in Northern Ireland (ha), 1990 - 2012.

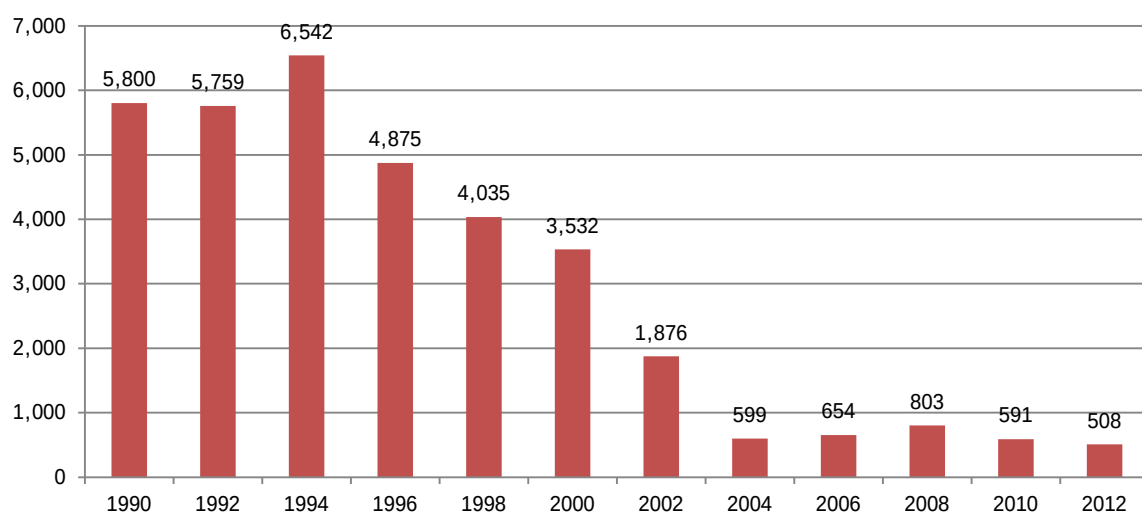


Figure 35: Regional distribution of undersown barley crops grown in Northern Ireland (ha), 2012.

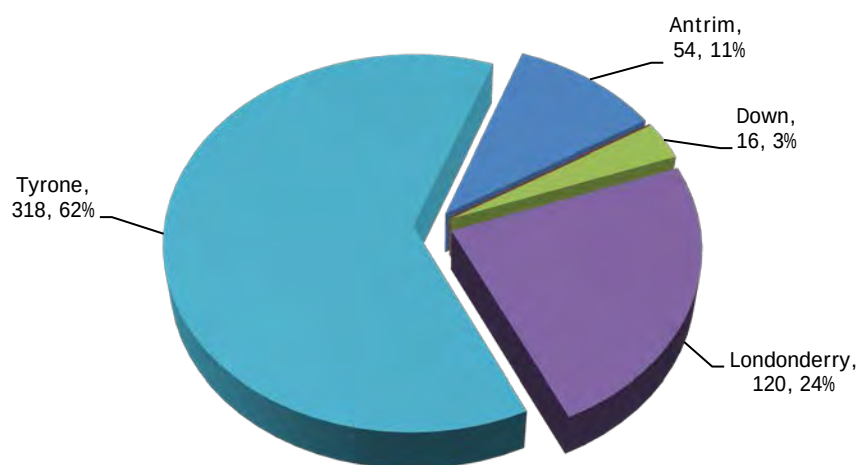


Figure 36: Pesticide usage (spha) on undersown barley crops in Northern Ireland, 2012.

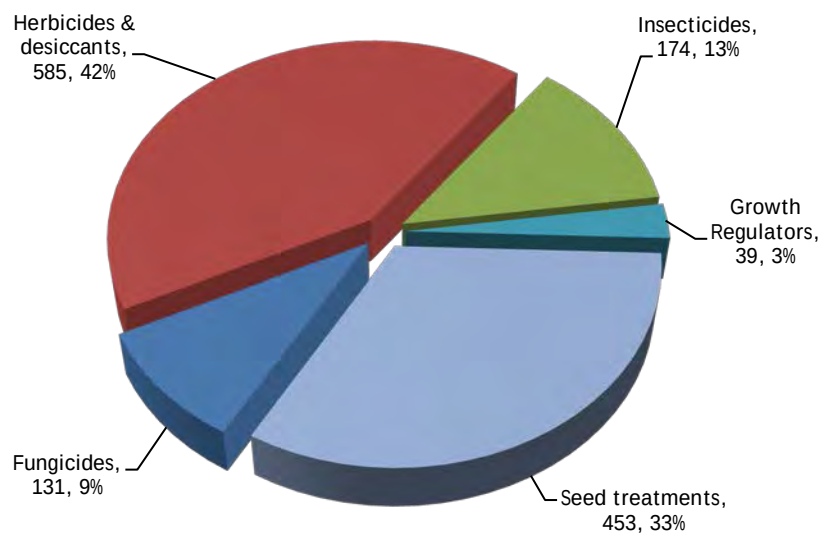


Figure 37: Weight of pesticides (kg) applied to undersown barley crops in Northern Ireland, 2012.

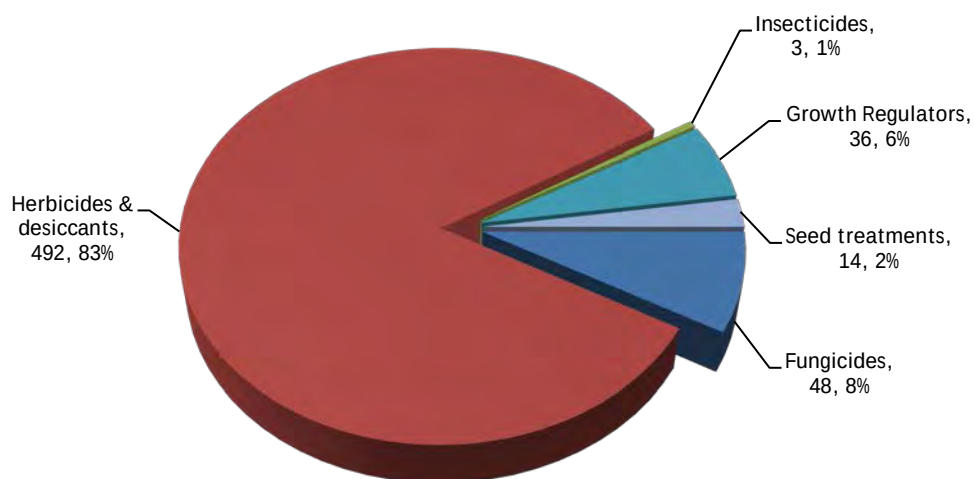
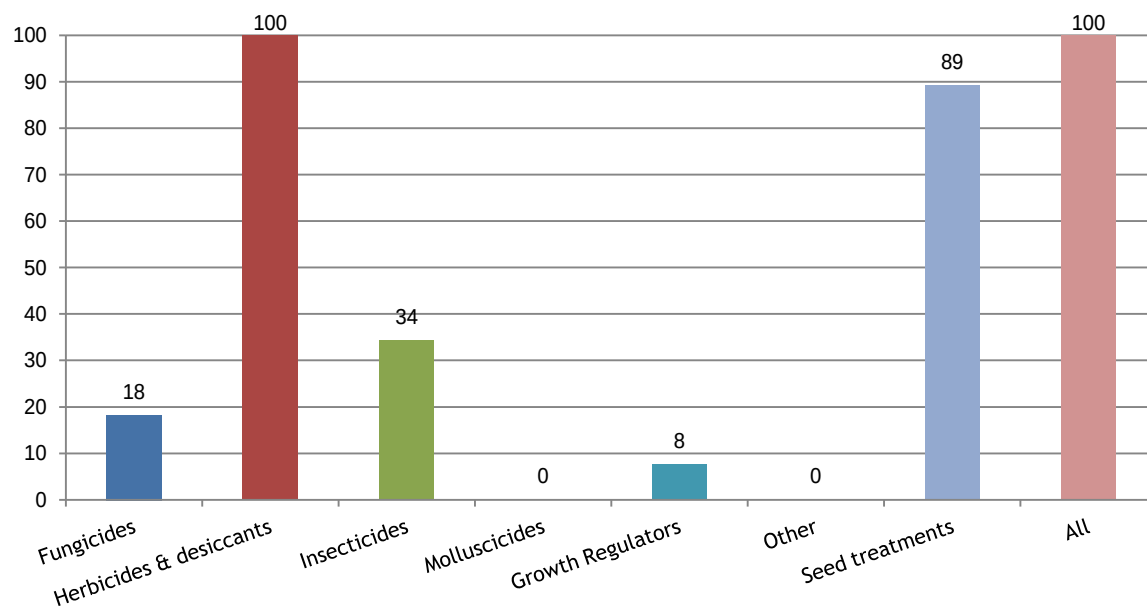


Figure 38: Proportional area (%) of undersown barley crops treated with each pesticide group in Northern Ireland, 2012.



### ***Fungicides - undersown barley***

- Basic area treated: 93 hectares
- Area treated: 131 spray hectares
- Weight of active substances applied: 48 kilogrammes
- 18% of the area grown were treated with fungicide
- All applications were for disease prevention
- The most commonly applied active substances were:

|                              | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Boscalid/epoxiconazole       | 53.95               | 53.95                   | 18.99                 | 41.07                 |
| Chlorothalonil               | 38.70               | 38.70                   | 19.35                 | 29.46                 |
| Prothioconazole/tebuconazole | 38.70               | 38.70                   | 9.68                  | 29.46                 |

### ***Herbicides & desiccants - undersown barley***

- Basic area treated: 508 hectares
- Area treated: 585 spray hectares
- Weight of active substances applied: 492 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- All applications were for general weed control
- The most commonly applied active substances were:

|                     | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|---------------------|---------------------|-------------------------|-----------------------|-----------------------|
| 2,4-DB/linuron/MCPA | 453.63              | 453.63                  | 444.56                | 77.55                 |
| Tribenuron-methyl   | 76.87               | 76.87                   | 0.38                  | 13.14                 |
| 2,4-DB              | 38.17               | 38.17                   | 34.35                 | 6.53                  |
| Mecoprop-P          | 16.29               | 16.29                   | 12.22                 | 2.78                  |

### ***Insecticides - undersown barley***

- Basic area treated: 174 hectares
- Area treated: 174 spray hectares
- Weight of active substances applied: 3 kilogrammes
- 34% of the area grown treated with insecticides
- All applications were to control aphids
- The most commonly applied active substances were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kgs) | % of the treated area |
|--------------------|---------------------|-------------------------|------------------------|-----------------------|
| Esfenvalerate      | 97.15               | 97.15                   | 0.35                   | 55.83                 |
| Cypermethrin       | 38.70               | 38.70                   | 0.63                   | 22.24                 |
| Lambda-cyhalothrin | 38.17               | 38.17                   | 1.91                   | 21.93                 |

***Growth regulators - undersown barley***

- Basic area treated: 39 hectares
- Area treated: 39 spray hectares
- Weight of active substances applied: 36 kilogrammes
- 8% of the area grown treated with growth regulators
- All reasons for use were given as growth regulation
- The most commonly applied active substances were:

|             | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-------------|---------------------|-------------------------|-----------------------|-----------------------|
| Chlormequat | 38.70               | 38.70                   | 35.85                 | 100.00                |

***Seed treatments - undersown barley***

- Area treated: 453 hectares
- Weight of active substances applied: 14 kilogrammes
- 89% of the area grown was sown with treated seed
- The most commonly applied active substances were:

|                          | Treated area (ha) | Quantity applied (kgs) | % of the treated area |
|--------------------------|-------------------|------------------------|-----------------------|
| Prochloraz/triticonazole | 453.10            | 13.52                  | 100                   |

### Pesticide usage on winter barley:

- 5,323 hectares of winter barley grown in Northern Ireland
- 46,642 treated hectares
- 17,056 kilogrammes applied
- 100% of the area of winter barley crops grown received a pesticide treatment
- Winter barley received on average 3.44 fungicide, 2.47 herbicide, 1.47 growth regulator, 1.25 insecticide and 1 molluscicide applications.

Figure 39: Comparison of the areas of winter barley crops grown in Northern Ireland (ha), 1990 - 2012.

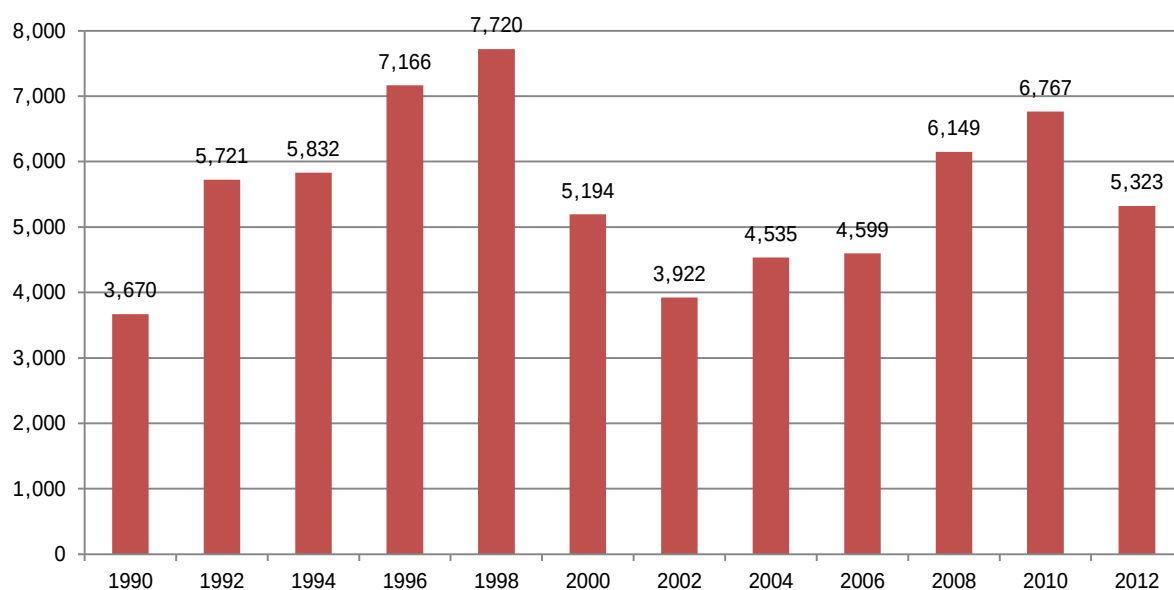


Figure 40: Regional distribution of winter barley crops grown in Northern Ireland (ha), 2012.

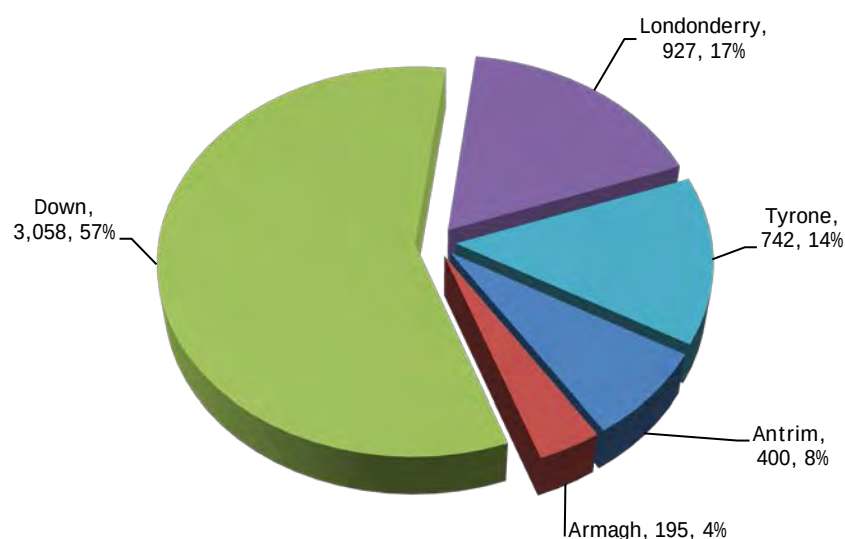


Figure 41: Pesticide usage (spha) on winter barley crops in Northern Ireland, 2012.

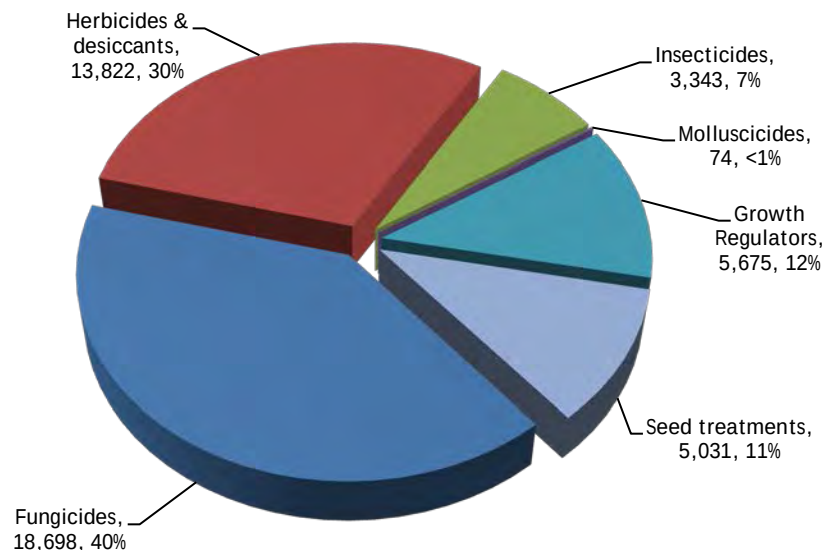


Figure 42: Weight of pesticides (kg) applied to winter barley crops in Northern Ireland, 2012.

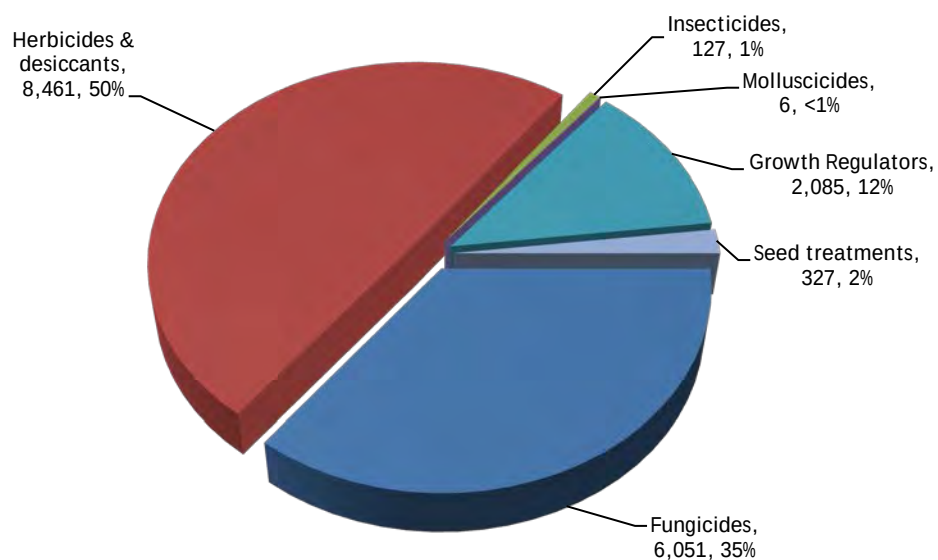
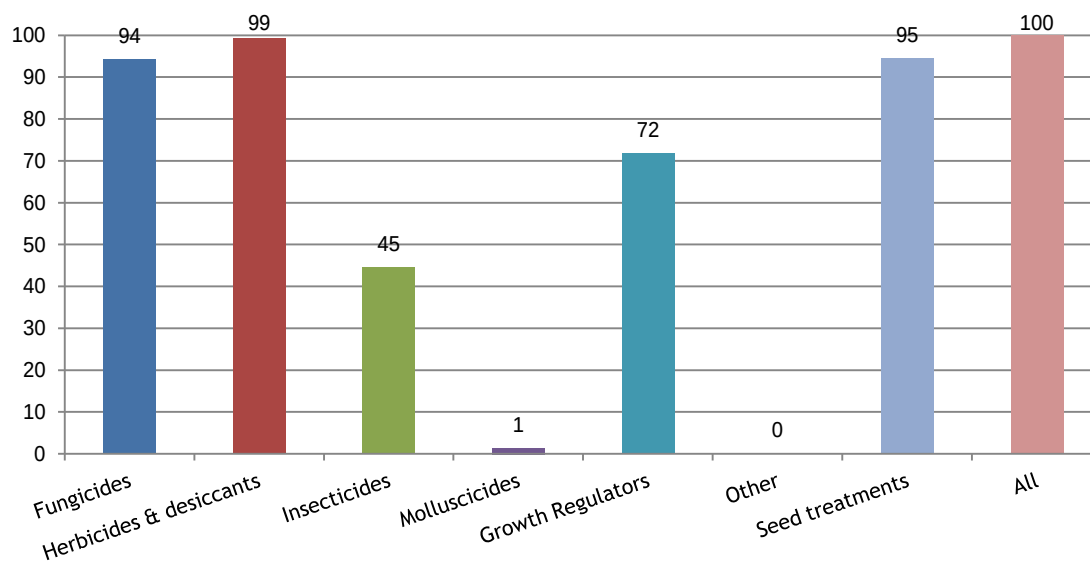


Figure 43: Proportional area (%) of winter barley crops treated with each pesticide group in Northern Ireland, 2012.

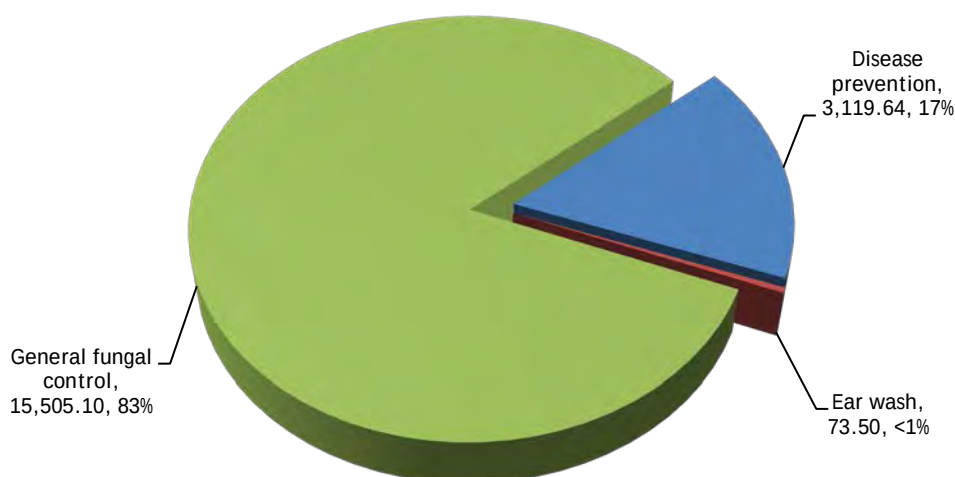


### ***Fungicides - winter barley***

- Basic area treated: 5,017 hectares
- Area treated: 18,698 spray hectares
- Weight of active substances applied: 6,051 kilogrammes
- 94% of the area grown treated with fungicides
- The most commonly applied active substances were:

|                                  | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|----------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Chlorothalonil                   | 3,676.38            | 2,752.64                | 1,757.02              | 19.66                 |
| Cyprodinil/isopyrazam            | 2,343.49            | 1,434.76                | 824.43                | 12.53                 |
| Prothioconazole                  | 1,385.59            | 1,061.54                | 199.31                | 7.41                  |
| Prothioconazole/ trifloxystrobin | 1,280.05            | 979.40                  | 216.19                | 6.85                  |
| Chlorothalonil/picoxystrobin     | 1,220.41            | 789.53                  | 892.90                | 6.53                  |

Figure 44: Winter barley: reasons for fungicide use (spha), 2012.



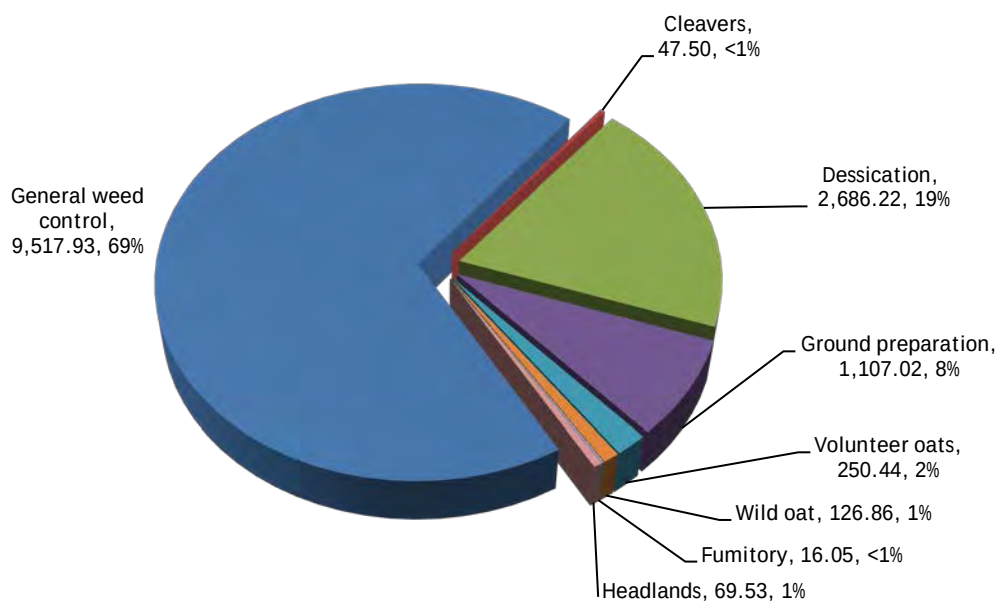
### ***Herbicides & desiccants - winter barley***

- Basic area treated: 5,280 hectares
- Area treated: 13,822 spray hectares
- Weight of active substances applied: 8,461 kilogrammes
- 99% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                            | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|----------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Glyphosate                 | 3,820.26            | 3,279.99                | 2,548.07              | 27.64                 |
| Diflufenican               | 1,313.45            | 1,313.45                | 113.76                | 9.50                  |
| Mecoprop-P                 | 1,010.04            | 889.60                  | 930.49                | 7.31                  |
| Flufenacet/pendimethalin   | 951.80              | 951.80                  | 947.83                | 6.89                  |
| Chlorotoluron/diflufenican | 730.45              | 730.45                  | 1,388.30              | 5.28                  |



Figure 45: Winter barley: reasons for herbicide & desiccant use (spha), 2012.

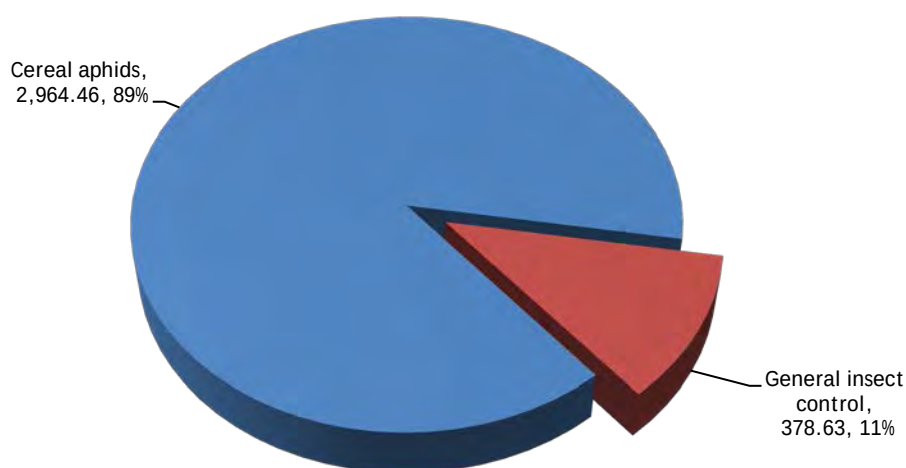


### ***Insecticides - winter barley***

- Basic area treated: 2,374 hectares
- Area treated: 3,343 spray hectares
- Weight of active substances applied: 127 kilogrammes
- 45% of the area sown treated with insecticides
- The most commonly applied active substances were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Esfenvalerate      | 1,542.35            | 1,208.95                | 5.99                  | 46.14                 |
| Lambda-cyhalothrin | 891.04              | 807.65                  | 4.31                  | 26.65                 |
| Cypermethrin       | 612.89              | 231.24                  | 13.54                 | 18.33                 |
| Chlorpyrifos       | 153.66              | 153.66                  | 102.69                | 4.60                  |
| Deltamethrin       | 118.36              | 118.36                  | 0.38                  | 3.54                  |

Figure 46: Winter barley: reasons for insecticide use (spha), 2012.



### **Molluscicides - winter barley**

- Basic area treated: 74 hectares
- Area treated: 74 spray hectares
- Weight of active substances applied: 6 kilogrammes
- 1% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

|            | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|------------|---------------------|-------------------------|-----------------------|-----------------------|
| Methiocarb | 73.50               | 73.50                   | 5.51                  | 100                   |

### **Growth regulators - winter barley**

- Basic area treated: 3,817 hectares
- Area treated: 5,675 spray hectares
- Weight of active substances applied: 2,085 kilogrammes
- 72% of area grown treated with growth regulators
- All applications were for growth regulation
- The most commonly applied active substances were:

|                                        | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|----------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Trinexapac-ethyl                       | 3,120.55            | 2,782.77                | 183.71                | 54.99                 |
| Chlormequat                            | 1,257.59            | 1,257.59                | 1,412.76              | 22.16                 |
| 2-chloroethylphosphonic acid           | 1,004.44            | 1,004.44                | 255.76                | 17.70                 |
| Chlormequat with choline chloride      | 133.72              | 133.72                  | 176.81                | 2.36                  |
| Mepiquat chloride/Prohexadione-calcium | 104.30              | 104.30                  | 18.25                 | 1.84                  |

### **Seed treatments - winter barley**

- Area treated: 5,031 hectares
- Weight of active substances applied: 327 kilogrammes
- 95% of the area grown was sown with treated seed
- The most commonly applied active substances were:

|                                      | Treated area (ha) | Quantity applied (kg) | % of the treated area |
|--------------------------------------|-------------------|-----------------------|-----------------------|
| Clothianidin/prothioconazole         | 2,901.03          | 271.33                | 57.66                 |
| Prochloraz/triticonazole             | 1,000.36          | 26.76                 | 19.88                 |
| Fludioxonil/flutriafol               | 835.49            | 12.88                 | 16.61                 |
| Prothioconazole                      | 173.21            | 3.05                  | 3.44                  |
| Imidacloprid/tebuconazole/triazoxide | 73.50             | 4.73                  | 1.46                  |

### Pesticide usage on spring wheat:

- 1,500 hectares of spring wheat grown in Northern Ireland
- 12,656 treated hectares
- 4,682 kilogrammes applied
- 100% of the area of spring wheat crops grown received a pesticide treatment
- Spring wheat received on average 2.86 fungicide, 2.84 herbicide, 1.03 growth regulator, 1.39 insecticide and 1 molluscicide applications.

Figure 47: Comparison of the areas of spring wheat crops grown in Northern Ireland (ha), 1990 - 2012.

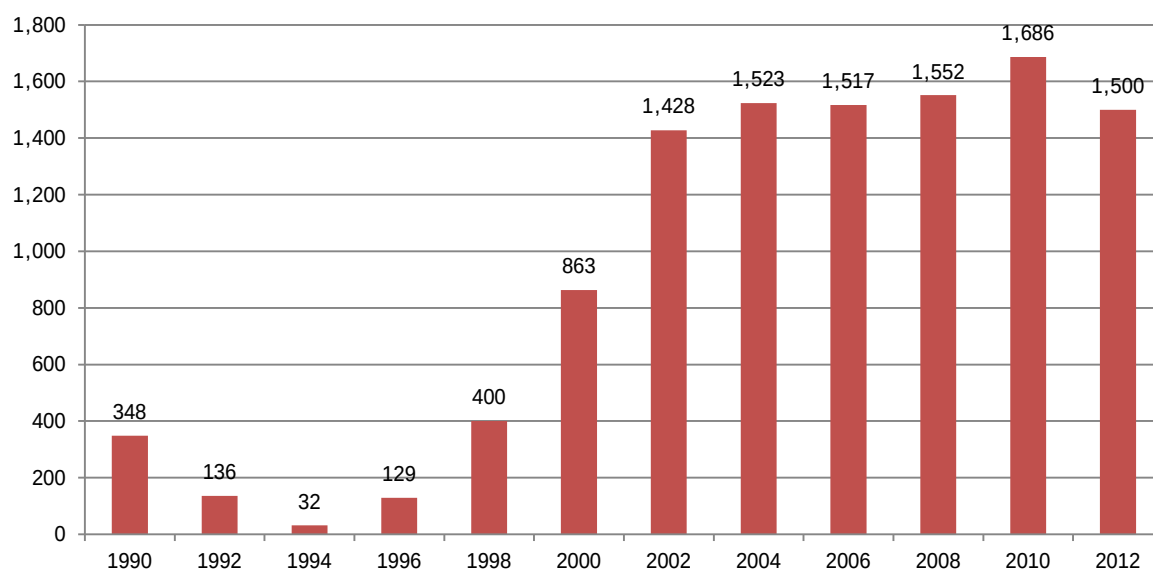


Figure 48: Regional distribution of spring wheat crops grown in Northern Ireland (ha), 2012.

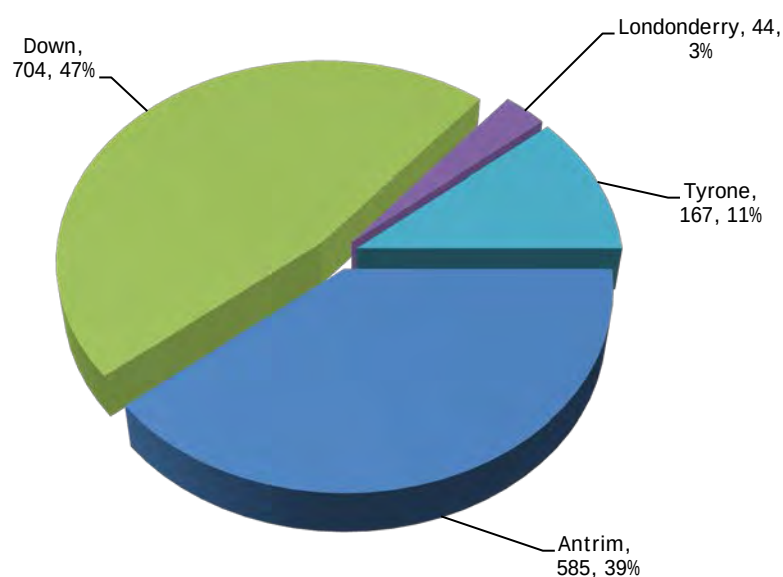


Figure 49: Pesticide usage (spha) on spring wheat crops in Northern Ireland, 2012.

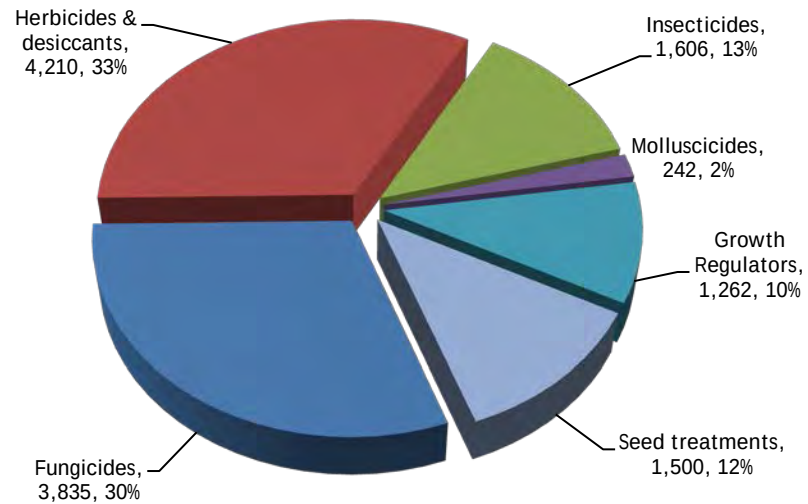


Figure 50: Weight of pesticides (kg) applied to spring wheat crops in Northern Ireland, 2012.

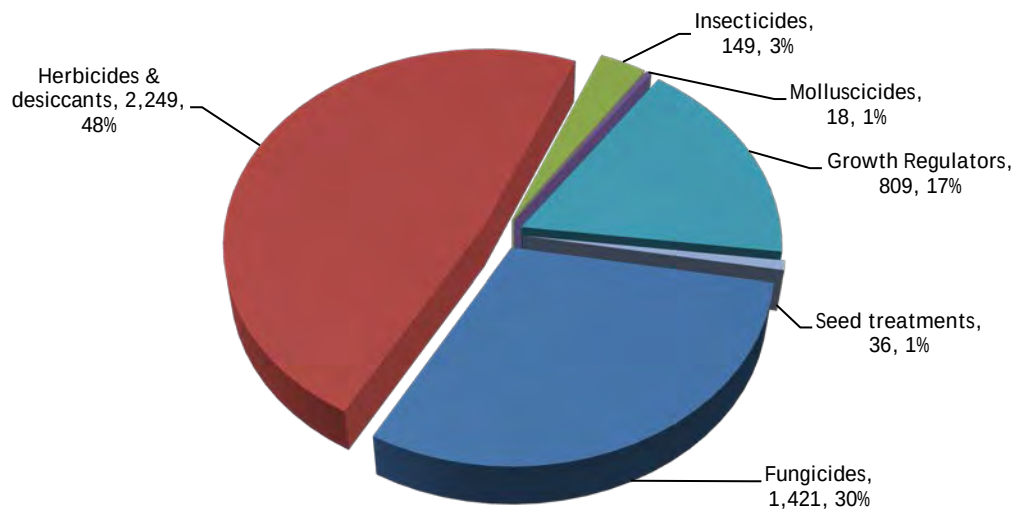
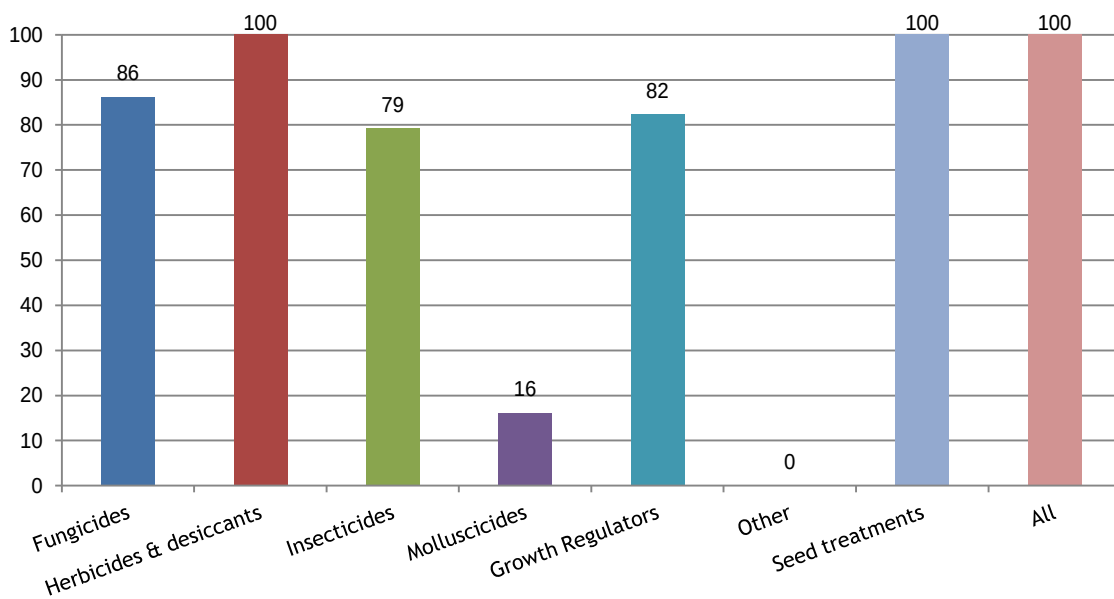


Figure 51: Proportional area (%) of spring wheat crops treated with each pesticide group in Northern Ireland, 2012.

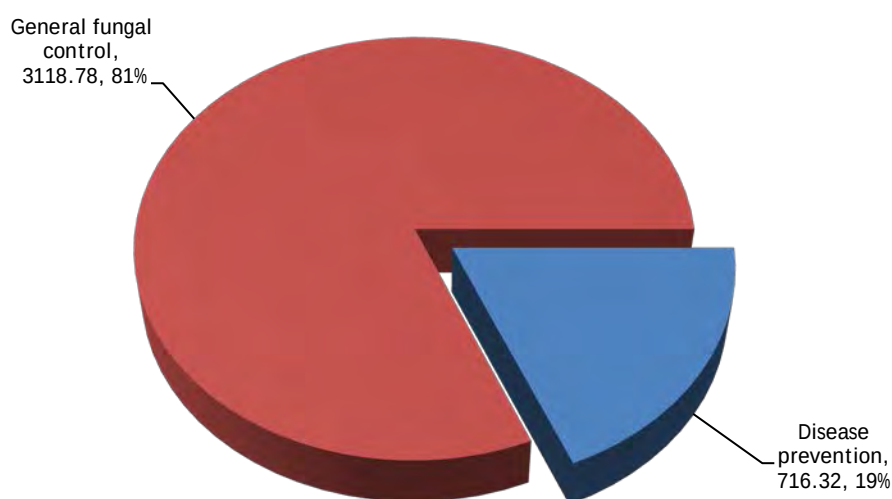


### ***Fungicides - spring wheat***

- Basic area treated: 1,293 hectares
- Area treated: 3,835 spray hectares
- Weight of active substances applied: 1,421 kilogrammes
- 86% of the area grown treated with fungicides
- The most commonly applied active substances were:

|                             | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-----------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Chlorothalonil              | 567.45              | 482.35                  | 291.66                | 14.80                 |
| Azoxystrobin/chlorothalonil | 491.95              | 296.95                  | 529.17                | 12.83                 |
| Epoxiconazole/metconazole   | 474.10              | 279.60                  | 50.33                 | 12.36                 |
| Tebuconazole                | 325.93              | 325.93                  | 58.35                 | 8.50                  |
| Epoxiconazole               | 293.23              | 293.23                  | 26.85                 | 7.65                  |

Figure 52: Spring wheat: reasons for fungicide use (spha), 2012.

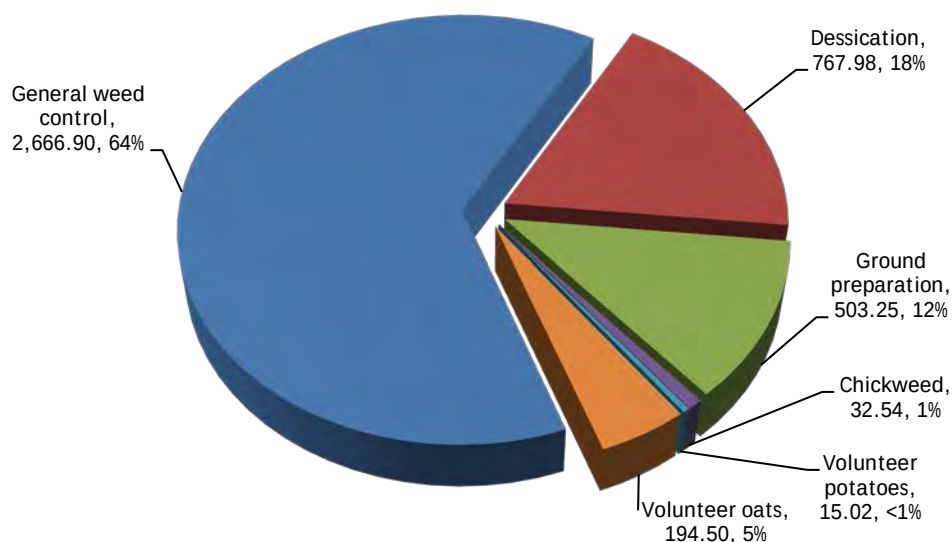


### ***Herbicides & desiccants - spring wheat***

- Basic area treated: 1,500 hectares
- Area treated: 4,210 spray hectares
- Weight of active substances applied: 2,249 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                                      | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Glyphosate                           | 1,301.27            | 1,109.02                | 956.53                | 30.91                 |
| Mecoprop-P                           | 821.96              | 816.26                  | 861.19                | 19.52                 |
| Metsulfuron-methyl/tribenuron-methyl | 520.06              | 520.06                  | 5.77                  | 12.35                 |
| Fluroxypyr                           | 407.93              | 407.93                  | 54.10                 | 9.69                  |
| Bromoxynil/ioxynil                   | 245.07              | 245.07                  | 34.07                 | 5.82                  |

Figure 53: Spring wheat: reasons for herbicide & desiccant use (spha), 2012.

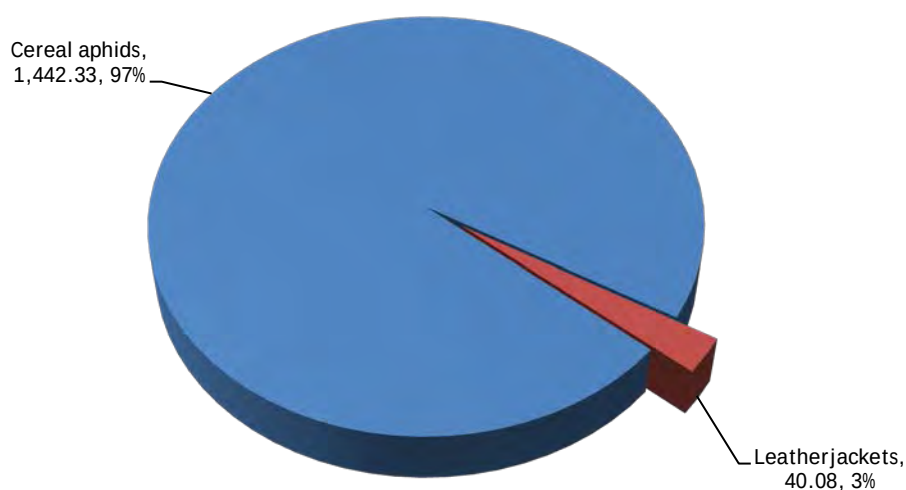


### ***Insecticides - spring wheat***

- Basic area treated: 1,188 hectares
- Area treated: 1,606 spray hectares
- Weight of active substances applied: 149 kilogrammes
- 79% of the area grown treated with insecticides
- The most commonly applied active substances were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Esfenvalerate      | 825.48              | 707.19                  | 3.85                  | 51.41                 |
| Dimethoate         | 264.58              | 264.58                  | 84.67                 | 16.48                 |
| Deltamethrin       | 242.19              | 242.19                  | 2.62                  | 15.08                 |
| Lambda-cyhalothrin | 175.65              | 169.96                  | 0.88                  | 10.94                 |
| Chlorpyrifos       | 97.81               | 68.94                   | 56.57                 | 6.09                  |

Figure 54: Spring wheat: reasons for insecticide use (spha), 2012.



### **Molluscicides - spring wheat**

- Basic area treated: 242 hectares
- Area treated: 242 spray hectares
- Weight of active substances applied: 18 kilogrammes
- 16% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

|            | Treated area<br>(spha) | Basic area treated<br>(ha) | Quantity applied<br>(kg) | % of the treated area |
|------------|------------------------|----------------------------|--------------------------|-----------------------|
| Methiocarb | 242.19                 | 242.19                     | 18.16                    | 100                   |

### **Growth regulators - spring wheat**

- Basic area treated: 1,234 hectares
- Area treated: 1,262 spray hectares
- Weight of active substances applied: 809 kilogrammes
- 82% of the area grown treated with growth regulators
- All applications were for growth regulation
- The active substances applied were:

|                  | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity<br>applied (kg) | % of the treated area |
|------------------|------------------------|----------------------------|--------------------------|-----------------------|
| Chlormequat      | 1233.55                | 1233.55                    | 807.16                   | 97.71                 |
| Trinexapac-ethyl | 28.86                  | 28.86                      | 1.44                     | 2.29                  |

### **Seed treatments - spring wheat**

- Area treated: 1,500 hectares
- Weight of active substances applied: 36 kilogrammes
- 100% of the area grown was sown with treated seed
- The active substances applied were:

|                              | Treated area<br>(ha) | Quantity<br>applied (kg) | % of the treated area |
|------------------------------|----------------------|--------------------------|-----------------------|
| Fludioxonil                  | 1,160.49             | 10.68                    | 77.36                 |
| Prochloraz/triticonazole     | 237.09               | 6.88                     | 15.80                 |
| Carboxin/thiram              | 70.08                | 14.53                    | 4.67                  |
| Clothianidin/prothioconazole | 32.54                | 4.14                     | 2.17                  |

### Pesticide usage on undersown wheat:

- 48 hectares of undersown wheat grown in Northern Ireland
- 96 treated hectares
- 0.42 kilogrammes applied
- 100% of the area of undersown wheat crops grown received a pesticide treatment
- Undersown wheat received on average 1.0 herbicide application.

Figure 55: Comparison of the areas of undersown wheat crops grown in Northern Ireland (ha), 1990 – 2012.

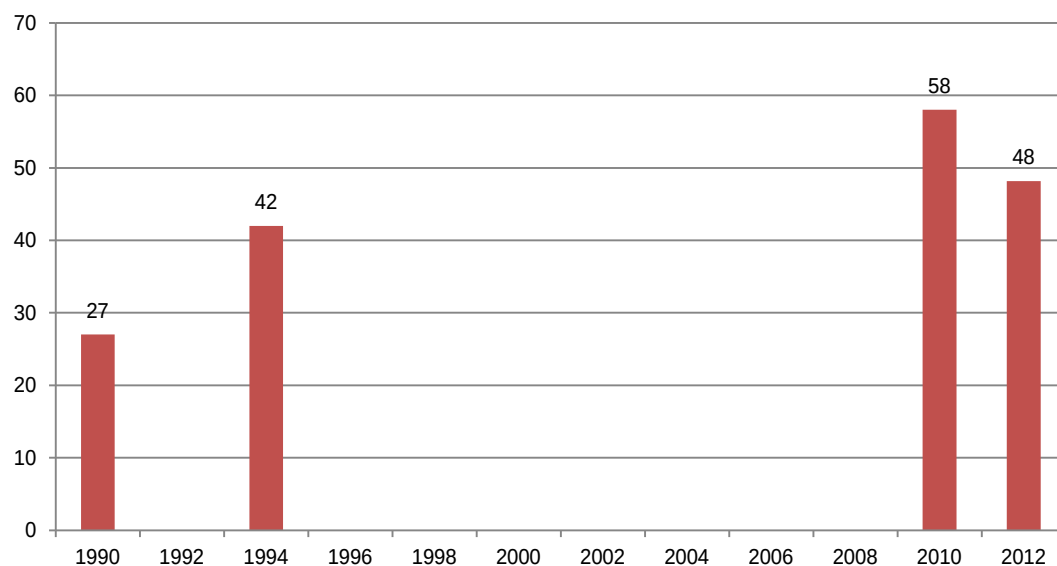


Figure 56: Regional distribution of undersown wheat crops grown in Northern Ireland (ha), 2010.

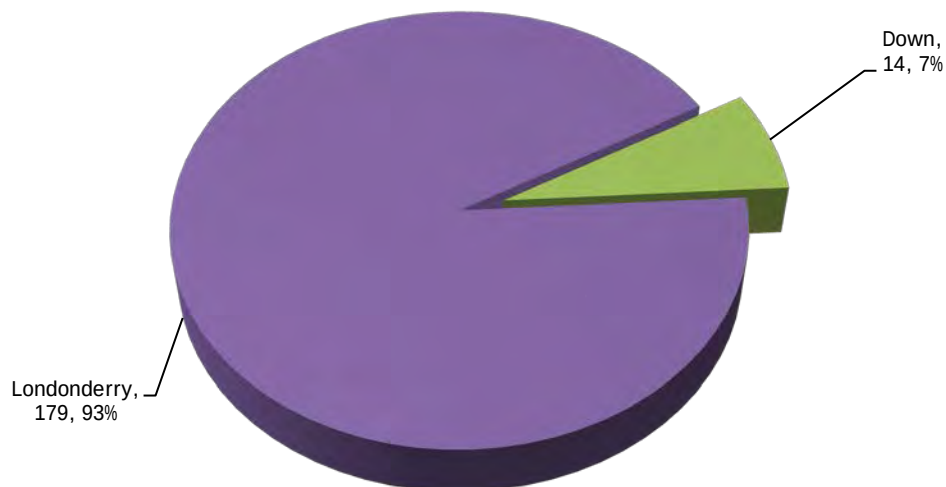




Figure 57: Pesticide usage (spha) on undersown wheat crops in Northern Ireland, 2012.

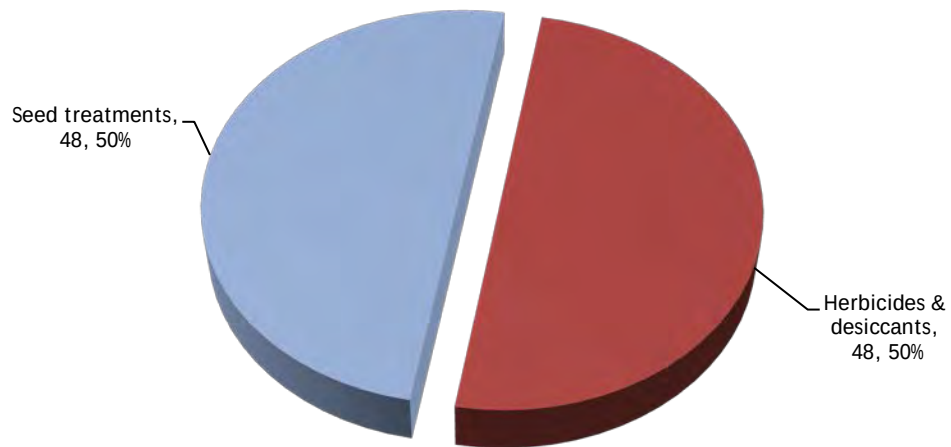


Figure 58: Weight of pesticides (kg) applied to undersown wheat crops in Northern Ireland, 2012.

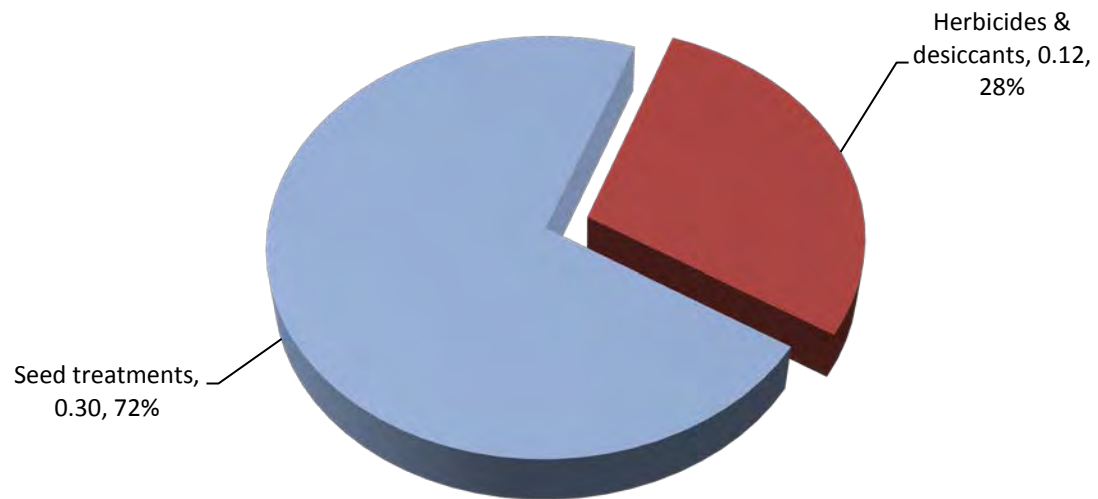
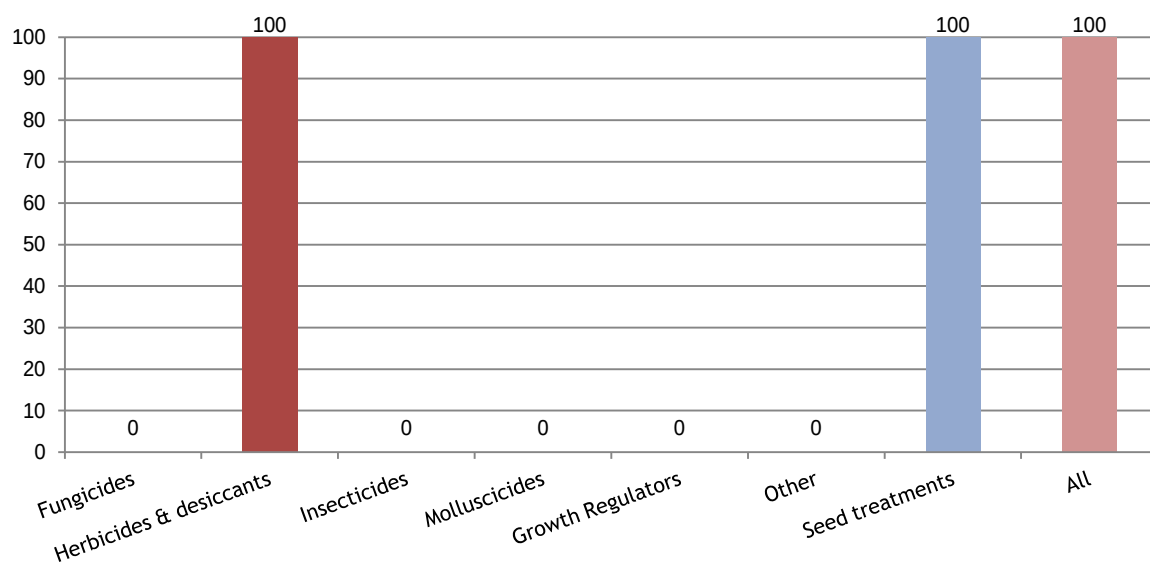


Figure 59: Proportional area (%) of undersown wheat crops treated with each pesticide group in Northern Ireland, 2012.



***Herbicides & desiccants - undersown wheat***

- Basic area treated: 48 hectares
- Area treated: 148 spray hectares
- Weight of active substances applied: 0.12 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- All applications were for general weed control
- The most commonly applied active substances were:

|                   | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity<br>applied (kg) | % of the treated area |
|-------------------|------------------------|----------------------------|--------------------------|-----------------------|
| Tribenuron-methyl | 48.19                  | 48.19                      | 0.12                     | 100.00                |

***Seed treatments - undersown wheat***

- Area treated: 48 hectares
- Weight of active substances applied: 0.30 kilogrammes
- 100% of the area grown was sown with treated seed
- The only active substance applied was:

|             | Treated area (ha) | Quantity applied (kg) | % of the treated area |
|-------------|-------------------|-----------------------|-----------------------|
| Fludioxonil | 48.19             | 0.30                  | 100                   |

### Pesticide usage on winter wheat:

- 7,846 hectares of winter wheat grown in Northern Ireland
- 87,110 treated hectares
- 26,535 kilogrammes applied
- 100% of the area of winter wheat crops grown received a pesticide treatment
- Winter wheat received on average 4.63 fungicide, 2.54 herbicide, 1.47 insecticide, 1 molluscicide and 1.56 growth regulator applications.

Figure 60: Comparison of the areas of winter wheat crops grown in Northern Ireland (ha), 1990 – 2012.

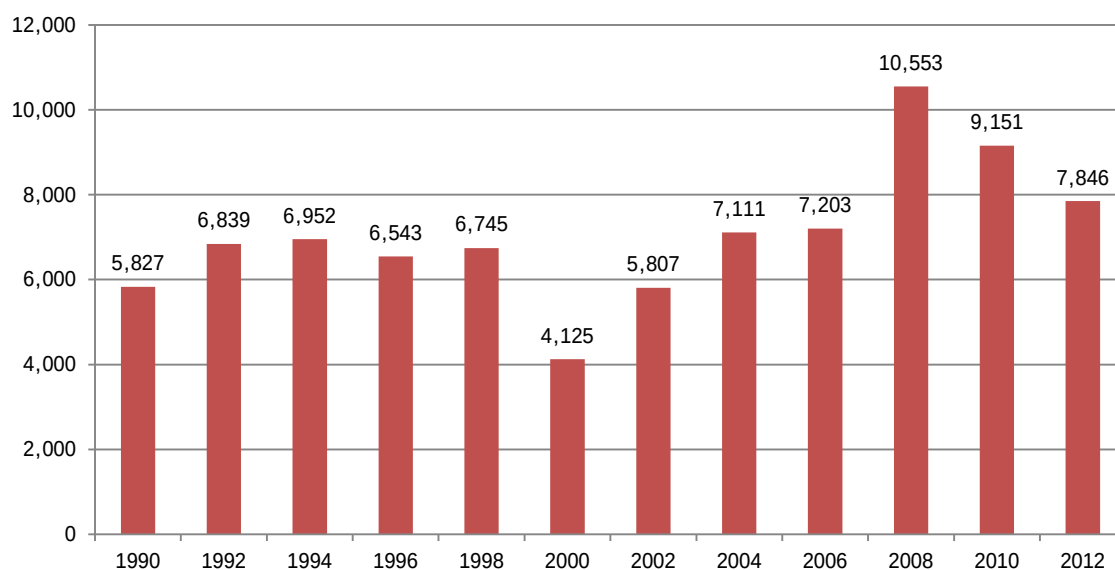


Figure 61: Regional distribution of winter wheat crops grown in Northern Ireland (ha), 2012.

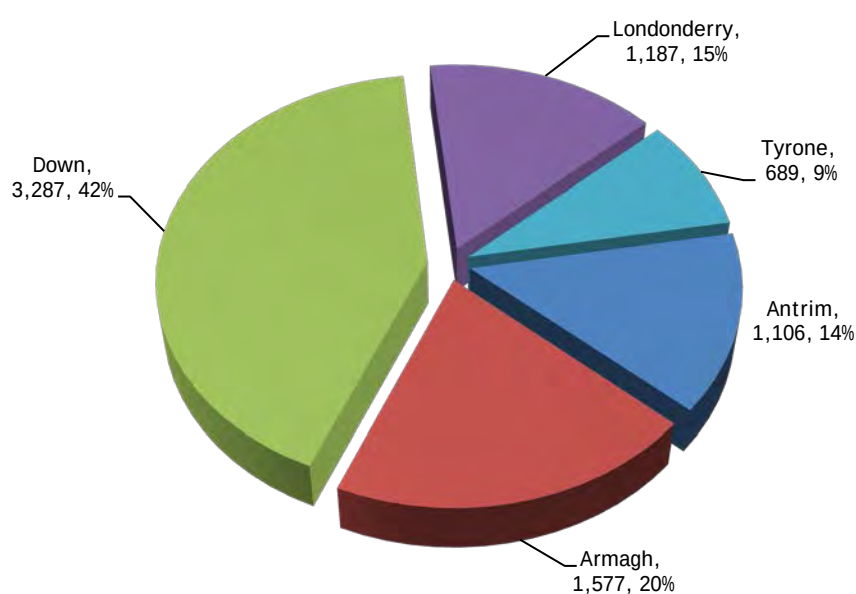


Figure 62: Pesticide usage (spha) on winter wheat crops in Northern Ireland, 2012.

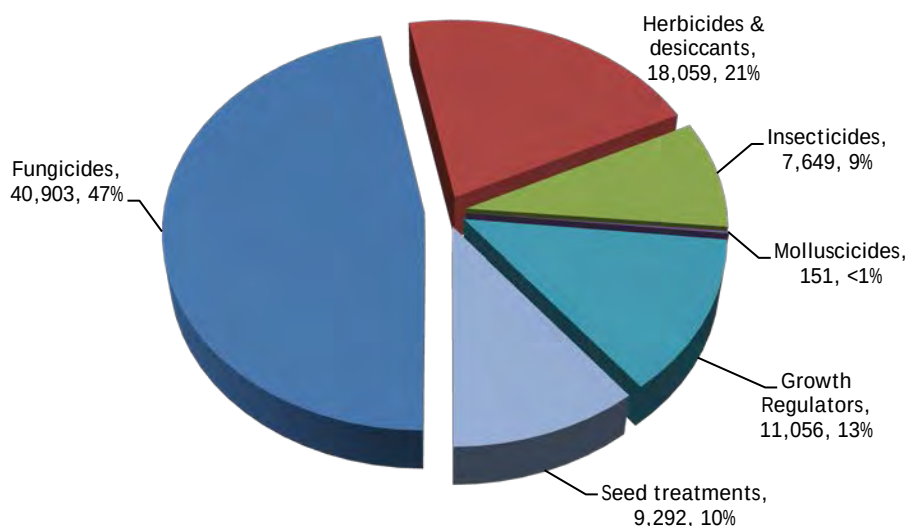


Figure 63: Weight of pesticides (kg) applied to winter wheat crops in Northern Ireland, 2012.

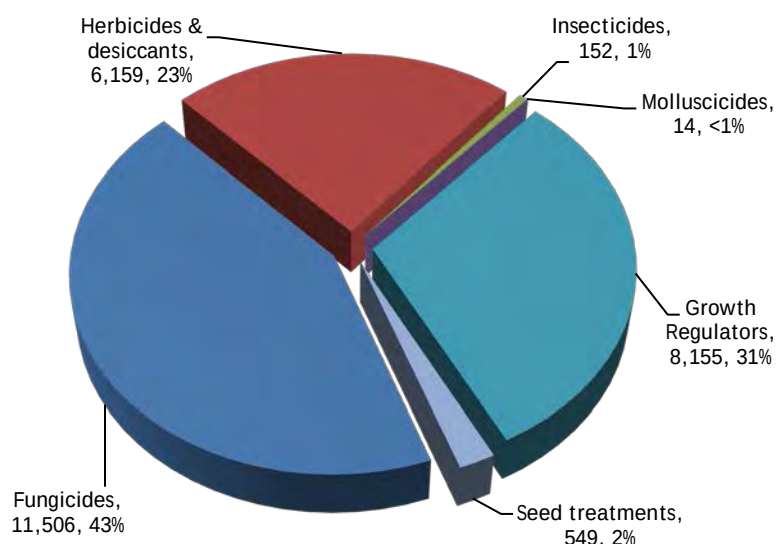
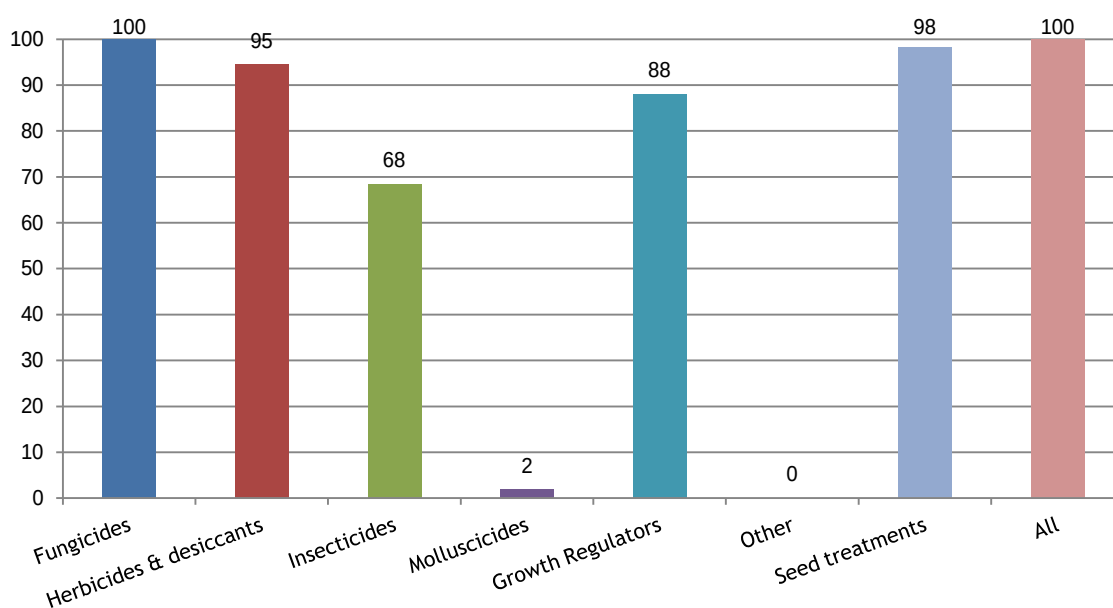


Figure 64: Proportional area (%) of winter wheat crops treated with each pesticide group in Northern Ireland, 2012.

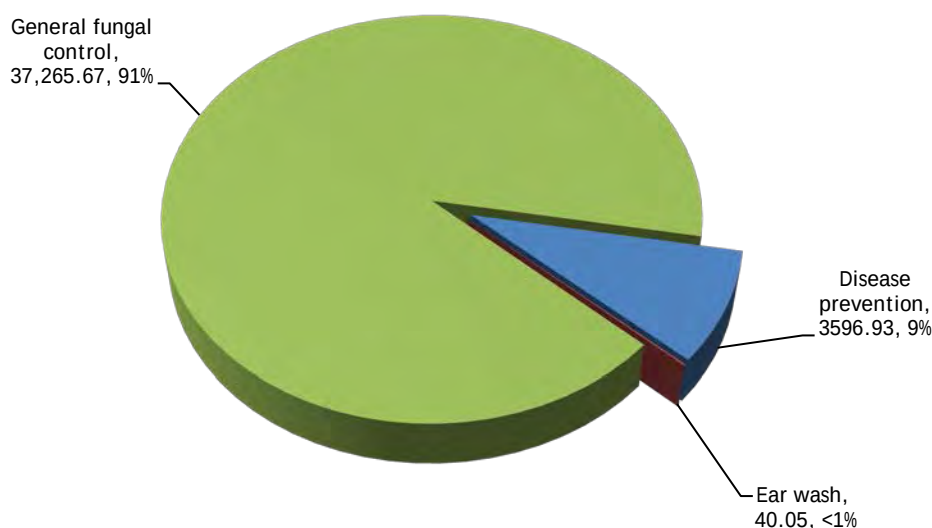


### **Fungicides - winter wheat**

- Basic area treated: 7,846 hectares
- Area treated: 40,903 spray hectares
- Weight of active substances applied: 11,506 kilogrammes
- 100% of the area grown treated with fungicides
- The most commonly applied active substances were:

|                               | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Chlorothalonil                | 8,105.99            | 5,168.66                | 4,367.91              | 19.82                 |
| Prothioconazole/ tebuconazole | 6,005.29            | 3,237.86                | 1,118.86              | 14.68                 |
| Tebuconazole                  | 2,833.76            | 2,686.37                | 372.73                | 6.93                  |
| Epoxiconazole                 | 2,344.03            | 1,633.30                | 233.57                | 5.73                  |
| Prothioconazole               | 2,223.51            | 1,509.19                | 299.91                | 5.44                  |

Figure 65: Winter wheat: reasons for fungicide use (spha), 2012.

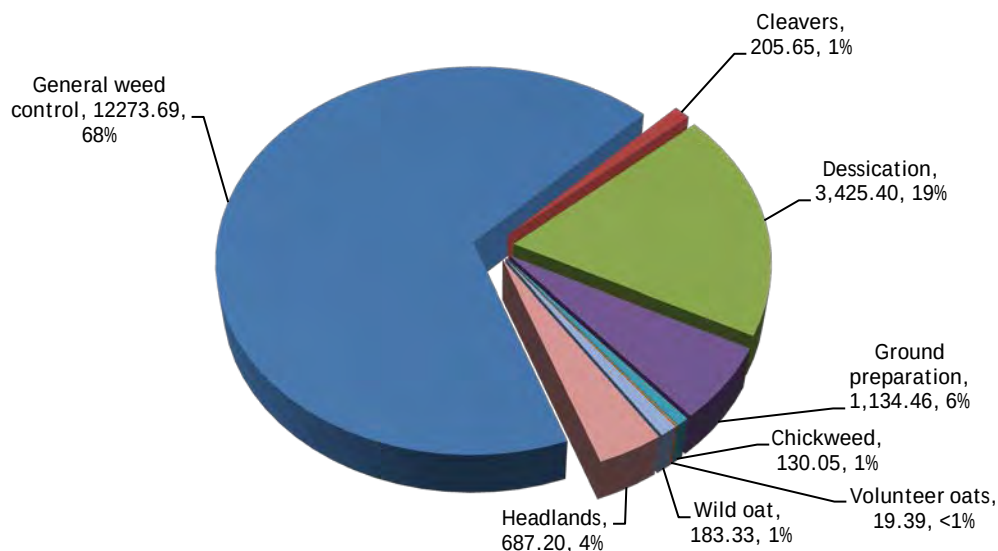


### **Herbicides & desiccants - winter wheat**

- Basic area treated: 7,415 hectares
- Area treated: 18,059 spray hectares
- Weight of active substances applied: 6,159 kilogrammes
- 95% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                                                               | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|---------------------------------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Glyphosate                                                    | 4,746.46            | 4,194.18                | 3,496.49              | 26.28                 |
| Diflufenican/ iodosulfuron-methyl-sodium/ mesosulfuron-methyl | 4,545.92            | 4,545.92                | 254.64                | 25.17                 |
| Diflufenican                                                  | 2,025.96            | 2,025.96                | 170.90                | 11.22                 |
| Fluroxypyr                                                    | 1,196.25            | 1,119.73                | 165.23                | 6.62                  |
| Mecoprop-P                                                    | 986.45              | 986.45                  | 597.51                | 5.46                  |

Figure 66: Winter wheat: reasons for herbicide & desiccant use (spha), 2012.

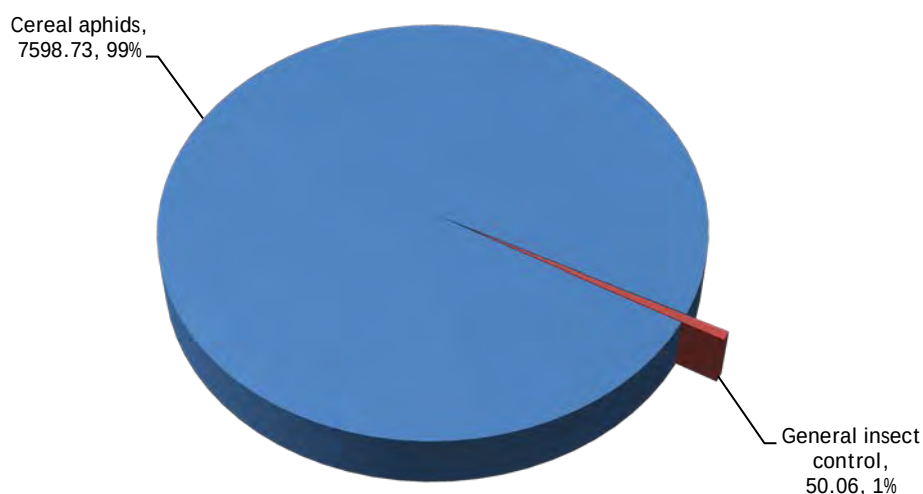


### ***Insecticides - winter wheat***

- Basic area treated: 5,369 hectares
- Area treated: 7,649 spray hectares
- Weight of active substances applied: 152 kilogrammes
- 68% of the area grown treated with insecticides
- The most commonly applied active substances were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Esfenvalerate      | 3,671.69            | 2,376.02                | 11.97                 | 48.00                 |
| Lambda-cyhalothrin | 2,654.94            | 2,400.43                | 20.77                 | 34.71                 |
| Cypermethrin       | 647.62              | 437.66                  | 15.82                 | 8.47                  |
| Alpha-cypermethrin | 402.85              | 402.85                  | 5.08                  | 5.27                  |
| Deltamethrin       | 82.47               | 82.47                   | 0.21                  | 1.08                  |

Figure 67: Winter wheat: reasons for insecticide use (spha), 2012.



### **Molluscicides - winter wheat**

- Basic area treated: 151 hectares
- Area treated: 151 spray hectares
- Weight of active substances applied: 14 kilogrammes
- 2% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

|             | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-------------|---------------------|-------------------------|-----------------------|-----------------------|
| Metaldehyde | 150.69              | 150.69                  | 13.56                 | 100                   |

### **Growth regulators - winter wheat**

- Basic area treated: 6,915 hectares
- Area treated: 11,056 spray hectares
- Weight of active substances applied: 8,155 kilogrammes
- 88% of the area grown treated with growth regulators
- All applications were for growth regulation
- The most commonly applied active substances were:

|                                        | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|----------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Chlormequat                            | 6658.13             | 6,352.01                | 7,754.14              | 60.22                 |
| Trinexapac-ethyl                       | 3429.33             | 3,265.16                | 188.65                | 31.02                 |
| 2-chloroethylphosphonic acid           | 834.11              | 834.11                  | 159.31                | 7.54                  |
| Mepiquat chloride/Prohexadione-calcium | 68.76               | 68.76                   | 12.25                 | 0.62                  |
| Chlormequat/Imazaquin                  | 49.86               | 49.86                   | 27.58                 | 0.45                  |

### **Seed treatments - winter wheat**

- Area treated: 7,714 hectares
- Weight of active substances applied: 549 kilogrammes
- 98% of the area grown was sown with treated seed
- The most commonly applied active substances were:

|                              | Treated area (ha) | Quantity applied (kg) | % of the treated area |
|------------------------------|-------------------|-----------------------|-----------------------|
| Prochloraz/triticonazole     | 3,530.23          | 95.39                 | 37.99                 |
| Clothianidin/prothioconazole | 3,355.96          | 335.69                | 36.12                 |
| Silthiofam                   | 1,578.18          | 70.15                 | 16.98                 |
| Fludioxonil                  | 333.40            | 3.11                  | 3.59                  |
| Carboxin/thiram              | 177.84            | 29.50                 | 1.91                  |

### Pesticide usage on spring oats:

- 1,441 hectares of spring oat grown in Northern Ireland
- 6,345 treated hectares
- 1,685 kilogrammes applied
- 69% of the area of spring oat crops grown received a pesticide treatment
- Spring oats received on average 2.48 fungicide, 1.93 herbicide, 1.04 insecticide and 1.14 growth regulator applications.

Figure 68: Comparison of the areas of spring oat crops grown in Northern Ireland (ha), 1990 - 2012.

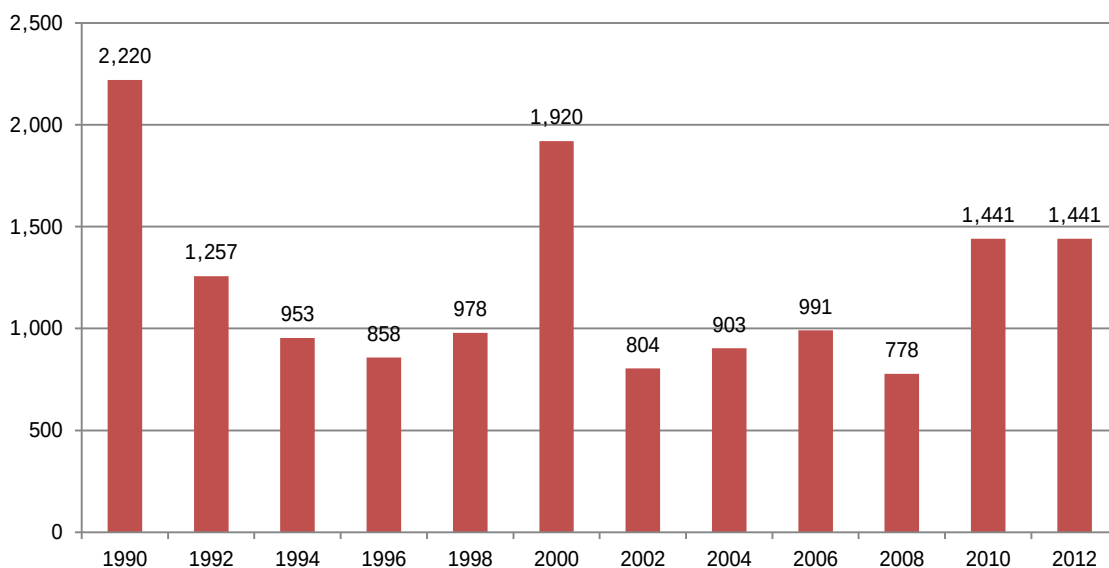


Figure 69: Regional distribution of spring oat crops grown in Northern Ireland (ha), 2012.

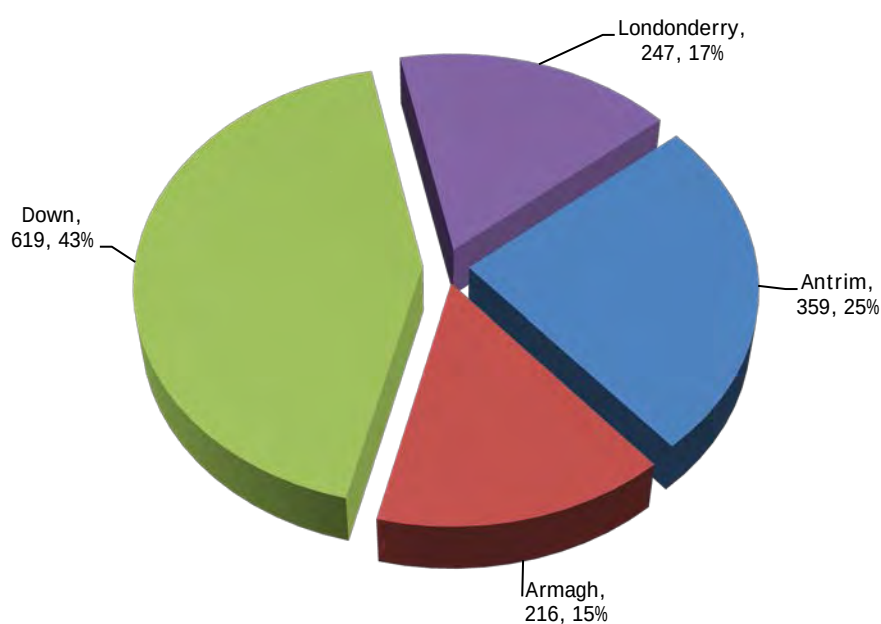




Figure 70: Pesticide usage (spha) on spring oat crops in Northern Ireland, 2012.

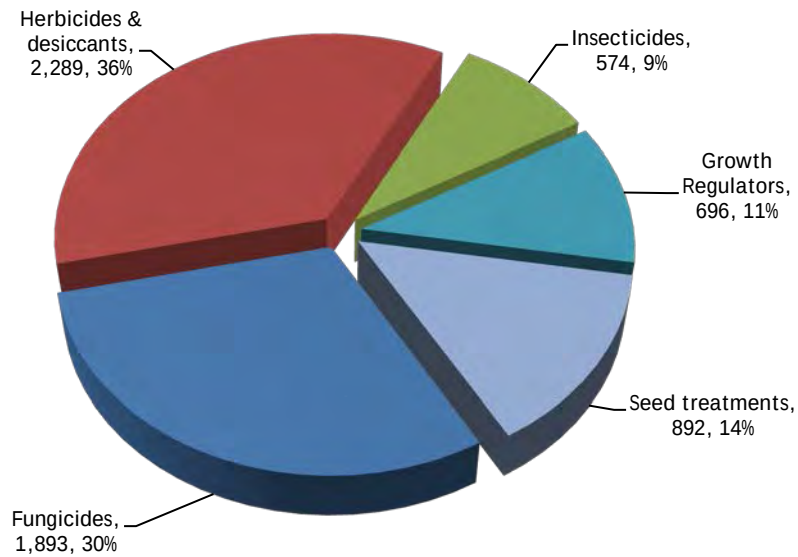


Figure 71: Weight of pesticides (kg) applied to spring oat crops in Northern Ireland, 2012.

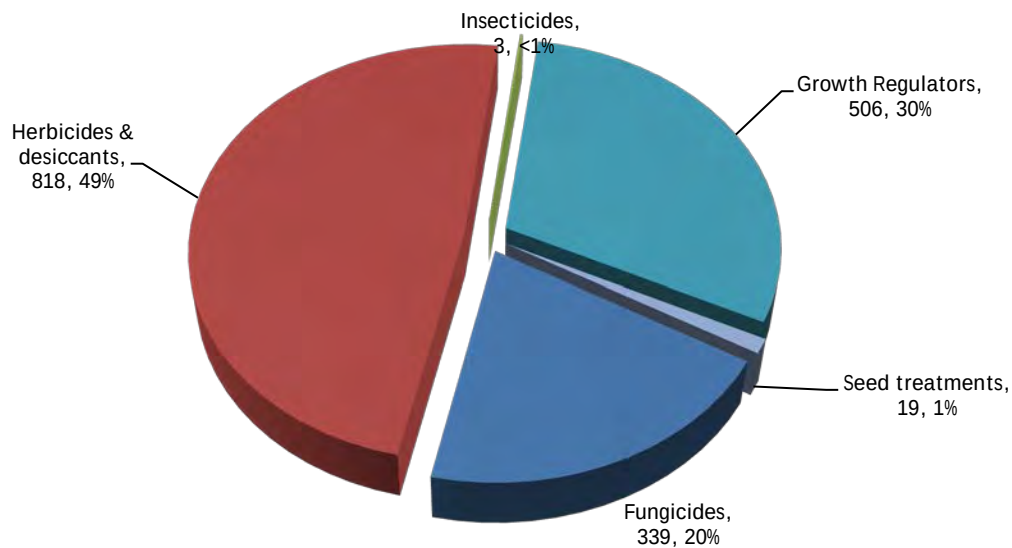
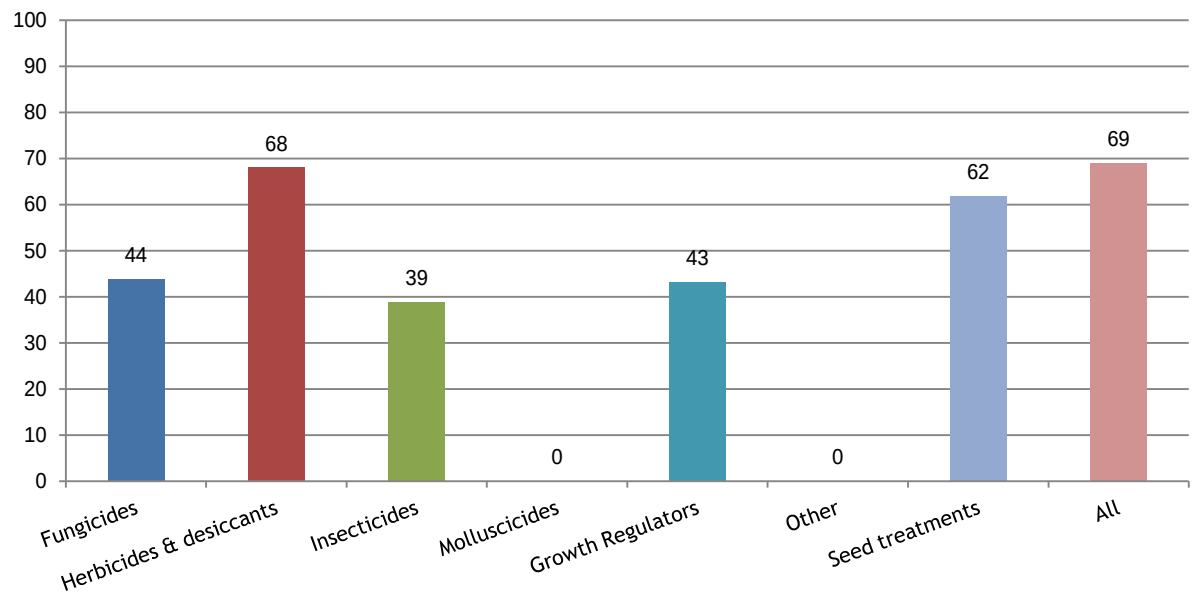


Figure 72: Proportional area (%) of spring oat crops treated with each pesticide group in Northern Ireland, 2012.

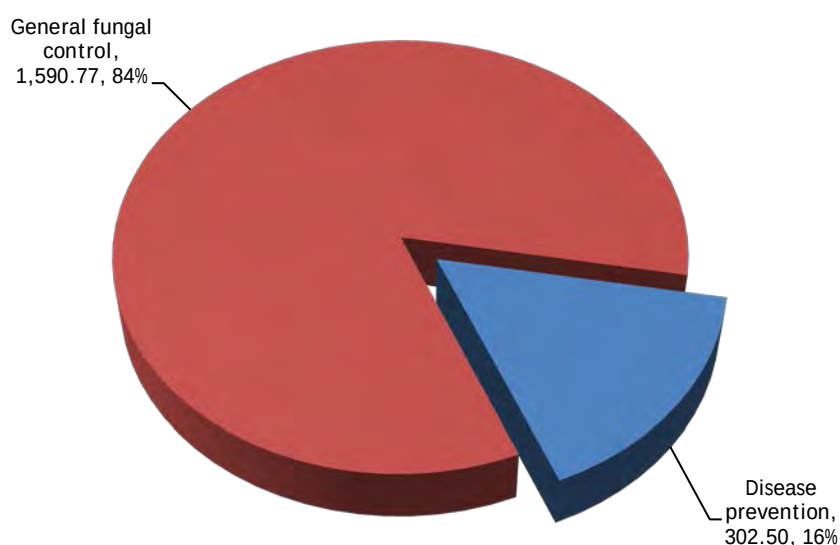


### ***Fungicides - spring oats***

- Basic area treated: 633 hectares
- Area treated: 1,893 spray hectares
- Weight of active substances applied: 339 kilogrammes
- 44% of the area grown treated with fungicides
- The most commonly applied active substances were:

|                                         | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-----------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Fenpropimorph                           | 602.01              | 359.85                  | 123.99                | 31.80                 |
| Pyraclostrobin                          | 300.29              | 300.29                  | 25.69                 | 15.86                 |
| Epoxiconazole                           | 295.09              | 261.33                  | 16.97                 | 15.59                 |
| Quinoxifen                              | 287.01              | 287.01                  | 28.70                 | 15.16                 |
| Epoxiconazole/fenpropimorph/metrafenone | 163.90              | 163.90                  | 59.89                 | 8.66                  |

Figure 73: spring oats: reasons for fungicide use (spha), 2012.

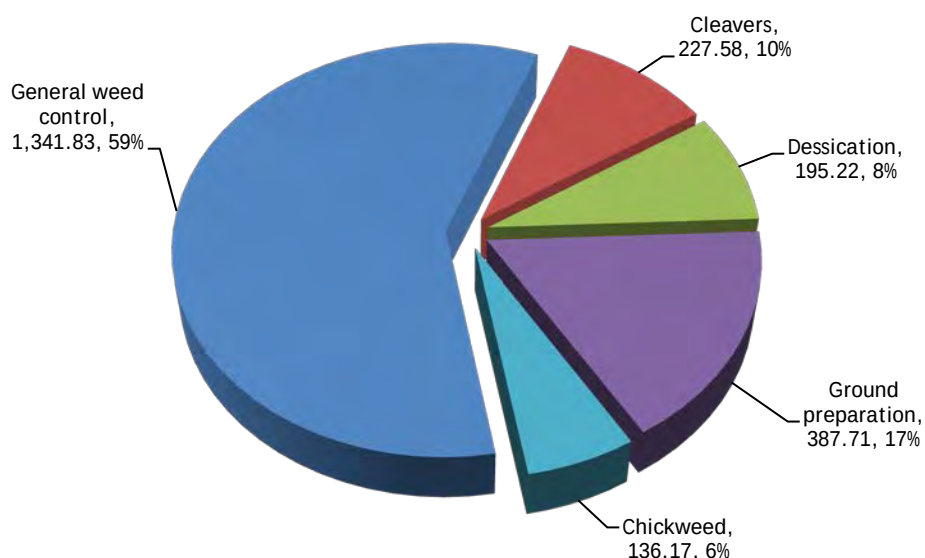


### ***Herbicides & desiccants - spring oats***

- Basic area treated: 981 hectares
- Area treated: 2,289 spray hectares
- Weight of active substances applied: 818 kilogrammes
- 68% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                                         | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-----------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Glyphosate                              | 582.93              | 582.93                  | 396.03                | 25.47                 |
| Mecoprop-P                              | 370.50              | 370.50                  | 332.62                | 16.19                 |
| Florasulam/fluroxypyr                   | 363.75              | 363.75                  | 25.75                 | 15.89                 |
| Metsulfuron-methyl/tribenuron-methyl    | 351.51              | 351.51                  | 3.48                  | 15.36                 |
| Thifensulfuron-methyl/tribenuron-methyl | 326.09              | 326.09                  | 16.81                 | 14.25                 |

Figure 74: Spring oats: reasons for herbicide & desiccant use (spha), 2012.



### ***Insecticides - spring oats***

- Basic area treated: 560 hectares
- Area treated: 574 spray hectares
- Weight of active substances applied: 3 kilogrammes
- 39% of the area grown treated with insecticides
- All applications were to control aphids
- The most commonly applied active substances were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Lambda-cyhalothrin | 440.47              | 425.88                  | 2.20                  | 76.68                 |
| Esfenvalerate      | 124.95              | 124.95                  | 0.59                  | 21.75                 |
| Deltamethrin       | 9.01                | 9.01                    | 0.05                  | 1.57                  |

### ***Growth regulators - spring oats***

- Basic area treated: 623 hectares
- Area treated: 696 spray hectares
- Weight of active substances applied: 506 kilogrammes
- 43% of the area grown treated with growth regulators
- All applications were for growth regulation
- The active substances applied were:

|                  | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Chlormequat      | 439.31              | 439.31                  | 494.54                | 63.11                 |
| Trinexapac-ethyl | 256.80              | 242.21                  | 11.68                 | 36.89                 |

### ***Seed treatments - spring oats***

- Area treated: 892 hectares
- Weight of active substances applied: 19 kilogrammes
- 62% of the area grown was sown with treated seed
- The most commonly applied active substances were:

|                              | Treated area<br>(ha) | Quantity<br>applied (kg) | % of the treated area |
|------------------------------|----------------------|--------------------------|-----------------------|
| Prochloraz/triticonazole     | 356.12               | 10.50                    | 39.91                 |
| Fludioxonil/flutriafol       | 287.01               | 4.11                     | 32.17                 |
| Fludioxonil                  | 224.37               | 2.09                     | 25.15                 |
| Clothianidin/prothioconazole | 24.80                | 2.34                     | 2.78                  |

### Pesticide usage on undersown oats:

- 193 hectares of undersown oats grown in Northern Ireland all of which was in county Londonderry
- 825 treated hectares
- 86.28 kilogrammes applied
- 78% of the area of undersown crops grown received a pesticide treatment
- Undersown oats received on average 2 fungicide, 1.44 herbicide, 1 insecticide and 1 growth regulator applications.

Figure 75: Comparison of the areas of undersown oat crops grown in Northern Ireland (ha), 1990 - 2012.

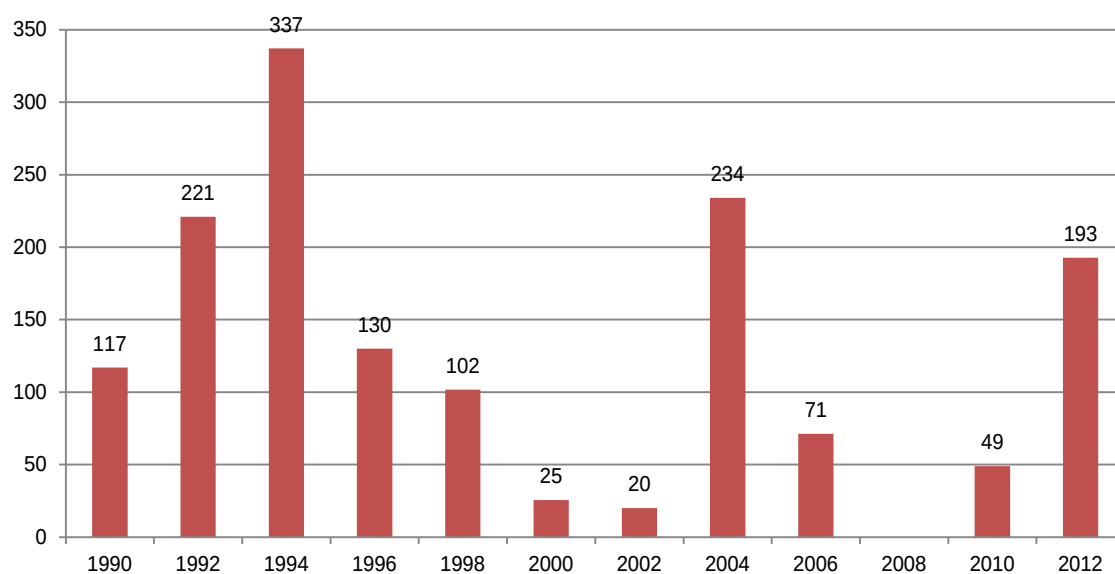


Figure 76: Regional distribution of undersown oat crops grown in Northern Ireland (ha), 2012.

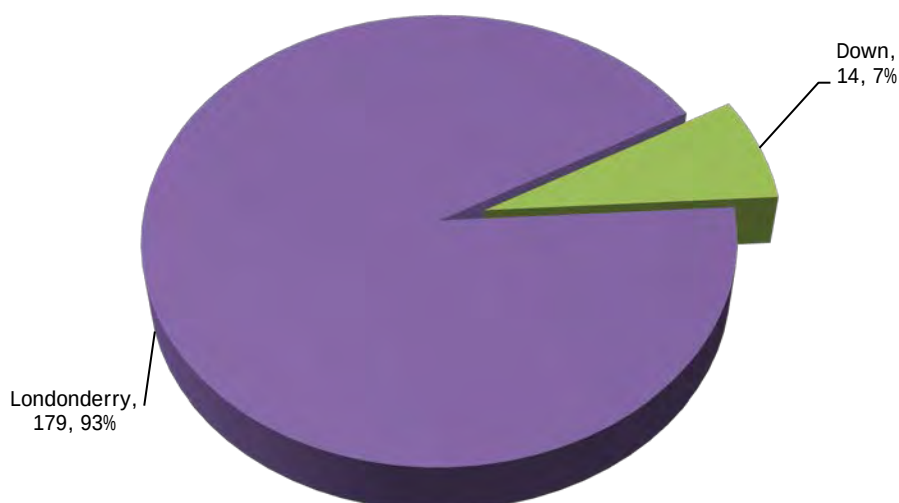


Figure 77: Pesticide usage (spha) on undersown oat crops in Northern Ireland, 2012.

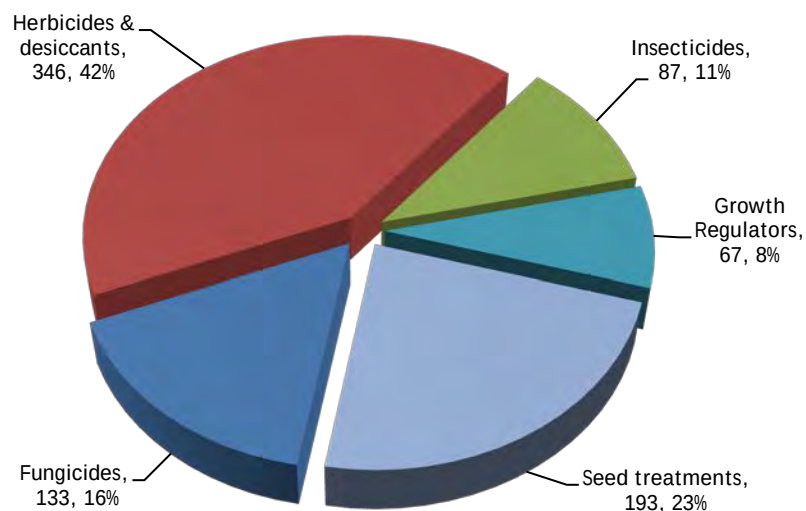


Figure 78: Weight of pesticides (kg) applied to undersown oat crops in Northern Ireland, 2012.

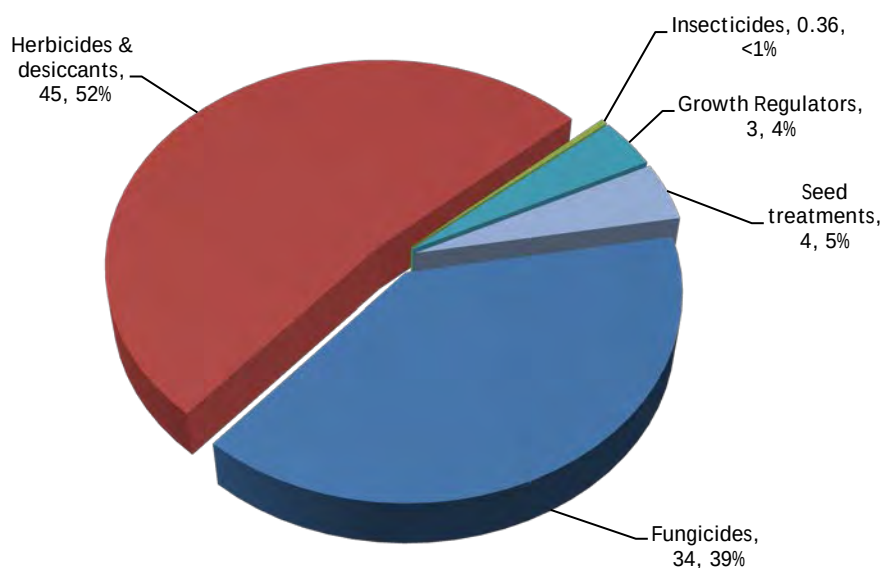
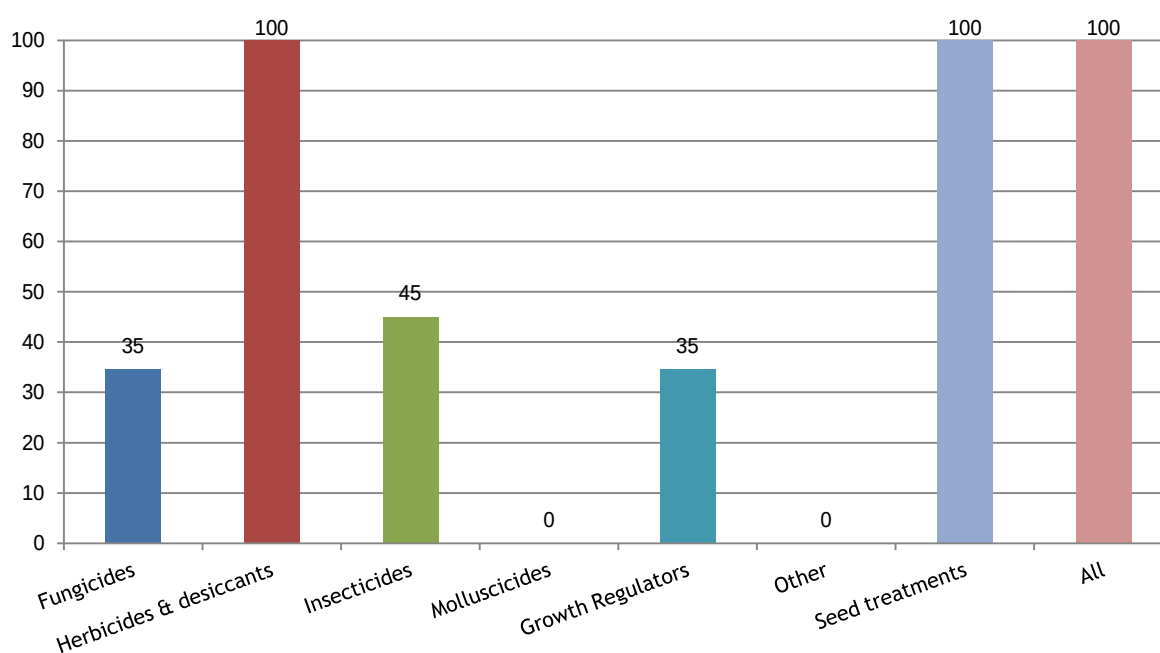


Figure 79: Proportional area (%) of undersown oat crops treated with each pesticide group in Northern Ireland, 2012.



### ***Fungicides - undersown oats***

- Basic area treated: 67 hectares
- Area treated: 133 spray hectares
- Weight of active substances applied: 34 kilogrammes
- 35% of the area grown treated with fungicides
- All applications were for disease prevention
- The most commonly applied active substances were:

|                                         | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-----------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Epoxiconazole/fenpropimorph/metrafenone | 133.16              | 66.58                   | 33.71                 | 100.00                |

### ***Herbicides & desiccants - undersown oats***

- Basic area treated: 193 hectares
- Area treated: 346 spray hectares
- Weight of active substances applied: 45 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- All applications were for general weed control
- The most commonly applied active substances were:

|                     | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|---------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Fluroxypyr          | 153.38              | 153.38                  | 23.01                 | 44.32                 |
| Tribenuron-methyl   | 101.01              | 101.01                  | 0.47                  | 29.19                 |
| Metsulfuron-methyl  | 66.58               | 66.58                   | 0.40                  | 19.24                 |
| 2,4-DB/linuron/MCPA | 25.12               | 25.12                   | 21.10                 | 7.26                  |

### ***Insecticides - Undersown oats***

- Basic area treated: 87 hectares
- Area treated: 87 spray hectares
- Weight of active substances applied: 0.36 kilogrammes
- 45% of the area grown treated with insecticides
- All applications were to control aphids
- The most commonly applied active substances were:

|               | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|---------------|---------------------|-------------------------|-----------------------|-----------------------|
| Esfenvalerate | 86.80               | 86.80                   | 0.36                  | 100.00                |

**Growth regulators - Undersown oats**

- Basic area treated: 67 hectares
- Area treated: 67 spray hectares
- Weight of active substances applied: 3 kilogrammes
- 35% of the area grown treated with growth regulators
- All applications were for growth regulation
- The active substances applied were:

|                  | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity<br>applied (kg) | % of the treated area |
|------------------|------------------------|----------------------------|--------------------------|-----------------------|
| Trinexapac-ethyl | 66.58                  | 66.58                      | 3.33                     | 100.00                |

**Seed treatments - undersown oats**

- Area treated: 193 hectares
- Weight of active substances applied: 4 kilogrammes
- 100% of the area grown was sown with treated seed
- The active substances applied were:

|                          | Treated area<br>(ha) | Quantity<br>applied (kg) | % of the treated area |
|--------------------------|----------------------|--------------------------|-----------------------|
| Prochloraz/triticonazole | 86.80                | 2.62                     | 45.04                 |
| Fludioxonil/flutriafol   | 66.58                | 0.94                     | 34.55                 |
| Fludioxonil              | 39.33                | 0.35                     | 20.41                 |



### Pesticide usage on winter oats:

- 246 hectares of winter oats grown in Northern Ireland
- 1,773 treated hectares
- 574 kilogrammes applied
- 100% of the area of winter oat crops grown received a pesticide treatment
- Winter oats received on average 3.31 fungicide, 2.33 herbicide, 1.54 insecticide and 1.12 growth regulator applications.

Figure 80: Comparison of the areas of winter oat crops grown in Northern Ireland (ha), 1990 - 2012.

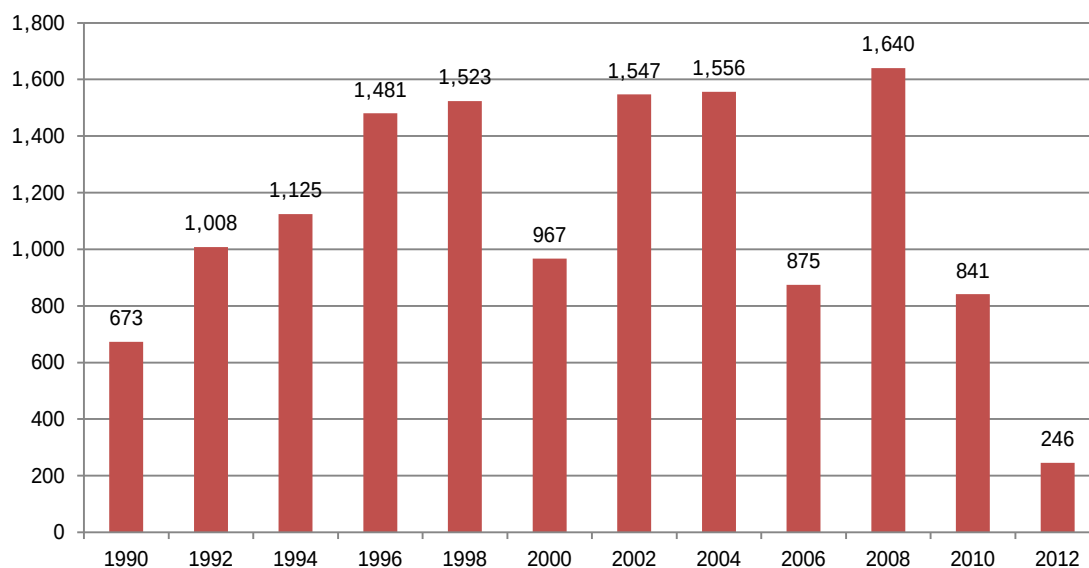


Figure 81: Regional distribution of winter oat crops grown in Northern Ireland (ha), 2012.

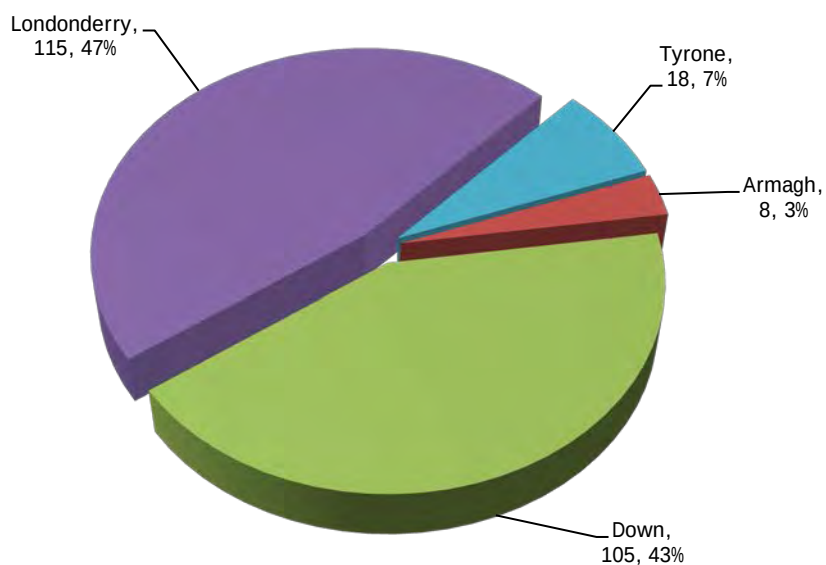


Figure 82: Pesticide usage (spha) on winter oat crops in Northern Ireland, 2012.

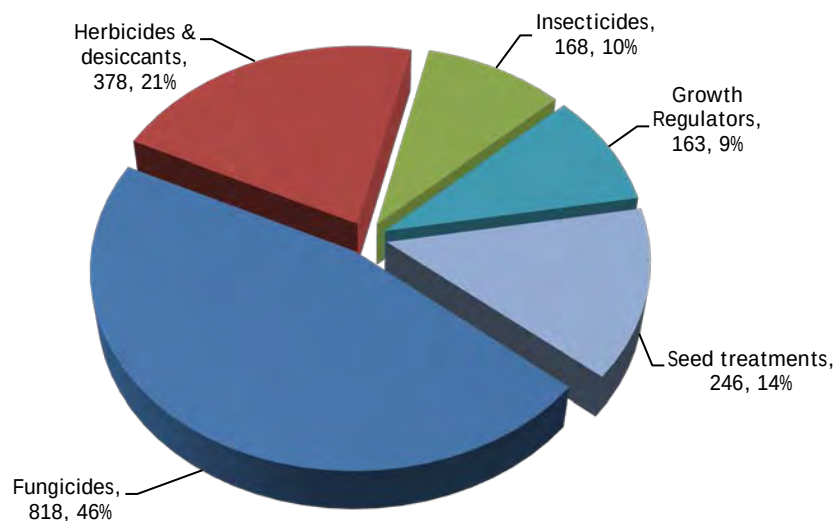


Figure 83: Weight of pesticides (kg) applied to winter oat crops in Northern Ireland, 2012.

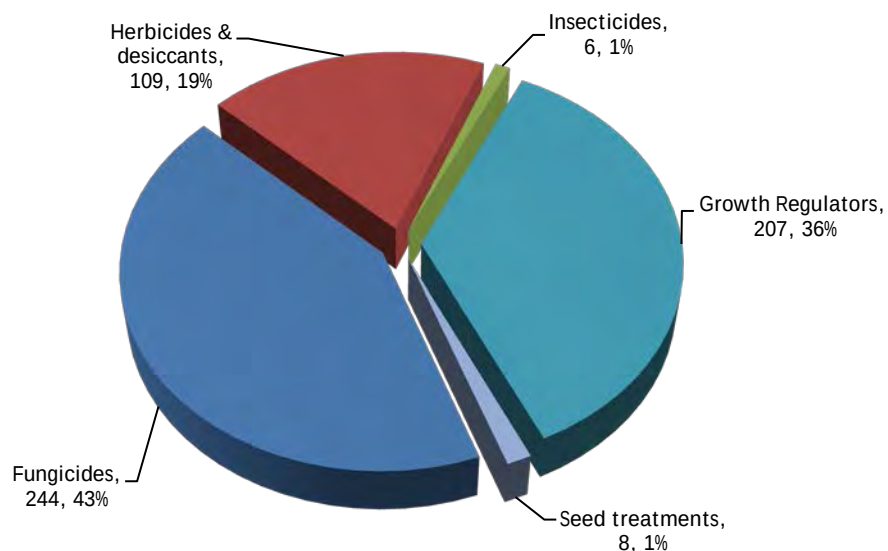
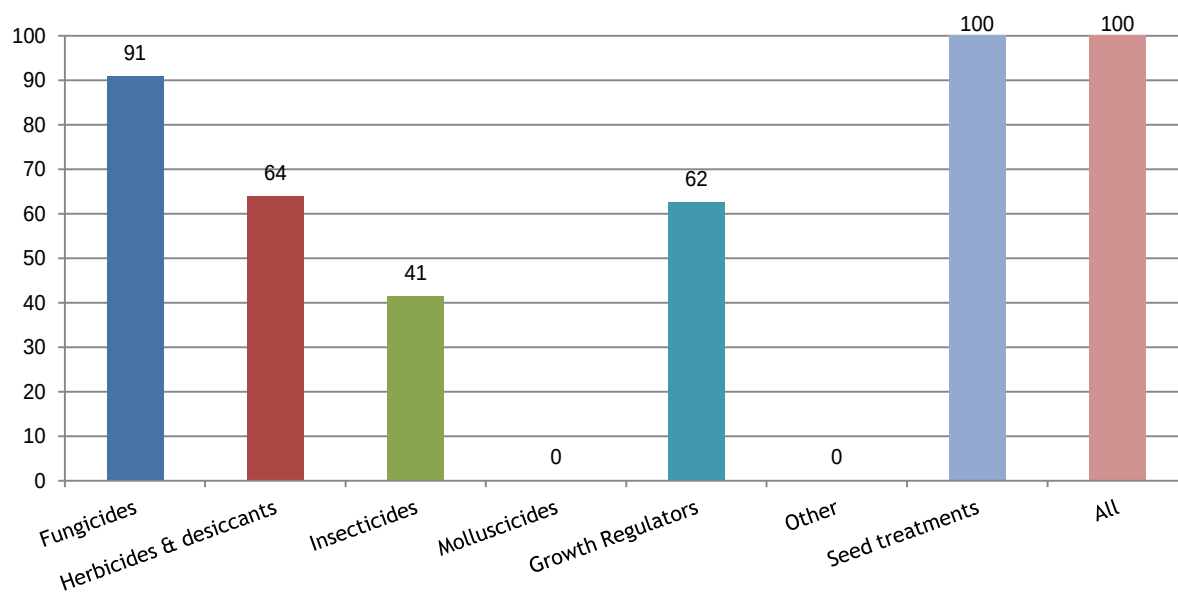


Figure 84: Proportional area (%) of winter oat crops treated with each pesticide group in Northern Ireland, 2012.

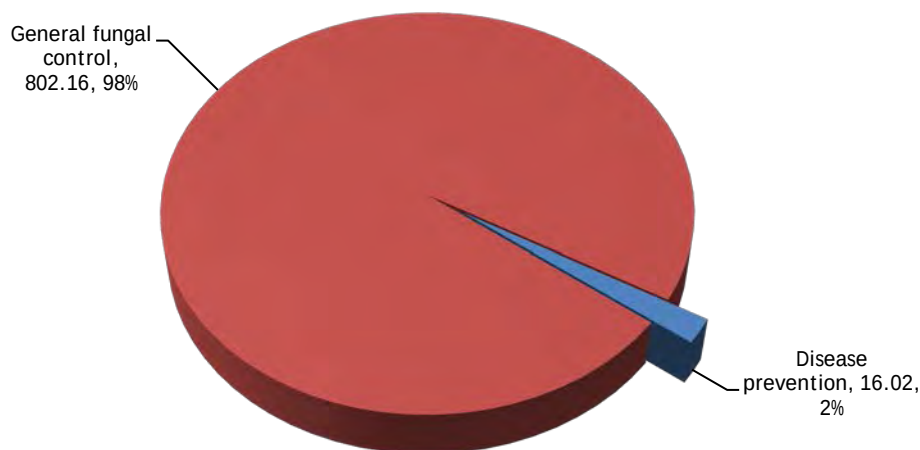


### ***Fungicides - winter oats***

- Basic area treated: 224 hectares
- Area treated: 818 spray hectares
- Weight of active substances applied: 244 kilogrammes
- 91% of the area grown treated with fungicides
- The most commonly applied active substances were:

|                                           | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-------------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Epoxiconazole/ fenpropimorph/ metrafenone | 191.03              | 95.52                   | 59.26                 | 23.35                 |
| Fenpropimorph                             | 173.31              | 120.54                  | 73.20                 | 21.18                 |
| Epoxiconazole/ Metrafenone                | 133.16              | 66.58                   | 33.51                 | 16.28                 |
| Prothioconazole                           | 95.60               | 95.60                   | 6.97                  | 11.68                 |
| Chlorothalonil                            | 66.58               | 66.58                   | 33.29                 | 8.14                  |

Figure 85: Winter oats: reasons for fungicide use (spha), 2012

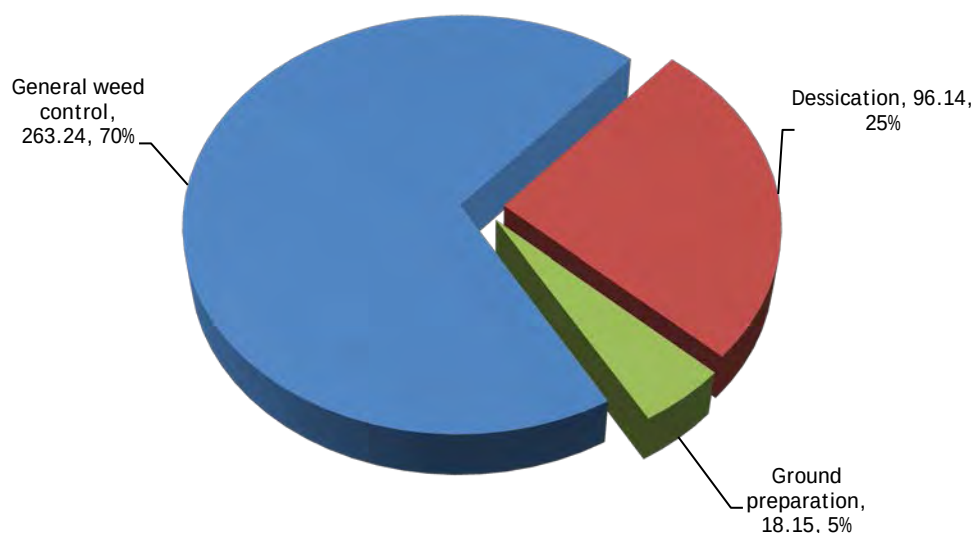


### ***Herbicides & desiccants - winter oats***

- Basic area treated: 157 hectares
- Area treated: 378 spray hectares
- Weight of active substances applied: 109 kilogrammes
- 64% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                                            | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Glyphosate                                 | 114.29              | 96.14                   | 52.96                 | 30.27                 |
| Amidosulfuron                              | 62.00               | 62.00                   | 1.86                  | 16.42                 |
| Bromoxynil/ ioxynil                        | 62.00               | 62.00                   | 24.80                 | 16.42                 |
| Carfentrazone-ethyl/ flupyrsulfuron-methyl | 51.75               | 51.75                   | 1.55                  | 13.71                 |
| Metsulfuron-methyl/ tribenuron-methyl      | 34.16               | 34.16                   | 0.30                  | 9.05                  |

Figure 86: Winter oats: reasons for herbicide & desiccant use (spha), 2012.



### ***Insecticides - winter oats***

- Basic area treated: 102 hectares
- Area treated: 168 spray hectares
- Weight of active substances applied: 6 kilogrammes
- 41% of the area grown treated with insecticides
- All applications were to control aphids
- The active substances applied were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Cypermethrin       | 133.16              | 66.58                   | 5.66                  | 79.11                 |
| Lambda-cyhalothrin | 26.15               | 26.15                   | 0.13                  | 15.53                 |
| Deltamethrin       | 9.01                | 9.01                    | 0.05                  | 5.35                  |

### ***Growth regulators - winter oats***

- Basic area treated: 154 hectares
- Area treated: 163 spray hectares
- Weight of active substances applied: 207 kilogrammes
- 62% of the area grown treated with growth regulators
- All applications were for growth regulation
- The active substances applied were:

|                  | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Chlormequat      | 127.43              | 127.43                  | 205.00                | 78.38                 |
| Trinexapac-ethyl | 35.16               | 35.16                   | 1.76                  | 21.62                 |

**Seed treatments - winter oats**

- Area treated: 246 hectares
- Weight of active substances applied: 8 kilogrammes
- 100% of the area grown was sown with treated seed
- The active substances applied were:

|                              | Treated area<br>(ha) | Quantity<br>applied (kg) | % of the treated area |
|------------------------------|----------------------|--------------------------|-----------------------|
| Prochloraz/triticonazole     | 132.00               | 3.30                     | 53.68                 |
| Clothianidin/prothioconazole | 43.97                | 3.80                     | 17.88                 |
| Prothioconazole              | 43.76                | 0.55                     | 17.80                 |
| Fludioxonil/flutriafol       | 26.15                | 0.47                     | 10.64                 |

### Pesticide usage on winter oilseed rape:

- 517 hectares of winter oilseed rape grown in Northern Ireland
- 3,721 treated hectares
- 1,255 kilogrammes applied
- 100% of the area of winter oilseed rape crops grown received a pesticide treatment
- Winter oilseed rape crops received on average 2.33 fungicide, 2.51 herbicide, 1 insecticide, 1 molluscicide and 1 other applications.

Figure 87: Comparison of the areas of winter oilseed rape crops grown in Northern Ireland (ha), 1990 - 2012.

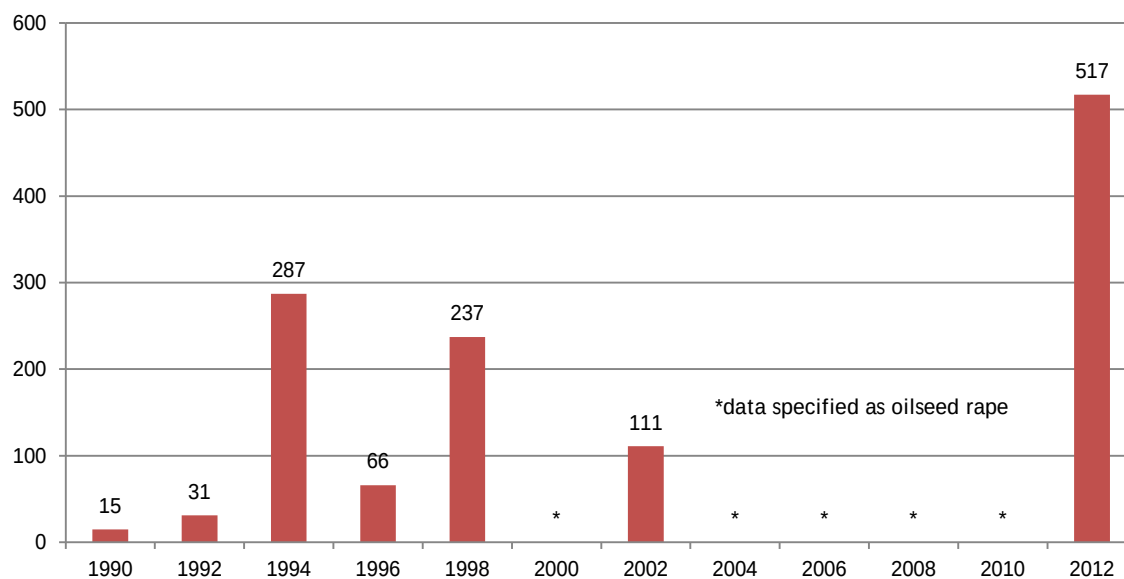


Figure 88: Regional distribution of winter oilseed rape crops grown in Northern Ireland (ha), 2012.

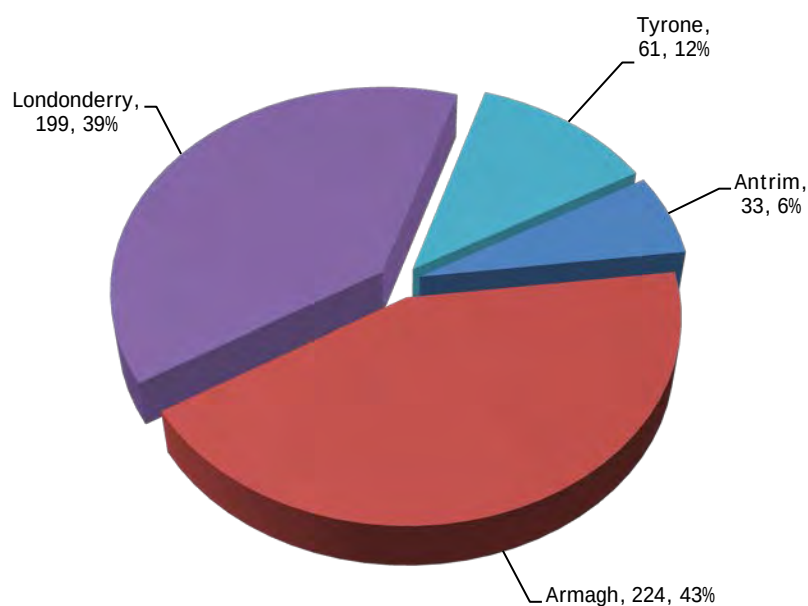


Figure 89: Pesticide usage (spha) on winter oilseed rape crops in Northern Ireland, 2012.

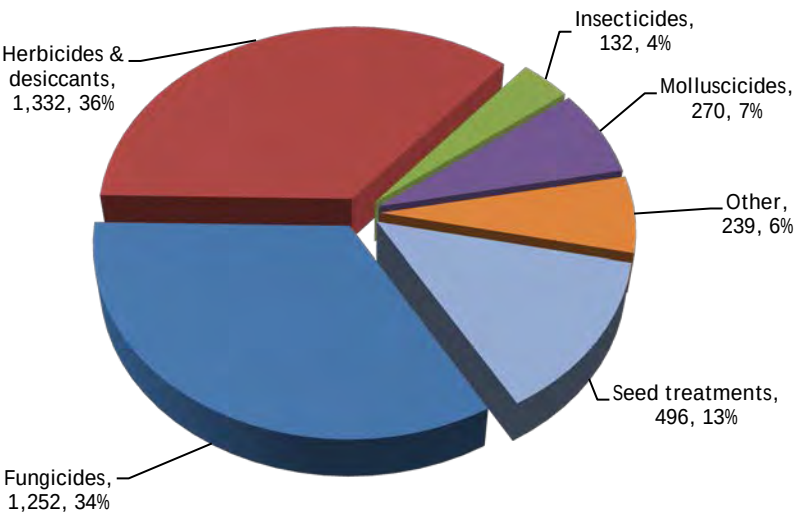


Figure 90: Weight of pesticides (kg) applied to winter oilseed rape crops in Northern Ireland, 2012.

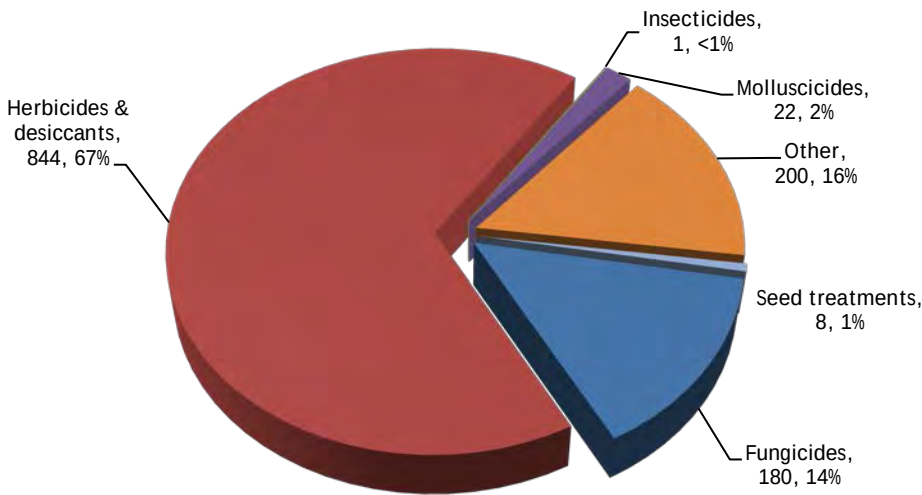
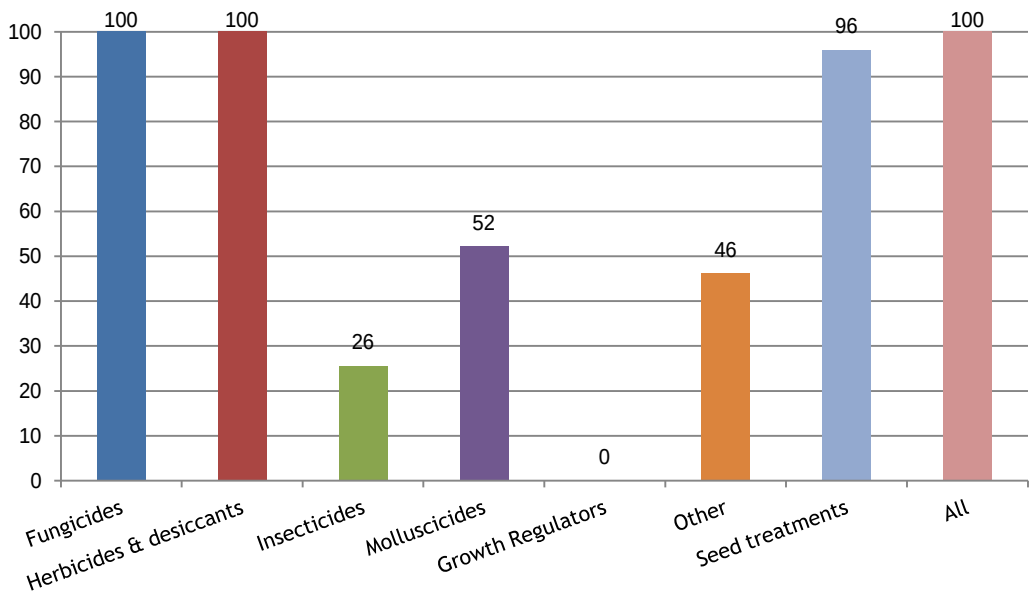


Figure 91: Proportional area (%) of winter oilseed rape crops treated with each pesticide group in Northern Ireland, 2012.

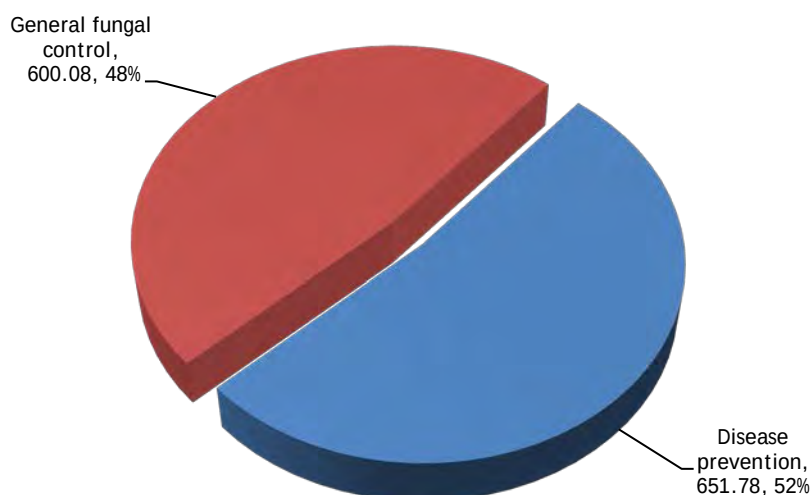


### ***Fungicides - winter oilseed rape***

- Basic area treated: 517 hectares
- Area treated: 1,252 spray hectares
- Weight of active substances applied: 180 kilogrammes
- 100% of the area grown treated with fungicides
- The most commonly applied active substances were:

|                                | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Azoxystrobin                   | 432.60              | 386.81                  | 67.16                 | 34.56                 |
| Tebuconazole                   | 431.51              | 385.73                  | 65.18                 | 34.47                 |
| Prothioconazole                | 289.95              | 278.16                  | 31.49                 | 23.16                 |
| Prothioconazole / tebuconazole | 79.28               | 79.28                   | 14.27                 | 6.33                  |
| Flusilazole                    | 18.53               | 18.53                   | 2.20                  | 1.48                  |

Figure 92: Winter oilseed rape: reasons for fungicide use (spha), 2012.



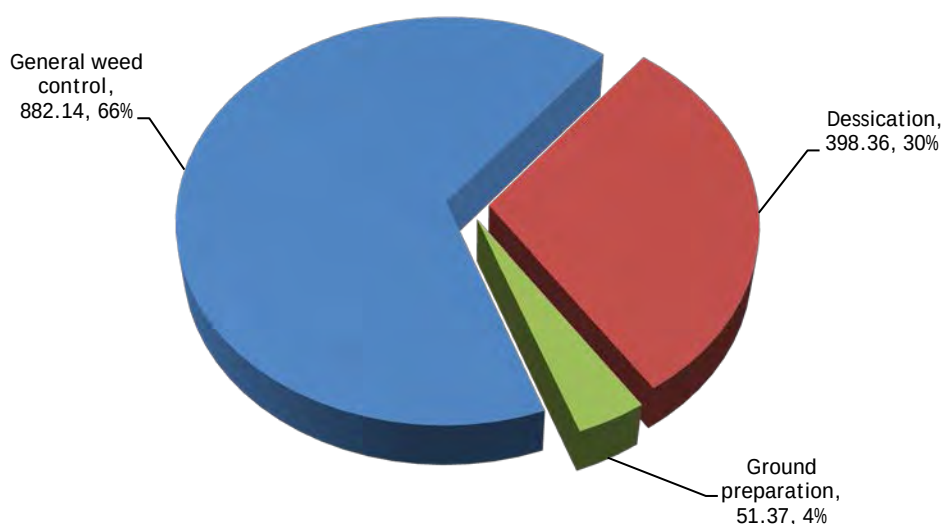
### ***Herbicides & desiccants - winter oilseed rape***

- Basic area treated: 517 hectares
- Area treated: 1,332 spray hectares
- Weight of active substances applied: 844 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                     | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|---------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Propyzamide         | 498.69              | 498.69                  | 333.12                | 37.44                 |
| Glyphosate          | 469.52              | 437.94                  | 469.49                | 35.25                 |
| Clopyralid/picloram | 223.97              | 223.97                  | 26.18                 | 16.82                 |
| Fluazifop-P-butyl   | 119.90              | 119.90                  | 7.49                  | 9.00                  |
| Diquat              | 19.79               | 19.79                   | 7.92                  | 1.49                  |



Figure 93: Winter oilseed rape: reasons for herbicide & desiccant use (spha), 2012.



### ***Insecticides - oilseed rape***

- Basic area treated: 132 hectares
- Area treated: 132 spray hectares
- Weight of active substances applied: 1 kilogrammes
- 26% of the area grown treated with insecticides
- All applications were for general insect control
- The active substances applied were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Lambda-cyhalothrin | 113.69              | 113.69                  | 0.63                  | 85.99                 |
| Deltamethrin       | 18.53               | 18.53                   | 0.14                  | 14.01                 |

### ***Molluscicides - winter oilseed rape***

- Basic area treated: 270 hectares
- Area treated: 270 spray hectares
- Weight of active substances applied: 22 kilogrammes
- 52% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

|             | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-------------|---------------------|-------------------------|-----------------------|-----------------------|
| Methiocarb  | 223.72              | 223.72                  | 19.70                 | 83.01                 |
| Metaldehyde | 45.78               | 45.78                   | 2.75                  | 16.99                 |

**Other treatment - winter oilseed rape**

- Area treated: 239 spray hectares
- Weight of active substances applied: 200 kilogrammes
- 46% of the area grown treated with other treatments.
- These applications were used as 'pod stickers'
- The active substances applied were:

|                                | Treated area<br>(spha) | Quantity<br>applied (kgs) | % of the treated area |
|--------------------------------|------------------------|---------------------------|-----------------------|
| Carboxylated styrene-butadiene | 21.90                  | 14.92                     | 9.16                  |
| Synthetic latex                | 217.23                 | 184.64                    | 90.84                 |

**Seed treatments - winter oilseed rape**

- Area treated: 496 hectares
- Weight of active substances applied: 8 kilogrammes
- 96% of the area grown was sown with treated seed
- The active substances applied were:

|                                      | Treated area<br>(ha) | Quantity<br>applied (kg) | % of the treated area |
|--------------------------------------|----------------------|--------------------------|-----------------------|
| Fludioxonil/metalaxyl-M/thiamethoxam | 263.66               | 5.32                     | 53.14                 |
| Beta-cyfluthrin/imidacloprid         | 192.08               | 2.33                     | 38.71                 |
| Unknown seed treatment               | 40.42                |                          | 8.15                  |

### Pesticide usage on spring oilseed rape:

- 290 hectares of spring oilseed rape grown in Northern Ireland
- 679 treated hectares
- 297 kilogrammes applied
- 100% of the area of spring oilseed rape crops grown received a pesticide treatment
- Spring oilseed rape crops received on average 1.00 fungicide, 1.52 herbicide and 1.0 insecticide applications.

Figure 94: Comparison of the areas of spring oilseed rape crops grown in Northern Ireland (ha), 1990 - 2012.

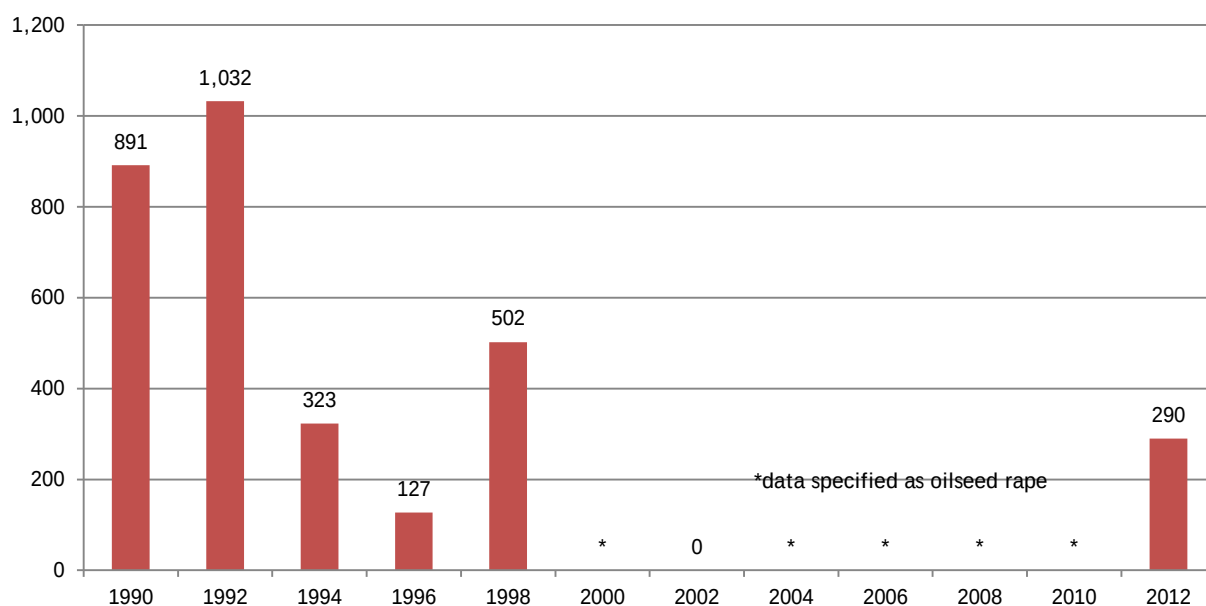


Figure 95: Regional distribution of spring oilseed rape crops grown in Northern Ireland (ha), 2012.



Figure 96: Pesticide usage (spha) on spring oilseed rape crops in Northern Ireland, 2012.

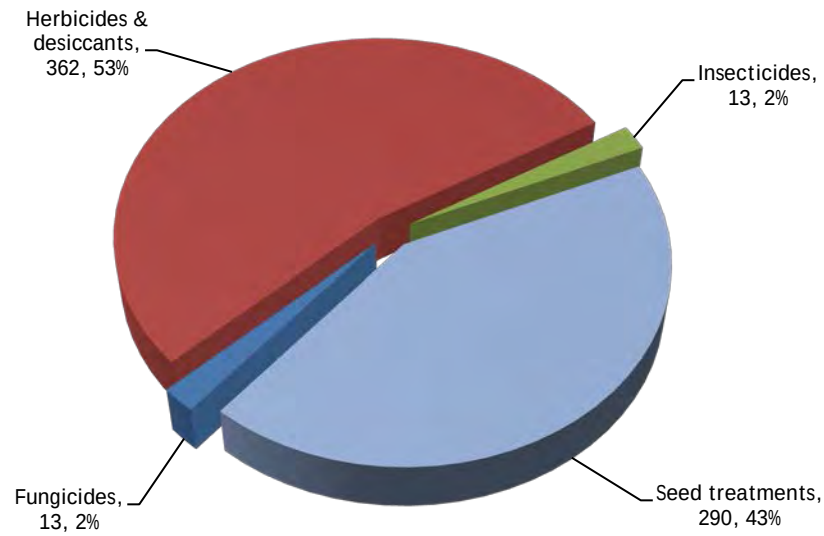


Figure 97: Weight of pesticides (kg) applied to spring oilseed rape crops in Northern Ireland, 2012.

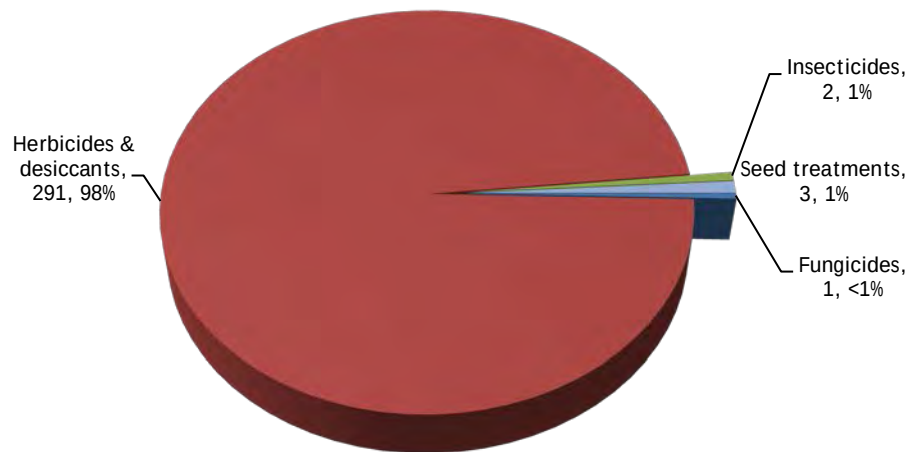
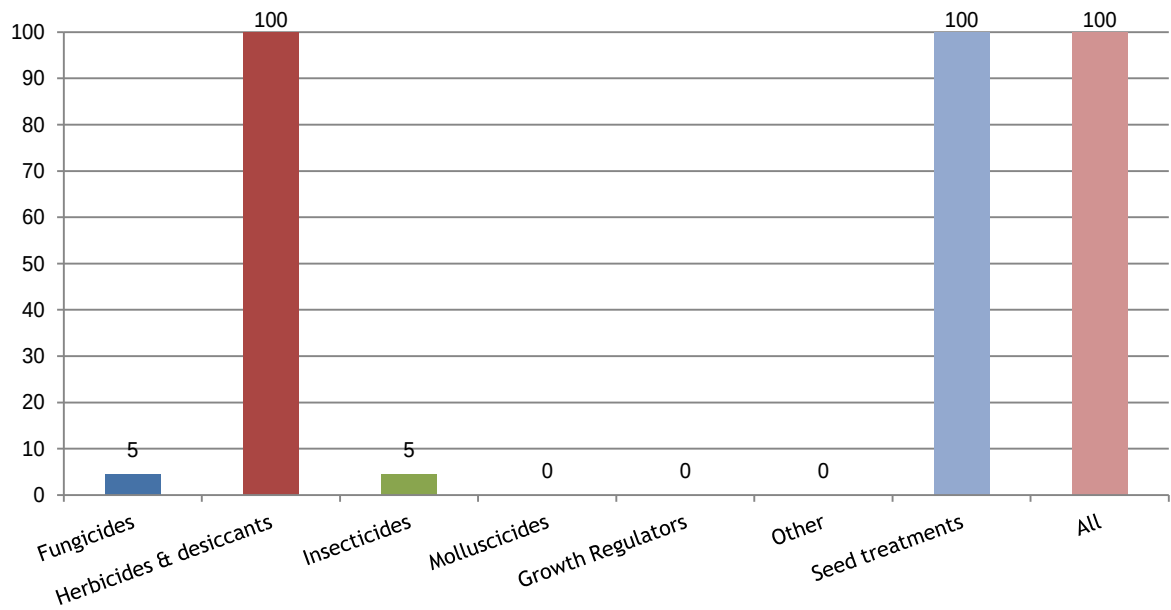


Figure 98: Proportional area (%) of spring oilseed rape crops treated with each pesticide group in Northern Ireland, 2012.



### ***Fungicides - spring oilseed rape***

- Basic area treated: 13 hectares
- Area treated: 13 spray hectares
- Weight of active substances applied: 1 kilogramme
- 5% of the area grown treated with fungicides
- All fungicide applications were for general fungal control
- The only active substance applied was:

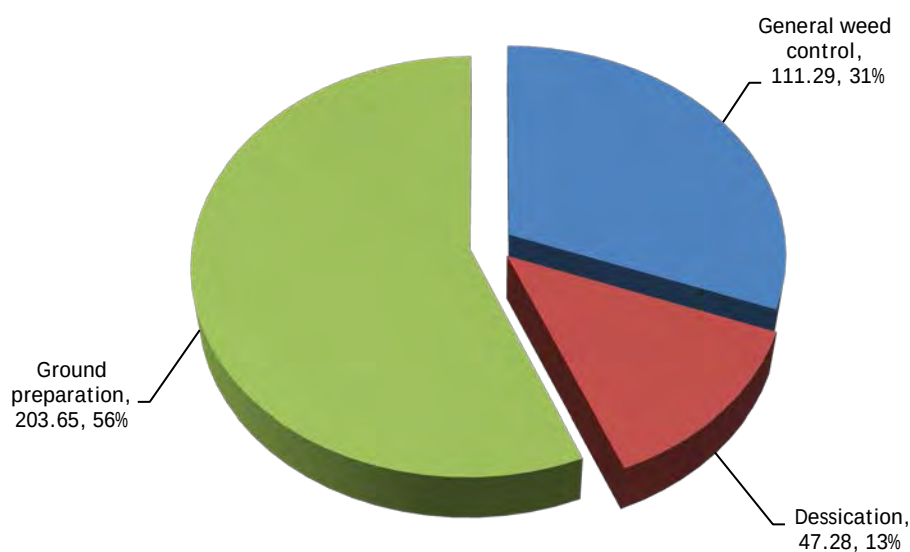
|             | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-------------|---------------------|-------------------------|-----------------------|-----------------------|
| Metconazole | 13.48               | 13.48                   | 1.21                  | 100                   |

### ***Herbicides & desiccants - spring oilseed rape***

- Basic area treated: 290 hectares
- Area treated: 362 spray hectares
- Weight of active substances applied: 291 kilogrammes
- 100% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|             | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|-------------|---------------------|-------------------------|-----------------------|-----------------------|
| Glyphosate  | 250.93              | 250.93                  | 225.84                | 69.28                 |
| Metazachlor | 86.02               | 86.02                   | 64.29                 | 23.75                 |
| Clomazone   | 25.27               | 25.27                   | 1.13                  | 6.98                  |

Figure 99: Spring oilseed rape: reasons for herbicide & desiccant use (spha), 2012.



***Insecticides - oilseed rape***

- Basic area treated: 13 hectares
- Area treated: 13 spray hectares
- Weight of active substances applied: 2 kilogrammes
- 5% of the area grown treated with insecticides
- All applications were for general insect control
- The only active substances applied was:

|            | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity<br>applied (kg) | % of the treated area |
|------------|------------------------|----------------------------|--------------------------|-----------------------|
| Pirimicarb | 13.48                  | 13.48                      | 1.95                     | 100                   |

***Seed treatments - oilseed rape***

- Area treated: 290 hectares
- Weight of active substances applied: 3 kilogrammes
- 100% of the area grown was sown with treated seed
- The active substances applied were:

|                                      | Treated area<br>(ha) | Quantity<br>applied (kg) | % of the treated area |
|--------------------------------------|----------------------|--------------------------|-----------------------|
| Fludioxonil/metalaxyl-M/thiamethoxam | 217.13               | 2.54                     | 74.96                 |
| Beta-cyfluthrin/imidacloprid         | 47.28                | 0.28                     | 16.32                 |
| Unknown seed treatment               | 25.27                |                          | 8.72                  |

### Pesticide usage on *Camelina*:

- 81 hectares of *Camelina* grown in Northern Ireland all of which was in county Londonderry
- 81 treated hectares
- 32 kilogrammes applied all of which were herbicides & desiccants
- 100% of the area of *Camelina* crops grown received a pesticide treatment
- *Camelina* crops received on average 1.00 herbicide application.

Figure 100: Comparison of the areas of *Camelina* crops grown in Northern Ireland (ha), 1990 - 2012.

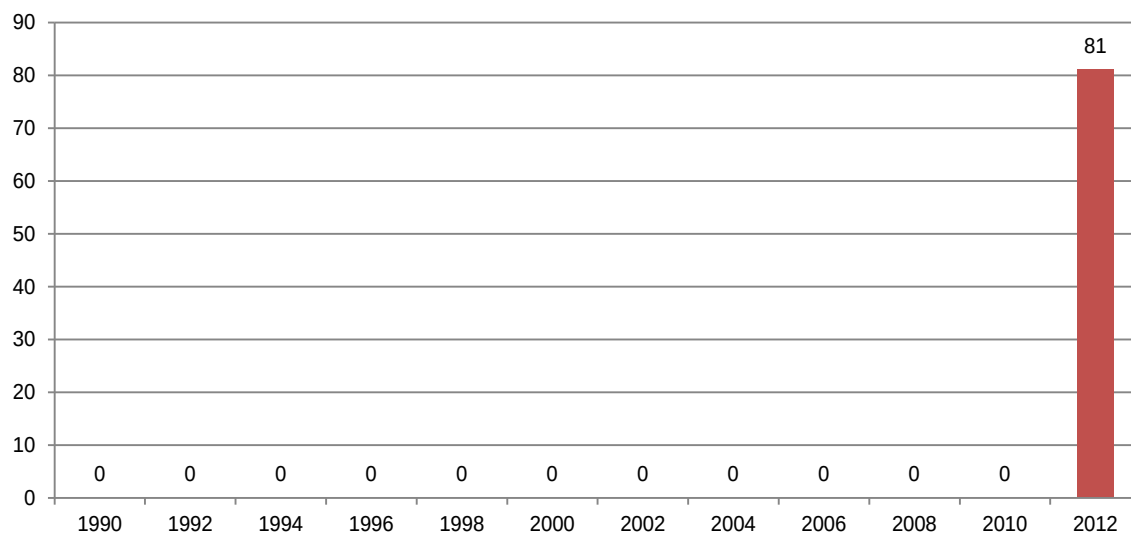
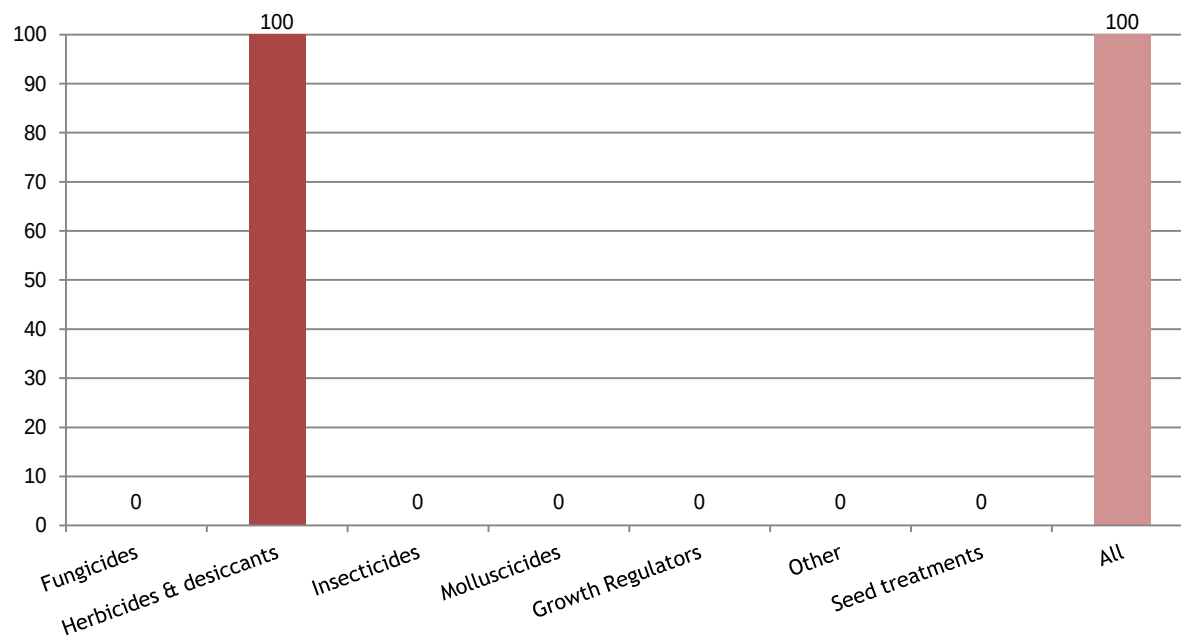


Figure 101: Proportional area (%) of *Camelina* crops treated with each pesticide group in Northern Ireland, 2012.



### ***Herbicide & desiccants - Camelina***

- Basic area treated: 81 hectares
- Area treated: 81 spray hectares
- Weight of active substances applied: 32 kilogrammes
- 100% of the area grown treated with herbicide & desiccants
- All applications were for desiccation
- The active substances applied were:

|        | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity<br>applied (kg) | % of the treated area |
|--------|------------------------|----------------------------|--------------------------|-----------------------|
| Diquat | 80.99                  | 80.99                      | 32.40                    | 100                   |



### Pesticide usage on peas & field beans:

- 10 hectares of peas & field bean crops grown in Northern Ireland all of which were in county Antrim
- 21 treated hectares
- 18 kilogrammes applied all of which were herbicides & desiccants.
- 100% of the area of pea & bean crops grown received a pesticide treatment
- Pea & field bean crops received on average 2.00 herbicide applications.

Figure 102: Comparison of the areas of pea & field bean crops grown in Northern Ireland (ha), 1990 - 2012.

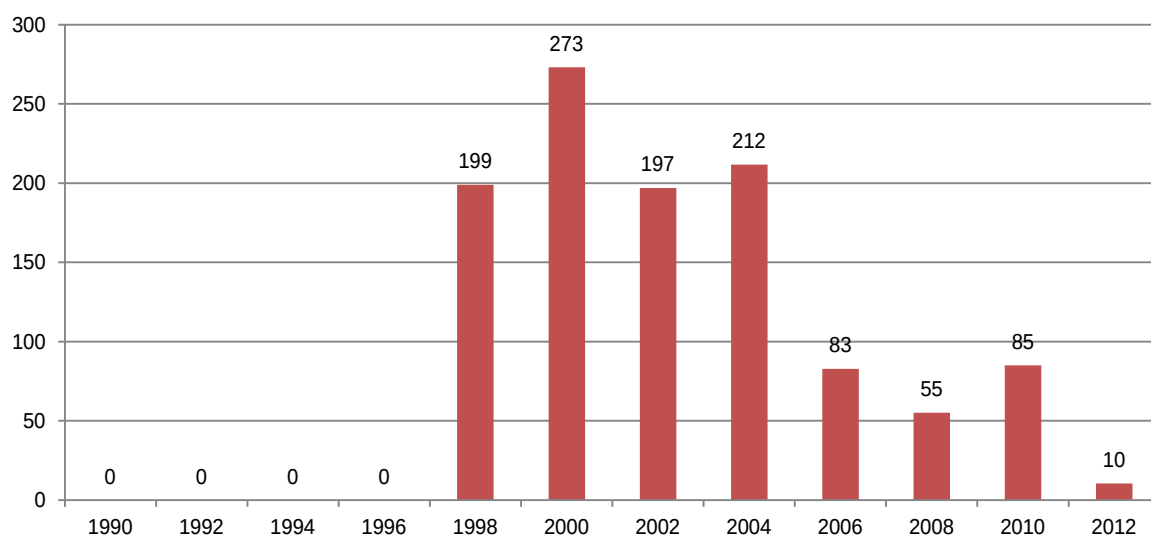
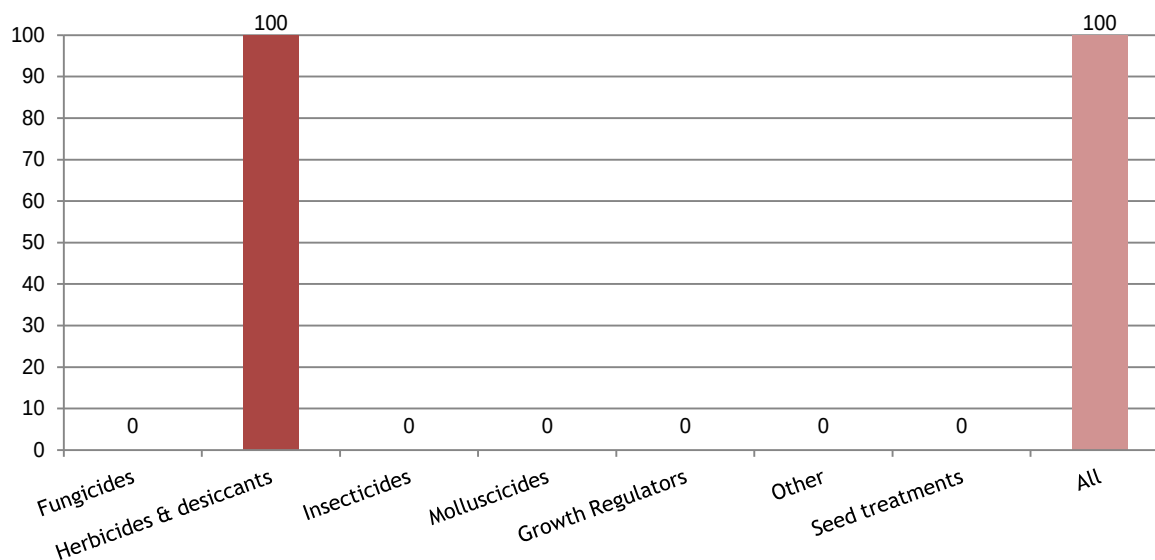


Figure 103: Proportional area (%) of pea & field bean crops treated with each pesticide group in Northern Ireland,



***Herbicide & desiccants - peas & field beans***

- Basic area treated: 10 hectares
- Area treated: 21 spray hectares
- Weight of active substances applied: 18 kilogrammes
- 100% of the area grown treated with herbicide & desiccants
- All applications were for general weed control
- The active substances applied were:

|               | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity<br>applied (kg) | % of the treated area |
|---------------|------------------------|----------------------------|--------------------------|-----------------------|
| Linuron       | 10.36                  | 10.36                      | 10.36                    | 7.77                  |
| Pendimethalin | 10.36                  | 10.36                      | 10.36                    | 10.26                 |

### Pesticide usage on seed potatoes:

- 555 hectares of seed potatoes grown in Northern Ireland
- 9,782 treated hectares
- 4,886 kilogrammes applied
- 100% of the area of seed potato crops grown received a pesticide treatment
- Seed potato crops received on average 11.18 fungicide, 3.87 herbicide & desiccant, 3.12 insecticide and 1.0 molluscicide applications

Figure 104: Comparison of the areas of seed potato crops grown in Northern Ireland (ha), 1990 - 2012.

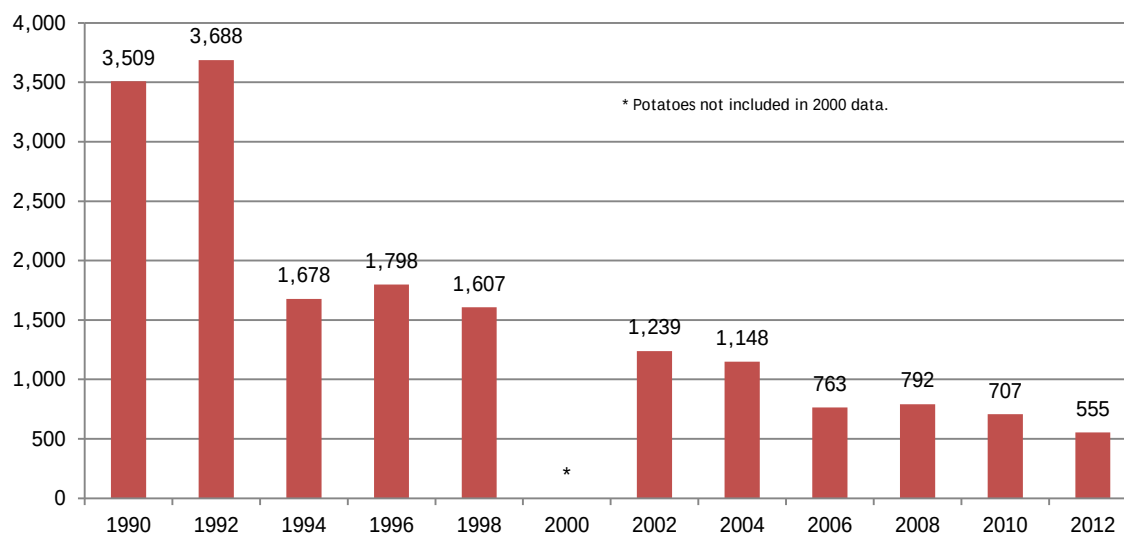


Figure 105: Regional distribution of seed potato crops grown in Northern Ireland (ha), 2012.

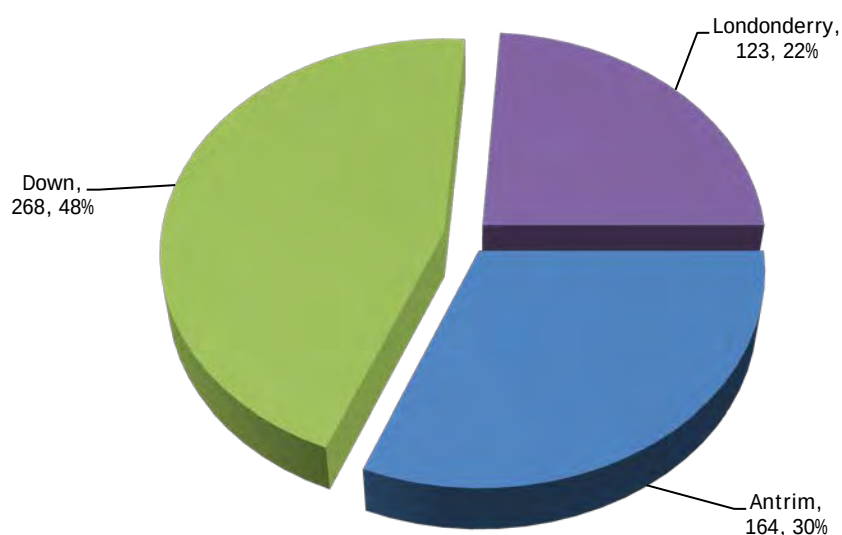


Figure 106: Pesticide usage (spha) on seed potato crops in Northern Ireland, 2012.

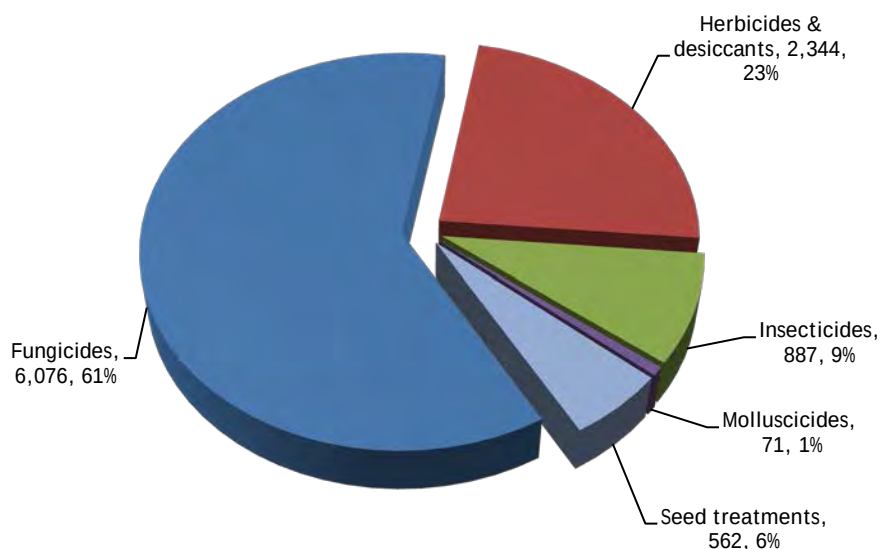


Figure 107: Weight of pesticides (kg) applied to seed potato crops in Northern Ireland, 2012.

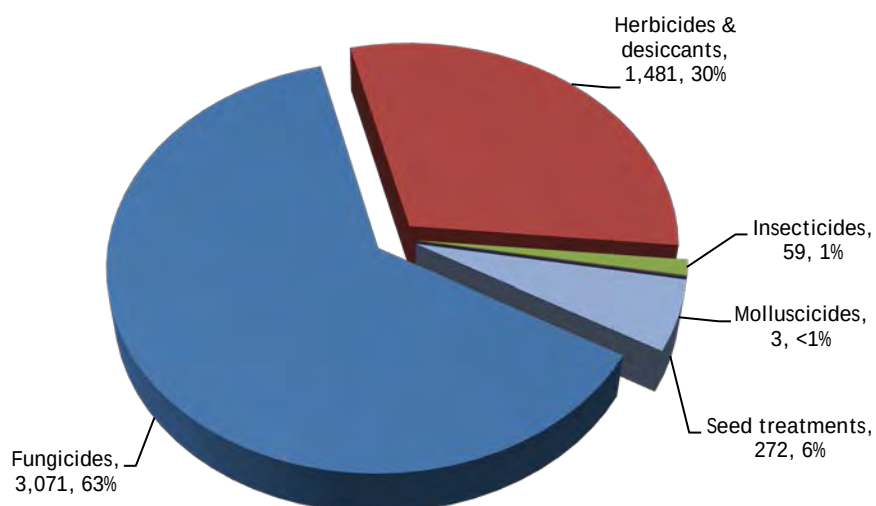
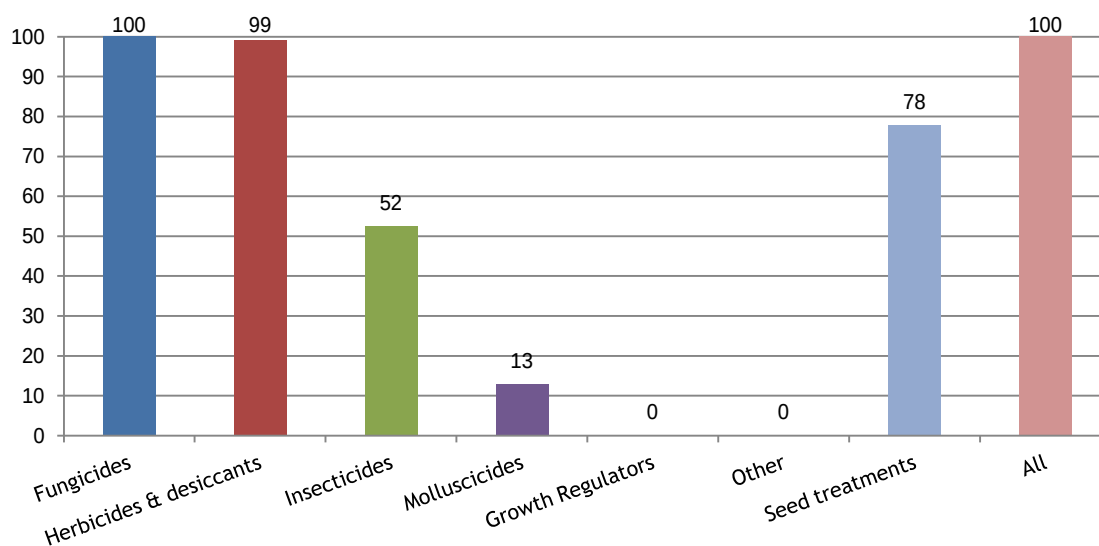


Figure 108: Proportional area (%) of seed potato crops treated with each pesticide group in Northern Ireland, 2012.



### ***Fungicides - seed potatoes***

- Basic area treated: 555 hectares
- Area treated: 6,076 spray hectares
- Weight of active substances applied: 3,071 kilogrammes
- 100% of the area grown treated with fungicides
- All fungicide applications were to control blight
- The most commonly applied active substances were:

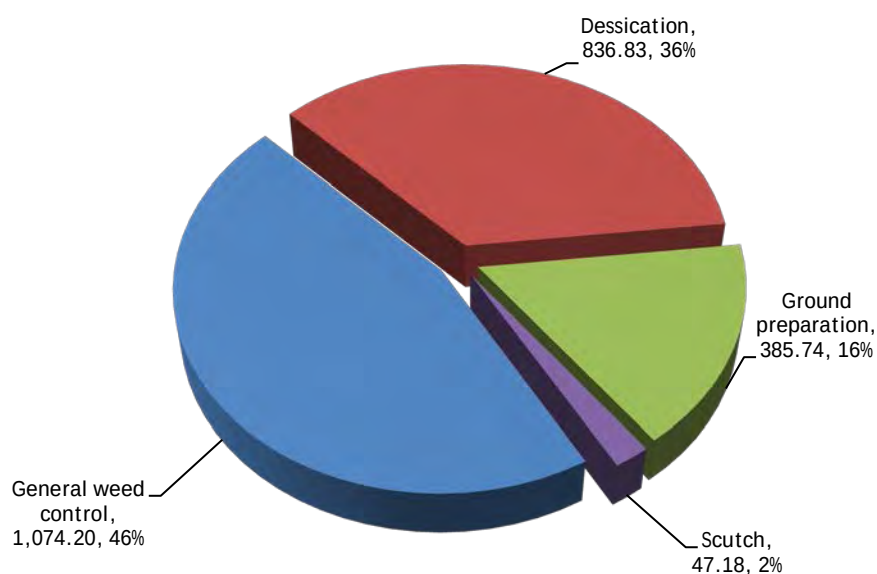
|                                        | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|----------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Fluazinam                              | 1,853.72            | 515.80                  | 325.00                | 30.51                 |
| Mandipropamid                          | 906.37              | 361.14                  | 119.21                | 14.92                 |
| Fluopicolide/propamocarb hydrochloride | 572.72              | 320.79                  | 624.35                | 9.43                  |
| Cymoxanil/mancozeb                     | 510.54              | 326.42                  | 688.88                | 8.40                  |
| Ametoctradin/Dimethomorph              | 494.56              | 337.76                  | 206.41                | 8.14                  |

### ***Herbicides & desiccants - seed potatoes***

- Basic area treated: 550 hectares
- Area treated: 2,344 spray hectares
- Weight of active substances applied: 1,481 kilogrammes
- 99% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                     | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|---------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Diquat              | 892.76              | 519.93                  | 321.49                | 38.09                 |
| Metribuzin          | 497.41              | 497.41                  | 401.28                | 21.22                 |
| Glyphosate          | 458.00              | 458.00                  | 357.50                | 19.54                 |
| Carfentrazone-ethyl | 110.96              | 110.96                  | 9.74                  | 4.73                  |
| Prosulfocarb        | 89.80               | 89.80                   | 255.04                | 3.83                  |

Figure 109: Seed potatoes: reasons for herbicide & desiccant use (spha), 2012.



### ***Insecticides - seed potatoes***

- Basic area treated: 291 hectares
- Area treated: 887 spray hectares
- Weight of active substances applied: 59 kilogrammes
- 52% of the area grown treated with insecticides
- All applications were to control aphids
- The active substances applied were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Esfenvalerate      | 233.07              | 109.9                   | 1.16                  | 26.26                 |
| Pymetrozine        | 203.98              | 203.98                  | 33.13                 | 22.99                 |
| Thiacloprid        | 180.96              | 180.96                  | 17.37                 | 20.39                 |
| Lambda-cyhalothrin | 135.64              | 67.82                   | 1.02                  | 15.28                 |
| Thiamethoxam       | 67.82               | 67.82                   | 1.36                  | 7.64                  |

### ***Molluscicides - seed potatoes***

- Basic area treated: 71 hectares
- Area treated: 71 spray hectares
- Weight of active substances applied: 3 kilogrammes
- 13% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

|            | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|------------|---------------------|-------------------------|-----------------------|-----------------------|
| Methiocarb | 70.85               | 70.85                   | 2.83                  | 100                   |

### ***Seed treatments - seed potatoes***

- Area treated: 431 hectares
- Weight of active substances applied: 271 kilogrammes
- 78% of the area grown was sown with treated seed
- The active substances applied were:

|                        | Treated area (ha) | Quantity applied (kg) | % of the treated area |
|------------------------|-------------------|-----------------------|-----------------------|
| Imazalil/pencycuron    | 256.99            | 227.57                | 45.73                 |
| Imazalil               | 217.78            | 6.16                  | 38.76                 |
| Flutolanil             | 65.96             | 33.78                 | 11.74                 |
| Imazalil/thiabendazole | 21.19             | 4.19                  | 3.77                  |

### Pesticide usage on early potatoes:

- 192 hectares of early potatoes grown in Northern Ireland
- 3,180 treated hectares
- 1,160 kilogrammes applied
- 100% of the area of early potato crops grown received a pesticide treatment
- Early potato crops received on average 5.25 fungicide, 2.96 herbicide & desiccant, 1 insecticide and 2 molluscicide applications

Figure 110: Comparison of the areas of early potato crops grown in Northern Ireland (ha), 1990 - 2012.

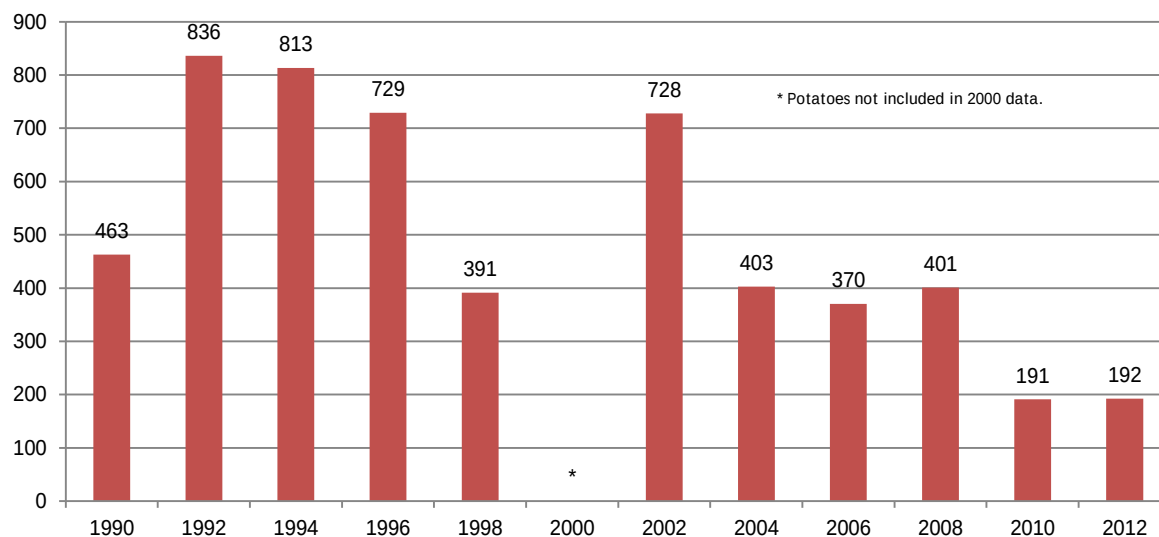


Figure 111: Regional distribution of early potato crops grown in Northern Ireland (ha), 2012.

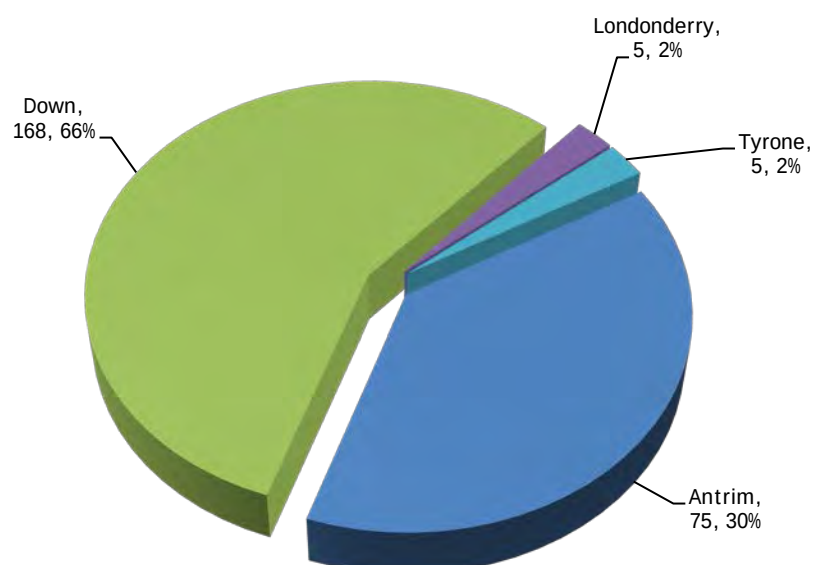


Figure 112: Pesticide usage (spha) on early potato crops in Northern Ireland, 2012.

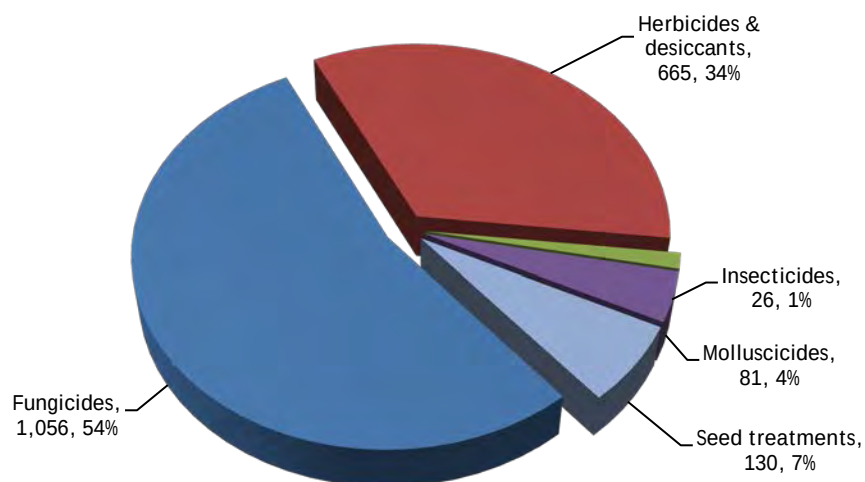


Figure 113: Weight of pesticides (kg) applied to early potato crops in Northern Ireland, 2012.

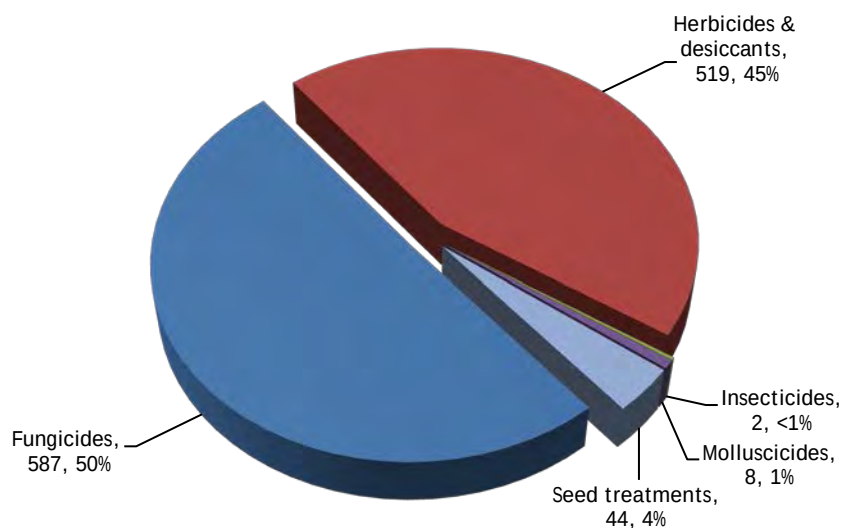
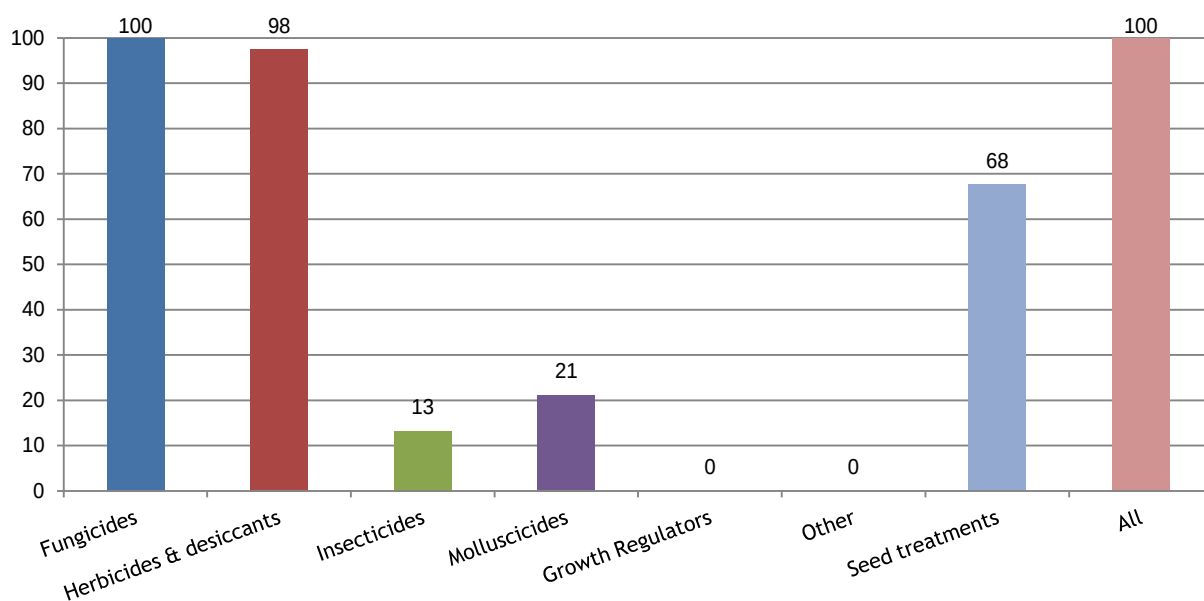


Figure 114: Proportional area (%) of early potato crops treated with each pesticide group in Northern Ireland, 2012.





### ***Fungicides - early potatoes***

- Basic area treated: 192 hectares
- Area treated: 1,056 spray hectares
- Weight of active substances applied: 587 kilogrammes
- 100% of the area grown treated with fungicides
- All fungicide applications were to control blight
- The most commonly applied active substances were:

|                                        | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|----------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Fluazinam                              | 359.36              | 158.52                  | 70.25                 | 34.03                 |
| Fenamidone/propamocarb hydrochloride   | 202.95              | 128.73                  | 182.65                | 19.22                 |
| Mandipropamid                          | 147.58              | 86.56                   | 21.93                 | 13.97                 |
| Fluopicolide/propamocarb hydrochloride | 126.49              | 82.42                   | 139.14                | 11.98                 |
| Cymoxanil/mancozeb                     | 70.22               | 59.07                   | 101.81                | 6.65                  |

### ***Herbicides & desiccants - early potatoes***

- Basic area treated: 188 hectares
- Area treated: 665 spray hectares
- Weight of active substances applied: 519 kilogrammes
- 98% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|               | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|---------------|---------------------|-------------------------|-----------------------|-----------------------|
| Diquat        | 214.70              | 133.34                  | 67.28                 | 32.27                 |
| Metribuzin    | 152.23              | 152.23                  | 145.11                | 22.88                 |
| Glyphosate    | 127.07              | 127.07                  | 139.72                | 19.10                 |
| Linuron       | 78.16               | 78.16                   | 38.76                 | 11.75                 |
| Pendimethalin | 61.21               | 61.21                   | 60.81                 | 9.20                  |

Figure 115: Early potatoes: reasons for herbicide & desiccant use (spha), 2012.



### ***Insecticides - early potatoes***

- Basic area treated: 26 hectares
- Area treated: 26 spray hectares
- Weight of active substances applied: 2 kilogrammes
- 13% of the area grown treated with insecticides
- All applications were to control aphids
- The only active substances applied were:

|                    | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity<br>applied (kg) | % of the treated area |
|--------------------|------------------------|----------------------------|--------------------------|-----------------------|
| Pirimicarb         | 17.40                  | 17.40                      | 2.44                     | 68.16                 |
| Lambda-cyhalothrin | 8.14                   | 8.14                       | 0.06                     | 31.88                 |

### ***Molluscicides - early potatoes***

- Basic area treated: 41 hectares
- Area treated: 81 spray hectares
- Weight of active substances applied: 8 kilogrammes
- 21% of the area grown treated with molluscicides
- All applications were to control slugs
- The only active substance applied was:

|             | Treated area<br>(spha) | Basic area treated<br>(ha) | Quantity applied<br>(kg) | % of the treated area |
|-------------|------------------------|----------------------------|--------------------------|-----------------------|
| Metaldehyde | 40.68                  | 40.68                      | 4.88                     | 50                    |
| Methiocarb  | 40.68                  | 40.68                      | 3.25                     | 50                    |

### ***Seed treatments - early potatoes***

- Area treated: 130 hectares
- Weight of active substances applied: 44 kilogrammes
- 68% of the area grown was sown with treated seed
- The active substances applied were:

|                     | Treated area<br>(ha) | Quantity<br>applied (kg) | % of the treated area |
|---------------------|----------------------|--------------------------|-----------------------|
| Imazalil            | 63.08                | 1.75                     | 48.50                 |
| Imazalil/pencycuron | 52.06                | 35.61                    | 40.03                 |
| Flutolanil          | 8.14                 | 2.16                     | 6.26                  |
| Pencycuron          | 6.78                 | 4.26                     | 5.21                  |

### Pesticide usage on maincrop potatoes:

- 3,403 hectares of maincrop potatoes grown in Northern Ireland
- 61,977 treated hectares
- 33,415 kilogrammes applied
- 100% of the area of maincrop potatoes grown received a pesticide treatment
- Maincrop potatoes received on average 11.12 fungicide, 3.18 herbicide & desiccant, 1.53 insecticide, 1.46 molluscicide and 1.0 growth regulator applications

Figure 116: Comparison of the areas of maincrop potato crops grown in Northern Ireland (ha), 1990 - 2012.

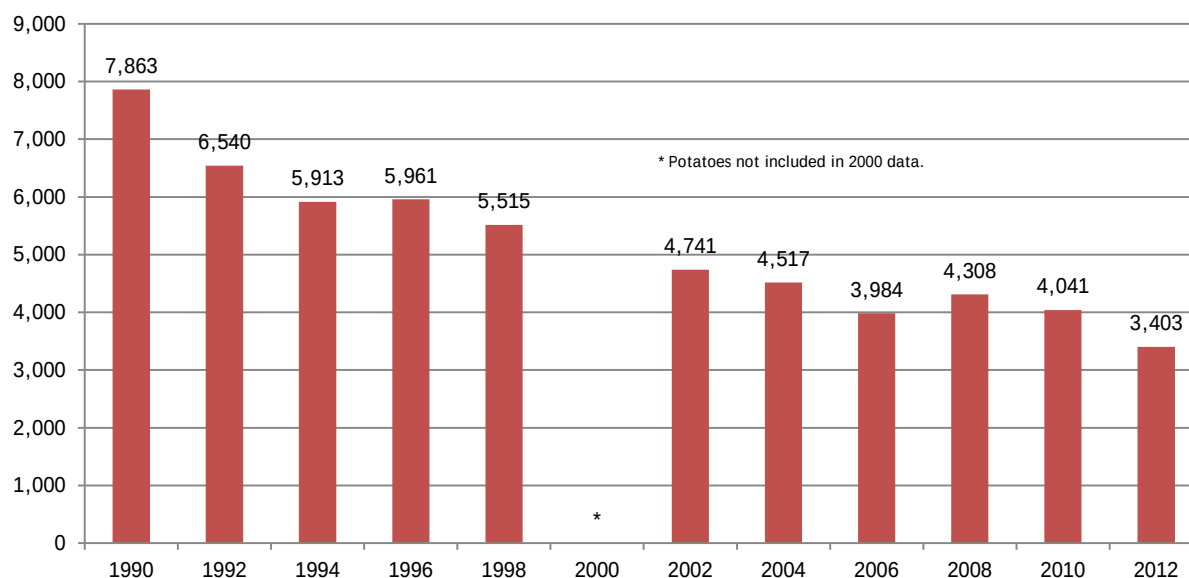


Figure 117: Regional distribution of maincrop potato crops grown in Northern Ireland (ha), 2012.

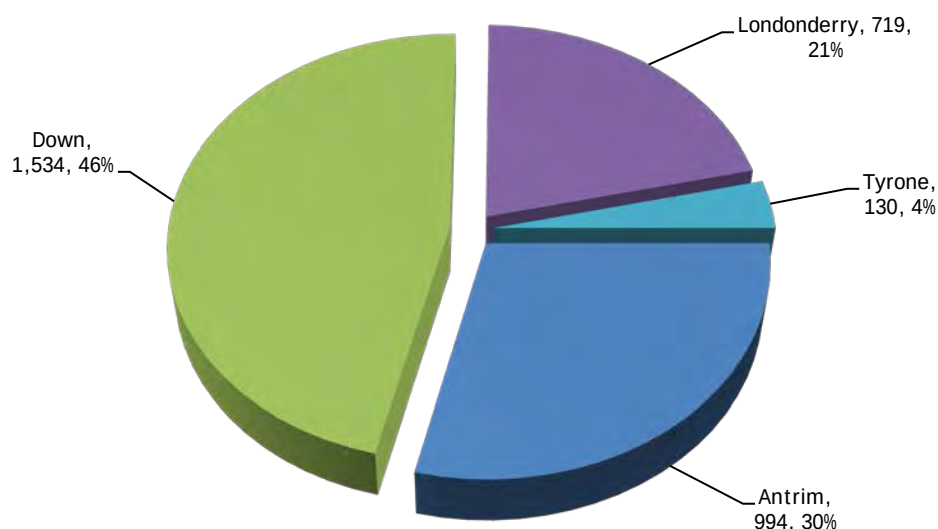


Figure 118: Pesticide usage (spha) on maincrop potato crops in Northern Ireland, 2012.

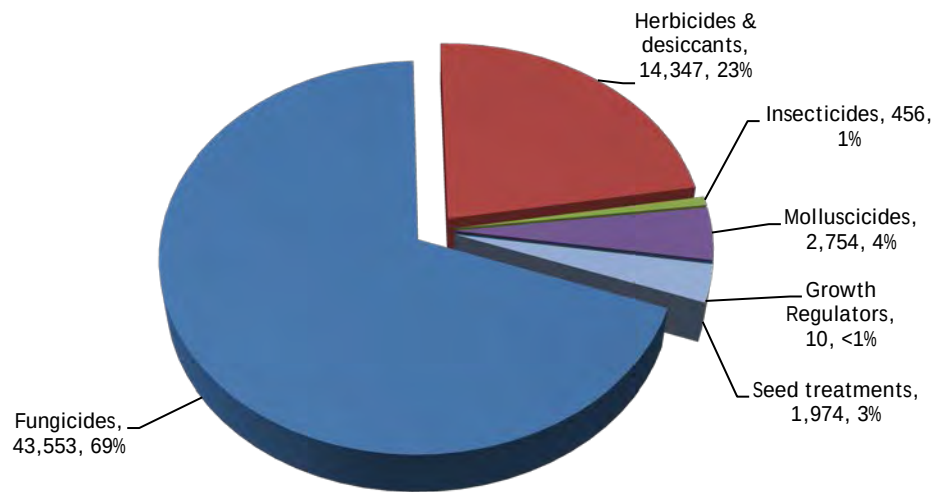


Figure 119: Weight of pesticides (kg) applied to maincrop potato crops in Northern Ireland, 2012.

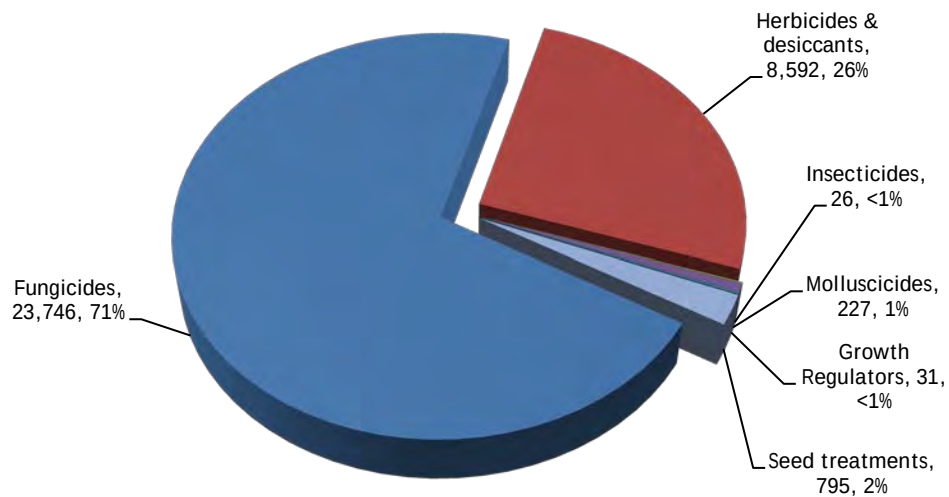
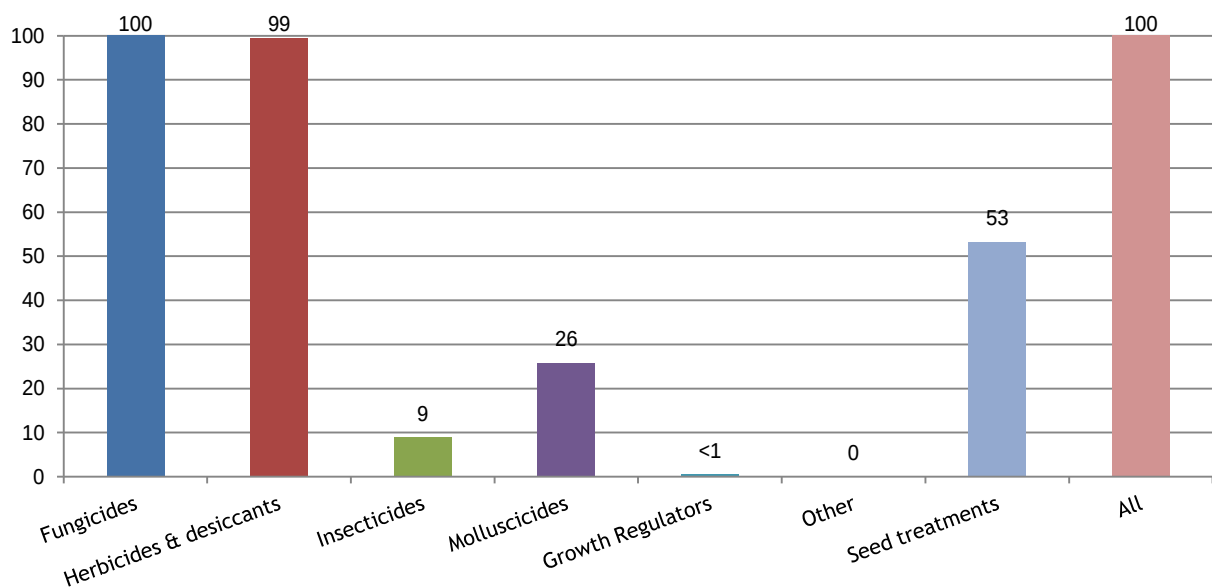


Figure 120: Proportional area (%) of maincrop potato crops treated with each pesticide group in Northern Ireland, 2012.

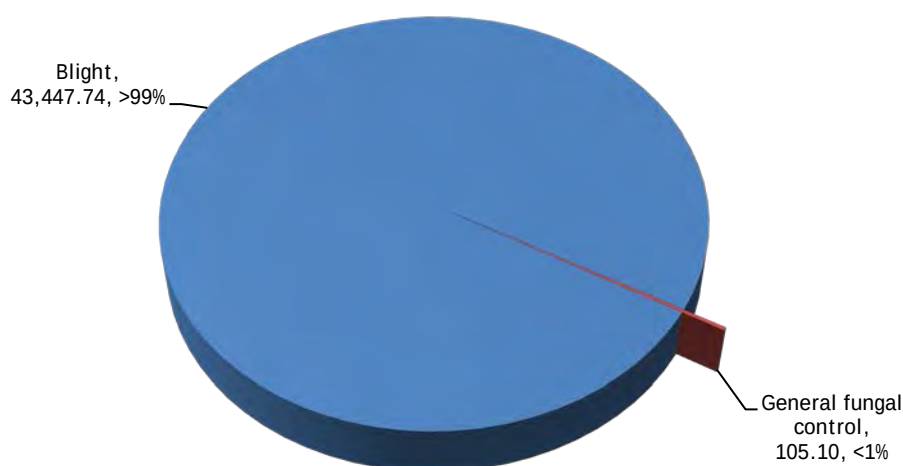


### ***Fungicides - maincrop potatoes***

- Basic area treated: 3,403 hectares
- Area treated: 43,553 spray hectares
- Weight of active substances applied: 23,746 kilogrammes
- 100% of the area grown treated with fungicides
- All fungicide applications were to control blight
- The most commonly applied active substances were:

|                                        | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|----------------------------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Fluazinam                              | 13,892.60           | 3,008.32                | 2,549.27              | 31.90                 |
| Fluopicolide/propamocarb hydrochloride | 5,198.06            | 2,589.69                | 5,535.52              | 11.94                 |
| Mandipropamid                          | 4,695.57            | 1,628.80                | 666.04                | 10.78                 |
| Cyazofamid                             | 3,553.02            | 1,605.70                | 279.59                | 8.16                  |
| Cymoxanil                              | 3,180.63            | 1,323.24                | 264.57                | 7.30                  |

Figure 121: Maincrop potatoes: reasons for fungicide use (spha), 2012.

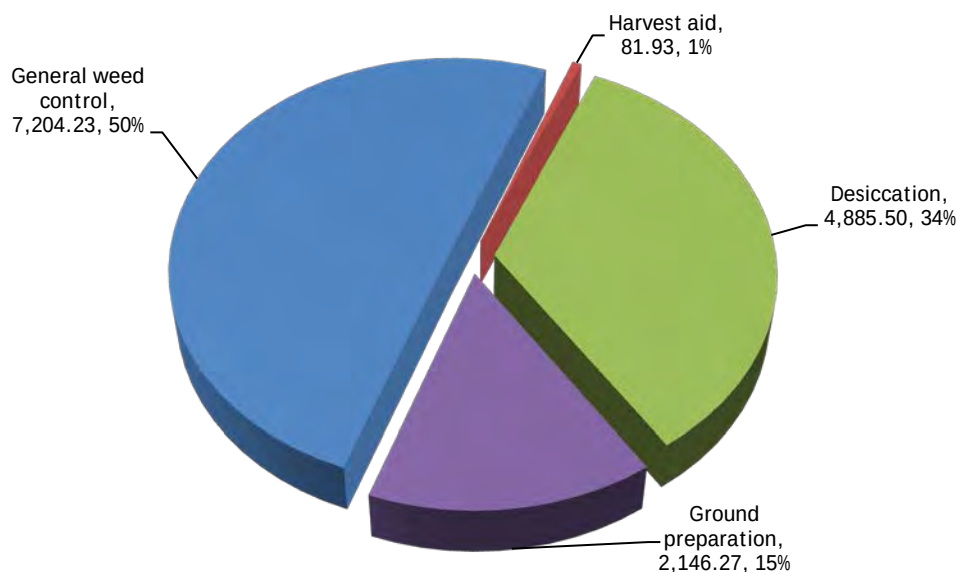


### ***Herbicides & desiccants - maincrop potatoes***

- Basic area treated: 3,380 hectares
- Area treated: 14,347 spray hectares
- Weight of active substances applied: 8,592 kilogrammes
- 99% of the area grown treated with herbicides & desiccants
- The most commonly applied active substances were:

|                     | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|---------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Diquat              | 6,192.89            | 3,210.27                | 2,093.62              | 43.17                 |
| Metribuzin          | 3,133.32            | 3,038.39                | 2,562.22              | 21.84                 |
| Glyphosate          | 2,431.93            | 2,377.55                | 2,226.32              | 16.95                 |
| Carfentrazone-ethyl | 702.24              | 702.24                  | 49.60                 | 4.89                  |
| Linuron             | 549.79              | 549.79                  | 312.07                | 3.83                  |

Figure 122: Maincrop potatoes: reasons for herbicide & desiccant use (spha), 2012.



### ***Insecticides - maincrop potatoes***

- Basic area treated: 299 hectares
- Area treated: 456 spray hectares
- Weight of active substances applied: 26 kilogrammes
- 9% of the area grown treated with insecticides
- All applications were to control aphids
- The active substances applied were:

|                    | Treated area (spha) | Basic area treated (ha) | Quantity applied (kg) | % of the treated area |
|--------------------|---------------------|-------------------------|-----------------------|-----------------------|
| Lambda-cyhalothrin | 221.04              | 187.14                  | 1.63                  | 48.49                 |
| Pirimicarb         | 80.88               | 80.88                   | 11.32                 | 17.74                 |
| Pymetrozine        | 67.80               | 33.90                   | 10.17                 | 14.87                 |
| Deltamethrin       | 30.51               | 30.51                   | 0.19                  | 6.69                  |
| Esfenvalerate      | 30.51               | 30.51                   | 0.13                  | 6.69                  |

### ***Molluscicides - maincrop potatoes***

- Basic area treated: 878 hectares
- Area treated: 2,754 spray hectares
- Weight of active substances applied: 227 kilogrammes
- 26% of the area grown treated with molluscicides
- All applications were to control slugs
- The active substances applied were:

|             | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity applied<br>(kg) | % of the treated area |
|-------------|------------------------|----------------------------|--------------------------|-----------------------|
| Methiocarb  | 1,612.72               | 843.60                     | 93.69                    | 58.56                 |
| Metaldehyde | 1,141.14               | 463.10                     | 132.87                   | 41.44                 |

### ***Growth regulators - maincrop potatoes***

- Basic area treated: 10 hectares
- Area treated: 10 spray hectares
- Weight of active substances applied: 31 kilogrammes
- <1% of the area grown treated with growth regulators
- All applications were for growth regulation
- The only active substance applied was:

|                  | Treated area<br>(spha) | Basic area<br>treated (ha) | Quantity applied<br>(kg) | % of the treated area |
|------------------|------------------------|----------------------------|--------------------------|-----------------------|
| Maleic hydrazide | 10.17                  | 10.17                      | 30.51                    | 100                   |

### ***Seed treatments - maincrop potatoes***

- Area treated: 1,812 hectares
- Weight of active substances applied: 795 kilogrammes
- 53% of the area grown was sown with treated seed
- The active substances applied were:

|                        | Treated area<br>(ha) | Quantity applied<br>(kg) | % of the treated area |
|------------------------|----------------------|--------------------------|-----------------------|
| Imazalil/pencycuron    | 862.03               | 578.98                   | 43.66                 |
| Imazalil               | 533.83               | 12.94                    | 27.04                 |
| Flutolanil             | 249.26               | 96.84                    | 12.63                 |
| Imazalil/thiabendazole | 193.52               | 21.14                    | 9.80                  |
| Pencycuron             | 135.61               | 85.11                    | 6.87                  |

## Potato storage:

- 68,804 tonnes of potatoes stored.
- The majority are stored in Counties Antrim and Down
- 8,134 tonnes (11.8%) treated with 217.74 kilograms

Figure 123: Comparison of the quantities (t) of potatoes stored in Northern Ireland, 1990 - 2012.

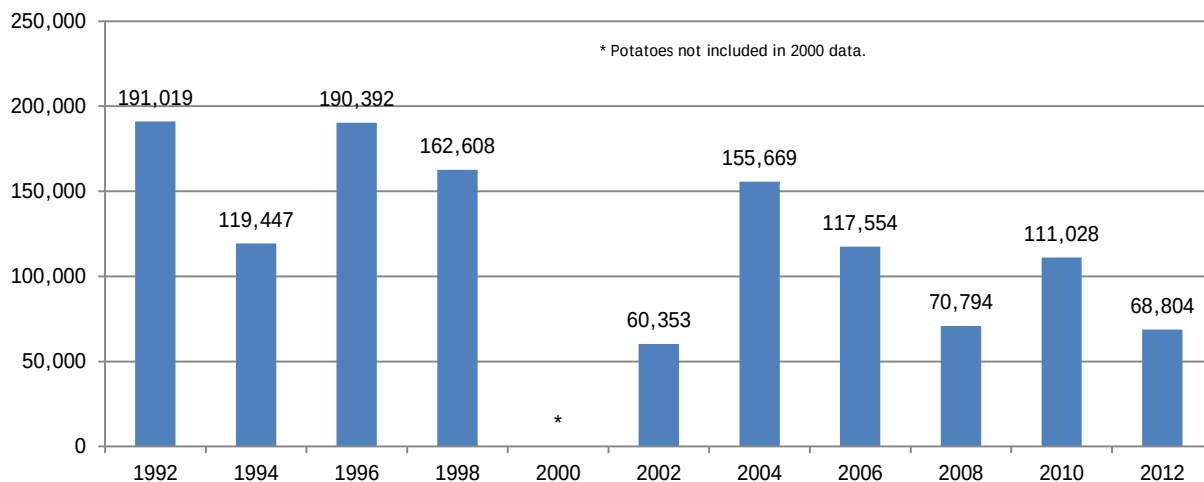


Figure 124: Comparison of the quantities (t) of treated potatoes stored in Northern Ireland, 1990 - 2012.

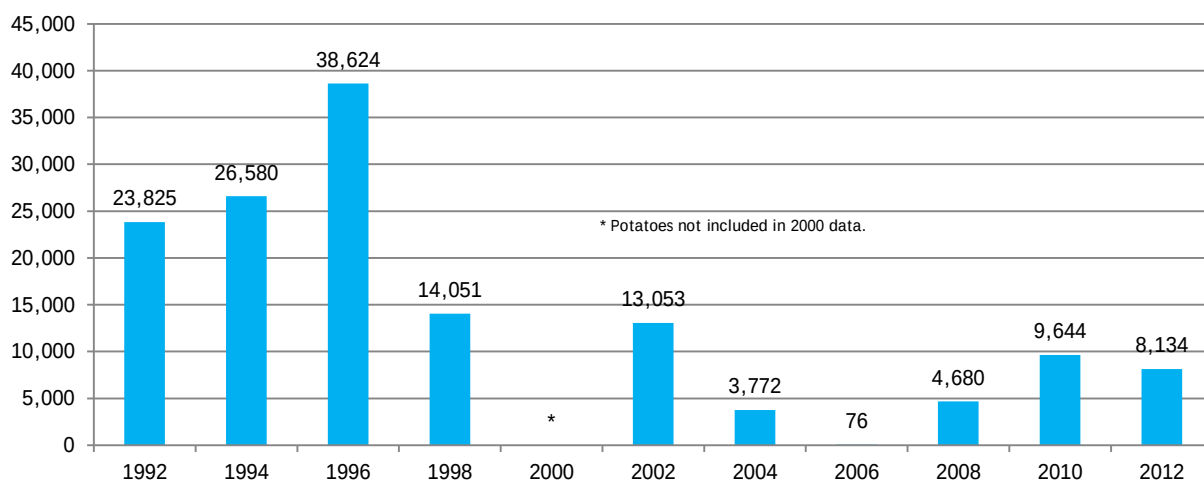


Figure 125: Comparison of the quantities (kg) of pesticide applied to potatoes stored in Northern Ireland, 1990 - 2012.

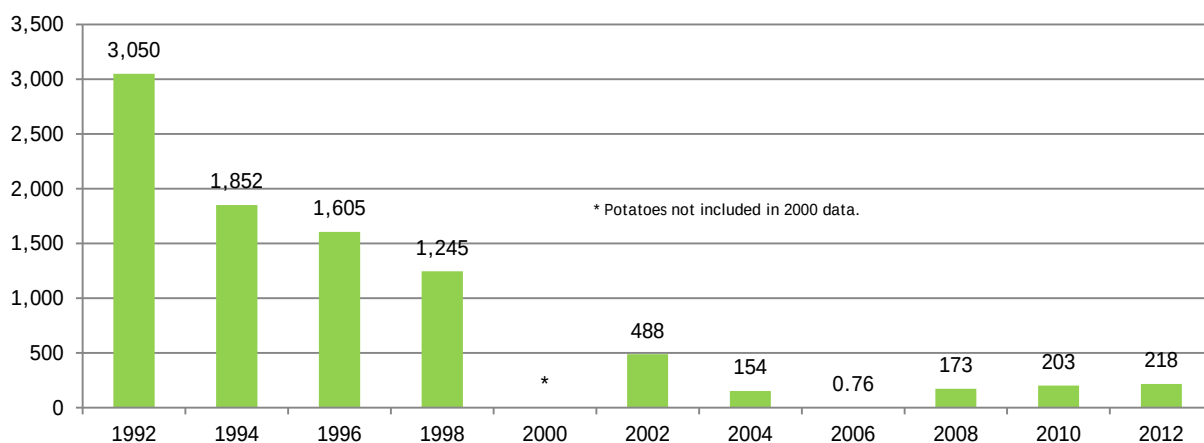




Figure 126: Potato storage: estimated quantity (t) of potatoes stored in each region in Northern Ireland, 2012

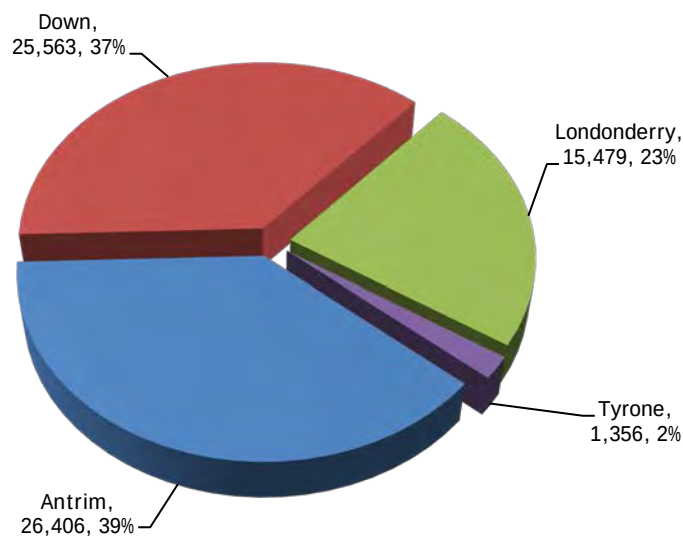


Figure 127: Potato storage: estimated quantity (t) of ware potatoes stored in each region in Northern Ireland, 2012

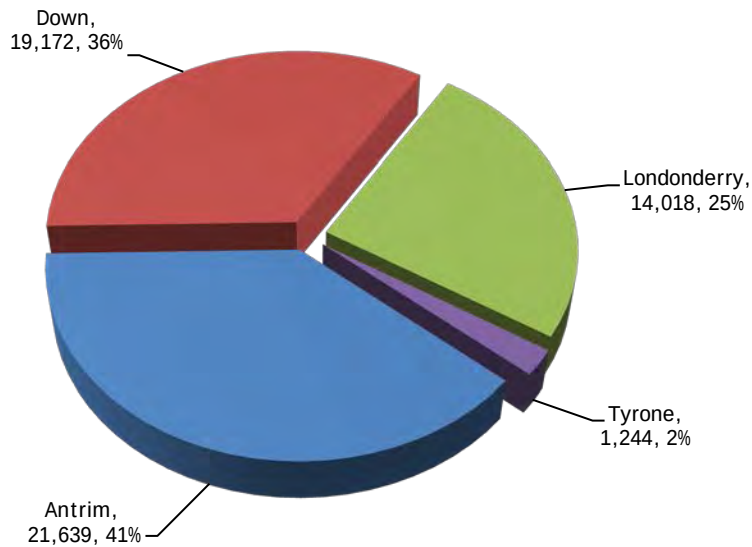


Figure 128: Potato storage: estimated quantity (t) of seed potatoes stored in each region in Northern Ireland, 2012

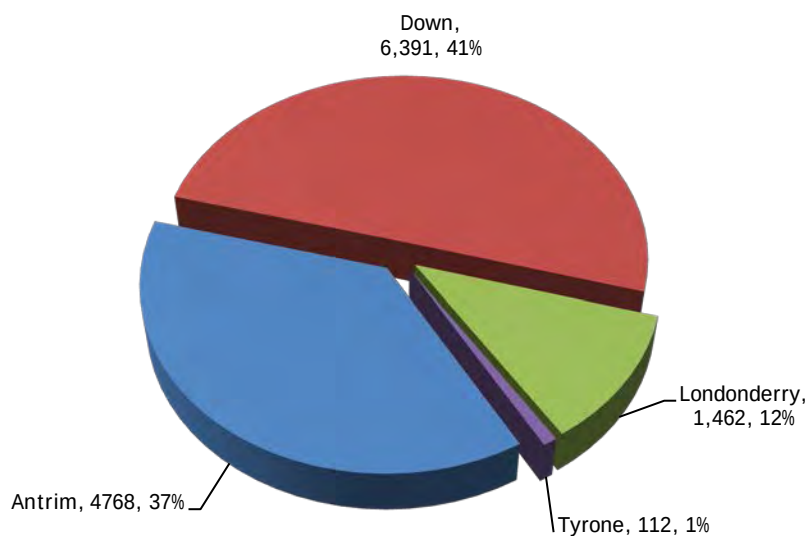


Figure 129: Potato storage: type of storage building used and quantities (t) of potatoes stored in Northern Ireland, 2012.

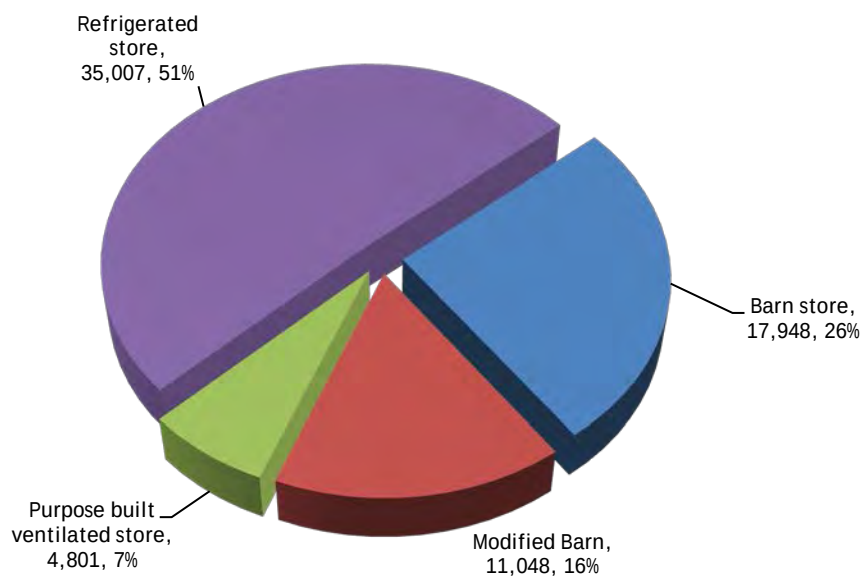
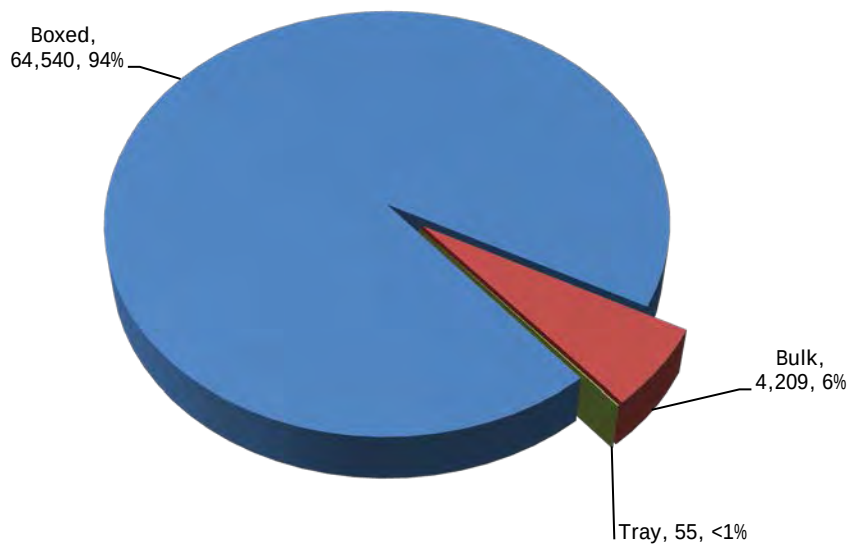


Figure 130: Potato storage: type of storage method used and quantities (t) of potatoes stored in Northern Ireland, 2012.



**Table 1a:** Number of farms in each size class with cereal crops in the Northern Ireland June 2012 census and the number of samples from each class.

| County                  | Size group (hectares)  |                  |                        |                  |                        |                  |                        |                  |                        |                  |                        |                  | Total                  |                  |
|-------------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|
|                         | < 5                    |                  | 5 < 10                 |                  | 10 < 20                |                  | 20 < 50                |                  | 50 < 100               |                  | 100+                   |                  |                        |                  |
|                         | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled |
| Antrim                  | 259                    | 1                | 127                    | 7                | 108                    | 4                | 81                     | 19               | 18                     | 5                | 3                      | 3                | 596                    | 39               |
| Armagh                  | 79                     | 0                | 51                     | 2                | 44                     | 2                | 24                     | 3                | 6                      | 3                | 5                      | 2                | 209                    | 12               |
| Down                    | 412                    | 6                | 238                    | 12               | 210                    | 16               | 149                    | 17               | 72                     | 32               | 19                     | 11               | 1,100                  | 94               |
| Fermanagh               | 10                     | 0                | 2                      | 0                | 3                      | 0                | 1                      | 0                | 0                      | 0                | 0                      | 0                | 16                     | 0                |
| Londonderry             | 254                    | 4                | 155                    | 8                | 119                    | 8                | 89                     | 13               | 27                     | 9                | 11                     | 3                | 655                    | 45               |
| Tyrone                  | 141                    | 2                | 75                     | 2                | 57                     | 1                | 26                     | 5                | 6                      | 3                | 2                      | 1                | 307                    | 14               |
| <b>Northern Ireland</b> | <b>1,155</b>           | <b>13</b>        | <b>648</b>             | <b>31</b>        | <b>541</b>             | <b>31</b>        | <b>370</b>             | <b>57</b>        | <b>129</b>             | <b>52</b>        | <b>40</b>              | <b>20</b>        | <b>2,883</b>           | <b>204</b>       |

**Table 1b:** Number of farms in each size class with ware potato crops in the Northern Ireland June 2012 census and the number of samples from each class.

| County           | Size group (hectares)  |                  |                        |                  |                        |                  |                        |                  |                        |                  | Total                  |                  |
|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|
|                  | < 2                    |                  | 2 < 5                  |                  | 5 < 10                 |                  | 10 < 20                |                  | 20+                    |                  |                        |                  |
|                  | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled |
| Northern Ireland | 246                    | 3                | 133                    | 9                | 53                     | 6                | 38                     | 6                | 48                     | 24               | 518                    | 48               |

**Table 1c:** Number of farms in each size class with seed potato crops in the Northern Ireland June 2012 census and the number of samples from each class.

| County           | Size group (hectares)  |                  |                        |                  |                        |                  |                        |                  |                        |                  | Total                  |                  |
|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|------------------------|------------------|
|                  | < 2                    |                  | 2 < 5                  |                  | 5 < 10                 |                  | 10 < 20                |                  | 20+                    |                  |                        |                  |
|                  | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled | Holdings in size group | Holdings sampled |
| Northern Ireland | 38                     | 1                | 27                     | 3                | 9                      | 4                | 14                     | 3                | 5                      | 3                | 93                     | 14               |

**Table 2: The total number and area (ha) of crops sampled, and the proportion (%) of the total area of arable crops surveyed in Northern Ireland, 2012.**

| <b>Crop</b>             | <b>Number of crops surveyed</b> | <b>Survey area (ha)</b> | <b>Proportion of crops surveyed (%)</b> |
|-------------------------|---------------------------------|-------------------------|-----------------------------------------|
| Spring barley           | 248                             | 3844.9                  | 19.5%                                   |
| Undersown spring barley | 6                               | 22.7                    | 4.5%                                    |
| Winter barley           | 89                              | 1226.3                  | 23.0%                                   |
| Spring wheat            | 23                              | 310.2                   | 20.7%                                   |
| Undersown spring wheat  | 1                               | 4.0                     | 8.3%                                    |
| Winter wheat            | 107                             | 1843.2                  | 23.5%                                   |
| Spring oats             | 26                              | 301.5                   | 20.9%                                   |
| Undersown spring oats   | 4                               | 23.1                    | 12.0%                                   |
| Winter oats             | 10                              | 109.4                   | 44.5%                                   |
| Winter oilseed rape     | 12                              | 136.2                   | 26.3%                                   |
| Spring oilseed rape     | 4                               | 159.3                   | 55.0%                                   |
| <i>Camelina</i>         | 1                               | 13.4                    | 16.5%                                   |
| Peas & field beans      | 1                               | 2.4                     | 23.5%                                   |
| Seed potatoes           | 30                              | 214.6                   | 38.7%                                   |
| Early potatoes          | 20                              | 96.9                    | 50.4%                                   |
| Maincrop potatoes       | 104                             | 1380.4                  | 40.6%                                   |
| <b>Total</b>            | <b>686</b>                      | <b>9688.4</b>           | <b>23.1%</b>                            |

**Table 3: Estimated area (ha) of arable crops grown regionally in Northern Ireland 2012.**

| Crop                    | County       |              |               |              |              | Northern Ireland |
|-------------------------|--------------|--------------|---------------|--------------|--------------|------------------|
|                         | Antrim       | Armagh       | Down          | Londonderry  | Tyrone       |                  |
| Spring barley           | 3,861        | 1,109        | 8,169         | 5,647        | 917          | 19,702           |
| Undersown spring barley | 54           | .            | 16            | 120          | 318          | 508              |
| Winter barley           | 400          | 195          | 3,058         | 927          | 742          | 5,323            |
| Spring wheat            | 585          | .            | 704           | 44           | 167          | 1,500            |
| Undersown spring wheat  | .            | .            | 48            | .            | .            | 48               |
| Winter wheat            | 1,106        | 1,577        | 3,287         | 1,187        | 689          | 7,846            |
| Spring oats             | 359          | 216          | 619           | 247          | .            | 1,441            |
| Undersown spring oats   | .            | .            | 14            | 179          | .            | 193              |
| Winter oats             | .            | 8            | 105           | 115          | 18           | 246              |
| Winter oilseed rape     | 33           | 224          | .             | 199          | 61           | 517              |
| Spring oilseed rape     | .            | 25           | 264           | .            | .            | 290              |
| <i>Camelina</i>         | .            | .            | .             | 81           | .            | 81               |
| Peas & field beans      | 10           | .            | .             | .            | .            | 10               |
| Seed potatoes           | 173          | .            | 250           | 132          | .            | 555              |
| Early potatoes          | 74           | .            | 108           | 5            | 5            | 192              |
| Maincrop potatoes       | 979          | .            | 1,582         | 719          | 124          | 3,403            |
| <b>Total</b>            | <b>7,634</b> | <b>3,354</b> | <b>18,226</b> | <b>9,601</b> | <b>3,040</b> | <b>41,856</b>    |

**Table 4a:** Estimated area (spha) of arable crops treated regionally with each pesticide type in Northern Ireland 2012.

| Pesticide type    | County        |               |                |               |               | Northern Ireland |
|-------------------|---------------|---------------|----------------|---------------|---------------|------------------|
|                   | Antrim        | Armagh        | Down           | Londonderry   | Tyrone        |                  |
| Fungicides        | 26,546        | 10,302        | 72,103         | 36,667        | 11,636        | 157,255          |
| Herbicides        | 22,594        | 8,465         | 48,012         | 24,669        | 9,747         | 113,487          |
| Insecticides      | 6,565         | 2,857         | 12,546         | 7,073         | 989           | 30,030           |
| Molluscicides     | 2,397         | 224           | 547            | 474           | .             | 3,642            |
| Growth Regulators | 4,082         | 3,487         | 12,105         | 8,656         | 3,341         | 31,670           |
| Other             | 33            | 610           | .              | .             | 22            | 664              |
| Seed treatments   | 7,296         | 3,723         | 15,633         | 8,392         | 3,054         | 38,098           |
| <b>Total</b>      | <b>69,513</b> | <b>29,667</b> | <b>160,945</b> | <b>85,931</b> | <b>28,788</b> | <b>374,845</b>   |

**Table 4b:** Estimated weight (kg) applied to arable crops regionally with each pesticide type in Northern Ireland 2012.

| Pesticide type    | County        |              |               |               |               | Northern Ireland |
|-------------------|---------------|--------------|---------------|---------------|---------------|------------------|
|                   | Antrim        | Armagh       | Down          | Londonderry   | Tyrone        |                  |
| Fungicides        | 13,710        | 2,509        | 26,748        | 11,333        | 4,400         | 58,699           |
| Herbicides        | 9,832         | 3,622        | 24,629        | 9,459         | 4,580         | 52,122           |
| Insecticides      | 619           | 25           | 537           | 441           | 8             | 1,630            |
| Molluscicides     | 177           | 20           | 71            | 30            | .             | 297              |
| Growth Regulators | 2,720         | 2,129        | 7,145         | 3,684         | 907           | 16,585           |
| Other             | 28            | 201          | .             | .             | 15            | 244              |
| Seed treatments   | 530           | 141          | 1,326         | 424           | 100           | 2,522            |
| <b>Total</b>      | <b>27,615</b> | <b>8,649</b> | <b>60,455</b> | <b>25,371</b> | <b>10,010</b> | <b>132,100</b>   |

**Table 5: The total area (spha) and the basic area (ha), (in parentheses), of arable crops treated with each pesticide type in Northern Ireland 2012.**

| Crop                    | Pesticide type |                 |                         |                 |               |                 |               |                |                   |                 |       |                |                 |                 |                |                 |
|-------------------------|----------------|-----------------|-------------------------|-----------------|---------------|-----------------|---------------|----------------|-------------------|-----------------|-------|----------------|-----------------|-----------------|----------------|-----------------|
|                         | Fungicides     |                 | Herbicides & desiccants |                 | Insecticides  |                 | Molluscicides |                | Growth Regulators |                 | Other |                | Seed treatments |                 | All pesticides |                 |
|                         | Sp ha          | (ha)            | Sp ha                   | (ha)            | Sp ha         | (ha)            | Sp ha         | (ha)           | Sp ha             | (ha)            | Sp ha | (ha)           | Sp ha           | (ha)            | Sp ha          | (ha)            |
| Spring barley           | 38,893         | (14,942)        | 54,599                  | (19,517)        | 14,914        | (12,835)        | .             | .              | 12,702            | (9,746)         | 425   | (425)          | 16,990          | (16,684)        | 138,523        | (19,595)        |
| Undersown spring barley | 131            | (93)            | 585                     | (508)           | 174           | (174)           | .             | .              | 39                | (39)            | .     | .              | 453             | (453)           | 1,382          | (508)           |
| Winter barley           | 18,698         | (5,017)         | 13,822                  | (5,280)         | 3,343         | (2,374)         | 74            | (74)           | 5,675             | (3,817)         | .     | .              | 5,031           | (5,031)         | 46,642         | (5,323)         |
| Spring wheat            | 3,835          | (1,293)         | 4,210                   | (1,500)         | 1,606         | (1,188)         | 242           | (242)          | 1,262             | (1,234)         | .     | .              | 1,500           | (1,500)         | 12,656         | (1,500)         |
| Undersown spring wheat  | .              | .               | 48                      | (48)            | .             | .               | .             | .              | .                 | .               | .     | .              | 48              | (48)            | 96             | (48)            |
| Winter wheat            | 40,903         | (7,846)         | 18,059                  | (7,415)         | 7,649         | (5,369)         | 151           | (151)          | 11,056            | (6,915)         | .     | .              | 9,292           | (7,714)         | 87,110         | (7,846)         |
| Spring oats             | 1,893          | (633)           | 2,289                   | (981)           | 574           | (560)           | .             | .              | 696               | (623)           | .     | .              | 892             | (892)           | 6,345          | (995)           |
| Undersown spring oats   | 133            | (067)           | 346                     | (193)           | 87            | (087)           | .             | .              | 67                | (67)            | .     | .              | 193             | (193)           | 825            | (193)           |
| Winter oats             | 818            | (224)           | 378                     | (157)           | 168           | (102)           | .             | .              | 163               | (154)           | .     | .              | 246             | (246)           | 1,773          | (246)           |
| Winter oilseed rape     | 1,252          | (517)           | 1,332                   | (517)           | 132           | (132)           | 270           | (270)          | .                 | .               | 239   | (239)          | 496             | (496)           | 3,721          | (517)           |
| Spring oilseed rape     | 13             | (13)            | 362                     | (290)           | 13            | (013)           | .             | .              | .                 | .               | .     | .              | 290             | (290)           | 679            | (290)           |
| <i>Camelina</i>         | .              | .               | 81                      | (81)            | .             | .               | .             | .              | .                 | .               | .     | .              | .               | .               | 81             | (81)            |
| Peas & field beans      | .              | .               | 21                      | (10)            | .             | .               | .             | .              | .                 | .               | .     | .              | .               | .               | 21             | (10)            |
| Seed potatoes           | 6,076          | (555)           | 2,344                   | (550)           | 887           | (291)           | 71            | (071)          | .                 | .               | .     | .              | 562             | (431)           | 9,940          | (555)           |
| Early potatoes          | 1,056          | (192)           | 665                     | (188)           | 26            | (26)            | 81            | (41)           | .                 | .               | .     | .              | 130             | (130)           | 1,958          | (192)           |
| Maincrop potatoes       | 43,553         | (3,403)         | 14,347                  | (3,380)         | 456           | (299)           | 2,754         | (878)          | 10                | (10)            | .     | .              | 1,974           | (1,812)         | 63,093         | (3,403)         |
| <b>Total</b>            | <b>157,255</b> | <b>(34,795)</b> | <b>113,487</b>          | <b>(40,615)</b> | <b>30,030</b> | <b>(23,450)</b> | <b>3,642</b>  | <b>(1,725)</b> | <b>31,670</b>     | <b>(22,605)</b> |       | <b>(0,664)</b> | <b>38,098</b>   | <b>(35,920)</b> | <b>374,845</b> | <b>(41,303)</b> |

**Table 6:** Total quantity (kg) of each pesticide type used on arable crops in Northern Ireland 2012.

| Crop                       | Fungicides    | Herbicides<br>&<br>desiccants | Insecticides | Molluscicides | Growth<br>Regulators | Other      | Seed<br>treatments | Total          |
|----------------------------|---------------|-------------------------------|--------------|---------------|----------------------|------------|--------------------|----------------|
| Spring barley              | 11,471        | 22,011                        | 1,100        | .             | 4,755                | 45         | 444                | 39,826         |
| Undersown spring<br>barley | 48            | 492                           | 3            | .             | 36                   | .          | 14                 | 592            |
| Winter barley              | 6,051         | 8,461                         | 127          | 6             | 2,085                | .          | 327                | 17,056         |
| Spring wheat               | 1,421         | 2,249                         | 149          | 18            | 809                  | .          | 36                 | 4,682          |
| Undersown spring<br>wheat  | .             | 0.12                          | .            | .             | .                    | .          | 0.30               | 0.42           |
| Winter wheat               | 11,506        | 6,159                         | 152          | 14            | 8,155                | .          | 549                | 26,535         |
| Spring oats                | 339           | 818                           | 3            | .             | 506                  | .          | 19                 | 1,685          |
| Undersown spring<br>oats   | 34            | 45                            | 0.36         | .             | 3                    | .          | 4                  | 86             |
| Winter oats                | 244           | 109                           | 6            | .             | 207                  | .          | 8                  | 574            |
| Winter oilseed rape        | 180           | 844                           | 1            | 22            | .                    | 200        | 8                  | 1,255          |
| Spring oilseed rape        | 1             | 291                           | 2            | .             | .                    | .          | 3                  | 297            |
| <i>Camelina</i>            | .             | 32                            | .            | .             | .                    | .          | .                  | 32             |
| Peas & field beans         | .             | 18                            | .            | .             | .                    | .          | .                  | 18             |
| Seed potatoes              | 3,071         | 1,481                         | 59           | 3             | .                    | .          | 272                | 4,886          |
| Early potatoes             | 587           | 519                           | 2            | 8             | .                    | .          | 44                 | 1,160          |
| Maincrop potatoes          | 23,746        | 8,592                         | 26           | 227           | 31                   | .          | 795                | 33,415         |
| <b>Total</b>               | <b>58,699</b> | <b>52,122</b>                 | <b>1,630</b> | <b>297</b>    | <b>16,585</b>        | <b>244</b> | <b>2,522</b>       | <b>132,100</b> |



**Table 7:** The proportional area (%) of each crop treated with pesticides and the mean number of spray applications (in parentheses) in Northern Ireland, 2012.

| Crop                    | Fungicides |               | Herbicides & desiccants |               | Insecticides |               | Molluscicides |               | Growth Regulators |               | Other      | Seed treatments |           | All pesticides |               |
|-------------------------|------------|---------------|-------------------------|---------------|--------------|---------------|---------------|---------------|-------------------|---------------|------------|-----------------|-----------|----------------|---------------|
|                         | %          | sp apps       | %                       | sp apps       | %            | sp apps       | %             | sp apps       | %                 | sp apps       | %          | sp apps         | %         | %              | sp apps       |
| Spring barley           | 76         | (2.32)        | 99                      | (2.61)        | 65           | (1.09)        | .             | .             | 49                | (1.32)        | 2          | (1.00)          | 85        | 99             | (1.75)        |
| Undersown spring barley | 18         | (1.45)        | 100                     | (1.17)        | 34           | (1.00)        | .             | .             | 8                 | (1.00)        | .          | .               | 89        | 100            | (1.11)        |
| Winter barley           | 94         | (3.44)        | 99                      | (2.47)        | 45           | (1.25)        | 1             | (1.00)        | 72                | (1.47)        | .          | .               | 95        | 100            | (2.02)        |
| Spring wheat            | 86         | (2.86)        | 100                     | (2.84)        | 79           | (1.39)        | 16            | (1.00)        | 82                | (1.03)        | .          | .               | 100       | 100            | (1.75)        |
| Undersown spring wheat  | .          | .             | 100                     | (1.00)        | .            | .             | .             | .             | .                 | .             | .          | .               | 100       | 100            | (1.00)        |
| Winter wheat            | 100        | (4.63)        | 95                      | (2.54)        | 68           | (1.47)        | 2             | (1.00)        | 88                | (1.56)        | .          | .               | 98        | 100            | (2.37)        |
| Spring oats             | 44         | (2.48)        | 68                      | (1.93)        | 39           | (1.04)        | .             | .             | 43                | (1.14)        | .          | .               | 62        | 69             | (1.58)        |
| Undersown spring oats   | 35         | (2.00)        | 100                     | (1.44)        | 45           | (1.00)        | .             | .             | 35                | (1.00)        | .          | .               | 100       | 100            | (1.22)        |
| Winter oats             | 91         | (3.31)        | 64                      | (2.33)        | 41           | (1.54)        | .             | .             | 62                | (1.12)        | .          | .               | 100       | 100            | (1.89)        |
| Winter oilseed rape     | 100        | (2.33)        | 100                     | (2.51)        | 26           | (1.00)        | 52            | (1.00)        | .                 | .             | 46         | (1.00)          | 96        | 100            | (1.67)        |
| Spring oilseed rape     | 5          | (1.00)        | 100                     | (1.52)        | 5            | (1.00)        | .             | .             | .                 | .             | .          | .               | 100       | 100            | (1.21)        |
| <i>Camelina</i>         | .          | .             | 100                     | (1.00)        | .            | .             | .             | .             | .                 | .             | .          | .               | .         | 100            | (1.00)        |
| Peas & field beans      | .          | .             | 100                     | (2.00)        | .            | .             | .             | .             | .                 | .             | .          | .               | .         | 100            | (2.00)        |
| Seed potatoes           | 100        | (10.74)       | 99                      | (3.87)        | 52           | (3.12)        | 13            | (1.00)        | .                 | .             | .          | .               | 78        | 100            | (5.68)        |
| Early potatoes          | 100        | (5.25)        | 98                      | (2.96)        | 13           | (1.00)        | 21            | (2.00)        | .                 | .             | .          | .               | 68        | 100            | (3.50)        |
| Maincrop potatoes       | 100        | (11.18)       | 99                      | (3.18)        | 9            | (1.53)        | 26            | (1.46)        | <1                | (1.00)        | .          | .               | 53        | 100            | (6.12)        |
| <b>Total</b>            | <b>83</b>  | <b>(4.94)</b> | <b>97</b>               | <b>(2.63)</b> | <b>56</b>    | <b>(1.19)</b> | <b>4</b>      | <b>(1.27)</b> | <b>54</b>         | <b>(1.36)</b> | <b>1.6</b> | <b>(1.00)</b>   | <b>86</b> | <b>98</b>      | <b>(2.42)</b> |

**Table 8: Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland in 2012.**

| Pesticide type & formulation                 | Spring<br>barley | Undersown<br>barley | Winter<br>barley | Spring<br>wheat | Undersown<br>wheat | Winter<br>wheat | Spring<br>oats | Undersown<br>oats | Winter<br>oats | Winter<br>Oilseed<br>rape | Spring<br>Oilseed<br>rape | Camelina | Peas<br>&<br>field<br>beans | Seed<br>potatoes | Early<br>potatoes | Maincrop<br>potatoes | All<br>crops |
|----------------------------------------------|------------------|---------------------|------------------|-----------------|--------------------|-----------------|----------------|-------------------|----------------|---------------------------|---------------------------|----------|-----------------------------|------------------|-------------------|----------------------|--------------|
| <i><b>Fungicides</b></i>                     |                  |                     |                  |                 |                    |                 |                |                   |                |                           |                           |          |                             |                  |                   |                      |              |
| Ametoctradin/ Dimethomorph                   | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | 494.56           | 37.06             | 2,187.82             | 2,719.44     |
| Azoxystrobin                                 | 485.42           | .                   | 166.97           | .               | .                  | 2,002.13        | .              | .                 | 8.01           | 432.60                    | .                         | .        | .                           | .                | .                 | 220.36               | 3,315.49     |
| Azoxystrobin/ chlorothalonil                 | 442.79           | .                   | 32.45            | 491.95          | .                  | 911.57          | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | 150.28               | 2,029.05     |
| Azoxystrobin/ cyproconazole                  | 46.83            | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 46.83        |
| Benthiavalicarb-isopropyl/ mancozeb          | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | 365.56               | 365.56       |
| Bixafen/ Fluoxastrobin/ Prothioconazole      | .                | .                   | .                | .               | .                  | 486.13          | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 486.13       |
| Bixafen/ Prothioconazole                     | 2,006.51         | .                   | 596.33           | 155.15          | .                  | 978.68          | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 3,736.67     |
| Bixafen/ Prothioconazole/ Spiroxamine        | .                | .                   | .                | .               | .                  | 16.69           | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 16.69        |
| Boscalid/ epoxiconazole                      | 422.25           | 53.95               | 323.90           | 274.73          | .                  | 1,432.49        | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 2,507.31     |
| Carbendazim/ flusilazole                     | 132.33           | .                   | 909.63           | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 1,041.96     |
| Chlorothalonil                               | 7,594.94         | 38.70               | 3,676.38         | 567.45          | .                  | 8,105.99        | 66.27          | .                 | 66.58          | .                         | .                         | .        | .                           | .                | .                 | 261.24               | 20,377.56    |
| Chlorothalonil/ cyproconazole                | 1,291.13         | .                   | 249.42           | .               | .                  | 78.52           | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 1,619.07     |
| Chlorothalonil/ cyproconazole/ propiconazole | 565.40           | .                   | 108.53           | .               | .                  | 520.17          | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 1,194.10     |
| Chlorothalonil/ flusilazole                  | 516.45           | .                   | 61.59            | .               | .                  | .               | 35.01          | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 613.05       |
| Chlorothalonil/ picoxystrobin                | 302.08           | .                   | 1,220.41         | .               | .                  | 118.73          | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 1,641.21     |
| Chlorothalonil/propamocarb hydrochloride     | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | 60.39            | .                 | 445.02               | 505.41       |
| Chlorothalonil/propiconazole                 | .                | .                   | .                | .               | .                  | 6.19            | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 6.19         |
| Chlorothalonil/Proquinazid                   | 730.49           | .                   | 194.78           | 62.57           | .                  | 439.36          | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 1,427.20     |
| Copper oxychloride                           | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | 183.07               | 183.07       |
| Cyazofamid                                   | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | 405.11           | 11.53             | 3,553.02             | 3,969.66     |
| Cymoxanil                                    | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | 325.76           | 69.84             | 3,180.63             | 3,576.24     |
| Cymoxanil/famoxadone                         | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | 40.26            | .                 | 233.55               | 273.80       |
| Cymoxanil/mancozeb                           | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | 510.54           | 70.22             | 2,725.47             | 3,306.23     |
| Cymoxanil/propamocarb hydrochloride          | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | 47.18            | .                 | 81.36                | 128.54       |
| Cyproconazole/propiconazole                  | 284.71           | .                   | 65.79            | .               | .                  | 119.73          | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 470.23       |
| Cyprodinil                                   | 1,238.83         | .                   | 450.89           | .               | .                  | 40.31           | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 1,730.03     |
| Cyprodinil/isopyrazam                        | 3,067.79         | .                   | 2,343.49         | .               | .                  | 78.52           | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 5,489.79     |
| Cyprodinil/picoxystrobin                     | 122.43           | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 122.43       |
| Dimethomorph/mancozeb                        | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | 259.07           | 15.23             | 2,641.15             | 2,915.45     |

**Table 8 (cont.): Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland in 2012.**

| Pesticide type & formulation                  | Spring<br>barley | Undersown<br>barley | Winter<br>barley | Spring<br>wheat | Undersown<br>wheat | Winter<br>wheat | Spring<br>oats | Undersown<br>oats | Winter<br>oats | Winter<br>Oilseed<br>rape | Spring<br>Oilseed<br>rape | Camelina | Peas &<br>field<br>beans | Seed<br>potatoes | Early<br>potatoes | Maincrop<br>potatoes | All<br>crops |
|-----------------------------------------------|------------------|---------------------|------------------|-----------------|--------------------|-----------------|----------------|-------------------|----------------|---------------------------|---------------------------|----------|--------------------------|------------------|-------------------|----------------------|--------------|
| <i>Fungicides (cont.)</i>                     |                  |                     |                  |                 |                    |                 |                |                   |                |                           |                           |          |                          |                  |                   |                      |              |
| Epoxiconazole                                 | 1,102.80         | .                   | 398.05           | 293.23          | .                  | 2,344.03        | 295.09         | .                 | 18.24          | .                         | .                         | .        | .                        | .                | .                 | .                    | 4,451.44     |
| Epoxiconazole/fenpropimorph                   | .                | .                   | 171.44           | 30.04           | .                  | 26.66           | 31.26          | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 259.39       |
| Epoxiconazole/fenpropimorph/kresoxim-methyl   | 632.88           | .                   | 164.03           | .               | .                  | 236.38          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 1,033.28     |
| Epoxiconazole/fenpropimorph/metrafenone       | 297.97           | .                   | .                | 40.08           | .                  | 654.26          | 163.90         | 133.16            | 191.03         | .                         | .                         | .        | .                        | .                | .                 | .                    | 1,480.41     |
| Epoxiconazole/Fluxapyroxad                    | 60.99            | .                   | 232.83           | .               | .                  | 148.49          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 442.31       |
| Epoxiconazole/Isopyrazam                      | 80.15            | .                   | 12.40            | 25.03           | .                  | 1,041.19        | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 1,158.77     |
| Epoxiconazole/kresoxim-methyl                 | .                | .                   | .                | .               | .                  | .               | 24.64          | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 24.64        |
| Epoxiconazole/metconazole                     | 195.66           | .                   | 170.59           | 474.10          | .                  | 2,192.43        | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 3,032.78     |
| Epoxiconazole/Metrafenone                     | .                | .                   | .                | .               | .                  | .               | .              | .                 | 133.16         | .                         | .                         | .        | .                        | .                | .                 | .                    | 133.16       |
| Epoxiconazole/prochloraz                      | 1,175.62         | .                   | 532.05           | .               | .                  | 257.39          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 1,965.06     |
| Epoxiconazole/pyraclostrobin                  | .                | .                   | .                | .               | .                  | 209.96          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 209.96       |
| Fenamidone/propamocarb hydrochloride          | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | 140.12           | 202.95            | 2,819.06             | 3,162.13     |
| Fenpropidin                                   | .                | .                   | 94.27            | .               | .                  | 762.16          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 856.43       |
| Fenpropimorph                                 | 692.58           | .                   | 694.12           | .               | .                  | 772.70          | 602.01         | .                 | 173.31         | .                         | .                         | .        | .                        | .                | .                 | .                    | 2,934.74     |
| Fenpropimorph/flusilazole                     | 567.73           | .                   | 154.27           | .               | .                  | 18.56           | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 740.56       |
| Fenpropimorph/pyraclostrobin                  | .                | .                   | .                | .               | .                  | 713.31          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 713.31       |
| Fluazinam                                     | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | 1,853.72         | 359.36            | 13,892.60            | 16,105.68    |
| Fluopicolide/propamocarb hydrochloride        | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | 572.72           | 126.49            | 5,198.06             | 5,897.28     |
| Fluoxastrobin/prothioconazole                 | 3,591.81         | .                   | 1,188.03         | .               | .                  | 527.57          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 5,307.41     |
| Fluoxastrobin/prothioconazole/trifloxystrobin | 435.36           | .                   | 207.94           | 60.07           | .                  | 447.93          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 1,151.30     |
| Fluquinconazole/prochloraz                    | .                | .                   | .                | .               | .                  | 581.70          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 581.70       |
| Flusilazole                                   | .                | .                   | 74.92            | .               | .                  | .               | .              | .                 | .              | 18.53                     | .                         | .        | .                        | .                | .                 | .                    | 93.45        |
| Fluxapyroxad                                  | .                | .                   | 128.70           | .               | .                  | 459.94          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 588.64       |
| Folpet                                        | 775.55           | .                   | 262.32           | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 1,037.87     |
| Mancozeb                                      | .                | .                   | .                | 264.58          | .                  | 432.29          | .              | .                 | 18.15          | .                         | .                         | .        | .                        | 460.10           | 15.91             | 478.74               | 1,669.77     |
| Mancozeb/metalaxyl-M                          | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | 33.90                | 33.90        |
| Mandipropamid                                 | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | 906.37           | 147.58            | 4,695.57             | 5,749.52     |
| Metconazole                                   | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | 13.48                     | .        | .                        | .                | .                 | .                    | 13.48        |
| Picoxystrobin                                 | 577.87           | .                   | 48.46            | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 626.33       |
| Prochloraz/tebuconazole                       | .                | .                   | .                | 40.08           | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 40.08        |
| Proquinazid                                   | 837.23           | .                   | 605.94           | 264.58          | .                  | 1,453.79        | 19.35          | .                 | 52.78          | .                         | .                         | .        | .                        | .                | .                 | .                    | 3,233.67     |

**Table 8 (cont.): Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland in 2012.**

| Pesticide type & formulation    | Spring barley    | Undersown barley | Winter barley    | Spring wheat    | Undersown wheat | Winter wheat     | Spring oats     | Undersown oats | Winter oats   | Winter Oilseed rape | Spring Oilseed rape | Camelina | Peas & field beans | Seed potatoes   | Early potatoes  | Maincrop potatoes | All crops         |
|---------------------------------|------------------|------------------|------------------|-----------------|-----------------|------------------|-----------------|----------------|---------------|---------------------|---------------------|----------|--------------------|-----------------|-----------------|-------------------|-------------------|
| <i>Fungicides (cont.)</i>       |                  |                  |                  |                 |                 |                  |                 |                |               |                     |                     |          |                    |                 |                 |                   |                   |
| Prothioconazole                 | 2246.25          | .                | 1385.59          | 196.28          | .               | 2223.51          | .               | .              | 95.60         | 289.95              | .                   | .        | .                  | .               | .               | .                 | 6437.17           |
| Prothioconazole/Spiroxamine     | 142.16           | .                | .                | .               | .               | .                | .               | .              | .             | .                   | .                   | .        | .                  | .               | .               | .                 | 142.16            |
| Prothioconazole/tebuconazole    | 1275.82          | 38.70            | 151.80           | 137.70          | .               | 6005.29          | .               | .              | .             | 79.28               | .                   | .        | .                  | .               | .               | .                 | 7688.59           |
| Prothioconazole/trifloxystrobin | 3412.52          | .                | 1280.05          | 58.94           | .               | 308.65           | .               | .              | .             | .                   | .                   | .        | .                  | .               | .               | .                 | 5060.16           |
| Pyraclostrobin                  | 1377.27          | .                | 305.97           | 72.62           | .               | 915.50           | 300.29          | .              | 9.01          | .                   | .                   | .        | .                  | .               | .               | .                 | 2980.67           |
| Quinoxifen                      | .                | .                | .                | .               | .               | .                | 287.01          | .              | 26.15         | .                   | .                   | .        | .                  | .               | .               | .                 | 313.16            |
| Tebuconazole                    | 163.91           | .                | 33.87            | 325.93          | .               | 2833.76          | 68.45           | .              | 26.15         | 431.51              | .                   | .        | .                  | .               | .               | 94.93             | 3978.51           |
| Unknown fungicide               | .                | .                | .                | .               | .               | .                | .               | .              | .             | .                   | .                   | .        | .                  | .               | .               | 111.44            | 111.44            |
| <i>All fungicides</i>           | <i>38,892.52</i> | <i>131.35</i>    | <i>18,698.24</i> | <i>3,835.11</i> | <i>.</i>        | <i>40,902.65</i> | <i>1,893.27</i> | <i>133.16</i>  | <i>818.18</i> | <i>1,251.86</i>     | <i>13.48</i>        | <i>.</i> | <i>.</i>           | <i>6,075.90</i> | <i>1,056.16</i> | <i>43,552.84</i>  | <i>157,254.72</i> |

**Table 8 (cont.): Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland in 2012.**

| Pesticide type & formulation                                | Spring<br>barley | Undersown<br>barley | Winter<br>barley | Spring<br>wheat | Undersown<br>wheat | Winter<br>wheat | Spring<br>oats | Undersown<br>oats | Winter<br>oats | Winter<br>Oilseed<br>rape | Spring<br>Oilseed<br>rape | Camelina | Peas &<br>field<br>beans | Seed<br>potatoes | Early<br>potatoes | Maincrop<br>potatoes | All<br>crops |
|-------------------------------------------------------------|------------------|---------------------|------------------|-----------------|--------------------|-----------------|----------------|-------------------|----------------|---------------------------|---------------------------|----------|--------------------------|------------------|-------------------|----------------------|--------------|
| <i>Herbicides &amp; desiccants</i>                          |                  |                     |                  |                 |                    |                 |                |                   |                |                           |                           |          |                          |                  |                   |                      |              |
| 2,4-DB                                                      | .                | 38.17               | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 38.17        |
| 2,4-DB/linuron/MCPA                                         | .                | 453.63              | .                | .               | .                  | .               | .              | 25.12             | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 478.76       |
| Amidosulfuron                                               | .                | .                   | .                | .               | .                  | .               | .              | .                 | 62.00          | .                         | .                         | .        | .                        | .                | .                 | .                    | 62.00        |
| Amidosulfuron/iodosulfuron-methyl-sodium                    | 437.82           | .                   | 301.13           | .               | .                  | 67.25           | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 806.20       |
| Aminopyralid/fluroxypyr                                     | 187.76           | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 187.76       |
| Bromoxynil/ioxynil                                          | 1,500.14         | .                   | 174.60           | 245.07          | .                  | 258.08          | .              | .                 | 62.00          | .                         | .                         | .        | .                        | .                | .                 | .                    | 2,239.89     |
| Carfentrazone-ethyl                                         | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | 110.96           | .                 | 702.24               | 813.21       |
| Carfentrazone-ethyl/flupyrasulfuron-methyl                  | .                | .                   | .                | .               | .                  | .               | .              | .                 | 51.75          | .                         | .                         | .        | .                        | .                | .                 | .                    | 51.75        |
| Chlorotoluron                                               | .                | .                   | 386.90           | .               | .                  | 57.64           | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 444.54       |
| Chlorotoluron/diflufenican                                  | 617.87           | .                   | 730.45           | .               | .                  | 209.50          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 1,557.82     |
| Clomazone                                                   | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | 25.27                     | .        | .                        | .                | .                 | 189.85               | 215.12       |
| Clopyralid/fluroxypyr/triclopyr                             | 866.37           | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 866.37       |
| Clopyralid/picloram                                         | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | 223.97                    | .                         | .        | .                        | .                | .                 | .                    | 223.97       |
| Dicamba/MCPA/mecoprop-P                                     | .                | .                   | .                | .               | .                  | .               | 24.80          | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 24.80        |
| Dicamba/mecoprop-P                                          | 612.77           | .                   | 23.75            | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 636.52       |
| Diflufenican                                                | 57.78            | .                   | 1,313.45         | .               | .                  | 2,025.96        | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 3,397.19     |
| Diflufenican/flufenacet                                     | .                | .                   | 643.09           | .               | .                  | 552.45          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 1,195.55     |
| Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl | .                | .                   | 75.60            | .               | .                  | 4,545.92        | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 4,621.52     |
| Diflufenican/Metsulfuron-methyl                             | 260.59           | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 260.59       |
| Diquat                                                      | 139.58           | .                   | .                | .               | .                  | .               | .              | .                 | .              | 19.79                     | .                         | 80.99    | .                        | 892.76           | 214.70            | 6,192.89             | 7,540.71     |
| Fenoxaprop-P-ethyl                                          | .                | .                   | 104.30           | .               | .                  | 49.86           | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 154.15       |
| Florasulam/fluroxypyr                                       | 1,426.04         | .                   | 469.84           | .               | .                  | 567.73          | 363.75         | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 2,827.35     |
| Fluazifop-P-butyl                                           | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | 119.90                    | .                         | .        | .                        | .                | .                 | .                    | 119.90       |
| Flufenacet/pendimethalin                                    | .                | .                   | 1,410.01         | .               | .                  | 802.02          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 2,212.03     |
| Fluroxypyr                                                  | 6,069.37         | .                   | 687.49           | 407.93          | .                  | 1,196.25        | 42.77          | 153.38            | 9.01           | .                         | .                         | .        | .                        | .                | .                 | .                    | 8,566.21     |
| Glyphosate                                                  | 14,957.87        | .                   | 3,820.26         | 1,301.27        | .                  | 4,746.46        | 582.93         | .                 | 114.29         | 469.52                    | 250.93                    | .        | .                        | 458.00           | 127.07            | 2,431.93             | 29,260.53    |
| Iodosulfuron-methyl-sodium                                  | 1,789.97         | .                   | 190.76           | 167.91          | .                  | 369.58          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 2,518.21     |
| Iodosulfuron-methyl-sodium/mesosulfuron-methyl              | .                | .                   | .                | .               | .                  | 677.66          | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 677.66       |
| Isoproturon                                                 | 64.20            | .                   | 102.00           | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 166.20       |

**Table 8 (cont.): Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland in 2012.**

| Pesticide type & formulation               | Spring<br>barley | Undersown<br>barley | Winter<br>barley | Spring<br>wheat | Undersown<br>wheat | Winter<br>wheat  | Spring<br>oats  | Undersown<br>oats | Winter<br>oats | Winter<br>Oilseed<br>rape | Spring<br>Oilseed<br>rape | <i>Camelina</i> | Peas &<br>field<br>beans | Seed<br>potatoes | Early<br>potatoes | Maincrop<br>potatoes | All<br>crops      |
|--------------------------------------------|------------------|---------------------|------------------|-----------------|--------------------|------------------|-----------------|-------------------|----------------|---------------------------|---------------------------|-----------------|--------------------------|------------------|-------------------|----------------------|-------------------|
| <i>Herbicides &amp; desiccants (cont.)</i> |                  |                     |                  |                 |                    |                  |                 |                   |                |                           |                           |                 |                          |                  |                   |                      |                   |
| Linuron                                    | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | 10.36                    | 65.96            | 78.16             | 549.79               | 704.28            |
| MCPA                                       | 269.28           | .                   | .                | 70.08           | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 339.36            |
| Mecoprop-P                                 | 7,987.61         | 16.29               | 1,010.04         | 821.96          | .                  | 986.45           | 370.50          | .                 | 26.17          | .                         | .                         | .               | .                        | .                | .                 | .                    | 11,219.01         |
| Metazachlor                                | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | .                         | 86.02                     | .               | .                        | .                | .                 | .                    | 86.02             |
| Metribuzin                                 | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | 497.41           | 152.23            | 3,133.32             | 3,782.96          |
| Metsulfuron-methyl                         | 5,091.25         | .                   | 118.38           | 65.11           | .                  | 58.04            | 226.16          | 66.58             | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 5,625.53          |
| Metsulfuron-methyl/thifensulfuron-methyl   | 2,234.22         | .                   | 485.99           | 118.56          | .                  | 85.66            | .               | .                 | 18.15          | .                         | .                         | .               | .                        | .                | .                 | .                    | 2,942.58          |
| Metsulfuron-methyl/tribenuron-methyl       | 5,938.78         | .                   | 703.82           | 520.06          | .                  | 355.03           | 351.51          | .                 | 34.16          | .                         | .                         | .               | .                        | .                | .                 | .                    | 7,903.36          |
| Paraquat                                   | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | 50.85                | 50.85             |
| Pendimethalin                              | .                | .                   | 61.03            | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | 10.36                    | 65.96            | 61.21             | 108.49               | 307.05            |
| Pendimethalin/picolinafen                  | .                | .                   | 316.43           | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 316.43            |
| Pinoxaden                                  | 2,107.97         | .                   | 377.29           | 194.50          | .                  | 152.86           | .               | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 2,832.62          |
| Propaquizafop                              | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | 72.05            | .                 | 40.09                | 112.13            |
| Propyzamide                                | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | 498.69                    | .                         | .               | .                        | .                | .                 | .                    | 498.69            |
| Prosulfocarb                               | .                | .                   | 73.50            | 88.25           | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | 89.80            | 31.87             | 438.91               | 722.33            |
| Pyraflufen-ethyl                           | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | 55.12                | 55.12             |
| Rimsulfuron                                | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | 66.19            | .                 | 453.07               | 519.25            |
| Tepraloxydim                               | .                | .                   | .                | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | 24.87            | .                 | .                    | 24.87             |
| Thifensulfuron-methyl/tribenuron-methyl    | 1,908.87         | .                   | 193.30           | 209.51          | .                  | 225.68           | 326.09          | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 2,863.46          |
| Tribenuron-methyl                          | 50.89            | 76.87               | .                | .               | 48.19              | 69.09            | .               | 101.01            | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 346.04            |
| Unknown herbicide                          | 21.82            | .                   | 48.14            | .               | .                  | .                | .               | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 69.96             |
| <i>All herbicides &amp; desiccants</i>     | <i>54,598.81</i> | <i>584.96</i>       | <i>13,821.54</i> | <i>4,210.22</i> | <i>48.19</i>       | <i>18,059.18</i> | <i>2,288.50</i> | <i>346.10</i>     | <i>377.54</i>  | <i>1,331.87</i>           | <i>362.22</i>             | <i>80.99</i>    | <i>20.72</i>             | <i>2,343.96</i>  | <i>665.24</i>     | <i>14,346.54</i>     | <i>113,486.56</i> |

**Table 8 (cont.): Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland in 2012.**

| Pesticide type & formulation | Spring barley    | Undersown barley | Winter barley   | Spring wheat    | Undersown wheat | Winter wheat    | Spring oats   | Undersown oats | Winter oats   | Winter Oilseed rape | Spring Oilseed rape | Camelina | Peas & field beans | Seed potatoes | Early potatoes | Maincrop potatoes | All crops        |
|------------------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|---------------|----------------|---------------|---------------------|---------------------|----------|--------------------|---------------|----------------|-------------------|------------------|
| <i>Insecticides</i>          |                  |                  |                 |                 |                 |                 |               |                |               |                     |                     |          |                    |               |                |                   |                  |
| Alpha-cypermethrin           | 202.19           | .                | 24.78           | .               | .               | 402.85          | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 629.83           |
| Chlorpyrifos                 | 1,774.01         | .                | 153.66          | 97.81           | .               | 47.42           | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 2,072.90         |
| Cypermethrin                 | 1,198.56         | 38.70            | 612.89          | .               | .               | 647.62          | .             | .              | 133.16        | .                   | .                   | .        | .                  | .             | .              | .                 | 2,630.94         |
| Deltamethrin                 | 226.42           | .                | 118.36          | 242.19          | .               | 82.47           | 9.01          | .              | 9.01          | 18.53               | .                   | .        | .                  | .             | .              | 30.51             | 736.50           |
| Dimethoate                   | .                | .                | .               | 264.58          | .               | 67.58           | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 332.16           |
| Esfenvalerate                | 7,612.70         | 97.15            | 1,542.35        | 825.48          | .               | 3,671.69        | 124.95        | 86.80          | .             | .                   | .                   | .        | .                  | 233.07        | .              | 30.51             | 14,224.71        |
| Flonicamid                   | .                | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | 65.96         | .              | .                 | 65.96            |
| Lambda-cyhalothrin           | 3,755.41         | 38.17            | 891.04          | 175.65          | .               | 2,654.94        | 440.47        | .              | 26.15         | 113.69              | .                   | .        | .                  | 135.64        | 8.14           | 221.04            | 8,460.34         |
| Pirimicarb                   | .                | .                | .               | .               | .               | .               | .             | .              | .             | .                   | 13.48               | .        | .                  | .             | 17.40          | 80.88             | 111.76           |
| Pymetrozine                  | .                | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | 203.98        | .              | 67.80             | 271.78           |
| Thiacloprid                  | .                | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | 180.96        | .              | 25.09             | 206.05           |
| Thiamethoxam                 | .                | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | 67.82         | .              | .                 | 67.82            |
| Unknown insecticide          | .                | .                | .               | .               | .               | 74.22           | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 74.22            |
| Zeta-cypermethrin            | 144.65           | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 144.65           |
| <b>All insecticides</b>      | <b>14,913.95</b> | <b>174.02</b>    | <b>3,343.08</b> | <b>1,605.71</b> | <b>.</b>        | <b>7,648.79</b> | <b>574.43</b> | <b>86.80</b>   | <b>168.33</b> | <b>132.22</b>       | <b>13.48</b>        | <b>.</b> | <b>.</b>           | <b>887.43</b> | <b>25.53</b>   | <b>455.84</b>     | <b>30,029.62</b> |

**Table 8 (cont.): Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland in 2012.**

| Pesticide type & formulation                   | Spring<br>barley | Undersown<br>barley | Winter<br>barley | Spring<br>wheat | Undersown<br>wheat | Winter<br>wheat | Spring<br>oats | Undersown<br>oats | Winter<br>oats | Winter<br>Oilseed<br>rape | Spring<br>Oilseed<br>rape | Camelina | Peas<br>&<br>field<br>beans | Seed<br>potatoes | Early<br>potatoes | Maincrop<br>potatoes | All crops |
|------------------------------------------------|------------------|---------------------|------------------|-----------------|--------------------|-----------------|----------------|-------------------|----------------|---------------------------|---------------------------|----------|-----------------------------|------------------|-------------------|----------------------|-----------|
| <i>Molluscicides</i>                           |                  |                     |                  |                 |                    |                 |                |                   |                |                           |                           |          |                             |                  |                   |                      |           |
| Metaldehyde                                    | .                | .                   | 73.50            | .               | .                  | 150.69          | .              | .                 | .              | 45.78                     | .                         | .        | .                           | .                | 40.68             | 1,141.14             | 1,451.79  |
| Methiocarb                                     | .                | .                   | .                | 242.19          | .                  | .               | .              | .                 | .              | 223.72                    | .                         | .        | .                           | 70.85            | 40.68             | 1,612.72             | 2,190.16  |
| <i>All molluscicides</i>                       | .                | .                   | 73.50            | 242.19          | .                  | 150.69          | .              | .                 | .              | 269.51                    | .                         | .        | .                           | 70.85            | 81.36             | 2,753.85             | 3,641.95  |
| <i>Growth regulators</i>                       |                  |                     |                  |                 |                    |                 |                |                   |                |                           |                           |          |                             |                  |                   |                      |           |
| 2-chloroethylphosphonic acid                   | 2,097.32         | .                   | 1,004.44         | .               | .                  | 834.11          | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 3,935.86  |
| 2-chloroethylphosphonic acid/mepiquat chloride | .                | .                   | 53.93            | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 53.93     |
| Chlormequat                                    | 4,894.23         | 38.70               | 1,257.59         | 1,233.55        | .                  | 6,658.13        | 439.31         | .                 | 127.43         | .                         | .                         | .        | .                           | .                | .                 | .                    | 14,648.93 |
| Chlormequat with choline chloride              | 221.87           | .                   | 133.72           | .               | .                  | 16.27           | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 371.85    |
| Chlormequat/2-chloroethylphosphonic acid       | 37.63            | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 37.63     |
| Chlormequat/Imazaquin                          | .                | .                   | .                | .               | .                  | 49.86           | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 49.86     |
| Maleic hydrazide                               | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | 10.17                | 10.17     |
| Mepiquat chloride/Prohexadione-calcium         | .                | .                   | 104.30           | .               | .                  | 68.76           | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 173.06    |
| Trinexapac-ethyl                               | 5,451.20         | .                   | 3,120.55         | 28.86           | .                  | 3,429.33        | 256.80         | 66.58             | 35.16          | .                         | .                         | .        | .                           | .                | .                 | .                    | 12,388.49 |
| <i>All growth regulators</i>                   | 12,702.24        | 38.70               | 5,674.53         | 1,262.41        | .                  | 11,056.45       | 696.11         | 66.58             | 162.59         | .                         | .                         | .        | .                           | .                | .                 | 10.17                | 31,669.78 |
| <i>Other</i>                                   |                  |                     |                  |                 |                    |                 |                |                   |                |                           |                           |          |                             |                  |                   |                      |           |
| Carboxylated styrene-butadiene                 | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | 21.90                     | .                         | .        | .                           | .                | .                 | .                    | 21.90     |
| Di-1-P-menthene                                | 118.94           | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 118.94    |
| Ethephon                                       | 306.26           | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .        | .                           | .                | .                 | .                    | 306.26    |
| Synthetic latex                                | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | 217.23                    | .                         | .        | .                           | .                | .                 | .                    | 217.23    |
| <i>All other</i>                               | 425.19           | .                   | .                | .               | .                  | .               | .              | .                 | .              | 239.13                    | .                         | .        | .                           | .                | .                 | .                    | 664.32    |



**Table 8 (cont.): Estimated area (spha) of arable crops treated with pesticide formulations in Northern Ireland in 2012.**

| Pesticide type & formulation         | Spring<br>barley  | Undersown<br>barley | Winter<br>barley | Spring<br>wheat  | Undersown<br>wheat | Winter<br>wheat  | Spring<br>oats  | Undersown<br>oats | Winter<br>oats  | Winter<br>Oilseed<br>rape | Spring<br>Oilseed<br>rape | Camelina     | Peas<br>&<br>field<br>beans | Seed<br>potatoes | Early<br>potatoes | Maincrop<br>potatoes | All crops         |
|--------------------------------------|-------------------|---------------------|------------------|------------------|--------------------|------------------|-----------------|-------------------|-----------------|---------------------------|---------------------------|--------------|-----------------------------|------------------|-------------------|----------------------|-------------------|
| <i>Seed treatments</i>               |                   |                     |                  |                  |                    |                  |                 |                   |                 |                           |                           |              |                             |                  |                   |                      |                   |
| Beta-cyfluthrin/imidacloprid         | .                 | .                   | .                | .                | .                  | .                | .               | .                 | .               | 192.08                    | 47.28                     | .            | .                           | .                | .                 | .                    | 239.36            |
| Carboxin/thiram                      | 386.71            | .                   | 47.50            | 70.08            | .                  | 177.84           | .               | .                 | .               | .                         | .                         | .            | .                           | .                | .                 | .                    | 682.14            |
| Clothianidin/prothioconazole         | 272.43            | .                   | 2,901.03         | 32.54            | .                  | 3,355.96         | 24.80           | .                 | 43.97           | .                         | .                         | .            | .                           | .                | .                 | .                    | 6,630.72          |
| Fludioxonil                          | 6,547.78          | .                   | .                | 1,160.49         | 48.19              | 333.40           | 224.37          | 39.33             | .               | .                         | .                         | .            | .                           | .                | .                 | .                    | 8,353.56          |
| Fludioxonil/flutriafol               | 2,107.30          | .                   | 835.49           | .                | .                  | .                | 287.01          | 66.58             | 26.15           | .                         | .                         | .            | .                           | .                | .                 | .                    | 3,322.53          |
| Fludioxonil/metalaxyl-M/thiamethoxam | .                 | .                   | .                | .                | .                  | .                | .               | .                 | .               | 263.66                    | 217.13                    | .            | .                           | .                | .                 | .                    | 480.79            |
| Fluquinconazole/prochloraz           | .                 | .                   | .                | .                | .                  | 92.87            | .               | .                 | .               | .                         | .                         | .            | .                           | .                | .                 | .                    | 92.87             |
| Flutolanil                           | .                 | .                   | .                | .                | .                  | .                | .               | .                 | .               | .                         | .                         | .            | .                           | 65.96            | 8.14              | 249.26               | 323.36            |
| Imazalil                             | .                 | .                   | .                | .                | .                  | .                | .               | .                 | .               | .                         | .                         | .            | .                           | 217.78           | 63.08             | 533.83               | 814.69            |
| Imazalil/pencycuron                  | .                 | .                   | .                | .                | .                  | .                | .               | .                 | .               | .                         | .                         | .            | .                           | 256.99           | 52.06             | 862.03               | 1,171.08          |
| Imazalil/thiabendazole               | .                 | .                   | .                | .                | .                  | .                | .               | .                 | .               | .                         | .                         | .            | .                           | 21.19            | .                 | 193.52               | 214.71            |
| Imidacloprid/tebuconazole/triazoxide | 164.68            | .                   | 73.50            | .                | .                  | .                | .               | .                 | .               | .                         | .                         | .            | .                           | .                | .                 | .                    | 238.18            |
| Pencycuron                           | .                 | .                   | .                | .                | .                  | .                | .               | .                 | .               | .                         | .                         | .            | .                           | .                | 6.78              | 135.61               | 142.39            |
| Prochloraz/triticonazole             | 6,402.78          | 453.10              | 1,000.36         | 237.09           | .                  | 3,530.23         | 356.12          | 86.80             | 132.00          | .                         | .                         | .            | .                           | .                | .                 | .                    | 12,198.49         |
| Prothioconazole                      | 325.76            | .                   | 173.21           | .                | .                  | 173.41           | .               | .                 | 43.76           | .                         | .                         | .            | .                           | .                | .                 | .                    | 716.14            |
| Silthiofam                           | 306.26            | .                   | .                | .                | .                  | 1,578.18         | .               | .                 | .               | .                         | .                         | .            | .                           | .                | .                 | .                    | 1,884.44          |
| Unknown seed treatment               | 476.53            | .                   | .                | .                | .                  | 50.06            | .               | .                 | .               | 40.42                     | 25.27                     | .            | .                           | .                | .                 | .                    | 592.28            |
| <i>All seed treatments</i>           | <i>16,990.23</i>  | <i>453.10</i>       | <i>5,031.09</i>  | <i>1,500.20</i>  | <i>48.19</i>       | <i>9,291.96</i>  | <i>892.30</i>   | <i>192.71</i>     | <i>245.88</i>   | <i>496.17</i>             | <i>289.67</i>             | <i>.</i>     | <i>.</i>                    | <i>561.92</i>    | <i>130.06</i>     | <i>1,974.26</i>      | <i>38,097.73</i>  |
| <i>All pesticides</i>                | <i>138,522.94</i> | <i>1,382.12</i>     | <i>46,641.99</i> | <i>12,655.84</i> | <i>96.37</i>       | <i>87,109.70</i> | <i>6,344.62</i> | <i>825.36</i>     | <i>1,772.51</i> | <i>3,720.75</i>           | <i>678.85</i>             | <i>80.99</i> | <i>20.72</i>                | <i>9,940.06</i>  | <i>1,958.36</i>   | <i>63,093.50</i>     | <i>374,844.68</i> |

**Table 9: Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland in 2012.**

| Pesticide type & formulation               | Spring barley | Undersown barley | Winter barley | Spring wheat | Undersown wheat | Winter wheat | Spring oats | Undersown oats | Winter oats | Winter Oilseed rape | Spring Oilseed rape | Camelina | Peas & field beans | Seed potatoes | Early potatoes | Maincrop potatoes | All crops |
|--------------------------------------------|---------------|------------------|---------------|--------------|-----------------|--------------|-------------|----------------|-------------|---------------------|---------------------|----------|--------------------|---------------|----------------|-------------------|-----------|
| <b>Fungicides</b>                          |               |                  |               |              |                 |              |             |                |             |                     |                     |          |                    |               |                |                   |           |
| Ametoctradin/Dimethomorph                  | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 206.41        | 15.57          | 911.39            | 1,133.37  |
| Azoxystrobin                               | 130.11        | .                | 25.89         | .            | .               | 356.02       | .           | .              | 1.00        | 67.16               | .                   | .        | .                  | .             | .              | 47.89             | 628.06    |
| Azoxystrobin/chlorothalonil                | 363.51        | .                | 27.26         | 529.17       | .               | 806.98       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | 72.14             | 1,799.06  |
| Azoxystrobin/cyproconazole                 | 13.11         | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 13.11     |
| Benthiavalicarb-isopropyl/mancozeb         | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | 419.66            | 419.66    |
| Bixafen/Fluoxastrobin/Prothioconazole      | .             | .                | .             | .            | .               | 93.19        | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 93.19     |
| Bixafen/Prothioconazole                    | 339.56        | .                | 96.82         | 33.44        | .               | 236.73       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 706.55    |
| Bixafen/Prothioconazole/Spiroxamine        | .             | .                | .             | .            | .               | 6.67         | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 6.67      |
| Boscalid/epoxiconazole                     | 138.96        | 18.99            | 115.45        | 70.59        | .               | 553.73       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 897.72    |
| Carbendazim/flusilazole                    | 26.43         | .                | 167.82        | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 194.26    |
| Chlorothalonil                             | 3,760.15      | 19.35            | 1,757.02      | 291.66       | .               | 4,367.91     | 48.76       | .              | 33.29       | .                   | .                   | .        | .                  | .             | .              | 254.90            | 10,533.05 |
| Chlorothalonil/cyproconazole               | 725.54        | .                | 167.34        | .            | .               | 19.55        | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 912.43    |
| Chlorothalonil/cyproconazole/propiconazole | 251.69        | .                | 94.24         | .            | .               | 374.92       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 720.85    |
| Chlorothalonil/flusilazole                 | 127.42        | .                | 25.87         | .            | .               | .            | 9.80        | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 163.09    |
| Chlorothalonil/picoxystrobin               | 158.12        | .                | 892.90        | .            | .               | 70.39        | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 1,121.42  |
| Chlorothalonil/propamocarb hydrochloride   | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 113.22        | .              | 834.42            | 947.64    |
| Chlorothalonil/propiconazole               | .             | .                | .             | .            | .               | 1.93         | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 1.93      |
| Chlorothalonil/Proquinazid                 | 496.89        | .                | 67.63         | 29.49        | .               | 129.98       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 723.98    |
| Copper oxychloride                         | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | 796.36            | 796.36    |
| Cyazofamid                                 | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 33.02         | 0.92           | 279.59            | 313.53    |
| Cymoxanil                                  | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 29.13         | 6.53           | 264.57            | 300.23    |
| Cymoxanil/famoxadone                       | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 12.08         | .              | 76.61             | 88.69     |
| Cymoxanil/mancozeb                         | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 688.88        | 101.81         | 4,029.28          | 4,819.97  |
| Cymoxanil/propamocarb hydrochloride        | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 42.46         | .              | 73.23             | 115.69    |
| Cyproconazole/propiconazole                | 46.69         | .                | 10.65         | .            | .               | 17.67        | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 75.01     |
| Cyprodinil                                 | 196.54        | .                | 125.85        | .            | .               | 9.07         | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 331.47    |
| Cyprodinil/isopyrazam                      | 1,078.35      | .                | 824.43        | .            | .               | 19.63        | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 1,922.41  |
| Cyprodinil/picoxystrobin                   | 3.44          | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 3.44      |
| Dimethomorph/mancozeb                      | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 372.46        | 22.60          | 3,860.63          | 4,255.69  |

**Table 9 (cont.): Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland in 2012.**

| Pesticide type & formulation                  | Spring<br>barley | Undersown<br>barley | Winter<br>barley | Spring<br>wheat | Undersown<br>wheat | Winter<br>wheat | Spring<br>oats | Undersown<br>oats | Winter<br>oats | Winter<br>Oilseed<br>rape | Spring<br>Oilseed<br>rape | <i>Camelina</i> | Peas &<br>field<br>beans | Seed<br>potatoes | Early<br>potatoes | Maincrop<br>potatoes | All crops |
|-----------------------------------------------|------------------|---------------------|------------------|-----------------|--------------------|-----------------|----------------|-------------------|----------------|---------------------------|---------------------------|-----------------|--------------------------|------------------|-------------------|----------------------|-----------|
| <i>Fungicides (cont)</i>                      |                  |                     |                  |                 |                    |                 |                |                   |                |                           |                           |                 |                          |                  |                   |                      |           |
| Epoxiconazole                                 | 105.27           | .                   | 37.87            | 26.85           | .                  | 233.57          | 16.97          | .                 | 0.36           | .                         | .                         | .               | .                        | .                | .                 | .                    | 420.91    |
| Epoxiconazole/fenpropimorph                   | .                | .                   | 53.23            | 12.04           | .                  | 7.92            | 2.37           | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 75.56     |
| Epoxiconazole/fenpropimorph/kresoxim-methyl   | 161.39           | .                   | 64.41            | .               | .                  | 94.55           | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 320.35    |
| Epoxiconazole/fenpropimorph/metrafenone       | 110.16           | .                   | .                | 10.82           | .                  | 139.32          | 59.89          | 33.71             | 59.26          | .                         | .                         | .               | .                        | .                | .                 | .                    | 413.16    |
| Epoxiconazole/Fluxapyroxad                    | 10.54            | .                   | 34.19            | .               | .                  | 22.31           | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 67.05     |
| Epoxiconazole/Isopyrazam                      | 8.62             | .                   | 0.20             | 5.38            | .                  | 211.83          | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 226.03    |
| Epoxiconazole/kresoxim-methyl                 | .                | .                   | .                | .               | .                  | .               | 6.16           | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 6.16      |
| Epoxiconazole/metconazole                     | 25.18            | .                   | 25.76            | 50.33           | .                  | 233.66          | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 334.93    |
| Epoxiconazole/Metrafenone                     | .                | .                   | .                | .               | .                  | .               | .              | .                 | 33.51          | .                         | .                         | .               | .                        | .                | .                 | .                    | 33.51     |
| Epoxiconazole/prochloraz                      | 385.72           | .                   | 182.51           | .               | .                  | 81.10           | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 649.33    |
| Epoxiconazole/pyraclostrobin                  | .                | .                   | .                | .               | .                  | 14.91           | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 14.91     |
| Fenamidone/propamocarb hydrochloride          | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .               | .                        | 122.68           | 182.65            | 2,548.72             | 2,854.05  |
| Fenpropidin                                   | .                | .                   | 23.20            | .               | .                  | 185.59          | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 208.78    |
| Fenpropimorph                                 | 220.31           | .                   | 268.75           | .               | .                  | 246.51          | 123.99         | .                 | 73.20          | .                         | .                         | .               | .                        | .                | .                 | .                    | 932.77    |
| Fenpropimorph/flusilazole                     | 220.03           | .                   | 51.19            | .               | .                  | 4.96            | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 276.19    |
| Fenpropimorph/pyraclostrobin                  | .                | .                   | .                | .               | .                  | 232.83          | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 232.83    |
| Fluazinam                                     | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .               | .                        | 325.00           | 70.25             | 2,549.27             | 2,944.51  |
| Fluopicolide/propamocarb hydrochloride        | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .               | .                        | 624.35           | 139.14            | 5,535.52             | 6,299.01  |
| Fluoxastrobin/prothioconazole                 | 597.74           | .                   | 242.95           | .               | .                  | 152.60          | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 993.29    |
| Fluoxastrobin/prothioconazole/trifloxystrobin | 91.56            | .                   | 26.16            | 8.11            | .                  | 59.44           | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 185.27    |
| Fluquinconazole/prochloraz                    | .                | .                   | .                | .               | .                  | 163.10          | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 163.10    |
| Flusilazole                                   | .                | .                   | 8.26             | .               | .                  | .               | .              | .                 | .              | 2.20                      | .                         | .               | .                        | .                | .                 | .                    | 10.46     |
| Fluxapyroxad                                  | .                | .                   | 7.95             | .               | .                  | 25.98           | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 33.93     |
| Folpet                                        | 310.85           | .                   | 121.53           | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 432.38    |
| Mancozeb                                      | .                | .                   | .                | 194.74          | .                  | 338.59          | .              | .                 | 20.65          | .                         | .                         | .               | .                        | 382.28           | 25.45             | 470.12               | 1,431.83  |
| Mancozeb/metalaxyl-M                          | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | 43.72                | 43.72     |
| Mandipropamid                                 | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .               | .                        | 119.21           | 21.93             | 666.04               | 807.18    |
| Metconazole                                   | .                | .                   | .                | .               | .                  | .               | .              | .                 | .              | .                         | 1.21                      | .               | .                        | .                | .                 | .                    | 1.21      |
| Picoxystrobin                                 | 82.97            | .                   | 6.06             | .               | .                  | .               | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 89.03     |
| Prochloraz/tebuconazole                       | .                | .                   | .                | 12.02           | .                  | .               | .              | .                 | .              | .                         | .                         | .               | .                        | .                | .                 | .                    | 12.02     |
| Proquinazid                                   | 27.95            | .                   | 27.22            | 8.56            | .                  | 36.92           | 0.64           | .                 | 10.86          | .                         | .                         | .               | .                        | .                | .                 | .                    | 112.15    |

**Table 9 (cont.): Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland in 2012.**

| Pesticide type & formulation    | Spring<br>barley | Undersown<br>barley | Winter<br>barley | Spring<br>wheat | Undersown<br>wheat | Winter<br>wheat  | Spring<br>oats | Undersown<br>oats | Winter<br>oats | Winter<br>Oilseed<br>rape | Spring<br>Oilseed<br>rape | Camelina | Peas &<br>field<br>beans | Seed<br>potatoes | Early<br>potatoes | Maincrop<br>potatoes | All crops        |
|---------------------------------|------------------|---------------------|------------------|-----------------|--------------------|------------------|----------------|-------------------|----------------|---------------------------|---------------------------|----------|--------------------------|------------------|-------------------|----------------------|------------------|
| <i>Fungicides (cont.)</i>       |                  |                     |                  |                 |                    |                  |                |                   |                |                           |                           |          |                          |                  |                   |                      |                  |
| Prothioconazole                 | 241.40           | .                   | 199.31           | 33.08           | .                  | 299.91           | .              | .                 | 6.97           | 31.49                     | .                         | .        | .                        | .                | .                 | .                    | 812.15           |
| Prothioconazole/Spiroxamine     | 26.16            | .                   | .                | .               | .                  | .                | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 26.16            |
| Prothioconazole/tebuconazole    | 222.13           | 9.68                | 26.75            | 23.94           | .                  | 1,118.86         | .              | .                 | .              | 14.27                     | .                         | .        | .                        | .                | .                 | .                    | 1,415.63         |
| Prothioconazole/trifloxystrobin | 595.30           | .                   | 216.19           | 15.50           | .                  | 60.84            | .              | .                 | .              | .                         | .                         | .        | .                        | .                | .                 | .                    | 887.84           |
| Pyraclostrobin                  | 140.02           | .                   | 25.16            | 6.70            | .                  | 103.15           | 25.69          | .                 | 0.90           | .                         | .                         | .        | .                        | .                | .                 | .                    | 301.63           |
| Quinoxifen                      | .                | .                   | .                | .               | .                  | .                | 28.70          | .                 | 3.27           | .                         | .                         | .        | .                        | .                | .                 | .                    | 31.97            |
| Tebuconazole                    | 31.47            | .                   | 3.39             | 58.35           | .                  | 372.73           | 15.94          | .                 | 0.65           | 65.18                     | .                         | .        | .                        | .                | .                 | 11.87                | 559.57           |
|                                 |                  |                     |                  |                 |                    |                  |                |                   |                |                           |                           |          |                          | .                | .                 | .                    | .                |
| <b>All fungicides</b>           | <b>11,471.29</b> | <b>48.01</b>        | <b>6,051.40</b>  | <b>1,420.80</b> | <b>.</b>           | <b>11,505.58</b> | <b>338.92</b>  | <b>33.71</b>      | <b>243.94</b>  | <b>180.30</b>             | <b>1.21</b>               | <b>.</b> | <b>.</b>                 | <b>3,071.19</b>  | <b>586.86</b>     | <b>23,745.90</b>     | <b>58,699.09</b> |

**Table 9 (cont.): Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland in 2012.**

| Pesticide type & formulation                                | Spring barley | Undersown barley | Winter barley | Spring wheat | Undersown wheat | Winter wheat | Spring oats | Undersown oats | Winter oats | Winter Oilseed rape | Spring Oilseed rape | Camelina | Peas & field beans | Seed potatoes | Early potatoes | Maincrop potatoes | All crops |
|-------------------------------------------------------------|---------------|------------------|---------------|--------------|-----------------|--------------|-------------|----------------|-------------|---------------------|---------------------|----------|--------------------|---------------|----------------|-------------------|-----------|
| <i>Herbicides &amp; desiccants</i>                          |               |                  |               |              |                 |              |             |                |             |                     |                     |          |                    |               |                |                   |           |
| 2,4-DB                                                      | .             | 34.35            | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 34.35     |
| 2,4-DB/linuron/MCPA                                         | .             | 444.56           | .             | .            | .               | .            | .           | 21.10          | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 465.66    |
| Amidosulfuron                                               | .             | .                | .             | .            | .               | .            | .           | .              | 1.86        | .                   | .                   | .        | .                  | .             | .              | .                 | 1.86      |
| Amidosulfuron/iodosulfuron-methyl-sodium                    | 10.62         | .                | 9.43          | .            | .               | 2.22         | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 22.27     |
| Aminopyralid/fluroxypyr                                     | 48.82         | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 48.82     |
| Bromoxynil/ioxynil                                          | 429.56        | .                | 81.16         | 34.07        | .               | 79.54        | .           | .              | 24.80       | .                   | .                   | .        | .                  | .             | .              | .                 | 649.13    |
| Carfentrazone-ethyl                                         | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | 9.74          | .              | 49.60             | 59.34     |
| Carfentrazone-ethyl/flupyrasulfuron-methyl                  | .             | .                | .             | .            | .               | .            | .           | .              | 1.55        | .                   | .                   | .        | .                  | .             | .              | .                 | 1.55      |
| Chlorotoluron                                               | .             | .                | 976.62        | .            | .               | 85.31        | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 1,061.93  |
| Chlorotoluron/diflufenican                                  | 962.58        | .                | 1,388.30      | .            | .               | 172.65       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 2,523.53  |
| Clomazone                                                   | .             | .                | .             | .            | .               | .            | .           | .              | .           | .                   | 1.13                | .        | .                  | .             | .              | 15.38             | 16.51     |
| Clopyralid/fluroxypyr/triclopyr                             | 534.12        | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 534.12    |
| Clopyralid/picloram                                         | .             | .                | .             | .            | .               | .            | .           | .              | .           | 26.18               | .                   | .        | .                  | .             | .              | .                 | 26.18     |
| Dicamba/MCPA/mecoprop-P                                     | .             | .                | .             | .            | .               | .            | 37.71       | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 37.71     |
| Dicamba/mecoprop-P                                          | 386.39        | .                | 12.18         | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 398.58    |
| Diflufenican                                                | 2.89          | .                | 113.76        | .            | .               | 170.90       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 287.55    |
| Diflufenican/flufenacet                                     | .             | .                | 110.31        | .            | .               | 87.31        | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 197.62    |
| Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl | .             | .                | 3.96          | .            | .               | 254.64       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 258.60    |
| Diflufenican/Metsulfuron-methyl                             | 13.87         | .                | .             | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 13.87     |
| Diquat                                                      | 11.46         | .                | .             | .            | .               | .            | .           | .              | .           | 7.92                | .                   | 32.40    | .                  | 321.49        | 67.28          | 2,093.62          | 2,534.17  |
| Fenoxaprop-P-ethyl                                          | .             | .                | 8.64          | .            | .               | 4.30         | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 12.94     |
| Florasulam/fluroxypyr                                       | 109.40        | .                | 28.68         | .            | .               | 44.21        | 25.75       | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 208.04    |
| Fluazifop-P-butyl                                           | .             | .                | .             | .            | .               | .            | .           | .              | .           | 7.49                | .                   | .        | .                  | .             | .              | .                 | 7.49      |
| Flufenacet/pendimethalin                                    | .             | .                | 1,437.50      | .            | .               | 967.71       | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 2,405.21  |
| Fluroxypyr                                                  | 796.43        | .                | 110.61        | 54.10        | .               | 165.23       | 4.48        | 23.01          | 0.72        | .                   | .                   | .        | .                  | .             | .              | .                 | 1,154.58  |
| Glyphosate                                                  | 10,042.61     | .                | 2,548.07      | 956.53       | .               | 3,496.49     | 396.03      | .              | 52.96       | 469.49              | 225.84              | .        | .                  | 357.50        | 139.72         | 2,226.32          | 20,911.56 |
| Iodosulfuron-methyl-sodium                                  | 12.14         | .                | 0.56          | 1.35         | .               | 3.58         | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 17.63     |
| iodosulfuron-methyl-sodium/mesosulfuron-methyl              | .             | .                | .             | .            | .               | 12.88        | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 12.88     |
| Isoproturon                                                 | 42.95         | .                | 145.75        | .            | .               | .            | .           | .              | .           | .                   | .                   | .        | .                  | .             | .              | .                 | 188.70    |

**Table 9 (cont.): Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland in 2012.**

| Pesticide type & formulation               | Spring barley   | Undersown barley | Winter barley   | Spring wheat    | Undersown wheat | Winter wheat    | Spring oats   | Undersown oats | Winter oats   | Winter Oilseed rape | Spring Oilseed rape | Camelina     | Peas & field beans | Seed potatoes   | Early potatoes | Maincrop potatoes | All crops        |
|--------------------------------------------|-----------------|------------------|-----------------|-----------------|-----------------|-----------------|---------------|----------------|---------------|---------------------|---------------------|--------------|--------------------|-----------------|----------------|-------------------|------------------|
| <b>Herbicides &amp; desiccants (cont.)</b> |                 |                  |                 |                 |                 |                 |               |                |               |                     |                     |              |                    |                 |                |                   |                  |
| Linuron                                    | .               | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | 7.77               | 35.62           | 38.76          | 312.07            | 394.23           |
| MCPA                                       | 338.02          | .                | .               | 35.04           | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | .               | .              | .                 | 373.06           |
| Mecoprop-P                                 | 7,959.66        | 12.22            | 930.49          | 861.19          | .               | 597.51          | 332.62        | .              | 26.59         | .                   | .                   | .            | .                  | .               | .              | .                 | 10,720.28        |
| Metazachlor                                | .               | .                | .               | .               | .               | .               | .             | .              | .             | .                   | 64.29               | .            | .                  | .               | .              | .                 | 64.29            |
| Metribuzin                                 | .               | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | 401.28          | 145.11         | 2,562.22          | 3,108.61         |
| Metsulfuron-methyl                         | 32.21           | .                | 0.71            | 0.45            | .               | 0.35            | 1.22          | 0.40           | .             | .                   | .                   | .            | .                  | .               | .              | .                 | 35.34            |
| Metsulfuron-methyl/thifensulfuron-methyl   | 88.40           | .                | 13.89           | 3.53            | .               | 2.04            | .             | .              | 0.43          | .                   | .                   | .            | .                  | .               | .              | .                 | 108.30           |
| Metsulfuron-methyl/tribenuron-methyl       | 63.22           | .                | 8.04            | 5.77            | .               | 3.78            | 3.48          | .              | 0.30          | .                   | .                   | .            | .                  | .               | .              | .                 | 84.60            |
| Paraquat                                   | .               | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | .               | .              | 20.34             | 20.34            |
| Pendimethalin                              | .               | .                | 60.42           | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | 10.26              | 87.07           | 60.81          | 143.20            | 361.76           |
| Pendimethalin/picolinafen                  | .               | .                | 276.11          | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | .               | .              | .                 | 276.11           |
| Pinoxaden                                  | 72.22           | .                | 11.32           | 5.83            | .               | 3.56            | .             | .              | .             | .                   | .                   | .            | .                  | .               | .              | .                 | 92.94            |
| Propaquizafop                              | .               | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | 10.76           | .              | 6.01              | 16.78            |
| Propyzamide                                | .               | .                | .               | .               | .               | .               | .             | .              | .             | 333.12              | .                   | .            | .                  | .               | .              | .                 | 333.12           |
| Prosulfocarb                               | .               | .                | 176.40          | 282.41          | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | 255.04          | 67.26          | 1,156.68          | 1,937.79         |
| Pyraflufen-ethyl                           | .               | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | .               | .              | 1.17              | 1.17             |
| Rimsulfuron                                | .               | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | 0.74            | .              | 4.92              | 5.66             |
| Tepraloxydim                               | .               | .                | .               | .               | .               | .               | .             | .              | .             | .                   | .                   | .            | .                  | 1.84            | .              | .                 | 1.84             |
| Thifensulfuron-methyl/tribenuron-methyl    | 53.27           | .                | 7.89            | 8.98            | .               | 4.10            | 16.81         | .              | .             | .                   | .                   | .            | .                  | .               | .              | .                 | 91.06            |
| Tribenuron-methyl                          | 0.20            | 0.38             | .               | .               | 0.12            | 1.04            | .             | 0.47           | .             | .                   | .                   | .            | .                  | .               | .              | .                 | 2.21             |
| <b>All herbicides &amp; desiccants</b>     | <b>22,011.0</b> | <b>491.51</b>    | <b>8,460.82</b> | <b>2,249.26</b> | <b>0.12</b>     | <b>6,159.34</b> | <b>818.11</b> | <b>44.98</b>   | <b>109.22</b> | <b>844.20</b>       | <b>291.25</b>       | <b>32.40</b> | <b>18.03</b>       | <b>1,481.10</b> | <b>518.93</b>  | <b>8,591.52</b>   | <b>52,121.84</b> |

**Table 9 (cont.): Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland in 2012.**

| Pesticide type & formulation    | Spring barley          | Undersown barley   | Winter barley        | Spring wheat         | Undersown wheat | Winter wheat         | Spring oats        | Undersown oats     | Winter oats        | Winter Oilseed rape | Spring Oilseed rape | Camelina        | Peas & field beans | Seed potatoes       | Early potatoes     | Maincrop potatoes    | All crops              |
|---------------------------------|------------------------|--------------------|----------------------|----------------------|-----------------|----------------------|--------------------|--------------------|--------------------|---------------------|---------------------|-----------------|--------------------|---------------------|--------------------|----------------------|------------------------|
| <i><b>Insecticides</b></i>      |                        |                    |                      |                      |                 |                      |                    |                    |                    |                     |                     |                 |                    |                     |                    |                      |                        |
| Alpha-cypermethrin              | 3.08                   | .                  | 0.37                 | .                    | .               | 5.08                 | .                  | .                  | .                  | .                   | .                   | .               | .                  | .                   | .                  | .                    | 8.54                   |
| Chlorpyrifos                    | 1,010.97               | .                  | 102.69               | 56.57                | .               | 17.07                | .                  | .                  | .                  | .                   | .                   | .               | .                  | .                   | .                  | .                    | 1,187.30               |
| Cypermethrin                    | 28.05                  | 0.63               | 13.54                | .                    | .               | 15.82                | .                  | .                  | 5.66               | .                   | .                   | .               | .                  | .                   | .                  | .                    | 63.70                  |
| Deltamethrin                    | 0.94                   | .                  | 0.38                 | 2.62                 | .               | 0.21                 | 0.05               | .                  | 0.05               | 0.14                | .                   | .               | .                  | .                   | .                  | 0.19                 | 4.56                   |
| Dimethoate                      | .                      | .                  | .                    | 84.67                | .               | 21.63                | .                  | .                  | .                  | .                   | .                   | .               | .                  | .                   | .                  | .                    | 106.29                 |
| Esfenvalerate                   | 31.03                  | 0.35               | 5.99                 | 3.85                 | .               | 11.97                | 0.59               | 0.36               | .                  | .                   | .                   | .               | .                  | 1.16                | .                  | 0.13                 | 55.44                  |
| Flonicamid                      | .                      | .                  | .                    | .                    | .               | .                    | .                  | .                  | .                  | .                   | .                   | .               | .                  | 5.28                | .                  | .                    | 5.28                   |
| Lambda-cyhalothrin              | 23.98                  | 1.91               | 4.31                 | 0.88                 | .               | 20.77                | 2.20               | .                  | 0.13               | 0.63                | .                   | .               | .                  | 1.02                | 0.06               | 1.63                 | 57.51                  |
| Pirimicarb                      | .                      | .                  | .                    | .                    | .               | .                    | .                  | .                  | .                  | .                   | 1.95                | .               | .                  | .                   | 2.44               | 11.32                | 15.71                  |
| Pymetrozine                     | .                      | .                  | .                    | .                    | .               | .                    | .                  | .                  | .                  | .                   | .                   | .               | .                  | 33.13               | .                  | 10.17                | 43.30                  |
| Thiacloprid                     | .                      | .                  | .                    | .                    | .               | .                    | .                  | .                  | .                  | .                   | .                   | .               | .                  | 17.37               | .                  | 2.41                 | 19.78                  |
| Thiamethoxam                    | .                      | .                  | .                    | .                    | .               | .                    | .                  | .                  | .                  | .                   | .                   | .               | .                  | 1.36                | .                  | .                    | 1.36                   |
| Unknown insecticide             | .                      | .                  | .                    | .                    | .               | 59.38                | .                  | .                  | .                  | .                   | .                   | .               | .                  | .                   | .                  | .                    | 59.38                  |
| Zeta-cypermethrin               | 2.17                   | .                  | .                    | .                    | .               | .                    | .                  | .                  | .                  | .                   | .                   | .               | .                  | .                   | .                  | .                    | 2.17                   |
| <i><b>All insecticides</b></i>  | <i><b>1,100.23</b></i> | <i><b>2.88</b></i> | <i><b>127.28</b></i> | <i><b>148.58</b></i> | <i><b>.</b></i> | <i><b>151.93</b></i> | <i><b>2.84</b></i> | <i><b>0.36</b></i> | <i><b>5.84</b></i> | <i><b>0.77</b></i>  | <i><b>1.95</b></i>  | <i><b>.</b></i> | <i><b>.</b></i>    | <i><b>59.32</b></i> | <i><b>2.49</b></i> | <i><b>25.85</b></i>  | <i><b>1,630.32</b></i> |
| <i><b>Molluscicides</b></i>     |                        |                    |                      |                      |                 |                      |                    |                    |                    |                     |                     |                 |                    |                     |                    |                      |                        |
| Metaldehyde                     | .                      | .                  | 5.51                 | .                    | .               | 13.56                | .                  | .                  | .                  | 2.75                | .                   | .               | .                  | .                   | 4.88               | 132.87               | 159.57                 |
| Methiocarb                      | .                      | .                  | .                    | 18.16                | .               | .                    | .                  | .                  | .                  | 19.70               | .                   | .               | .                  | 2.83                | 3.25               | 93.69                | 137.64                 |
| <i><b>All molluscicides</b></i> | <i><b>.</b></i>        | <i><b>.</b></i>    | <i><b>5.51</b></i>   | <i><b>18.16</b></i>  | <i><b>.</b></i> | <i><b>13.56</b></i>  | <i><b>.</b></i>    | <i><b>.</b></i>    | <i><b>.</b></i>    | <i><b>22.44</b></i> | <i><b>.</b></i>     | <i><b>.</b></i> | <i><b>.</b></i>    | <i><b>2.83</b></i>  | <i><b>8.14</b></i> | <i><b>226.56</b></i> | <i><b>297.21</b></i>   |

**Table 9 (cont.): Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland in 2012.**

| Pesticide type & formulation                   | Spring barley   | Undersown barley | Winter barley   | Spring wheat  | Undersown wheat | Winter wheat    | Spring oats   | Undersown oats | Winter oats   | Winter Oilseed rape | Spring Oilseed rape | Camelina | Peas & field beans | Seed potatoes | Early potatoes | Maincrop potatoes | All crops        |
|------------------------------------------------|-----------------|------------------|-----------------|---------------|-----------------|-----------------|---------------|----------------|---------------|---------------------|---------------------|----------|--------------------|---------------|----------------|-------------------|------------------|
| <b>Growth Regulators</b>                       |                 |                  |                 |               |                 |                 |               |                |               |                     |                     |          |                    |               |                |                   |                  |
| 2-chloroethylphosphonic acid                   | 329.98          | .                | 255.76          | .             | .               | 159.31          | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 745.05           |
| 2-chloroethylphosphonic acid/mepiquat chloride | .               | .                | 37.21           | .             | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 37.21            |
| Chlormequat                                    | 3,743.95        | 35.85            | 1,412.76        | 807.16        | .               | 7,754.14        | 494.54        | .              | 205.00        | .                   | .                   | .        | .                  | .             | .              | .                 | 14,453.40        |
| Chlormequat with choline chloride              | 357.76          | .                | 176.81          | .             | .               | 12.96           | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 547.53           |
| Chlormequat/2-chloroethylphosphonic acid       | 20.32           | .                | .               | .             | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 20.32            |
| Chlormequat/Imazaquin                          | .               | .                | .               | .             | .               | 27.58           | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 27.58            |
| Maleic hydrazide                               | .               | .                | .               | .             | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | 30.59             | 30.59            |
| Mepiquat chloride/Prohexadione-calcium         | .               | .                | 18.25           | .             | .               | 12.25           | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 30.50            |
| Trinexapac-ethyl                               | 302.66          | .                | 183.71          | 1.44          | .               | 188.65          | 11.68         | 3.33           | 1.76          | .                   | .                   | .        | .                  | .             | .              | .                 | 693.23           |
| <b>All growth regulators</b>                   | <b>4,754.68</b> | <b>35.85</b>     | <b>2,084.51</b> | <b>808.60</b> | <b>.</b>        | <b>8,154.89</b> | <b>506.21</b> | <b>3.33</b>    | <b>206.76</b> | <b>.</b>            | <b>.</b>            | <b>.</b> | <b>.</b>           | <b>.</b>      | <b>.</b>       | <b>30.59</b>      | <b>16,585.42</b> |
| <b>Other</b>                                   |                 |                  |                 |               |                 |                 |               |                |               |                     |                     |          |                    |               |                |                   |                  |
| Carboxylated styrene-butadiene                 | .               | .                | .               | .             | .               | .               | .             | .              | .             | 14.92               | .                   | .        | .                  | .             | .              | .                 | 14.92            |
| Di-1-P-menthene                                | 8.33            | .                | .               | .             | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 8.33             |
| Ethephon                                       | 36.31           | .                | .               | .             | .               | .               | .             | .              | .             | .                   | .                   | .        | .                  | .             | .              | .                 | 36.31            |
| Synthetic latex                                | .               | .                | .               | .             | .               | .               | .             | .              | .             | 184.64              | .                   | .        | .                  | .             | .              | .                 | 184.64           |
| <b>All other</b>                               | <b>44.64</b>    | <b>.</b>         | <b>.</b>        | <b>.</b>      | <b>.</b>        | <b>.</b>        | <b>.</b>      | <b>.</b>       | <b>.</b>      | <b>199.56</b>       | <b>.</b>            | <b>.</b> | <b>.</b>           | <b>.</b>      | <b>.</b>       | <b>.</b>          | <b>244.20</b>    |



**Table 9 (cont.): Estimated quantities (kg) of pesticide formulations used on arable crops in Northern Ireland in 2012.**

| Pesticide type & formulation         | Spring barley    | Undersown barley | Winter barley   | Spring wheat    | Undersown wheat | Winter wheat    | Spring oats     | Undersown oats | Winter oats   | Winter Oilseed rape | Spring Oilseed rape | Camelina     | Peas & field beans | Seed potatoes   | Early potatoes  | Maincrop potatoes | All crops         |
|--------------------------------------|------------------|------------------|-----------------|-----------------|-----------------|-----------------|-----------------|----------------|---------------|---------------------|---------------------|--------------|--------------------|-----------------|-----------------|-------------------|-------------------|
| <i>Seed treatments</i>               |                  |                  |                 |                 |                 |                 |                 |                |               |                     |                     |              |                    |                 |                 |                   |                   |
| Beta-cyfluthrin/imidacloprid         | .                | .                | .               | .               | .               | .               | .               | .              | .             | 2.33                | 0.28                | .            | .                  | .               | .               | .                 | 2.61              |
| Carboxin/thiram                      | 83.57            | .                | 7.88            | 14.53           | .               | 29.50           | .               | .              | .             | .                   | .                   | .            | .                  | .               | .               | .                 | 135.47            |
| Clothianidin/prothioconazole         | 30.81            | .                | 271.33          | 4.14            | .               | 335.69          | 2.34            | .              | 3.80          | .                   | .                   | .            | .                  | .               | .               | .                 | 648.11            |
| Fludioxonil                          | 58.85            | .                | .               | 10.68           | 0.30            | 3.11            | 2.09            | 0.35           | .             | .                   | .                   | .            | .                  | .               | .               | .                 | 75.38             |
| Fludioxonil/flutriafol               | 34.34            | .                | 12.88           | .               | .               | .               | 4.11            | 0.94           | 0.47          | .                   | .                   | .            | .                  | .               | .               | .                 | 52.74             |
| Fludioxonil/metalaxy-M/thiamethoxam  | .                | .                | .               | .               | .               | .               | .               | .              | .             | 5.32                | 2.54                | .            | .                  | .               | .               | .                 | 7.86              |
| Fluquinconazole/prochloraz           | .                | .                | .               | .               | .               | 13.01           | .               | .              | .             | .                   | .                   | .            | .                  | .               | .               | .                 | 13.01             |
| Flutolanil                           | .                | .                | .               | .               | .               | .               | .               | .              | .             | .                   | .                   | .            | .                  | 33.78           | 2.16            | 96.84             | 132.78            |
| Imazalil                             | .                | .                | .               | .               | .               | .               | .               | .              | .             | .                   | .                   | .            | .                  | 6.16            | 1.75            | 12.94             | 20.85             |
| Imazalil/pencycuron                  | .                | .                | .               | .               | .               | .               | .               | .              | .             | .                   | .                   | .            | .                  | 227.57          | 35.61           | 578.98            | 842.16            |
| Imazalil/thiabendazole               | .                | .                | .               | .               | .               | .               | .               | .              | .             | .                   | .                   | .            | .                  | 4.19            | .               | 21.14             | 25.33             |
| Imidacloprid/tebuconazole/triazoxime | 12.18            | .                | 4.73            | .               | .               | .               | .               | .              | .             | .                   | .                   | .            | .                  | .               | .               | .                 | 16.91             |
| Pencycuron                           | .                | .                | .               | .               | .               | .               | .               | .              | .             | .                   | .                   | .            | .                  | .               | 4.26            | 85.11             | 89.37             |
| Prochloraz/triticonazole             | 205.77           | 13.52            | 26.76           | 6.88            | .               | 95.39           | 10.50           | 2.62           | 3.30          | .                   | .                   | .            | .                  | .               | .               | .                 | 364.75            |
| Prothioconazole                      | 6.14             | .                | 3.05            | .               | .               | 2.63            | .               | .              | 0.55          | .                   | .                   | .            | .                  | .               | .               | .                 | 12.37             |
| Silthiofam                           | 12.03            | .                | .               | .               | .               | 70.15           | .               | .              | .             | .                   | .                   | .            | .                  | .               | .               | .                 | 82.17             |
|                                      |                  |                  |                 |                 |                 |                 |                 |                |               |                     |                     |              |                    | .               | .               | .                 | .                 |
| <i>All seed treatments</i>           | <i>443.68</i>    | <i>13.52</i>     | <i>326.63</i>   | <i>36.23</i>    | <i>0.30</i>     | <i>549.48</i>   | <i>19.04</i>    | <i>3.91</i>    | <i>8.12</i>   | <i>7.65</i>         | <i>2.83</i>         | <i>.</i>     | <i>.</i>           | <i>271.71</i>   | <i>43.77</i>    | <i>795.01</i>     | <i>2,521.87</i>   |
|                                      |                  |                  |                 |                 |                 |                 |                 |                |               |                     |                     |              |                    |                 |                 |                   |                   |
| <i>All pesticides</i>                | <i>39,825.56</i> | <i>591.78</i>    | <i>17,056.1</i> | <i>4,681.62</i> | <i>0.42</i>     | <i>26,534.7</i> | <i>1,685.11</i> | <i>86.28</i>   | <i>573.88</i> | <i>1,254.92</i>     | <i>297.25</i>       | <i>32.40</i> | <i>18.03</i>       | <i>4,886.15</i> | <i>1,160.19</i> | <i>33,415.42</i>  | <i>132,099.95</i> |

**Table 10: The fifty active ingredients most extensively used on arable crops in Northern Ireland in 2012, ranked by area treated (sp ha).**

|    | <b>Active ingredient</b>     | <b>Treated area (sp ha)</b> |
|----|------------------------------|-----------------------------|
| 1  | Prothioconazole              | 30,026.30                   |
| 2  | Chlorothalonil               | 29,412.83                   |
| 3  | Glyphosate                   | 29,260.54                   |
| 4  | Metsulfuron-methyl           | 16,732.06                   |
| 5  | Epoxiconazole                | 16,698.53                   |
| 6  | Fluazinam                    | 16,105.71                   |
| 7  | Chlormequat                  | 14,736.42                   |
| 8  | Esfenvalerate                | 14,224.71                   |
| 9  | Fluroxypyr                   | 12,447.70                   |
| 10 | Trinexapac-ethyl             | 12,388.49                   |
| 11 | Mecoprop-P                   | 11,880.33                   |
| 12 | Tebuconazole                 | 11,707.19                   |
| 13 | Tribenuron-methyl            | 11,112.86                   |
| 14 | Diiflufenican                | 11,032.68                   |
| 15 | Propamocarb hydrochloride    | 9,693.37                    |
| 16 | Iodosulfuron-methyl-Sodium   | 8,623.60                    |
| 17 | Lambda-cyhalothrin           | 8,460.34                    |
| 18 | Mancozeb                     | 8,290.92                    |
| 19 | Diquat                       | 7,540.72                    |
| 20 | Cyprodinil                   | 7,342.25                    |
| 21 | Cymoxanil                    | 7,284.82                    |
| 22 | Fenpropimorph                | 7,161.70                    |
| 23 | Fluoxastrobin                | 6,944.83                    |
| 24 | Isopyrazam                   | 6,648.56                    |
| 25 | Trifloxystrobin              | 6,211.47                    |
| 26 | Fluopicolide                 | 5,897.28                    |
| 27 | Thifensulfuron-methyl        | 5,806.03                    |
| 28 | Mandipropamid                | 5,749.53                    |
| 29 | Dimethomorph                 | 5,634.90                    |
| 30 | Azoxystrobin                 | 5,391.37                    |
| 31 | Mesosulfuron-methyl          | 5,299.18                    |
| 32 | Proquinazid                  | 4,660.87                    |
| 33 | Bixafen                      | 4,239.49                    |
| 34 | 2-chloroethylphosphonic acid | 4,027.43                    |
| 35 | Cyazofamid                   | 3,969.67                    |
| 36 | Pyraclostrobin               | 3,903.94                    |
| 37 | Metribuzin                   | 3,782.96                    |
| 38 | Flufenacet                   | 3,407.57                    |
| 39 | Cyproconazole                | 3,330.23                    |
| 40 | Fenamidone                   | 3,162.13                    |
| 41 | Metconazole                  | 3,046.26                    |
| 42 | Pendimethalin                | 2,835.50                    |
| 43 | Pinoxaden                    | 2,832.62                    |
| 44 | Florasulam                   | 2,827.35                    |
| 45 | Ametoctradin                 | 2,719.45                    |
| 46 | Cypermethrin                 | 2,630.93                    |
| 47 | Prochloraz                   | 2,586.84                    |
| 48 | Boscalid                     | 2,507.32                    |
| 49 | Flusilazole                  | 2,489.03                    |
| 50 | Picoxystrobin                | 2,389.98                    |

**Table 11: The fifty active ingredients most extensively used on arable crops in Northern Ireland in 2012, ranked by weight (kg).**

|    | <b>Active ingredient</b>          | <b>Quantity (kg)</b> |
|----|-----------------------------------|----------------------|
| 1  | Glyphosate                        | 20,911.56            |
| 2  | Chlorothalonil                    | 15,627.13            |
| 3  | Chlormequat                       | 14,494.47            |
| 4  | Mecoprop-P                        | 11,075.36            |
| 5  | Mancozeb                          | 10,228.83            |
| 6  | Propamocarb hydrochloride         | 8,681.41             |
| 7  | Chlorotoluron                     | 3,485.32             |
| 8  | Prothioconazole                   | 3,236.52             |
| 9  | Metribuzin                        | 3,108.61             |
| 10 | Fluazinam                         | 2,944.48             |
| 11 | Pendimethalin                     | 2,632.91             |
| 12 | Diquat                            | 2,534.16             |
| 13 | Prosulfocarb                      | 1,937.79             |
| 14 | Cyprodinil                        | 1,776.00             |
| 15 | Fenpropimorph                     | 1,731.70             |
| 16 | Fluroxypyr                        | 1,570.70             |
| 17 | Epoxiconazole                     | 1,336.28             |
| 18 | Tebuconazole                      | 1,215.50             |
| 19 | Chlorpyrifos                      | 1,187.30             |
| 20 | Azoxystrobin                      | 937.27               |
| 21 | Dimethomorph                      | 915.89               |
| 22 | Mandipropamid                     | 807.20               |
| 23 | Copper oxychloride                | 796.36               |
| 24 | 2-chloroethylphosphonic acid      | 764.36               |
| 25 | Trinexapac-ethyl                  | 693.23               |
| 26 | Diflufenican                      | 666.81               |
| 27 | Boscalid                          | 665.32               |
| 28 | Cymoxanil                         | 656.59               |
| 29 | Ametoctradin                      | 647.65               |
| 30 | Prochloraz                        | 640.67               |
| 31 | Isopyrazam                        | 612.02               |
| 32 | Fluopicolide                      | 572.62               |
| 33 | Fluoxastrobin                     | 567.49               |
| 34 | Chlormequat with choline chloride | 547.53               |
| 35 | Flufenacet                        | 547.47               |
| 36 | Fenamidone                        | 475.68               |
| 37 | MCPA                              | 452.97               |
| 38 | Linuron                           | 444.12               |
| 39 | Trifloxystrobin                   | 442.43               |
| 40 | Folpet                            | 432.38               |
| 41 | 2,4-DB                            | 400.23               |
| 42 | Pyraclostrobin                    | 359.02               |
| 43 | Propyzamide                       | 333.12               |
| 44 | Bromoxynil                        | 324.56               |
| 45 | Ioxynil                           | 324.56               |
| 46 | Cyazofamid                        | 313.54               |
| 47 | Picoxystrobin                     | 276.66               |
| 48 | Flusilazole                       | 269.16               |
| 49 | Triclopyr                         | 237.39               |
| 50 | Fenpropidin                       | 208.79               |

**Table 12: Spring barley: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b>       | <b>General disease control</b> | <b>Disease prevention</b> | <b>General fungal control</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-----------------------------------------------|--------------------------------|---------------------------|-------------------------------|--------------------|-------------------------------------|-----------------------|
| <b>Fungicides</b>                             |                                |                           |                               |                    |                                     |                       |
| Azoxystrobin                                  | .                              | 284.71                    | 200.70                        | 485.42             | 385.06                              | 130.11                |
| Azoxystrobin/chlorothalonil                   | 87.65                          | .                         | 355.15                        | 442.79             | 442.79                              | 363.51                |
| Azoxystrobin/cyproconazole                    | .                              | 46.83                     | .                             | 46.83              | 46.83                               | 13.11                 |
| Bixafen/Prothioconazole                       | .                              | 332.85                    | 1,673.66                      | 2,006.51           | 1,926.23                            | 339.56                |
| Boscalid/epoxiconazole                        | .                              | 255.14                    | 167.11                        | 422.25             | 422.25                              | 138.96                |
| Carbendazim/flusilazole                       | .                              | 34.29                     | 98.04                         | 132.33             | 132.33                              | 26.43                 |
| Chlorothalonil                                | .                              | 2,149.80                  | 5,445.14                      | 7,594.94           | 6,419.14                            | 3,760.15              |
| Chlorothalonil/cyproconazole                  | .                              | 315.81                    | 975.32                        | 1,291.13           | 1,246.53                            | 725.54                |
| Chlorothalonil/cyproconazole/propiconazole    | .                              | 245.30                    | 320.09                        | 565.40             | 471.25                              | 251.69                |
| Chlorothalonil/flusilazole                    | .                              | 7.53                      | 508.92                        | 516.45             | 336.69                              | 127.42                |
| Chlorothalonil/picoxystrobin                  | .                              | 201.73                    | 100.35                        | 302.08             | 302.08                              | 158.12                |
| Chlorothalonil/Proquinazid                    | .                              | .                         | 730.49                        | 730.49             | 671.02                              | 496.89                |
| Cyproconazole/propiconazole                   | .                              | 284.71                    | .                             | 284.71             | 284.71                              | 46.69                 |
| Cyprodinil                                    | .                              | 91.15                     | 1,147.68                      | 1,238.83           | 1,238.83                            | 196.54                |
| Cyprodinil/isopyrazam                         | .                              | 688.84                    | 2,378.95                      | 3,067.79           | 2,168.06                            | 1,078.35              |
| Cyprodinil/picoxystrobin                      | .                              | 122.43                    | .                             | 122.43             | 122.43                              | 3.44                  |
| Epoxiconazole                                 | .                              | 531.53                    | 571.27                        | 1,102.80           | 903.77                              | 105.27                |
| Epoxiconazole/fenpropimorph/kresoxim-methyl   | .                              | 203.04                    | 429.84                        | 632.88             | 520.74                              | 161.39                |
| Epoxiconazole/fenpropimorph/metrafenone       | .                              | 245.30                    | 52.67                         | 297.97             | 297.97                              | 110.16                |
| Epoxiconazole/Fluxapyroxad                    | .                              | .                         | 60.99                         | 60.99              | 60.99                               | 10.54                 |
| Epoxiconazole/Isopyrazam                      | .                              | .                         | 80.15                         | 80.15              | 67.02                               | 8.62                  |
| Epoxiconazole/metconazole                     | .                              | .                         | 195.66                        | 195.66             | 195.66                              | 25.18                 |
| Epoxiconazole/prochloraz                      | .                              | 850.51                    | 325.12                        | 1,175.62           | 879.85                              | 385.72                |
| Fenpropimorph                                 | .                              | 74.47                     | 618.11                        | 692.58             | 692.58                              | 220.31                |
| Fenpropimorph/flusilazole                     | .                              | 471.56                    | 96.17                         | 567.73             | 567.73                              | 220.03                |
| Fluoxastrobin/prothioconazole                 | .                              | 1,284.87                  | 2,306.94                      | 3,591.81           | 3,168.49                            | 597.74                |
| Fluoxastrobin/prothioconazole/trifloxystrobin | .                              | 107.36                    | 328.00                        | 435.36             | 375.89                              | 91.56                 |
| Folpet                                        | .                              | .                         | 775.55                        | 775.55             | 656.61                              | 310.85                |
| Picoxystrobin                                 | .                              | .                         | 577.87                        | 577.87             | 577.87                              | 82.97                 |
| Proquinazid                                   | .                              | 425.05                    | 412.18                        | 837.23             | 657.47                              | 27.95                 |
| Prothioconazole                               | .                              | 319.97                    | 1,926.28                      | 2,246.25           | 1,699.45                            | 241.40                |
| Prothioconazole/Spiroxamine                   | .                              | .                         | 142.16                        | 142.16             | 142.16                              | 26.16                 |
| Prothioconazole/tebuconazole                  | .                              | 285.25                    | 990.57                        | 1,275.82           | 1,157.41                            | 222.13                |

**Table 12 (cont.): Spring barley: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b>       | <b>General disease control</b> | <b>Disease prevention</b> | <b>General fungal control</b> | <b>All reasons</b>        | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b>     |                       |                            |                    |                                     |                       |
|-----------------------------------------------|--------------------------------|---------------------------|-------------------------------|---------------------------|-------------------------------------|---------------------------|-----------------------|----------------------------|--------------------|-------------------------------------|-----------------------|
| <b><i>Fungicides (cont.)</i></b>              |                                |                           |                               |                           |                                     |                           |                       |                            |                    |                                     |                       |
| Prothioconazole/trifloxystrobin               | 16.54                          | 841.79                    | 2,554.19                      | 3,412.52                  | 2,947.73                            | 595.30                    |                       |                            |                    |                                     |                       |
| Pyraclostrobin                                | .                              | 61.92                     | 1,315.35                      | 1,377.27                  | 1,186.43                            | 140.02                    |                       |                            |                    |                                     |                       |
| Tebuconazole                                  | .                              | 37.17                     | 126.74                        | 163.91                    | 163.91                              | 31.47                     |                       |                            |                    |                                     |                       |
| <b><i>All fungicides</i></b>                  | <b>104.19</b>                  | <b>10,800.92</b>          | <b>27,987.41</b>              | <b>38,892.52</b>          | <b>.</b>                            | <b>11,471.29</b>          |                       |                            |                    |                                     |                       |
| <b>Pesticide type &amp; formulation</b>       | <b>General weed control</b>    | <b>Cleavers</b>           | <b>Desiccation</b>            | <b>Ground preparation</b> | <b>Chickweed</b>                    | <b>Volunteer potatoes</b> | <b>Volunteer oats</b> | <b>Headlands treatment</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
| <b><i>Herbicides &amp; desiccants</i></b>     |                                |                           |                               |                           |                                     |                           |                       |                            |                    |                                     |                       |
| Amidosulfuron/iodosulfuron-methyl-sodium      | 437.82                         | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 437.82             | 437.82                              | 10.62                 |
| Aminopyralid/fluroxypyr                       | 187.76                         | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 187.76             | 187.76                              | 48.82                 |
| Bromoxynil/ioxynil                            | 1,500.14                       | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 1,500.14           | 1,500.14                            | 429.56                |
| Chlorotoluron/diflufenican                    | 617.87                         | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 617.87             | 617.87                              | 962.58                |
| Clopyralid/fluroxypyr/triclopyr               | 866.37                         | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 866.37             | 866.37                              | 534.12                |
| Dicamba/mecoprop-P                            | 612.77                         | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 612.77             | 612.77                              | 386.39                |
| Diflufenican                                  | 57.78                          | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 57.78              | 57.78                               | 2.89                  |
| Diflufenican/Metsulfuron-methyl               | 260.59                         | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 260.59             | 260.59                              | 13.87                 |
| Diquat                                        | .                              | .                         | 12.84                         | .                         | .                                   | .                         | .                     | 126.74                     | 139.58             | 139.58                              | 11.46                 |
| Florasulam/fluroxypyr                         | 1,188.43                       | 31.69                     | .                             | .                         | 205.92                              | .                         | .                     | .                          | 1,426.04           | 1,323.83                            | 109.40                |
| Fluroxypyr                                    | 5,590.35                       | .                         | .                             | .                         | 457.52                              | 21.49                     | .                     | .                          | 6,069.37           | 6,057.48                            | 796.43                |
| Glyphosate                                    | 1,046.93                       | .                         | 8,109.71                      | 5,017.43                  | .                                   | .                         | .                     | 783.81                     | 14,957.87          | 12,657.54                           | 10,042.61             |
| Iodosulfuron-methyl-sodium                    | 1,687.88                       | .                         | .                             | .                         | 102.09                              | .                         | .                     | .                          | 1,789.97           | 1,789.97                            | 12.14                 |
| Isoproturon                                   | 64.20                          | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 64.20              | 64.20                               | 42.95                 |
| MCPA                                          | 269.28                         | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 269.28             | 269.28                              | 338.02                |
| Mecoprop-P                                    | 7,383.58                       | 241.11                    | .                             | .                         | 335.36                              | 27.55                     | .                     | .                          | 7,987.61           | 7,833.31                            | 7,959.66              |
| Metsulfuron-methyl                            | 5,091.25                       | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 5,091.25           | 5,091.25                            | 32.21                 |
| Metsulfuron-methyl/thifensulfuron-methyl      | 2,234.22                       | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 2,234.22           | 2,200.77                            | 88.40                 |
| Metsulfuron-methyl/tribenuron-methyl          | 5,911.23                       | .                         | .                             | .                         | .                                   | 27.55                     | .                     | .                          | 5,938.78           | 5,911.23                            | 63.22                 |
| Pinoxaden                                     | .                              | .                         | .                             | .                         | .                                   | .                         | 1,613.07              | .                          | 2,107.97           | 2,107.97                            | 72.22                 |
| Thifensulfuron-methyl/tribenuron-methyl       | 1,908.87                       | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 1,908.87           | 1,908.87                            | 53.27                 |
| Tribenuron-methyl                             | 50.89                          | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 50.89              | 50.89                               | 0.20                  |
| Unknown herbicide                             | 21.82                          | .                         | .                             | .                         | .                                   | .                         | .                     | .                          | 21.82              | 21.82                               | .                     |
| <b><i>All Herbicides &amp; desiccants</i></b> | <b>36,990.02</b>               | <b>272.80</b>             | <b>8,122.55</b>               | <b>5,017.43</b>           | <b>1,100.88</b>                     | <b>76.60</b>              | <b>1,613.07</b>       | <b>910.55</b>              | <b>54,598.81</b>   | <b>.</b>                            | <b>22,011.05</b>      |

**Table 12 (cont.): Spring barley: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b> | <b>Cereal aphids</b> | <b>Leatherjackets</b> | <b>Cutworm</b> | <b>General insect control</b> | <b>Barley yellow dwarf virus</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-----------------------------------------|----------------------|-----------------------|----------------|-------------------------------|----------------------------------|--------------------|-------------------------------------|-----------------------|
| <b><i>Insecticides</i></b>              |                      |                       |                |                               |                                  |                    |                                     |                       |
| Alpha-cypermethrin                      | 6.69                 | .                     | .              | 195.50                        | .                                | 202.19             | 202.19                              | 3.08                  |
| Chlorpyrifos                            | 253.97               | 421.73                | 866.37         | 231.93                        | .                                | 1,774.01           | 1,774.01                            | 1,010.97              |
| Cypermethrin                            | 1,198.56             | .                     | .              | .                             | .                                | 1,198.56           | 841.80                              | 28.05                 |
| Deltamethrin                            | 226.42               | .                     | .              | .                             | .                                | 226.42             | 187.85                              | 0.94                  |
| Esfenvalerate                           | 7,265.27             | .                     | .              | 347.43                        | .                                | 7,612.70           | 6,478.07                            | 31.03                 |
| Lambda-cyhalothrin                      | 3,604.05             | .                     | .              | 51.01                         | 100.35                           | 3,755.41           | 3,515.11                            | 23.98                 |
| Zeta-cypermethrin                       | 144.65               | .                     | .              | .                             | .                                | 144.65             | 144.65                              | 2.17                  |
| <b><i>All insecticides</i></b>          | <b>12,699.62</b>     | <b>421.73</b>         | <b>866.37</b>  | <b>825.88</b>                 | <b>100.35</b>                    | <b>14,913.95</b>   | <b>.</b>                            | <b>1,100.23</b>       |

| <b>Pesticide type &amp; formulation</b>  | <b>Growth regulation</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|------------------------------------------|--------------------------|--------------------|-------------------------------------|-----------------------|
| <b><i>Growth regulators</i></b>          |                          |                    |                                     |                       |
| Chlormequat                              | 4,894.22                 | 4,894.23           | 4,773.81                            | 3,743.95              |
| Chlormequat with choline chloride        | 221.87                   | 221.87             | 221.87                              | 357.76                |
| Chlormequat/2-chloroethylphosphonic acid | 37.63                    | 37.63              | 37.63                               | 20.32                 |
| 2-chloroethylphosphonic acid             | 2,097.31                 | 2,097.32           | 2,097.32                            | 329.98                |
| Trinexapac-ethyl                         | 5,451.20                 | 5,451.20           | 4,772.43                            | 302.66                |
| <b><i>All growth regulators</i></b>      | <b>12,702.24</b>         | <b>12,702.24</b>   | <b>.</b>                            | <b>4,754.68</b>       |

**Table 13: Undersown barley: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| Pesticide type & formulation           | General weed control | Cereal aphids | Growth regulation | Disease prevention | All reasons   | Basic area (ha) of treatment | Quantity (kgs) |
|----------------------------------------|----------------------|---------------|-------------------|--------------------|---------------|------------------------------|----------------|
| <b>Fungicides</b>                      |                      |               |                   |                    |               |                              |                |
| Boscalid/epoxiconazole                 | .                    | .             | .                 | 53.95              | 53.95         | 53.95                        | 18.99          |
| Chlorothalonil                         | .                    | .             | .                 | 38.70              | 38.70         | 38.70                        | 19.35          |
| Prothioconazole/tebuconazole           | .                    | .             | .                 | 38.70              | 38.70         | 38.70                        | 9.68           |
| <b>All fungicides</b>                  | .                    | .             | .                 | <b>131.35</b>      | <b>131.35</b> |                              | <b>48.01</b>   |
| <b>Herbicides &amp; desiccants</b>     |                      |               |                   |                    |               |                              |                |
| 2,4-DB                                 | 38.17                | .             | .                 | .                  | 38.17         | 38.17                        | 34.35          |
| 2,4-DB/linuron/MCPA                    | 453.63               | .             | .                 | .                  | 453.63        | 453.63                       | 444.56         |
| Mecoprop-P                             | 16.29                | .             | .                 | .                  | 16.29         | 16.29                        | 12.22          |
| Tribenuron-methyl                      | 76.87                | .             | .                 | .                  | 76.87         | 76.87                        | 0.38           |
| <b>All herbicides &amp; desiccants</b> | <b>584.96</b>        | .             | .                 | .                  | <b>584.96</b> |                              | <b>491.51</b>  |
| <b>Insecticides</b>                    |                      |               |                   |                    |               |                              |                |
| Cypermethrin                           | .                    | 38.70         | .                 | .                  | 38.70         | 38.70                        | 0.63           |
| Esfenvalerate                          | .                    | 97.15         | .                 | .                  | 97.15         | 97.15                        | 0.35           |
| Lambda-cyhalothrin                     | .                    | 38.17         | .                 | .                  | 38.17         | 38.17                        | 1.91           |
| <b>All insecticides</b>                | .                    | <b>174.02</b> | .                 | .                  | <b>174.02</b> |                              | <b>2.88</b>    |
| <b>Growth regulators</b>               |                      |               |                   |                    |               |                              |                |
| Chlormequat                            | .                    | .             | 38.70             | .                  | 38.70         | 38.70                        | 35.85          |
| <b>All growth regulators</b>           | .                    | .             | <b>38.70</b>      | .                  | <b>38.70</b>  |                              | <b>35.85</b>   |

**Table 14: Winter barley: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| Pesticide type & formulation                  | Disease prevention | Ear wash     | General fungal control | All reasons      | Basic area (ha) of treatment | Quantity (kgs)  |
|-----------------------------------------------|--------------------|--------------|------------------------|------------------|------------------------------|-----------------|
| <b>Fungicides</b>                             |                    |              |                        |                  |                              |                 |
| Azoxystrobin                                  | .                  | .            | 166.97                 | 166.97           | 146.91                       | 25.89           |
| Azoxystrobin/chlorothalonil                   | .                  | .            | 32.45                  | 32.45            | 32.45                        | 27.26           |
| Bixafen/Prothioconazole                       | 79.23              | .            | 517.10                 | 596.33           | 521.11                       | 96.82           |
| Boscalid/epoxiconazole                        | .                  | .            | 323.90                 | 323.90           | 323.90                       | 115.45          |
| Carbendazim/flusilazole                       | .                  | .            | 909.63                 | 909.63           | 575.34                       | 167.82          |
| Chlorothalonil                                | 635.12             | .            | 3,041.26               | 3,676.38         | 2,752.64                     | 1,757.02        |
| Chlorothalonil/cyproconazole                  | 42.79              | .            | 206.63                 | 249.42           | 249.42                       | 167.34          |
| Chlorothalonil/cyproconazole/propiconazole    | .                  | .            | 108.53                 | 108.53           | 108.53                       | 94.24           |
| Chlorothalonil/flusilazole                    | .                  | .            | 61.59                  | 61.59            | 61.59                        | 25.87           |
| Chlorothalonil/picoxystrobin                  | 128.70             | .            | 1,091.71               | 1,220.41         | 789.53                       | 892.90          |
| Chlorothalonil/Proquinazid                    | 42.79              | .            | 151.99                 | 194.78           | 194.78                       | 67.63           |
| Cyproconazole/propiconazole                   | .                  | .            | 65.79                  | 65.79            | 65.79                        | 10.65           |
| Cyprodinil                                    | 67.58              | .            | 383.32                 | 450.89           | 450.89                       | 125.85          |
| Cyprodinil/isopyrazam                         | 49.56              | .            | 2,293.93               | 2,343.49         | 1,434.76                     | 824.43          |
| Epoxiconazole                                 | 257.40             | .            | 140.65                 | 398.05           | 269.35                       | 37.87           |
| Epoxiconazole/fenpropimorph                   | .                  | .            | 171.44                 | 171.44           | 171.44                       | 53.23           |
| Epoxiconazole/fenpropimorph/kresoxim-methyl   | 12.03              | .            | 151.99                 | 164.03           | 164.03                       | 64.41           |
| Epoxiconazole/Fluxapyroxad                    | .                  | .            | 232.83                 | 232.83           | 232.83                       | 34.19           |
| Epoxiconazole/Isopyrazam                      | .                  | .            | 12.40                  | 12.40            | 12.40                        | 0.20            |
| Epoxiconazole/metconazole                     | .                  | .            | 170.59                 | 170.59           | 132.10                       | 25.76           |
| Epoxiconazole/prochloraz                      | 451.22             | .            | 80.84                  | 532.05           | 231.24                       | 182.51          |
| Fenpropidin                                   | 54.16              | .            | 40.12                  | 94.27            | 94.27                        | 23.20           |
| Fenpropimorph                                 | 220.72             | .            | 473.40                 | 694.12           | 694.12                       | 268.75          |
| Fenpropimorph/flusilazole                     | .                  | .            | 154.27                 | 154.27           | 154.27                       | 51.19           |
| Fluoxastrobil/prothioconazole                 | 70.20              | 73.50        | 1,044.32               | 1,188.03         | 945.25                       | 242.95          |
| Fluoxastrobil/prothioconazole/trifloxystrobin | 76.01              | .            | 131.93                 | 207.94           | 169.94                       | 26.16           |
| Flusilazole                                   | .                  | .            | 74.92                  | 74.92            | 74.92                        | 8.26            |
| Fluxapyroxad                                  | 128.70             | .            | .                      | 128.70           | 128.70                       | 7.95            |
| Folpet                                        | 228.20             | .            | 34.12                  | 262.32           | 262.32                       | 121.53          |
| Picoxystrobin                                 | .                  | .            | 48.46                  | 48.46            | 48.46                        | 6.06            |
| Proquinazid                                   | 111.02             | .            | 494.93                 | 605.94           | 544.35                       | 27.22           |
| Prothioconazole                               | .                  | .            | 1,385.59               | 1,385.59         | 1,061.54                     | 199.31          |
| Prothioconazole/tebuconazole                  | .                  | .            | 151.80                 | 151.80           | 151.80                       | 26.75           |
| Prothioconazole/trifloxystrobin               | 464.21             | .            | 815.84                 | 1,280.05         | 979.40                       | 216.19          |
| Pyraclostrobin                                | .                  | .            | 305.97                 | 305.97           | 305.97                       | 25.16           |
| Tebuconazole                                  | .                  | .            | 33.87                  | 33.87            | 33.87                        | 3.39            |
| <b>All fungicides</b>                         | <b>3,119.64</b>    | <b>73.50</b> | <b>15,505.10</b>       | <b>18,698.24</b> | <b>.</b>                     | <b>6,051.40</b> |



**Table 14 (cont.): Winter barley: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b>                     | <b>General weed control</b> | <b>Cleavers</b> | <b>Desiccation</b> | <b>Ground preparation</b> | <b>Volunteer oats</b> | <b>Wild oat</b> | <b>Fumitory</b> | <b>Headlands</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-------------------------------------------------------------|-----------------------------|-----------------|--------------------|---------------------------|-----------------------|-----------------|-----------------|------------------|--------------------|-------------------------------------|-----------------------|
| <i>Herbicides &amp; desiccants</i>                          |                             |                 |                    |                           |                       |                 |                 |                  |                    |                                     |                       |
| Amidosulfuron/iodosulfuron-methyl-sodium                    | 301.13                      | .               | .                  | .                         | .                     | .               | .               | .                | 301.13             | 301.13                              | 9.43                  |
| Bromoxynil/ioxynil                                          | 174.60                      | .               | .                  | .                         | .                     | .               | .               | .                | 174.60             | 174.60                              | 81.16                 |
| Chlorotoluron                                               | 386.90                      | .               | .                  | .                         | .                     | .               | .               | .                | 386.90             | 386.90                              | 976.62                |
| Chlorotoluron/diflufenican                                  | 730.45                      | .               | .                  | .                         | .                     | .               | .               | .                | 730.45             | 730.45                              | 1,388.30              |
| Dicamba/mecoprop-P                                          | 23.75                       | .               | .                  | .                         | .                     | .               | .               | .                | 23.75              | 23.75                               | 12.18                 |
| Diflufenican                                                | 1,313.45                    | .               | .                  | .                         | .                     | .               | .               | .                | 1,313.45           | 1,313.45                            | 113.76                |
| Diflufenican/flufenacet                                     | 268.17                      | .               | .                  | .                         | .                     | .               | .               | .                | 268.17             | 268.17                              | 43.69                 |
| Diflufenican/flufenacet                                     | 374.92                      | .               | .                  | .                         | .                     | .               | .               | .                | 374.92             | 374.92                              | 66.62                 |
| Diflufenican/iodosulfuron-methyl-sodium/mesosulfuron-methyl | 75.60                       | .               | .                  | .                         | .                     | .               | .               | .                | 75.60              | 75.60                               | 3.96                  |
| Fenoxaprop-P-ethyl                                          | 104.30                      | .               | .                  | .                         | .                     | .               | .               | .                | 104.30             | 104.30                              | 8.64                  |
| Florasulam/fluroxypyr                                       | 422.33                      | 47.50           | .                  | .                         | .                     | .               | .               | .                | 469.84             | 415.02                              | 28.68                 |
| Flufenacet/pendimethalin                                    | 951.80                      | .               | .                  | .                         | .                     | .               | .               | .                | 951.80             | 951.80                              | 947.83                |
| Flufenacet/pendimethalin                                    | 458.20                      | .               | .                  | .                         | .                     | .               | .               | .                | 458.20             | 458.20                              | 489.67                |
| Fluroxypyr                                                  | 554.13                      | .               | 133.36             | .                         | .                     | .               | .               | .                | 687.49             | 672.27                              | 110.61                |
| Glyphosate                                                  | 90.85                       | .               | 2,552.86           | 1,107.02                  | .                     | .               | .               | 69.53            | 3,820.26           | 3,279.99                            | 2,548.07              |
| Iodosulfuron-methyl-sodium                                  | 190.76                      | .               | .                  | .                         | .                     | .               | .               | .                | 190.76             | 190.76                              | 0.56                  |
| Isoproturon                                                 | 102.00                      | .               | .                  | .                         | .                     | .               | .               | .                | 102.00             | 102.00                              | 145.75                |
| Mecoprop-P                                                  | 1,010.04                    | .               | .                  | .                         | .                     | .               | .               | .                | 1,010.04           | 889.60                              | 930.49                |
| Metsulfuron-methyl                                          | 118.38                      | .               | .                  | .                         | .                     | .               | .               | .                | 118.38             | 118.38                              | 0.71                  |
| Metsulfuron-methyl/thifensulfuron-methyl                    | 486.08                      | .               | .                  | .                         | .                     | .               | .               | .                | 485.99             | 485.99                              | 13.89                 |
| Metsulfuron-methyl/tribenuron-methyl                        | 703.82                      | .               | .                  | .                         | .                     | .               | .               | .                | 703.82             | 703.82                              | 8.04                  |
| Pendimethalin                                               | 61.03                       | .               | .                  | .                         | .                     | .               | .               | .                | 61.03              | 61.03                               | 60.42                 |
| Pendimethalin/picolinafen                                   | 316.43                      | .               | .                  | .                         | .                     | .               | .               | .                | 316.43             | 316.43                              | 276.11                |
| Pinoxaden                                                   | .                           | .               | .                  | .                         | 250.44                | 126.86          | .               | .                | 377.29             | 377.29                              | 11.32                 |
| Prosulfocarb                                                | 73.50                       | .               | .                  | .                         | .                     | .               | .               | .                | 73.50              | 73.50                               | 176.40                |
| Thifensulfuron-methyl/tribenuron-methyl                     | 177.26                      | .               | .                  | .                         | .                     | .               | 16.05           | .                | 193.30             | 193.30                              | 7.89                  |
| Unknown herbicide                                           | 48.14                       | .               | .                  | .                         | .                     | .               | .               | .                | 48.14              | 48.14                               | .                     |
| <b>All herbicides &amp; desiccants</b>                      | <b>9,517.93</b>             | <b>47.50</b>    | <b>2,686.22</b>    | <b>1,107.02</b>           | <b>250.44</b>         | <b>126.86</b>   | <b>16.05</b>    | <b>69.53</b>     | <b>13,821.54</b>   | <b>.</b>                            | <b>8,460.82</b>       |

**Table 14 (cont.): Winter barley: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b>        | <b>Cereal aphids</b>     | <b>General insect control</b> | <b>All reasons</b>                  | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|------------------------------------------------|--------------------------|-------------------------------|-------------------------------------|-------------------------------------|-----------------------|
| <i><b>Insecticides</b></i>                     |                          |                               |                                     |                                     |                       |
| Alpha-cypermethrin                             | 24.78                    | .                             | 24.78                               | 24.78                               | 0.37                  |
| Chlorpyrifos                                   | 133.61                   | 20.06                         | 153.66                              | 153.66                              | 102.69                |
| Cypermethrin                                   | 612.89                   | .                             | 612.89                              | 231.24                              | 13.54                 |
| Deltamethrin                                   | 85.91                    | 32.45                         | 118.36                              | 118.36                              | 0.38                  |
| Esfenvalerate                                  | 1,216.23                 | 326.12                        | 1,542.35                            | 1,208.95                            | 5.99                  |
| Lambda-cyhalothrin                             | 891.04                   | .                             | 891.04                              | 807.65                              | 4.31                  |
| <i><b>All insecticides</b></i>                 | <i><b>2,964.46</b></i>   | <i><b>378.63</b></i>          | <i><b>3,343.08</b></i>              | <i><b>.</b></i>                     | <i><b>127.28</b></i>  |
|                                                |                          |                               |                                     |                                     |                       |
|                                                |                          | <b>All reasons</b>            | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b>               |                       |
| <i><b>Molluscicides</b></i>                    | <b>Slugs</b>             |                               |                                     |                                     |                       |
| Methiocarb                                     | 73.50                    | 73.50                         | 73.50                               | 5.51                                |                       |
| <i><b>All molluscicides</b></i>                | <i><b>73.50</b></i>      | <i><b>73.50</b></i>           | <i><b>.</b></i>                     | <i><b>5.51</b></i>                  |                       |
|                                                |                          |                               |                                     |                                     |                       |
|                                                | <b>Growth regulation</b> | <b>All reasons</b>            | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b>               |                       |
| <i><b>Growth regulators</b></i>                |                          |                               |                                     |                                     |                       |
| Chlormequat                                    | 1,257.59                 | 1,257.59                      | 1,257.59                            | 1,412.76                            |                       |
| Chlormequat with choline chloride              | 133.72                   | 133.72                        | 133.72                              | 176.81                              |                       |
| 2-chloroethylphosphonic acid                   | 1,004.44                 | 1,004.44                      | 1,004.44                            | 255.76                              |                       |
| 2-chloroethylphosphonic acid/mepiquat chloride | 53.93                    | 53.93                         | 53.93                               | 37.21                               |                       |
| Mepiquat chloride/Prohexadione-calcium         | 104.30                   | 104.30                        | 104.30                              | 18.25                               |                       |
| Trinexapac-ethyl                               | 3,120.55                 | 3,120.55                      | 2,782.77                            | 183.71                              |                       |
| <i><b>All growth regulators</b></i>            | <i><b>5,674.53</b></i>   | <i><b>5,674.53</b></i>        | <i><b>.</b></i>                     | <i><b>2,084.51</b></i>              |                       |

**Table 15: Spring wheat: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| Pesticide type & formulation                  |                      | General        | All                | Basic                  | Quantity           |                |             |                              |                |
|-----------------------------------------------|----------------------|----------------|--------------------|------------------------|--------------------|----------------|-------------|------------------------------|----------------|
| Fungicides                                    | Disease prevention   | fungal control | reasons            | area (ha) of treatment | (kgs)              |                |             |                              |                |
| Azoxystrobin/chlorothalonil                   | .                    | 491.95         | 491.95             | 296.95                 | 529.17             |                |             |                              |                |
| Bixafen/Prothioconazole                       | .                    | 155.15         | 155.15             | 155.15                 | 33.44              |                |             |                              |                |
| Boscalid/epoxiconazole                        | 274.73               | .              | 274.73             | 274.73                 | 70.59              |                |             |                              |                |
| Chlorothalonil                                | 242.19               | 325.26         | 567.45             | 482.35                 | 291.66             |                |             |                              |                |
| Chlorothalonil/Proquinazid                    | 32.54                | 30.04          | 62.57              | 62.57                  | 29.49              |                |             |                              |                |
| Epoxiconazole                                 | .                    | 293.23         | 293.23             | 293.23                 | 26.85              |                |             |                              |                |
| Epoxiconazole/fenpropimorph                   | .                    | 30.04          | 30.04              | 30.04                  | 12.04              |                |             |                              |                |
| Epoxiconazole/fenpropimorph/metrafenone       | .                    | 40.08          | 40.08              | 40.08                  | 10.82              |                |             |                              |                |
| Epoxiconazole/Isopyrazam                      | .                    | 25.03          | 25.03              | 25.03                  | 5.38               |                |             |                              |                |
| Epoxiconazole/metconazole                     | .                    | 474.10         | 474.10             | 279.60                 | 50.33              |                |             |                              |                |
| Fluoxastrobin/prothioconazole/trifloxystrobin | .                    | 60.07          | 60.07              | 30.04                  | 8.11               |                |             |                              |                |
| Mancozeb                                      | .                    | 264.58         | 264.58             | 264.58                 | 194.74             |                |             |                              |                |
| Prochloraz/tebuconazole                       | .                    | 40.08          | 40.08              | 40.08                  | 12.02              |                |             |                              |                |
| Proquinazid                                   | .                    | 264.58         | 264.58             | 264.58                 | 8.56               |                |             |                              |                |
| Prothioconazole                               | .                    | 196.28         | 196.28             | 196.28                 | 33.08              |                |             |                              |                |
| Prothioconazole/tebuconazole                  | .                    | 137.70         | 137.70             | 137.70                 | 23.94              |                |             |                              |                |
| Prothioconazole/trifloxystrobin               | .                    | 58.94          | 58.94              | 58.94                  | 15.50              |                |             |                              |                |
| Pyraclostrobin                                | .                    | 72.62          | 72.62              | 72.62                  | 6.70               |                |             |                              |                |
| Tebuconazole                                  | 166.86               | 159.06         | 325.93             | 325.93                 | 58.35              |                |             |                              |                |
| All fungicides                                | 716.32               | 3,118.78       | 3,835.11           | .                      | 1,420.80           |                |             |                              |                |
|                                               |                      |                |                    |                        |                    |                |             |                              |                |
|                                               | General weed control | Desiccation    | Ground preparation | Chickweed              | Volunteer potatoes | Volunteer oats | All reasons | Basic area (ha) of treatment | Quantity (kgs) |
| Herbicides & desiccants                       |                      |                |                    |                        |                    |                |             |                              |                |
| Bromoxynil/ioxynil                            | 245.07               | .              | .                  | .                      | .                  | .              | 245.07      | 245.07                       | 34.07          |
| Fluroxypyr                                    | 392.91               | .              | .                  | .                      | 15.02              | .              | 407.93      | 407.93                       | 54.10          |
| Glyphosate                                    | .                    | 767.98         | 503.25             | .                      | .                  | .              | 1,301.27    | 1,109.02                     | 956.53         |
| Iodosulfuron-methyl-sodium                    | 167.91               | .              | .                  | .                      | .                  | .              | 167.91      | 167.91                       | 1.35           |
| MCPA                                          | 70.08                | .              | .                  | .                      | .                  | .              | 70.08       | 70.08                        | 35.04          |
| Mecoprop-P                                    | 789.42               | .              | .                  | 32.54                  | .                  | .              | 821.96      | 816.26                       | 861.19         |
| Metsulfuron-methyl                            | 65.11                | .              | .                  | .                      | .                  | .              | 65.11       | 65.11                        | 0.45           |
| Metsulfuron-methyl/thifensulfuron-methyl      | 118.56               | .              | .                  | .                      | .                  | .              | 118.56      | 118.56                       | 3.53           |
| Metsulfuron-methyl/tribenuron-methyl          | 520.06               | .              | .                  | .                      | .                  | .              | 520.06      | 520.06                       | 5.77           |
| Pinoxaden                                     | .                    | .              | .                  | .                      | .                  | 194.50         | 194.50      | 194.50                       | 5.83           |
| Prosulfocarb                                  | 88.25                | .              | .                  | .                      | .                  | .              | 88.25       | 88.25                        | 282.41         |
| Thifensulfuron-methyl/tribenuron-methyl       | 209.51               | .              | .                  | .                      | .                  | .              | 209.51      | 209.51                       | 8.98           |
| All herbicides & desiccants                   | 2,666.90             | 767.98         | 503.25             | 32.54                  | 15.02              | 194.50         | 4,210.22    | .                            | 2,249.26       |

**Table 15 (cont.): Spring wheat: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use**

| <b>Pesticide type &amp; formulation</b> | <b>Cereal aphids</b>     | <b>Leatherjackets</b> | <b>All reasons</b>                  | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-----------------------------------------|--------------------------|-----------------------|-------------------------------------|-------------------------------------|-----------------------|
| <b><i>Insecticides</i></b>              |                          |                       |                                     |                                     |                       |
| Chlorpyrifos                            | 57.73                    | 40.08                 | 97.81                               | 68.94                               | 56.57                 |
| Deltamethrin                            | 242.19                   | .                     | 242.19                              | 242.19                              | 2.62                  |
| Dimethoate                              | 264.58                   | .                     | 264.58                              | 264.58                              | 84.67                 |
| Esfenvalerate                           | 825.50                   | .                     | 825.48                              | 707.19                              | 3.85                  |
| Lambda-cyhalothrin                      | 175.65                   | .                     | 175.65                              | 169.96                              | 0.88                  |
| <b><i>All insecticides</i></b>          | <b>1,442.33</b>          | <b>40.08</b>          | <b>1,605.71</b>                     | <b>.</b>                            | <b>148.58</b>         |
|                                         |                          |                       |                                     |                                     |                       |
| <b><i>Molluscicides</i></b>             | <b>Slugs</b>             | <b>All reasons</b>    | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b>               |                       |
| Methiocarb                              | 242.19                   | 242.19                | 242.19                              | 18.16                               |                       |
| <b><i>All molluscicides</i></b>         | <b>242.19</b>            | <b>242.19</b>         | <b>.</b>                            | <b>18.16</b>                        |                       |
|                                         |                          |                       |                                     |                                     |                       |
| <b><i>Growth regulators</i></b>         | <b>Growth regulation</b> | <b>All reasons</b>    | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b>               |                       |
| Chlormequat                             | 1,233.55                 | 1,233.55              | 1,233.55                            | 807.16                              |                       |
| Trinexapac-ethyl                        | 28.86                    | 28.86                 | 28.86                               | 1.44                                |                       |
| <b><i>All growth regulators</i></b>     | <b>1,262.41</b>          | <b>1,262.41</b>       | <b>.</b>                            | <b>808.60</b>                       |                       |

**Table 16: Winter wheat: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| Pesticide type & formulation                  | Disease prevention | Ear wash     | General fungal control | All reasons      | Basic area (ha) of treatment | Quantity (kgs)   |
|-----------------------------------------------|--------------------|--------------|------------------------|------------------|------------------------------|------------------|
| <b>Fungicides</b>                             |                    |              |                        |                  |                              |                  |
| Azoxystrobin                                  | 123.68             | .            | 1,878.46               | 2,002.13         | 1,394.10                     | 356.02           |
| Azoxystrobin/chlorothalonil                   | .                  | .            | 911.57                 | 911.57           | 770.45                       | 806.98           |
| Bixafen/Fluoxastrobin/Prothioconazole         | .                  | .            | 486.13                 | 486.13           | 486.13                       | 93.19            |
| Bixafen/Prothioconazole                       | 56.32              | .            | 922.37                 | 978.68           | 978.68                       | 236.73           |
| Bixafen/Prothioconazole/Spiroxamine           | .                  | .            | 16.69                  | 16.69            | 16.69                        | 6.67             |
| Boscalid/epoxiconazole                        | 178.24             | .            | 1,254.26               | 1,432.49         | 1,210.01                     | 553.73           |
| Chlorothalonil                                | 622.74             | .            | 7,483.25               | 8,105.99         | 5,168.66                     | 4,367.91         |
| Chlorothalonil/cyproconazole                  | .                  | .            | 78.52                  | 78.52            | 39.26                        | 19.55            |
| Chlorothalonil/cyproconazole/propiconazole    | 16.27              | .            | 503.90                 | 520.17           | 472.74                       | 374.92           |
| Chlorothalonil/picoxystrobin                  | 116.81             | .            | 1.92                   | 118.73           | 118.73                       | 70.39            |
| Chlorothalonil/propiconazole                  | .                  | .            | 6.19                   | 6.19             | 6.19                         | 1.93             |
| Chlorothalonil/Proquinazid                    | 132.15             | .            | 307.21                 | 439.36           | 383.29                       | 129.98           |
| Cyproconazole/propiconazole                   | .                  | .            | 119.73                 | 119.73           | 119.73                       | 17.67            |
| Cyprodinil                                    | .                  | .            | 40.31                  | 40.31            | 40.31                        | 9.07             |
| Cyprodinil/isopyrazam                         | .                  | .            | 78.52                  | 78.52            | 39.26                        | 19.63            |
| Epoxiconazole                                 | 116.81             | .            | 2,227.23               | 2,344.03         | 1,633.30                     | 233.57           |
| Epoxiconazole/fenpropimorph                   | .                  | .            | 26.66                  | 26.66            | 26.66                        | 7.92             |
| Epoxiconazole/fenpropimorph/kresoxim-methyl   | .                  | .            | 236.38                 | 236.38           | 236.38                       | 94.55            |
| Epoxiconazole/fenpropimorph/metrafenone       | 48.04              | .            | 606.22                 | 654.26           | 654.26                       | 139.32           |
| Epoxiconazole/Fluxapyroxad                    | .                  | .            | 148.49                 | 148.49           | 148.49                       | 22.31            |
| Epoxiconazole/Isopyrazam                      | .                  | .            | 1,041.19               | 1,041.19         | 1,001.93                     | 211.83           |
| Epoxiconazole/metconazole                     | 252.52             | .            | 1,939.90               | 2,192.43         | 1,656.10                     | 233.66           |
| Epoxiconazole/prochloraz                      | 47.42              | .            | 209.96                 | 257.39           | 257.39                       | 81.10            |
| Epoxiconazole/pyraclostrobin                  | .                  | .            | 209.96                 | 209.96           | 209.96                       | 14.91            |
| Fenpropidin                                   | .                  | .            | 762.16                 | 762.16           | 762.16                       | 185.59           |
| Fenpropimorph                                 | .                  | .            | 772.70                 | 772.70           | 647.23                       | 246.51           |
| Fenpropimorph/flusilazole                     | .                  | .            | 18.56                  | 18.56            | 18.56                        | 4.96             |
| Fenpropimorph/pyraclostrobin                  | 220.63             | .            | 492.68                 | 713.31           | 582.43                       | 232.83           |
| Fluoxastrobin/prothioconazole                 | 460.82             | .            | 66.75                  | 527.57           | 486.27                       | 152.60           |
| Fluoxastrobin/prothioconazole/trifloxystrobin | .                  | .            | 447.93                 | 447.93           | 447.93                       | 59.44            |
| Fluquinconazole/prochloraz                    | .                  | .            | 581.70                 | 581.70           | 581.70                       | 163.10           |
| Fluxapyroxad                                  | 116.81             | .            | 343.13                 | 459.94           | 459.94                       | 25.98            |
| Mancozeb                                      | .                  | .            | 432.29                 | 432.29           | 432.29                       | 338.59           |
| Proquinazid                                   | .                  | .            | 1,453.79               | 1,453.79         | 712.21                       | 36.92            |
| Prothioconazole                               | 41.30              | .            | 2,182.21               | 2,223.51         | 1,509.19                     | 299.91           |
| Prothioconazole/tebuconazole                  | 881.41             | 20.02        | 5,103.85               | 6,005.29         | 3,237.86                     | 1,118.86         |
| Prothioconazole/trifloxystrobin               | .                  | .            | 308.65                 | 308.65           | 270.09                       | 60.84            |
| Pyraclostrobin                                | .                  | 20.02        | 895.48                 | 915.50           | 915.50                       | 103.15           |
| Tebuconazole                                  | 164.98             | .            | 2,668.79               | 2,833.76         | 2,686.37                     | 372.73           |
| <b>All fungicides</b>                         | <b>3596.93</b>     | <b>40.05</b> | <b>37,265.67</b>       | <b>40,902.65</b> | <b>.</b>                     | <b>11,505.58</b> |

**Table 16 (cont.): Winter wheat: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b>                    | <b>General weed control</b> | <b>Cleavers</b> | <b>Desiccation</b> | <b>Ground preparation</b> | <b>Chickweed</b> | <b>Volunteer oats</b> | <b>Wild oat</b> | <b>Headlands</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|------------------------------------------------------------|-----------------------------|-----------------|--------------------|---------------------------|------------------|-----------------------|-----------------|------------------|--------------------|-------------------------------------|-----------------------|
| <i>Herbicides &amp; desiccants</i>                         |                             |                 |                    |                           |                  |                       |                 |                  |                    |                                     |                       |
| Amidosulfuron/iodosulfron-methyl-sodium                    | .                           | .               | .                  | .                         | 67.25            | .                     | .               | .                | 67.25              | 67.25                               | 2.22                  |
| Bromoxynil/ioxynil                                         | 258.08                      | .               | .                  | .                         | .                | .                     | .               | .                | 258.08             | 258.08                              | 79.54                 |
| Chlorotoluron                                              | 57.64                       | .               | .                  | .                         | .                | .                     | .               | .                | 57.64              | 57.64                               | 85.31                 |
| Chlorotoluron/diflufenican                                 | 209.50                      | .               | .                  | .                         | .                | .                     | .               | .                | 209.50             | 209.50                              | 172.65                |
| Diflufenican                                               | 2025.96                     | .               | .                  | .                         | .                | .                     | .               | .                | 2,025.96           | 2,025.96                            | 170.90                |
| Diflufenican/flufenacet                                    | 236.34                      | .               | .                  | .                         | .                | .                     | .               | .                | 236.34             | 236.34                              | 42.54                 |
| Diflufenican/flufenacet                                    | 316.11                      | .               | .                  | .                         | .                | .                     | .               | .                | 316.11             | 316.11                              | 44.77                 |
| Diflufenican/iodosulfron-methyl-sodium/mesosulfuron-methyl | 4545.92                     | .               | .                  | .                         | .                | .                     | .               | .                | 4,545.92           | 4,545.92                            | 254.64                |
| Fenoxaprop-P-ethyl                                         | .                           | .               | .                  | .                         | .                | .                     | 49.86           | .                | 49.86              | 49.86                               | 4.30                  |
| Florasulam/fluroxypyr                                      | 389.88                      | 177.84          | .                  | .                         | .                | .                     | .               | .                | 567.73             | 528.47                              | 44.21                 |
| Flufenacet/pendimethalin                                   | 139.05                      | .               | .                  | .                         | .                | .                     | .               | .                | 139.05             | 139.05                              | 148.66                |
| Flufenacet/pendimethalin                                   | 662.96                      | .               | .                  | .                         | .                | .                     | .               | .                | 662.96             | 662.96                              | 819.04                |
| Fluroxypyr                                                 | 641.19                      | 27.81           | 246.13             | .                         | 26.66            | .                     | .               | 254.47           | 1,196.25           | 1,119.73                            | 165.23                |
| Glyphosate                                                 | .                           | .               | 3,179.27           | 1,134.46                  | .                | .                     | .               | 432.73           | 4,746.46           | 4,194.18                            | 3,496.49              |
| Iodosulfron-methyl-sodium                                  | 369.58                      | .               | .                  | .                         | .                | .                     | .               | .                | 369.58             | 357.72                              | 3.58                  |
| Iodosulfron-methyl-sodium/mesosulfuron-methyl              | 677.66                      | .               | .                  | .                         | .                | .                     | .               | .                | 677.66             | 677.66                              | 12.88                 |
| Mecoprop-P                                                 | 950.31                      | .               | .                  | .                         | 36.14            | .                     | .               | .                | 986.45             | 986.45                              | 597.51                |
| Metsulfuron-methyl                                         | 58.04                       | .               | .                  | .                         | .                | .                     | .               | .                | 58.04              | 58.04                               | 0.35                  |
| Metsulfuron-methyl/thifensulfuron-methyl                   | 85.66                       | .               | .                  | .                         | .                | .                     | .               | .                | 85.66              | 85.66                               | 2.04                  |
| Metsulfuron-methyl/tribenuron-methyl                       | 355.03                      | .               | .                  | .                         | .                | .                     | .               | .                | 355.03             | 355.03                              | 3.78                  |
| Pinoxaden                                                  | .                           | .               | .                  | .                         | .                | 19.39                 | 133.48          | .                | 152.86             | 152.86                              | 3.56                  |
| Thifensulfuron-methyl/tribenuron-methyl                    | 225.68                      | .               | .                  | .                         | .                | .                     | .               | .                | 225.68             | 225.68                              | 4.10                  |
| Tribenuron-methyl                                          | 69.09                       | .               | .                  | .                         | .                | .                     | .               | .                | 69.09              | 69.09                               | 1.04                  |
| <b>All herbicides &amp; desiccants</b>                     | <b>12273.69</b>             | <b>205.65</b>   | <b>3,425.40</b>    | <b>1,134.46</b>           | <b>130.05</b>    | <b>19.39</b>          | <b>183.33</b>   | <b>687.20</b>    | <b>18,059.18</b>   | <b>.</b>                            | <b>6,159.34</b>       |

**Table 16 (cont.): Winter wheat: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b> | <b>Cereal aphids</b>     | <b>General insect control</b> | <b>All reasons</b>                  | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-----------------------------------------|--------------------------|-------------------------------|-------------------------------------|-------------------------------------|-----------------------|
| <b><i>Insecticides</i></b>              |                          |                               |                                     |                                     |                       |
| Alpha-cypermethrin                      | 402.85                   | .                             | 402.85                              | 402.85                              | 5.08                  |
| Chlorpyrifos                            | 47.42                    | .                             | 47.42                               | 47.42                               | 17.07                 |
| Cypermethrin                            | 647.62                   | .                             | 647.62                              | 437.66                              | 15.82                 |
| Deltamethrin                            | 82.47                    | .                             | 82.47                               | 82.47                               | 0.21                  |
| Dimethoate                              | 67.58                    | .                             | 67.58                               | 67.58                               | 21.63                 |
| Esfenvalerate                           | 3,621.63                 | 50.06                         | 3,671.69                            | 2,376.02                            | 11.97                 |
| Lambda-cyhalothrin                      | 2,654.94                 | .                             | 2,654.94                            | 2,400.43                            | 20.77                 |
| Unknown insecticide                     | 74.22                    | .                             | 74.22                               | 74.22                               | 59.38                 |
| <b><i>All insecticides</i></b>          | <b>7,598.73</b>          | <b>50.06</b>                  | <b>7,648.79</b>                     | <b>.</b>                            | <b>151.93</b>         |
|                                         |                          |                               |                                     |                                     |                       |
|                                         |                          | <b>All reasons</b>            | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b>               |                       |
| <b><i>Molluscicides</i></b>             | <b>Slugs</b>             |                               |                                     |                                     |                       |
| Metaldehyde                             | 150.69                   | 150.69                        | 150.69                              | 13.56                               |                       |
| <b><i>All molluscicides</i></b>         | <b>150.69</b>            | <b>150.69</b>                 | <b>.</b>                            | <b>13.56</b>                        |                       |
|                                         |                          |                               |                                     |                                     |                       |
|                                         | <b>Growth regulation</b> | <b>All reasons</b>            | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b>               |                       |
| <b><i>Growth regulators</i></b>         |                          |                               |                                     |                                     |                       |
| Chlormequat                             | 6,658.13                 | 6,658.13                      | 6,352.01                            | 7,754.14                            |                       |
| Chlormequat with choline chloride       | 16.27                    | 16.27                         | 16.27                               | 12.96                               |                       |
| Chlormequat/Imazaquin                   | 49.86                    | 49.86                         | 49.86                               | 27.58                               |                       |
| 2-chloroethylphosphonic acid            | 834.11                   | 834.11                        | 834.11                              | 159.31                              |                       |
| Mepiquat chloride/Prohexadione-calcium  | 68.76                    | 68.76                         | 68.76                               | 12.25                               |                       |
| Trinexapac-ethyl                        | 3,429.33                 | 3,429.33                      | 3,265.16                            | 188.65                              |                       |
| <b><i>All growth regulators</i></b>     | <b>11,056.45</b>         | <b>11,056.45</b>              | <b>.</b>                            | <b>8,154.89</b>                     |                       |

**Table 17: Undersown wheat: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| Pesticide type & formulation           | General weed control | All reasons  | Basic area (ha) of treatment | Quantity (kgs) |
|----------------------------------------|----------------------|--------------|------------------------------|----------------|
| <i>Herbicides &amp; desiccants</i>     |                      |              |                              |                |
| Tribenuron-methyl                      | 48.19                | 48.19        | 48.19                        | 0.12           |
| <i>All herbicides &amp; desiccants</i> | <i>48.19</i>         | <i>48.19</i> | <i>.</i>                     | <i>0.12</i>    |



**Table 18: Spring oats: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b> | <b>Disease prevention</b> | <b>General fungal control</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-----------------------------------------|---------------------------|-------------------------------|--------------------|-------------------------------------|-----------------------|
| <b>Fungicides</b>                       |                           |                               |                    |                                     |                       |
| Chlorothalonil                          | 31.26                     | 35.01                         | 66.27              | 66.27                               | 48.76                 |
| Chlorothalonil/flusilazole              | .                         | 35.01                         | 35.01              | 35.01                               | 9.80                  |
| Epoxiconazole                           | 67.51                     | 227.58                        | 295.09             | 261.33                              | 16.97                 |
| Epoxiconazole/fenpropimorph             | 31.26                     | .                             | 31.26              | 31.26                               | 2.37                  |
| Epoxiconazole/fenpropimorph/metrafenone | 90.96                     | 72.94                         | 163.90             | 163.90                              | 59.89                 |
| Epoxiconazole/kresoxim-methyl           | .                         | 24.64                         | 24.64              | 24.64                               | 6.16                  |
| Fenpropimorph                           | 19.35                     | 582.67                        | 602.01             | 359.85                              | 123.99                |
| Proquinazid                             | 19.35                     | .                             | 19.35              | 19.35                               | 0.64                  |
| Pyraclostrobin                          | 33.81                     | 266.48                        | 300.29             | 300.29                              | 25.69                 |
| Quinoxifen                              | .                         | 287.01                        | 287.01             | 287.01                              | 28.70                 |
| Tebuconazole                            | 9.01                      | 59.43                         | 68.45              | 68.45                               | 15.94                 |
| <b>All fungicides</b>                   | <b>302.50</b>             | <b>1,590.77</b>               | <b>1,893.27</b>    | <b>.</b>                            | <b>338.92</b>         |

| <b>Herbicides &amp; desiccants</b>      | <b>General weed control</b> | <b>Cleavers</b> | <b>Desiccation</b> | <b>Ground preparation</b> | <b>Chickweed</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-----------------------------------------|-----------------------------|-----------------|--------------------|---------------------------|------------------|--------------------|-------------------------------------|-----------------------|
| Dicamba/MCPA/mecoprop-P                 | 24.80                       | .               | .                  | .                         | .                | 24.80              | 24.80                               | 37.71                 |
| Florasulam/fluroxypyr                   | .                           | 227.58          | .                  | .                         | 136.17           | 363.75             | 363.75                              | 25.75                 |
| Fluroxypyr                              | 42.77                       | .               | .                  | .                         | .                | 42.77              | 42.77                               | 4.48                  |
| Glyphosate                              | .                           | .               | 195.22             | 387.71                    | .                | 582.93             | 582.93                              | 396.03                |
| Mecoprop-P                              | 370.50                      | .               | .                  | .                         | .                | 370.50             | 370.50                              | 332.62                |
| Metsulfuron-methyl                      | 226.16                      | .               | .                  | .                         | .                | 226.16             | 226.16                              | 1.22                  |
| Metsulfuron-methyl/tribenuron-methyl    | 351.51                      | .               | .                  | .                         | .                | 351.51             | 351.51                              | 3.48                  |
| Thifensulfuron-methyl/tribenuron-methyl | 326.09                      | .               | .                  | .                         | .                | 326.09             | 326.09                              | 16.81                 |
| <b>All herbicides &amp; desiccants</b>  | <b>1,341.83</b>             | <b>227.58</b>   | <b>195.22</b>      | <b>387.71</b>             | <b>136.17</b>    | <b>2,288.50</b>    | <b>.</b>                            | <b>818.11</b>         |

| <b>Insecticides</b>     | <b>Cereal aphids</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-------------------------|----------------------|--------------------|-------------------------------------|-----------------------|
| Deltamethrin            | 9.01                 | 9.01               | 9.01                                | 0.05                  |
| Esfenvalerate           | 124.95               | 124.95             | 124.95                              | 0.59                  |
| Lambda-cyhalothrin      | 440.47               | 440.47             | 425.88                              | 2.20                  |
| <b>All insecticides</b> | <b>574.43</b>        | <b>574.43</b>      | <b>.</b>                            | <b>2.84</b>           |

**Table 18:** Spring oats: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.

| <b>Pesticide type &amp; formulation</b> | <b>Growth regulation</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|-----------------------------------------|--------------------------|--------------------|-------------------------------------|-----------------------|
| <i>Growth regulators</i>                |                          |                    |                                     |                       |
| Chlormequat                             | 439.31                   | 439.31             | 439.31                              | 494.54                |
| Trinexapac-ethyl                        | 256.80                   | 256.80             | 242.21                              | 11.68                 |
| <i>All growth regulators</i>            | <i>696.11</i>            | <i>696.11</i>      | <i>.</i>                            | <i>506.21</i>         |

**Table 19: Undersown spring oats: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| Pesticide type & formulation<br><i>Fungicides</i> | Disease prevention | All reasons   | Basic area (ha) of treatment | Quantity (kgs) |
|---------------------------------------------------|--------------------|---------------|------------------------------|----------------|
| Epoxiconazole/fenpropimorph/metrafenone           | 133.16             | 133.16        | 66.58                        | 33.71          |
| <i>All fungicides</i>                             | <i>133.16</i>      | <i>133.16</i> | <i>.</i>                     | <i>33.71</i>   |

| Pesticide type & formulation<br><i>Herbicides &amp; desiccants</i> | General weed control | All reasons   | Basic area (ha) of treatment | Quantity (kgs) |
|--------------------------------------------------------------------|----------------------|---------------|------------------------------|----------------|
| 2,4-DB/linuron/MCPA                                                | 25.12                | 25.12         | 25.12                        | 21.10          |
| Fluroxypyr                                                         | 153.38               | 153.38        | 153.38                       | 23.01          |
| Metsulfuron-methyl                                                 | 66.58                | 66.58         | 66.58                        | 0.40           |
| Tribenuron-methyl                                                  | 101.01               | 101.01        | 101.01                       | 0.47           |
| <i>All herbicides &amp; desiccants</i>                             | <i>346.10</i>        | <i>346.10</i> | <i>.</i>                     | <i>44.98</i>   |

| <i>Insecticides</i>     | Cereal aphids | All reasons  | Basic area (ha) of treatment | Quantity (kgs) |
|-------------------------|---------------|--------------|------------------------------|----------------|
| Esfenvalerate           | 86.80         | 86.80        | 86.80                        | 0.36           |
| <i>All insecticides</i> | <i>86.80</i>  | <i>86.80</i> | <i>.</i>                     | <i>0.36</i>    |

| <i>Growth regulators</i>     | Growth regulation | All reasons  | Basic area (ha) of treatment | Quantity (kgs) |
|------------------------------|-------------------|--------------|------------------------------|----------------|
| Trinexapac-ethyl             | 66.58             | 66.58        | 66.58                        | 3.33           |
| <i>All growth regulators</i> | <i>66.58</i>      | <i>66.58</i> | <i>.</i>                     | <i>3.33</i>    |

**Table 20: Winter oats: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| Pesticide type & formulation               | Disease prevention   | General fungal control | All reasons                  | Basic area (ha) of treatment | Quantity (kgs)               |                |
|--------------------------------------------|----------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------|
| Fungicides                                 |                      |                        |                              |                              |                              |                |
| Azoxystrobin                               | 8.01                 | .                      | 8.01                         | 8.01                         | 1.00                         |                |
| Chlorothalonil                             | .                    | 66.58                  | 66.58                        | 66.58                        | 33.29                        |                |
| Epoxiconazole                              | .                    | 18.24                  | 18.24                        | 18.24                        | 0.36                         |                |
| Epoxiconazole/fenpropimorph/metrafenone    | .                    | 191.03                 | 191.03                       | 95.52                        | 59.26                        |                |
| Epoxiconazole/Metrafenone                  | .                    | 133.16                 | 133.16                       | 66.58                        | 33.51                        |                |
| Fenpropimorph                              | 8.01                 | 165.30                 | 173.31                       | 120.54                       | 73.20                        |                |
| Mancozeb                                   | .                    | 18.15                  | 18.15                        | 18.15                        | 20.65                        |                |
| Proquinazid                                | .                    | 52.78                  | 52.78                        | 52.78                        | 10.86                        |                |
| Prothioconazole                            | .                    | 95.60                  | 95.60                        | 95.60                        | 6.97                         |                |
| Pyraclostrobin                             | .                    | 9.01                   | 9.01                         | 9.01                         | 0.90                         |                |
| Quinoxifen                                 | .                    | 26.15                  | 26.15                        | 26.15                        | 3.27                         |                |
| Tebuconazole                               | .                    | 26.15                  | 26.15                        | 26.15                        | 0.65                         |                |
| All fungicides                             | 16.02                | 802.16                 | 818.18                       | .                            | 243.94                       |                |
|                                            |                      |                        |                              |                              |                              |                |
| Herbicides & desiccants                    | General weed control | Desiccation            | Ground preparation           | All reasons                  | Basic area (ha) of treatment | Quantity (kgs) |
| Amidosulfuron                              | 62.00                | .                      | .                            | 62.00                        | 62.00                        | 1.86           |
| Bromoxynil/ioxynil                         | 62.00                | .                      | .                            | 62.00                        | 62.00                        | 24.80          |
| Carfentrazone-ethyl/flupyrasulfuron-methyl | 51.75                | .                      | .                            | 51.75                        | 51.75                        | 1.55           |
| Fluroxypyr                                 | 9.01                 | .                      | .                            | 9.01                         | 9.01                         | 0.72           |
| Glyphosate                                 | .                    | 96.14                  | 18.15                        | 114.29                       | 96.14                        | 52.96          |
| Mecoprop-P                                 | 26.17                | .                      | .                            | 26.17                        | 26.17                        | 26.59          |
| Metsulfuron-methyl/thifensulfuron-methyl   | 18.15                | .                      | .                            | 18.15                        | 18.15                        | 0.43           |
| Metsulfuron-methyl/tribenuron-methyl       | 34.16                | .                      | .                            | 34.16                        | 34.16                        | 0.30           |
| All herbicides & desiccants                | 263.24               | 96.14                  | 18.15                        | 377.54                       | .                            | 109.22         |
|                                            |                      |                        |                              |                              |                              |                |
| Insecticides                               | Cereal aphids        | All reasons            | Basic area (ha) of treatment | Quantity (kgs)               |                              |                |
| Cypermethrin                               | 133.16               | 133.16                 | 66.58                        | 5.66                         |                              |                |
| Deltamethrin                               | 9.01                 | 9.01                   | 9.01                         | 0.05                         |                              |                |
| Lambda-cyhalothrin                         | 26.15                | 26.15                  | 26.15                        | 0.13                         |                              |                |
| All insecticides                           | 168.33               | 168.33                 | .                            | 5.84                         |                              |                |

**Table 20(cont.): Winter oats: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b> | <b>Growth regulation</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kg)</b> |
|-----------------------------------------|--------------------------|--------------------|-------------------------------------|----------------------|
| <i>Growth regulators</i>                |                          |                    |                                     |                      |
| Chlormequat                             | 127.43                   | 127.43             | 127.43                              | 205.00               |
| Trinexapac-ethyl                        | 35.16                    | 35.16              | 35.16                               | 1.76                 |
| <i>All growth regulators</i>            | <i>162.59</i>            | <i>162.59</i>      | <i>.</i>                            | <i>206.76</i>        |

**Table 21: Winter oilseed rape: pesticide-treated area (spha), quantities of pesticides applied (kg) and reason for use.**

| Pesticide Type & Formulation       | Disease prevention     | General fungal control | All reasons                  | Basic area (ha) of treatment | Quantity (kgs)               |                |
|------------------------------------|------------------------|------------------------|------------------------------|------------------------------|------------------------------|----------------|
| <b>Fungicides</b>                  |                        |                        |                              |                              |                              |                |
| Azoxystrobin                       | 223.97                 | 208.63                 | 432.60                       | 386.81                       | 67.16                        |                |
| Flusilazole                        | .                      | 18.53                  | 18.53                        | 18.53                        | 2.20                         |                |
| Prothioconazole                    | 124.57                 | 165.37                 | 289.95                       | 278.16                       | 31.49                        |                |
| Prothioconazole/tebuconazole       | 79.28                  | .                      | 79.28                        | 79.28                        | 14.27                        |                |
| Tebuconazole                       | 223.97                 | 207.54                 | 431.51                       | 385.73                       | 65.18                        |                |
| All fungicides                     | 651.78                 | 600.08                 | 1,251.86                     | .                            | 180.30                       |                |
|                                    |                        |                        |                              |                              |                              |                |
|                                    | General weed control   | Desiccation            | Ground preparation           | All reasons                  | Basic area (ha) of treatment | Quantity (kgs) |
| <b>Herbicides &amp; desiccants</b> |                        |                        |                              |                              |                              |                |
| Clopyralid/picloram                | 223.97                 | .                      | .                            | 223.97                       | 223.97                       | 26.18          |
| Diquat                             | 19.79                  | .                      | .                            | 19.79                        | 19.79                        | 7.92           |
| Fluazifop-P-butyl                  | 119.90                 | .                      | .                            | 119.90                       | 119.90                       | 7.49           |
| Glyphosate                         | 19.79                  | 398.36                 | 51.37                        | 469.52                       | 437.94                       | 469.49         |
| Propyzamide                        | 498.69                 | .                      | .                            | 498.69                       | 498.69                       | 333.12         |
| All herbicides & desiccants        | 882.14                 | 398.36                 | 51.37                        | 1,331.87                     | .                            | 844.20         |
|                                    |                        |                        |                              |                              |                              |                |
|                                    | General insect control | All reasons            | Basic area (ha) of treatment | Quantity (kgs)               |                              |                |
| <b>Insecticides</b>                |                        |                        |                              |                              |                              |                |
| Deltamethrin                       | 18.53                  | 18.53                  | 18.53                        | 0.14                         |                              |                |
| Lambda-cyhalothrin                 | 113.69                 | 113.69                 | 113.69                       | 0.63                         |                              |                |
| All insecticides                   | 132.22                 | 132.22                 | .                            | 0.77                         |                              |                |
|                                    |                        |                        |                              |                              |                              |                |
|                                    | Slugs                  | All reasons            | Basic area (ha) of treatment | Quantity (kgs)               |                              |                |
| <b>Molluscicides</b>               |                        |                        |                              |                              |                              |                |
| Metaldehyde                        | 45.78                  | 45.78                  | 45.78                        | 2.75                         |                              |                |
| Methiocarb                         | 223.72                 | 223.72                 | 223.72                       | 19.70                        |                              |                |
| All molluscicides                  | 269.51                 | 269.51                 | .                            | 22.44                        |                              |                |

**Table 22: Spring oilseed rape: pesticide-treated area (spha), quantities of pesticides applied (kg) and reason for use.**

| Pesticide Type & Formulation | General fungal control | All reasons  | Basic area (ha) of treatment | Quantity (kgs) |
|------------------------------|------------------------|--------------|------------------------------|----------------|
| <i>Fungicides</i>            |                        |              |                              |                |
| Metconazole                  | 13.48                  | 13.48        | 13.48                        | 1.21           |
| <i>All fungicides</i>        | <i>13.48</i>           | <i>13.48</i> | <i>.</i>                     | <i>1.21</i>    |

|                                        | General weed control | Desiccation  | Ground preparation | All reasons   | Basic area (ha) of treatment | Quantity (kgs) |
|----------------------------------------|----------------------|--------------|--------------------|---------------|------------------------------|----------------|
| <i>Herbicides &amp; desiccants</i>     |                      |              |                    |               |                              |                |
| Clomazone                              | 25.27                | .            | .                  | 25.27         | 25.27                        | 1.13           |
| Glyphosate                             | .                    | 47.28        | 203.65             | 250.93        | 250.93                       | 225.84         |
| Metazachlor                            | 86.02                | .            | .                  | 86.02         | 86.02                        | 64.29          |
| <i>All herbicides &amp; desiccants</i> | <i>111.29</i>        | <i>47.28</i> | <i>203.65</i>      | <i>362.22</i> | <i>.</i>                     | <i>291.25</i>  |

|                         | General insect control | All reasons  | Basic area (ha) of treatment | Quantity (kgs) |
|-------------------------|------------------------|--------------|------------------------------|----------------|
| <i>Insecticides</i>     |                        |              |                              |                |
| Pirimicarb              | 13.48                  | 13.48        | 13.48                        | 1.95           |
| <i>All insecticides</i> | <i>13.48</i>           | <i>13.48</i> | <i>.</i>                     | <i>1.95</i>    |

**Table 23** *Camelina*: pesticide-treated area (spha), quantities of pesticides applied (kg) and reason for use.

| Pesticide Type & Formulation           |                    |                        | Basic<br>area (ha)<br>of<br>treatment | Quantity<br>(kgs) |
|----------------------------------------|--------------------|------------------------|---------------------------------------|-------------------|
| <i>Herbicides &amp; desiccants</i>     | <b>Desiccation</b> | <b>All<br/>reasons</b> |                                       |                   |
| Diquat                                 | 80.99              | 80.99                  | 80.99                                 | 32.40             |
| <i>All herbicides &amp; desiccants</i> | <i>80.99</i>       | <i>80.99</i>           | <i>.</i>                              | <i>32.40</i>      |



**Table 24:** Peas & field beans: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.

| Pesticide type & formulation           | General<br>weed<br>control | All<br>reasons | Basic<br>area (ha)<br>of<br>treatment | Quantity<br>(kgs) |
|----------------------------------------|----------------------------|----------------|---------------------------------------|-------------------|
| <i>Herbicides &amp; desiccants</i>     |                            |                |                                       |                   |
| Linuron                                | 10.36                      | 10.36          | 10.36                                 | 7.77              |
| Pendimethalin                          | 10.36                      | 10.36          | 10.36                                 | 10.26             |
| <i>All herbicides &amp; desiccants</i> | <i>20.72</i>               | <i>20.72</i>   | <i>.</i>                              | <i>18.03</i>      |

**Table 25: Seed potatoes: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b>  |                             | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |                    |                                     |                       |
|------------------------------------------|-----------------------------|--------------------|-------------------------------------|-----------------------|--------------------|-------------------------------------|-----------------------|
| <b>Fungicides</b>                        | <b>Blight</b>               |                    |                                     |                       |                    |                                     |                       |
| Ametoctradin/Dimethomorph                | 494.56                      | 494.56             | 337.76                              | 206.41                |                    |                                     |                       |
| Chlorothalonil/propamocarb hydrochloride | 60.39                       | 60.39              | 30.19                               | 113.22                |                    |                                     |                       |
| Cyazofamid                               | 405.11                      | 405.11             | 241.73                              | 33.02                 |                    |                                     |                       |
| Cymoxanil                                | 325.76                      | 325.76             | 138.01                              | 29.13                 |                    |                                     |                       |
| Cymoxanil/famoxadone                     | 40.26                       | 40.26              | 20.13                               | 12.08                 |                    |                                     |                       |
| Cymoxanil/mancozeb                       | 510.54                      | 510.54             | 326.42                              | 688.88                |                    |                                     |                       |
| Cymoxanil/propamocarb hydrochloride      | 47.18                       | 47.18              | 47.18                               | 42.46                 |                    |                                     |                       |
| Dimethomorph/mancozeb                    | 259.07                      | 259.07             | 125.31                              | 372.46                |                    |                                     |                       |
| Fenamidone/propamocarb hydrochloride     | 140.12                      | 140.12             | 121.05                              | 122.68                |                    |                                     |                       |
| Fluazinam                                | 1,853.72                    | 1,853.72           | 515.80                              | 325.00                |                    |                                     |                       |
| Fluopicolide/propamocarb hydrochloride   | 572.72                      | 572.72             | 320.79                              | 624.35                |                    |                                     |                       |
| Mancozeb                                 | 460.10                      | 460.10             | 64.93                               | 382.28                |                    |                                     |                       |
| Mandipropamid                            | 906.37                      | 906.37             | 361.14                              | 119.21                |                    |                                     |                       |
| <b>All fungicides</b>                    | <b>6,075.90</b>             | <b>6,075.90</b>    | <b>.</b>                            | <b>3,071.19</b>       |                    |                                     |                       |
|                                          |                             |                    |                                     |                       |                    |                                     |                       |
| <b>Herbicides &amp; desiccants</b>       | <b>General weed control</b> | <b>Desiccation</b> | <b>Ground preparation</b>           | <b>Scutch</b>         | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
| Carfentrazone-ethyl                      | .                           | 110.96             | .                                   | .                     | 110.96             | 110.96                              | 9.74                  |
| Diquat                                   | 166.89                      | 725.87             | .                                   | .                     | 892.76             | 519.93                              | 321.49                |
| Glyphosate                               | 72.25                       | .                  | 385.74                              | .                     | 458.00             | 458.00                              | 357.50                |
| Linuron                                  | 65.96                       | .                  | .                                   | .                     | 65.96              | 65.96                               | 35.62                 |
| Metribuzin                               | 497.41                      | .                  | .                                   | .                     | 497.41             | 497.41                              | 401.28                |
| Pendimethalin                            | 65.96                       | .                  | .                                   | .                     | 65.96              | 65.96                               | 87.07                 |
| Propaquizafop                            | 24.87                       | .                  | .                                   | 47.18                 | 72.05              | 72.05                               | 10.76                 |
| Prosulfocarb                             | 89.80                       | .                  | .                                   | .                     | 89.80              | 89.80                               | 255.04                |
| Rimsulfuron                              | 66.19                       | .                  | .                                   | .                     | 66.19              | 66.19                               | 0.74                  |
| Tepraloxymid                             | 24.87                       | .                  | .                                   | .                     | 24.87              | 24.87                               | 1.84                  |
| <b>All herbicides &amp; desiccants</b>   | <b>1,074.20</b>             | <b>836.83</b>      | <b>385.74</b>                       | <b>47.18</b>          | <b>2,343.96</b>    |                                     | <b>1,481.10</b>       |
|                                          |                             |                    |                                     |                       |                    |                                     |                       |
| <b>Insecticides</b>                      | <b>Aphids</b>               | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |                    |                                     |                       |
| Esfenvalerate                            | 233.07                      | 233.07             | 109.9                               | 1.16                  |                    |                                     |                       |
| Flonicamid                               | 65.96                       | 65.96              | 65.96                               | 5.28                  |                    |                                     |                       |
| Lambda-cyhalothrin                       | 135.64                      | 135.64             | 67.82                               | 1.02                  |                    |                                     |                       |
| Pymetrozine                              | 203.98                      | 203.98             | 203.98                              | 33.13                 |                    |                                     |                       |
| Thiacloprid                              | 180.96                      | 180.96             | 180.96                              | 17.37                 |                    |                                     |                       |
| Thiamethoxam                             | 67.82                       | 67.82              | 67.82                               | 1.36                  |                    |                                     |                       |
| <b>All insecticides</b>                  | <b>887.43</b>               | <b>887.43</b>      | <b>.</b>                            | <b>59.32</b>          |                    |                                     |                       |

**Table 25 (cont.):** Seed potatoes: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.

|                          |       | All<br>reasons | Basic<br>area (ha)<br>of<br>treatment | Quantity<br>(kgs) |
|--------------------------|-------|----------------|---------------------------------------|-------------------|
| <i>Molluscicides</i>     | Slugs | 70.85          | 70.85                                 | 2.83              |
| Methiocarb               |       | 70.85          | 70.85                                 | 2.83              |
| <i>All molluscicides</i> |       | 70.85          | .                                     | 2.83              |

**Table 26: Early potatoes: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <i>Pesticide type &amp; formulation</i> |                                     |                        | Basic<br>area (ha)<br>of<br>treatment | Quantity<br>(kgs)      |                                                 |                           |
|-----------------------------------------|-------------------------------------|------------------------|---------------------------------------|------------------------|-------------------------------------------------|---------------------------|
| <i>Fungicides</i>                       | <i>Blight</i>                       | <i>All<br/>reasons</i> |                                       |                        |                                                 |                           |
| Ametoctradin/Dimethomorph               | 37.06                               | 37.06                  | 37.06                                 | 15.57                  |                                                 |                           |
| Cyazofamid                              | 11.53                               | 11.53                  | 11.53                                 | 0.92                   |                                                 |                           |
| Cymoxanil                               | 69.84                               | 69.84                  | 61.02                                 | 6.53                   |                                                 |                           |
| Cymoxanil/mancozeb                      | 70.22                               | 70.22                  | 59.07                                 | 101.81                 |                                                 |                           |
| Dimethomorph/mancozeb                   | 15.23                               | 15.23                  | 15.23                                 | 22.60                  |                                                 |                           |
| Fenamidone/propamocarb hydrochloride    | 202.95                              | 202.95                 | 128.73                                | 182.65                 |                                                 |                           |
| Fluazinam                               | 359.36                              | 359.36                 | 158.52                                | 70.25                  |                                                 |                           |
| Fluopicolide/propamocarb hydrochloride  | 126.49                              | 126.49                 | 82.42                                 | 139.14                 |                                                 |                           |
| Mancozeb                                | 15.91                               | 15.91                  | 11.16                                 | 25.45                  |                                                 |                           |
| Mandipropamid                           | 147.58                              | 147.58                 | 86.56                                 | 21.93                  |                                                 |                           |
| <i>All fungicides</i>                   | <i>1,056.16</i>                     | <i>1,056.16</i>        | <i>.</i>                              | <i>586.86</i>          |                                                 |                           |
|                                         | <i>General<br/>weed<br/>control</i> | <i>Desiccation</i>     | <i>Ground<br/>preparation</i>         | <i>All<br/>reasons</i> | <i>Basic<br/>area (ha)<br/>of<br/>treatment</i> | <i>Quantity<br/>(kgs)</i> |
| <i>Herbicides &amp; desiccants</i>      |                                     |                        |                                       |                        |                                                 |                           |
| Diquat                                  | 123.07                              | 91.63                  | .                                     | 214.70                 | 133.34                                          | 67.28                     |
| Glyphosate                              | .                                   | .                      | 127.07                                | 127.07                 | 127.07                                          | 139.72                    |
| Linuron                                 | 78.16                               | .                      | .                                     | 78.16                  | 78.16                                           | 38.76                     |
| Metribuzin                              | 152.23                              | .                      | .                                     | 152.23                 | 152.23                                          | 145.11                    |
| Pendimethalin                           | 61.21                               | .                      | .                                     | 61.21                  | 61.21                                           | 60.81                     |
| Prosulfocarb                            | 31.87                               | .                      | .                                     | 31.87                  | 31.87                                           | 67.26                     |
| <i>All herbicides &amp; desiccants</i>  | <i>446.55</i>                       | <i>91.63</i>           | <i>127.07</i>                         | <i>665.24</i>          | <i>.</i>                                        | <i>518.93</i>             |
|                                         |                                     | <i>All<br/>reasons</i> | Basic<br>area (ha)<br>of<br>treatment | Quantity<br>(kgs)      |                                                 |                           |
| <i>Insecticides</i>                     | <i>Aphids</i>                       |                        |                                       |                        |                                                 |                           |
| Lambda-cyhalothrin                      | 8.14                                | 8.14                   | 8.14                                  | 0.06                   |                                                 |                           |
| Pirimicarb                              | 17.40                               | 17.40                  | 17.40                                 | 2.44                   |                                                 |                           |
| <i>All insecticides</i>                 | <i>25.53</i>                        | <i>25.53</i>           | <i>.</i>                              | <i>2.49</i>            |                                                 |                           |
|                                         |                                     | <i>All<br/>reasons</i> | Basic<br>area (ha)<br>of<br>treatment | Quantity<br>(kgs)      |                                                 |                           |
| <i>Molluscicides</i>                    | <i>Slugs</i>                        |                        |                                       |                        |                                                 |                           |
| Metaldehyde                             | 40.68                               | 40.68                  | 40.68                                 | 4.88                   |                                                 |                           |
| Methiocarb                              | 40.68                               | 40.68                  | 40.68                                 | 3.25                   |                                                 |                           |
| <i>All molluscicides</i>                | <i>81.36</i>                        | <i>81.36</i>           | <i>.</i>                              | <i>8.14</i>            |                                                 |                           |

**Table 27: Maincrop potatoes: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b>  |                  | <b>General fungal control</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |  |  |
|------------------------------------------|------------------|-------------------------------|--------------------|-------------------------------------|-----------------------|--|--|
| <b>Fungicides</b>                        | <b>Blight</b>    |                               |                    |                                     |                       |  |  |
| Ametoctradin/Dimethomorph                | 2,187.82         | .                             | 2,187.82           | 1,262.30                            | 911.39                |  |  |
| Azoxystrobin                             | 115.27           | 105.10                        | 220.36             | 220.36                              | 47.89                 |  |  |
| Azoxystrobin/chlorothalonil              | 150.28           | .                             | 150.28             | 75.14                               | 72.14                 |  |  |
| Benthiavalicarb-isopropyl/mancozeb       | 365.56           | .                             | 365.56             | 280.85                              | 419.66                |  |  |
| Chlorothalonil                           | 261.24           | .                             | 261.24             | 124.28                              | 254.90                |  |  |
| Chlorothalonil/propamocarb hydrochloride | 445.02           | .                             | 445.02             | 262.21                              | 834.42                |  |  |
| Copper oxychloride                       | 183.07           | .                             | 183.07             | 20.34                               | 796.36                |  |  |
| Cyazofamid                               | 3,553.02         | .                             | 3,553.02           | 1,605.70                            | 279.59                |  |  |
| Cymoxanil                                | 3,180.63         | .                             | 3,180.63           | 1,323.24                            | 264.57                |  |  |
| Cymoxanil/famoxadone                     | 233.55           | .                             | 233.55             | 141.54                              | 76.61                 |  |  |
| Cymoxanil/mancozeb                       | 2,725.47         | .                             | 2,725.47           | 1,239.50                            | 4,029.28              |  |  |
| Cymoxanil/propamocarb hydrochloride      | 81.36            | .                             | 81.36              | 40.68                               | 73.23                 |  |  |
| Dimethomorph/mancozeb                    | 2,641.15         | .                             | 2,641.15           | 1,194.79                            | 3,860.63              |  |  |
| Fenamidone/propamocarb hydrochloride     | 2,819.06         | .                             | 2,819.06           | 1,782.49                            | 2,548.72              |  |  |
| Fluazinam                                | 13,892.60        | .                             | 13,892.60          | 3,008.32                            | 2,549.27              |  |  |
| Fluopicolide/propamocarb hydrochloride   | 5,198.06         | .                             | 5,198.06           | 2,589.69                            | 5,535.52              |  |  |
| Mancozeb                                 | 478.74           | .                             | 478.74             | 250.13                              | 470.12                |  |  |
| Mancozeb/metalaxyl-M                     | 33.90            | .                             | 33.90              | 33.90                               | 43.72                 |  |  |
| Mandipropamid                            | 4,695.57         | .                             | 4,695.57           | 1,628.80                            | 666.04                |  |  |
| Tebuconazole                             | 94.93            | .                             | 94.93              | 94.93                               | 11.87                 |  |  |
| Unknown fungicide                        | 111.44           | .                             | 111.44             | 37.15                               | .                     |  |  |
| <b>All fungicides</b>                    | <b>43,447.74</b> | <b>105.10</b>                 | <b>43,552.84</b>   | <b>.</b>                            | <b>23,745.90</b>      |  |  |

|                                        | <b>General weed control</b> | <b>Harvest aid</b> | <b>Desiccation</b> | <b>Ground preparation</b> | <b>All reasons</b> | <b>Basic area (ha) of treatment</b> | <b>Quantity (kgs)</b> |
|----------------------------------------|-----------------------------|--------------------|--------------------|---------------------------|--------------------|-------------------------------------|-----------------------|
| <b>Herbicides &amp; desiccants</b>     |                             |                    |                    |                           |                    |                                     |                       |
| Carfentrazone-ethyl                    | .                           | .                  | 702.24             | .                         | 702.24             | 702.24                              | 49.60                 |
| Clomazone                              | 189.85                      | .                  | .                  | .                         | 189.85             | 94.93                               | 15.38                 |
| Diquat                                 | 2,018.64                    | 81.93              | 4,092.32           | .                         | 6,192.89           | 3,210.27                            | 2,093.62              |
| Glyphosate                             | 285.66                      | .                  | .                  | 2,146.27                  | 2,431.93           | 2,377.55                            | 2,226.32              |
| Linuron                                | 549.79                      | .                  | .                  | .                         | 549.79             | 549.79                              | 312.07                |
| Metribuzin                             | 3,133.32                    | .                  | .                  | .                         | 3,133.32           | 3,038.39                            | 2,562.22              |
| Paraquat                               | .                           | .                  | 50.85              | .                         | 50.85              | 50.85                               | 20.34                 |
| Pendimethalin                          | 108.49                      | .                  | .                  | .                         | 108.49             | 108.49                              | 143.20                |
| Propaquizafop                          | .                           | .                  | 40.09              | .                         | 40.09              | 40.09                               | 6.01                  |
| Prosulfocarb                           | 438.91                      | .                  | .                  | .                         | 438.91             | 438.91                              | 1,156.68              |
| Pyraflufen-ethyl                       | 55.12                       | .                  | .                  | .                         | 55.12              | 55.12                               | 1.17                  |
| Rimsulfuron                            | 424.46                      | .                  | .                  | .                         | 453.07             | 453.07                              | 4.92                  |
| <b>All herbicides &amp; desiccants</b> | <b>7,204.23</b>             | <b>81.93</b>       | <b>4,885.50</b>    | <b>2,146.27</b>           | <b>14,346.54</b>   | <b>.</b>                            | <b>8,591.52</b>       |

**Table 27 (cont.): Maincrop potatoes: pesticide-treated area (spha), weights of pesticides applied (kg) and reason for use.**

| <b>Pesticide type &amp; formulation</b> |                                 | <b>All reasons</b>        | <b>Basic area (ha) of treatment</b>        | <b>Quantity (kgs)</b>        |
|-----------------------------------------|---------------------------------|---------------------------|--------------------------------------------|------------------------------|
| <b><i>Insecticides</i></b>              | <b><i>Aphids</i></b>            |                           |                                            |                              |
| Deltamethrin                            | 30.51                           | 30.51                     | 30.51                                      | 0.19                         |
| Esfenvalerate                           | 30.51                           | 30.51                     | 30.51                                      | 0.13                         |
| Lambda-cyhalothrin                      | 221.04                          | 221.04                    | 187.14                                     | 1.63                         |
| Pirimicarb                              | 80.88                           | 80.88                     | 80.88                                      | 11.32                        |
| Pymetrozine                             | 67.80                           | 67.80                     | 33.90                                      | 10.17                        |
| Thiacloprid                             | 25.09                           | 25.09                     | 25.09                                      | 2.41                         |
| <b><i>All insecticides</i></b>          | <b><i>455.84</i></b>            | <b><i>455.84</i></b>      | <b><i>.</i></b>                            | <b><i>25.85</i></b>          |
|                                         |                                 |                           |                                            |                              |
|                                         |                                 |                           |                                            |                              |
|                                         |                                 |                           |                                            |                              |
| <b><i>Molluscicides</i></b>             | <b><i>Slugs</i></b>             | <b><i>All reasons</i></b> | <b><i>Basic area (ha) of treatment</i></b> | <b><i>Quantity (kgs)</i></b> |
| Metaldehyde                             | 1,141.14                        | 1,141.14                  | 463.10                                     | 132.87                       |
| Methiocarb                              | 1,612.72                        | 1,612.72                  | 843.60                                     | 93.69                        |
| <b><i>All molluscicides</i></b>         | <b><i>2,753.85</i></b>          | <b><i>2,753.85</i></b>    | <b><i>.</i></b>                            | <b><i>226.56</i></b>         |
|                                         |                                 |                           |                                            |                              |
|                                         |                                 |                           |                                            |                              |
|                                         |                                 |                           |                                            |                              |
| <b><i>Growth regulators</i></b>         | <b><i>Growth regulation</i></b> | <b><i>All reasons</i></b> | <b><i>Basic area (ha) of treatment</i></b> | <b><i>Quantity (kgs)</i></b> |
| Maleic hydrazide                        | 10.17                           | 10.17                     | 10.17                                      | 30.51                        |
| <b><i>All growth regulators</i></b>     | <b><i>10.17</i></b>             | <b><i>10.17</i></b>       | <b><i>.</i></b>                            | <b><i>30.51</i></b>          |

**Table 28: Comparison of the area of arable crops grown (ha) in Northern Ireland, 1990-2012.**

| Crop                | Survey Year   |               |               |               |               |                 |               |               |               |               |               |               |
|---------------------|---------------|---------------|---------------|---------------|---------------|-----------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                     | 1990          | 1992          | 1994          | 1996          | 1998          | 2000            | 2002          | 2004          | 2006          | 2008          | 2010          | 2012          |
| Spring barley       | 29,893        | 24,729        | 20,890        | 21,256        | 23,066        | 23,901          | 22,658        | 21,959        | 17,573        | 18,742        | 16,967        | 19,702        |
| Undersown barley    | 5,800         | 5,759         | 6,542         | 4,875         | 4,035         | 3,532           | 1,876         | 599           | 654           | 803           | 591           | 508           |
| Winter barley       | 3,670         | 5,721         | 5,832         | 7,166         | 7,720         | 5,194           | 3,922         | 4,535         | 4,599         | 6,149         | 6,767         | 5,323         |
| Spring wheat        | 348           | 136           | 32            | 129           | 400           | 863             | 1,428         | 1,523         | 1,517         | 1,552         | 1,686         | 1,500         |
| Undersown wheat     | 27            | .             | 42            | .             | .             | .               | .             | .             | .             | .             | 58            | 48            |
| Winter wheat        | 5,827         | 6,839         | 6,952         | 6,543         | 6,745         | 4,125           | 5,807         | 7,111         | 7,203         | 10,553        | 9,151         | 7,846         |
| Spring oats         | 2,220         | 1,257         | 953           | 858           | 978           | 1,920           | 804           | 903           | 991           | 778           | 1,441         | 1,441         |
| Undersown oats      | 117           | 221           | 337           | 130           | 102           | 25              | 20            | 234           | 71            | .             | 49            | 193           |
| Winter oats         | 673           | 1,008         | 1,125         | 1,481         | 1,523         | 967             | 1,547         | 1,556         | 875           | 1,640         | 841           | 246           |
| <b>All cereals</b>  | <b>48,575</b> | <b>45,670</b> | <b>42,704</b> | <b>42,438</b> | <b>44,569</b> | <b>40,528</b>   | <b>38,062</b> | <b>38,420</b> | <b>33,482</b> | <b>40,217</b> | <b>37,551</b> | <b>36,807</b> |
| Spring oilseed rape | 15            | 31            | 287           | 66            | 237           | .               | 111           | .             | .             | .             | .             | 517           |
| Winter oilseed rape | 891           | 1,032         | 323           | 127           | 502           | .               | .             | .             | .             | .             | .             | 290           |
| All oilseed rape *  | 906           | 1,063         | 610           | 193           | 739           | 131             | 111           | 255           | 471           | 439           | 446           | 807           |
| Hemp                | .             | .             | .             | .             | .             | .               | .             | .             | .             | 40            | .             | .             |
| Linseed             | .             | 158           | .             | .             | .             | .               | 14            | .             | .             | 2             | .             | .             |
| Maize               | .             | 45            | .             | .             | .             | .               | .             | .             | .             | .             | .             | .             |
| Peas & beans        | .             | .             | .             | .             | 199           | 273             | 197           | 212           | 83            | 55            | 85            | 10            |
| Triticale           | 37            | .             | .             | .             | 17            | 64              | 49            | 182           | 12            | 82            | 5             | .             |
| Lupins              | .             | .             | .             | .             | .             | .               | 67            | 10            | 19            | .             | .             | .             |
| <i>Camelina</i>     | .             | .             | .             | .             | .             | .               | .             | .             | .             | .             | .             | 81            |
| Set-aside           | .             | .             | .             | .             | .             | 2,451           | 3,013         | 3,394         | 2,284         | .             | .             | .             |
| <i>Potatoes</i>     |               |               |               |               |               |                 |               |               |               |               |               |               |
| Seed potatoes       | 3,509         | 3,688         | 1,678         | 1,798         | 1,607         | .               | 1,239         | 1,148         | 763           | 792           | 707           | 555           |
| Early potatoes      | 463           | 836           | 813           | 729           | 391           | .               | 728           | 403           | 370           | 401           | 191           | 192           |
| Maincrop potatoes   | 7,863         | 6,540         | 5,913         | 5,961         | 5,515         | .               | 4,741         | 4,517         | 3,984         | 4,308         | 4,041         | 3,403         |
| <b>All potatoes</b> | <b>11,835</b> | <b>11,064</b> | <b>8,404</b>  | <b>8,488</b>  | <b>7,513</b>  | <b>.</b>        | <b>6,708</b>  | <b>6,068</b>  | <b>5,118</b>  | <b>5,501</b>  | <b>4,939</b>  | <b>4,150</b>  |
| <b>All crops</b>    | <b>61,355</b> | <b>57,999</b> | <b>51,718</b> | <b>51,119</b> | <b>53,036</b> | <b>**43,447</b> | <b>48,222</b> | <b>48,541</b> | <b>41,469</b> | <b>46,337</b> | <b>43,027</b> | <b>41,856</b> |

\* both winter & spring oilseed rape

\*\*excluding potatoes

**Table 28(cont.): Comparison of the area of arable crops grown (ha) in Northern Ireland, 1990-2012.**

| Differences between: |             |             |             |             |             |            |             |             |             |             |             |
|----------------------|-------------|-------------|-------------|-------------|-------------|------------|-------------|-------------|-------------|-------------|-------------|
| Crop                 | 2012-90     | 2012-92     | 2012-94     | 2012-96     | 2012-98     | 2012-00    | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10     |
| <i>Cereals</i>       |             |             |             |             |             |            |             |             |             |             |             |
| Spring barley        | -34%        | -20%        | -6%         | -7%         | -15%        | -18%       | -13%        | -10%        | 12%         | 5%          | 16%         |
| Undersown barley     | -91%        | -91%        | -92%        | -90%        | -87%        | -86%       | -73%        | -15%        | -22%        | -37%        | -14%        |
| Winter barley        | 45%         | -7%         | -9%         | -26%        | -31%        | 2%         | 36%         | 17%         | 16%         | -13%        | -21%        |
| Spring wheat         | 331%        | 1003%       | 4588%       | 1061%       | 275%        | 74%        | 5%          | -2%         | -1%         | -3%         | -11%        |
| Undersown wheat      | 78%         | .           | 15%         | .           | .           | .          | .           | .           | .           | .           | -17%        |
| Winter wheat         | 35%         | 15%         | 13%         | 20%         | 16%         | 90%        | 35%         | 10%         | 9%          | -26%        | -14%        |
| Spring oats          | -35%        | 15%         | 51%         | 68%         | 47%         | -25%       | 79%         | 60%         | 45%         | 85%         | 0%          |
| Undersown oats       | 65%         | -13%        | -43%        | 48%         | 89%         | 657%       | 864%        | -18%        | 170%        | .           | 293%        |
| Winter oats          | -63%        | -76%        | -78%        | -83%        | -84%        | -75%       | -84%        | -84%        | -72%        | -85%        | -71%        |
| <b>All cereals</b>   | <b>-24%</b> | <b>-19%</b> | <b>-14%</b> | <b>-13%</b> | <b>-17%</b> | <b>-9%</b> | <b>-3%</b>  | <b>-4%</b>  | <b>10%</b>  | <b>-8%</b>  | <b>-2%</b>  |
|                      |             |             |             |             |             |            |             |             |             |             |             |
| Spring oilseed rape  | 3348%       | 1568%       | 80%         | 684%        | 118%        | .          | 366%        | .           | .           | .           | .           |
| Winter oilseed rape  | -67%        | -72%        | -10%        | 128%        | -42%        | .          | .           | .           | .           | .           | .           |
| All oilseed rape *   | -11%        | -24%        | 32%         | 318%        | 9%          | 516%       | 627%        | 216%        | 71%         | 84%         | 81%         |
| Hemp                 | .           | .           | .           | .           | .           | .          | .           | .           | .           | .           | .           |
| Linseed              | .           | .           | .           | .           | .           | .          | .           | .           | .           | .           | .           |
| Maize                | .           | .           | .           | .           | .           | .          | .           | .           | .           | .           | .           |
| Peas & beans         | .           | .           | .           | .           | -95%        | -96%       | -95%        | -95%        | -87%        | -81%        | -88%        |
| Triticale            | .           | .           | .           | .           | .           | .          | .           | .           | .           | .           | .           |
| Lupins               | .           | .           | .           | .           | .           | .          | .           | .           | .           | .           | .           |
| <i>Camelina</i>      | .           | .           | .           | .           | .           | .          | .           | .           | .           | .           | .           |
| Set-aside            | .           | .           | .           | .           | .           | .          | .           | .           | .           | .           | .           |
| <i>Potatoes</i>      | .           | .           | .           | .           | .           | .          | .           | .           | .           | .           | .           |
| Seed potatoes        | -84%        | -85%        | -67%        | -69%        | -65%        | .          | -55%        | -52%        | -27%        | -30%        | -21%        |
| Early potatoes       | -58%        | -77%        | -76%        | -74%        | -51%        | .          | -74%        | -52%        | -48%        | -52%        | 1%          |
| Maincrop potatoes    | -57%        | -48%        | -42%        | -43%        | -38%        | .          | -28%        | -25%        | -15%        | -21%        | -16%        |
| <b>All potatoes</b>  | <b>-65%</b> | <b>-62%</b> | <b>-51%</b> | <b>-51%</b> | <b>-45%</b> | <b>.</b>   | <b>-38%</b> | <b>-32%</b> | <b>-19%</b> | <b>-25%</b> | <b>-16%</b> |
|                      |             |             |             |             |             |            |             |             |             |             |             |
| <b>All crops</b>     | <b>-32%</b> | <b>-28%</b> | <b>-19%</b> | <b>-18%</b> | <b>-21%</b> | <b>.</b>   | <b>-13%</b> | <b>-14%</b> | <b>1%</b>   | <b>-10%</b> | <b>-3%</b>  |



**Table 29: The area (spha) of arable crops treated with pesticides in Northern Ireland, 1990-2012.**

|                             | Survey Year    |                |                |                |                |          |                |                |                |                |                |                |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------|----------------|----------------|----------------|----------------|----------------|----------------|
|                             | 1990           | 1992           | 1994           | 1996           | 1998           | 2000     | 2002           | 2004           | 2006           | 2008           | 2010           | 2012           |
| Pesticide type              | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha    | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          |
| Fungicides                  | 102,594        | 106,290        | 114,972        | 121,833        | 141,099        | .        | 127,435        | 139,474        | 123,125        | 159,738        | 147,957        | 157,255        |
| Herbicides & desiccants     | 75,130         | 76,444         | 72,725         | 81,027         | 91,193         | .        | 86,597         | 104,539        | 94,148         | 116,029        | 102,211        | 113,487        |
| Insecticides                |                |                |                |                |                |          |                |                |                |                |                |                |
| <i>Carbamates</i>           | .              | 111            | 167            | 520            | 297            | .        | 594            | 592            | 30             | 558            | 59             | 112            |
| <i>Organochlorines</i>      | .              | 79             | 255            | 222            | .              | .        | .              | .              | .              | .              | .              | .              |
| <i>Organophosphates</i>     | 1,472          | 2,454          | 2,124          | 3,085          | 1,587          | .        | 1,265          | 2,423          | 1,818          | 1,164          | 1,163          | 2,405          |
| <i>Pyrethroids</i>          | 2,895          | 2,800          | 3,267          | 7,706          | 17,084         | .        | 18,164         | 26,973         | 25,055         | 35,936         | 26,467         | 26,827         |
| <i>Azomethine</i>           | .              | .              | .              | .              | .              | .        | .              | 673            | 71             | .              | .              | 272            |
| <i>Neonicotinoid</i>        | .              | .              | .              | .              | .              | .        | .              | .              | 96             | .              | 78             | 274            |
| <i>Feeding blocker</i>      | .              | .              | .              | .              | .              | .        | .              | .              | .              | 252            | 77             | 66             |
| <i>Mixed Formulations</i>   | .              | .              | .              | .              | .              | .        | .              | 581            | 96             | .              | 129            | .              |
| <i>Unknown insecticides</i> | 465            | 694            | 207            | 815            | 1,238          | .        | .              | 180            | 89             | .              | .              | 74             |
| All insecticides            | 4,831          | 6,138          | 6,020          | 12,348         | 20,206         | .        | 20,023         | 31,421         | 27,255         | 37,910         | 27,974         | 30,030         |
| Molluscicides               | 834            | 871            | 243            | 434            | 1,123          | .        | 1,926          | 337            | 1,237          | 1,277          | 816            | 3,642          |
| Growth regulators           | 8,681          | 10,594         | 12,836         | 13,953         | 19,049         | .        | 17,445         | 16,559         | 19,572         | 22,408         | 23,983         | 31,670         |
| Other                       | .              | .              | .              | .              | .              | .        | .              | .              | .              | 89             | 210            | 664            |
| Mixed formulations          | 233            | 186            | 134            | 137            | 128            | .        | 86             | .              | .              | .              | .              | .              |
| Seed treatments             | 42,683         | 44,961         | 39,026         | 38,979         | 36,083         | .        | 34,636         | 32,968         | 30,298         | 36,756         | 34,184         | 38,098         |
| <b>All pesticides</b>       | <b>234,985</b> | <b>245,485</b> | <b>245,971</b> | <b>268,710</b> | <b>308,881</b> | <b>.</b> | <b>288,348</b> | <b>325,299</b> | <b>295,635</b> | <b>374,207</b> | <b>337,336</b> | <b>374,845</b> |
| Area grown (ha)             | 61,355         | 57,999         | 51,718         | 51,119         | 53,036         | .        | 48,222         | 48,541         | 41,469         | 46,337         | 43,027         | 41,823         |

**Table 29 (cont.): The area (sp ha) of arable crops treated with pesticides in Northern Ireland, 1990-2012.**

|                             | 2012-90    | 2012-92    | 2012-94    | 2012-96    | Differences between: |          | 2012-02    | 2012-04    | 2012-06    | 2012-08   | 2012-10    |
|-----------------------------|------------|------------|------------|------------|----------------------|----------|------------|------------|------------|-----------|------------|
| Pesticide type              | sp ha      | sp ha      | sp ha      | sp ha      | 2012-98              | 2012-00  | sp ha      | sp ha      | sp ha      | sp ha     | sp ha      |
| Fungicides                  | 53%        | 48%        | 37%        | 29%        | 11%                  | .        | 23%        | 13%        | 28%        | -2%       | 6%         |
| Herbicides & desiccants     | 51%        | 48%        | 56%        | 40%        | 24%                  | .        | 31%        | 9%         | 21%        | -2%       | 11%        |
| Insecticides                |            |            |            |            |                      |          |            |            |            |           |            |
| <i>Carbamates</i>           | .          | 1%         | -33%       | -79%       | -62%                 | .        | -81%       | -81%       | 273%       | -80%      | 89%        |
| <i>Organochlorines</i>      | .          | .          | .          | .          | .                    | .        | .          | .          | .          | .         | .          |
| <i>Organophosphates</i>     | 63%        | -2%        | 13%        | -22%       | 52%                  | .        | 90%        | -1%        | 32%        | 107%      | 107%       |
| <i>Pyrethroids</i>          | 827%       | 858%       | 721%       | 248%       | 57%                  | .        | 48%        | -1%        | 7%         | -25%      | 1%         |
| <i>Azomethine</i>           | .          | .          | .          | .          | .                    | .        | .          | -60%       | 283%       | .         | .          |
| <i>Neonicotinoid</i>        | .          | .          | .          | .          | .                    | .        | .          | .          | 185%       | .         | 251%       |
| <i>Feeding blocker</i>      | .          | .          | .          | .          | .                    | .        | .          | .          | .          | -74%      | -14%       |
| <i>Mixed Formulations</i>   | .          | .          | .          | .          | .                    | .        | .          | .          | .          | .         | .          |
| <i>Unknown insecticides</i> | -84%       | -89%       | -64%       | -91%       | -94%                 | .        | .          | -59%       | -17%       | .         | .          |
| All insecticides            | 522%       | 389%       | 399%       | 143%       | 49%                  | .        | 50%        | -4%        | 10%        | -21%      | 7%         |
| Molluscicides               | 337%       | 318%       | 1399%      | 738%       | 224%                 | .        | 89%        | 980%       | 194%       | 185%      | 346%       |
| Growth regulators           | 265%       | 199%       | 147%       | 127%       | 66%                  | .        | 82%        | 91%        | 62%        | 41%       | 32%        |
| Other                       | .          | .          | .          | .          | .                    | .        | .          | .          | .          | 646%      | 216%       |
| Mixed formulations          | .          | .          | .          | .          | .                    | .        | .          | .          | .          | .         | .          |
| Seed treatments             | -11%       | -15%       | -2%        | -2%        | 6%                   | .        | 10%        | 16%        | 26%        | 4%        | 11%        |
| <b>All pesticides</b>       | <b>60%</b> | <b>53%</b> | <b>52%</b> | <b>39%</b> | <b>21%</b>           | <b>.</b> | <b>30%</b> | <b>15%</b> | <b>27%</b> | <b>0%</b> | <b>11%</b> |
| Area grown (ha)             | -32%       | -28%       | -19%       | -18%       | -21%                 | .        | -13%       | -14%       | 1%         | -10%      | -3%        |

**Table 30: The quantity (tonnes) of pesticides applied to arable crops in Northern Ireland, 1990-2012.**

|                            | 1990          | 1992          | 1994          | 1996          | Survey Year<br>1998 | 2000     | 2002          | 2004          | 2006          | 2008          | 2010          | 2012          |
|----------------------------|---------------|---------------|---------------|---------------|---------------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|
| Pesticide type             | tonnes        | tonnes        | tonnes        | tonnes        | tonnes              | tonnes   | tonnes        | tonnes        | tonnes        | tonnes        | tonnes        | tonnes        |
| Fungicides                 | 97.57         | 101.76        | 90.99         | 94.22         | 91.06               | .        | 85.20         | 71.13         | 67.26         | 77.32         | 67.88         | 58.70         |
| Herbicides & desiccants    | 253.62        | 212.36        | 133.57        | 336.33        | 337.65              | .        | 390.98        | 254.62        | 152.13        | 71.58         | 50.75         | 52.12         |
| Insecticides               |               |               |               |               |                     |          |               |               |               |               |               |               |
| <i>Carbamates</i>          | .             | 0.02          | 0.02          | 0.07          | 0.04                | .        | 0.08          | 0.08          | 0.004         | 0.075         | 0.008         | 0.01571       |
| <i>Organochlorines</i>     | .             | 0.09          | 0.29          | 0.23          | .                   | .        | .             | .             | .             | .             | .             | .             |
| <i>Organophosphates</i>    | 0.68          | 0.80          | 0.85          | 1.51          | 0.87                | .        | 0.57          | 1.07          | 1.373         | 0.786         | 0.733         | 1.29359       |
| <i>Pyrethroids</i>         | 0.05          | 0.05          | 0.07          | 0.15          | 0.19                | .        | 0.20          | 0.20          | 0.163         | 0.295         | 0.163         | 0.19192       |
| <i>Azomethine</i>          | .             | .             | .             | .             | .                   | .        | .             | 0.10          | 0.005         | .             | .             | 0.0433        |
| <i>Neonicotinoid</i>       | .             | .             | .             | .             | .                   | .        | .             | .             | 0.009         | .             | 0.006         | 0.02114       |
| <i>Feeding blocker</i>     | .             | .             | .             | .             | .                   | .        | .             | .             | .             | 0.02          | 0.006         | 0.00528       |
| <i>Mixed Formulations</i>  | .             | .             | .             | .             | .                   | .        | .             | 0.05          | 0.016         | .             | 0.01          | .             |
| <i>Unknown Insecticide</i> | .             | .             | .             | .             | .                   | .        | .             | 0.01          | .             | .             | .             | 0.06          |
| All insecticides           | 0.72          | 0.96          | 1.23          | 1.95          | 1.10                | .        | 0.85          | 1.51          | 1.57          | 1.18          | 0.93          | 1.63          |
| Molluscicides              | 0.33          | 0.27          | 0.12          | 0.09          | 0.17                | .        | 0.34          | 0.06          | 0.28          | 0.17          | 0.12          | 0.30          |
| Growth regulators          | 10.60         | 9.35          | 10.86         | 12.84         | 14.43               | .        | 11.61         | 11.70         | 12.63         | 17.00         | 14.33         | 16.59         |
| Other                      | .             | .             | .             | .             | .                   | .        | .             | .             | .             | 0.014         | 0.180         | 0.244         |
| Mixed formulations         | 0.51          | 0.41          | 0.29          | 0.30          | 0.28                | .        | 0.13          | .             | .             | .             | .             | .             |
| Seed treatments            | 0.38*         | 3.77          | 5.06          | 3.03          | 3.71                | .        | 2.82          | 2.28          | 4.03          | 1.82          | 2.09          | 2.52          |
| <b>All pesticides</b>      | <b>363.74</b> | <b>328.89</b> | <b>242.12</b> | <b>448.78</b> | <b>448.40</b>       | <b>.</b> | <b>491.93</b> | <b>341.30</b> | <b>237.89</b> | <b>169.06</b> | <b>136.28</b> | <b>132.10</b> |
| Area grown (ha)            | 61,355        | 57,999        | 51,718        | 51,119        | 53,036              | .        | 48,222        | 48,541        | 41,469        | 46,337        | 43,027        | 41,823        |

\* Seed treatments on potatoes not recorded

**Table 30 (cont.): The quantity (tonnes) of pesticides applied to arable crops in Northern Ireland, 1990-2012.**

|                            | Differences between: |             |             |             |             |          |             |             |             |             |            |
|----------------------------|----------------------|-------------|-------------|-------------|-------------|----------|-------------|-------------|-------------|-------------|------------|
|                            | 2012-90              | 2012-92     | 2012-94     | 2012-96     | 2012-98     | 2012-00  | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10    |
| Pesticide type             | tonnes               | tonnes      | tonnes      | tonnes      | tonnes      | tonnes   | tonnes      | tonnes      | tonnes      | tonnes      | tonnes     |
| Fungicides                 | -40%                 | -42%        | -35%        | -38%        | -36%        | .        | -31%        | -17%        | -13%        | -24%        | -14%       |
| Herbicides & desiccants    | -79%                 | -75%        | -61%        | -85%        | -85%        | .        | -87%        | -80%        | -66%        | -27%        | 3%         |
| Insecticides               |                      |             |             |             |             |          |             |             |             |             |            |
| <i>Carbamates</i>          | .                    | -21%        | -25%        | -78%        | -56%        | .        | -80%        | -80%        | 293%        | -79%        | 96%        |
| <i>Organochlorines</i>     | .                    | .           | .           | .           | .           | .        | .           | .           | .           | .           | .          |
| <i>Organophosphates</i>    | 90%                  | 62%         | 52%         | -14%        | 49%         | .        | 126%        | 21%         | -6%         | 65%         | 76%        |
| <i>Pyrethroids</i>         | 284%                 | 284%        | 178%        | 28%         | 1%          | .        | -6%         | -3%         | 18%         | -35%        | 18%        |
| <i>Azomethine</i>          | .                    | .           | .           | .           | .           | .        | .           | -58%        | 766%        | .           | .          |
| <i>Neonicotinoid</i>       | .                    | .           | .           | .           | .           | .        | .           | .           | 135%        | .           | 252%       |
| <i>Feeding blocker</i>     | .                    | .           | .           | .           | .           | .        | .           | .           | .           | -74%        | -12%       |
| <i>Mixed Formulations</i>  | .                    | .           | .           | .           | .           | .        | .           | .           | .           | .           | .          |
| <i>Unknown Insecticide</i> | .                    | .           | .           | .           | .           | .        | .           | 494%        | .           | .           | .          |
| All insecticides           | 126%                 | 70%         | 33%         | -17%        | 49%         | .        | 91%         | 8%          | 4%          | 39%         | 75%        |
| Molluscicides              | -10%                 | 10%         | 151%        | 232%        | 72%         | .        | -12%        | 395%        | 5%          | 76%         | 148%       |
| Growth regulators          |                      | 77%         | 53%         | 29%         | 15%         | .        | 43%         | 42%         | 31%         | -2%         | 16%        |
| Other                      | .                    | .           | .           | .           | .           | .        | .           | .           | .           | 1644%       | 36%        |
| Mixed formulations         | .                    | .           | .           | .           | .           | .        | .           | .           | .           | .           | .          |
| Seed treatments            | .                    | -33%        | -50%        | -17%        | -32%        | .        | -11%        | 11%         | -37%        | 39%         | 21%        |
| <b>All pesticides</b>      | <b>-64%</b>          | <b>-60%</b> | <b>-45%</b> | <b>-71%</b> | <b>-71%</b> | <b>.</b> | <b>-73%</b> | <b>-61%</b> | <b>-44%</b> | <b>-22%</b> | <b>-3%</b> |
| Area grown (ha)            | -32%                 | -28%        | -19%        | -18%        | -21%        | .        | -13%        | -14%        | 1%          | -10%        | -3%        |

**Table 31: The area (spha) of cereal crops treated with pesticides in Northern Ireland, 1990-2012.**

|                             | 1990           | 1992           | 1994           | 1996           | Survey Year    |                | 2000           | 2002           | 2004           | 2006           | 2008           | 2010           | 2012  |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|-------|
| Pesticide type              | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha          | sp ha |
| Fungicides                  | 33,741         | 37,584         | 42,517         | 56,880         | 64,171         | 63,739         | 60,230         | 86,173         | 77,686         | 106,805        | 91,054         | 105,304        |       |
| Herbicides & desiccants     | 52,342         | 52,872         | 56,201         | 63,072         | 72,911         | 71,281         | 69,752         | 82,884         | 77,378         | 95,133         | 83,268         | 94,335         |       |
| Insecticides                |                |                |                |                |                |                |                |                |                |                |                |                |       |
| <i>Carbamates</i>           | .              | 88             | 167            | 493            | 249            | .              | 182            | 120            | .              | 127            | 59             | .              |       |
| <i>Organochlorines</i>      | .              | 79             | 255            | 222            | .              | .              | .              | .              | .              | .              | .              | .              |       |
| <i>Organophosphates</i>     | 1,164          | 2,359          | 1,857          | 2,447          | 1,440          | 3,773          | 1,140          | 2,058          | 1,751          | 1,164          | 1,164          | 2,405          |       |
| <i>Pyrethroids</i>          | 2,381          | 2,670          | 3,267          | 7,047          | 16,481         | 23,617         | 16,709         | 24,258         | 23,328         | 34,701         | 24,909         | 26,036         |       |
| <i>Unknown insecticides</i> | 465            | 694            | 207            | 816            | 1,207          | 2,290          | .              | 114            | 89             | .              | .              | 74             |       |
| All insecticides            | 4,010          | 5,890          | 5,754          | 11,028         | 19,377         | 29,681         | 18,031         | 26,550         | 25,168         | 35,991         | 26,132         | 28,515         |       |
| Molluscicides               | 24             | .              | 27             | 168            | 129            | 833            | 305            | 223            | 307            | 493            | 324            | 466            |       |
| Growth regulators           | 8,607          | 10,509         | 12,836         | 13,953         | 18,998         | 17,237         | 17,330         | 16,476         | 19,559         | 22,386         | 23,927         | 31,660         |       |
| Other                       | .              | .              | .              | .              | .              | .              | .              | .              | .              | 89             | .              | 425            |       |
| Seed treatments             | 41,739         | 39,958         | 35,995         | 35,525         | 31,728         | 34,260         | 31,494         | 29,069         | 27,353         | 33,567         | 31,572         | 34,646         |       |
| <i>All pesticides</i>       | <i>140,465</i> | <i>146,819</i> | <i>153,330</i> | <i>180,624</i> | <i>207,314</i> | <i>217,031</i> | <i>197,144</i> | <i>241,374</i> | <i>227,451</i> | <i>294,463</i> | <i>256,277</i> | <i>295,351</i> |       |
| Area grown (ha)             | 48,575         | 45,670         | 42,703         | 42,438         | 44,570         | 40,528         | 38,062         | 38,420         | 33,482         | 40,217         | 37,551         | 36,807         |       |

**Table 31 (cont.): The area (sp ha) of cereal crops treated with pesticides in Northern Ireland, 1990-2012.**

|                             | Differences between: |             |            |            |            |            |            |            |            |           |            |
|-----------------------------|----------------------|-------------|------------|------------|------------|------------|------------|------------|------------|-----------|------------|
|                             | 2012-90              | 2012-92     | 2012-94    | 2012-96    | 2012-98    | 2012-00    | 2012-02    | 2012-04    | 2012-06    | 2012-08   | 2012-10    |
| Pesticide type              | sp ha                | sp ha       | sp ha      | sp ha      | sp ha      | sp ha      | sp ha      | sp ha      | sp ha      | sp ha     | sp ha      |
| Fungicides                  | 212%                 | 180%        | 148%       | 85%        | 64%        | 65%        | 75%        | 22%        | 36%        | -1%       | 16%        |
| Herbicides & desiccants     | 80%                  | 78%         | 68%        | 50%        | 29%        | 32%        | 35%        | 14%        | 22%        | -1%       | 13%        |
| Insecticides                |                      |             |            |            |            |            |            |            |            |           |            |
| <i>Carbamates</i>           | .                    | .           | .          | .          | .          | .          | .          | .          | .          | .         | .          |
| <i>Organochlorines</i>      | .                    | .           | .          | .          | .          | .          | .          | .          | .          | .         | .          |
| <i>Organophosphates</i>     | 107%                 | 2%          | 30%        | -2%        | 67%        | -36%       | 111%       | 17%        | 37%        | 107%      | 107%       |
| <i>Pyrethroids</i>          |                      | 875%        | 697%       | 269%       | 58%        | 10%        | 56%        | 7%         | 12%        | -25%      | 5%         |
| <i>Unknown insecticides</i> | -84%                 | -89%        | -64%       | -91%       | -94%       | -97%       | .          | -35%       | -17%       | .         | .          |
| All insecticides            | 611%                 | 384%        | 396%       | 159%       | 47%        | -4%        | 58%        | 7%         | 13%        | -21%      | 9%         |
| Molluscicides               | 1843%                | .           | 1627%      | 178%       | 262%       | -44%       | 53%        | 109%       | 52%        | -5%       | 44%        |
| Growth regulators           | 268%                 | 201%        | 147%       | 127%       | 67%        | 84%        | 83%        | 92%        | 62%        | 41%       | 32%        |
| Other                       | .                    | .           | .          | .          | .          | .          | .          | .          | .          | 378%      | .          |
| Seed treatments             | -17%                 | -13%        | -4%        | -2%        | 9%         | 1%         | 10%        | 19%        | 27%        | 3%        | 10%        |
| <b>All pesticides</b>       | <b>110%</b>          | <b>101%</b> | <b>93%</b> | <b>64%</b> | <b>42%</b> | <b>36%</b> | <b>50%</b> | <b>22%</b> | <b>30%</b> | <b>0%</b> | <b>15%</b> |
| Area grown (ha)             | -24%                 | -19%        | -14%       | -13%       | -17%       | -9%        | -3%        | -4%        | 10%        | -8%       | -2%        |

**Table 32: The quantity (tonnes) of pesticides applied to cereal crops in Northern Ireland, 1990-2012.**

|                         | 1990          | 1992          | 1994          | 1996          | Survey Year<br>1998 | 2000          | 2002          | 2004          | 2006          | 2008          | 2010          | 2012          |
|-------------------------|---------------|---------------|---------------|---------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Pesticide type</b>   | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b>       | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> |
| Fungicides              | 14.97         | 18.43         | 14.96         | 24.52         | 22.82               | 13.32         | 15.18         | 19.15         | 20.21         | 32.17         | 27.62         | 31.11         |
| Herbicides & desiccants | 55.07         | 39.43         | 35.67         | 42.87         | 46.26               | 41.68         | 35.35         | 42.21         | 48.77         | 58.48         | 38.28         | 40.34         |
| Insecticides            |               |               |               |               |                     |               |               |               |               |               |               |               |
| <i>Carbamates</i>       | .             | 0.01          | 0.02          | 0.07          | 0.03                | .             | 0.03          | 0.012         | .             | 0.014         | 0.008         | .             |
| <i>Organochlorines</i>  | .             | 0.09          | 0.29          | 0.23          | .                   | .             | .             | .             | .             | .             | .             | .             |
| <i>Organophosphates</i> | 0.51          | 0.68          | 0.49          | 1.24          | 0.74                | 2.51          | 0.56          | 0.948         | 1.200         | 0.785         | 0.733         | 1.294         |
| <i>Pyrethroids</i>      | 0.04          | 0.04          | 0.07          | 0.13          | 0.19                | 0.26          | 0.19          | 0.178         | 0.157         | 0.275         | 0.148         | 0.187         |
| <i>Azomethine</i>       | .             | .             | .             | .             | .                   | .             | .             | .             | .             | .             | .             | .             |
| All insecticides        | 0.55          | 0.83          | 0.88          | 1.66          | 0.96                | 2.75          | 0.78          | 1.14          | 1.36          | 1.08          | 0.89          | 1.54          |
| Molluscicides           | 0.01          | .             | 0.01          | 0.04          | 0.02                | 0.14          | 0.06          | 0.04          | 0.04          | 0.07          | 0.03          | 0.04          |
| Growth regulators       | 10.51         | 9.32          | 10.86         | 12.84         | 14.41               | 12.87         | 11.61         | 11.64         | 12.62         | 16.93         | 14.16         | 16.55         |
| Other                   | .             | .             | .             | .             | .                   | .             | .             | .             | .             | 0.01          | .             | 0.04          |
| Seed treatments         | 0.33          | 0.94          | 3.80          | 2.41          | 1.72                | 2.34          | 1.57          | 1.35          | 1.42          | 1.09          | 1.37          | 1.40          |
| <b>All pesticides</b>   | <b>81.44</b>  | <b>68.94</b>  | <b>66.17</b>  | <b>84.35</b>  | <b>86.19</b>        | <b>73.11</b>  | <b>64.35</b>  | <b>75.55</b>  | <b>84.41</b>  | <b>109.83</b> | <b>82.35</b>  | <b>91.04</b>  |
| Area grown (ha)         | 48,575        | 45,670        | 42,703        | 42,438        | 44,570              | 40,528        | 38,062        | 38,420        | 33,482        | 40,217        | 37,551        | 36,807        |

**Table 32 (cont.): The quantity (tonnes) of pesticides applied to cereal crops in Northern Ireland, 1990-2012.**

|                         | 2012-90    | 2012-92    | 2012-94    | 2012-96   | Differences between: |            | 2012-02    | 2012-04    | 2012-06   | 2012-08     | 2012-10    |
|-------------------------|------------|------------|------------|-----------|----------------------|------------|------------|------------|-----------|-------------|------------|
| Pesticide type          | tonnes     | tonnes     | tonnes     | tonnes    | tonnes               | tonnes     | tonnes     | tonnes     | tonnes    | tonnes      | tonnes     |
| Fungicides              | 108%       | 69%        | 108%       | 27%       | 36%                  | 134%       | 105%       | 62%        | 54%       | -3%         | 13%        |
| Herbicides & desiccants | -27%       | 2%         | 13%        | -6%       | -13%                 | -3%        | 14%        | -4%        | -17%      | -31%        | 5%         |
| Insecticides            |            |            |            |           |                      |            |            |            |           |             |            |
| <i>Carbamates</i>       | .          | .          | .          | .         | .                    | .          | .          | .          | .         | .           | .          |
| <i>Organochlorines</i>  | .          | .          | .          | .         | .                    | .          | .          | .          | .         | .           | .          |
| <i>Organophosphates</i> | 154%       | 90%        | 164%       | 4%        | 75%                  | -48%       | 133%       | 36%        | 8%        | 65%         | 76%        |
| <i>Pyrethroids</i>      | 367%       | 367%       | 171%       | 44%       | -3%                  | -28%       | -4%        | 5%         | 19%       | -32%        | 26%        |
| <i>Azomethine</i>       | .          | .          | .          | .         | .                    | .          | .          | .          | .         | .           | .          |
| All insecticides        | 180%       | 86%        | 76%        | -7%       | 61%                  | -44%       | 99%        | 35%        | 14%       | 43%         | 73%        |
| Molluscicides           | 272%       | .          | 482%       | -7%       | 124%                 | -73%       | -42%       | -7%        | -13%      | -46%        | 33%        |
| Growth regulators       | 58%        | 78%        | 52%        | 29%       | 15%                  | 29%        | 43%        | 42%        | 31%       | -2%         | 17%        |
| Other                   |            | .          | .          | .         | .                    | .          | .          | .          | .         | 219%        | .          |
| Seed treatments         | 325%       | 49%        | -63%       | -42%      | -18%                 | -40%       | -11%       | 4%         | -1%       | 29%         | 2%         |
| <b>All pesticides</b>   | <b>12%</b> | <b>32%</b> | <b>38%</b> | <b>8%</b> | <b>6%</b>            | <b>25%</b> | <b>41%</b> | <b>20%</b> | <b>8%</b> | <b>-17%</b> | <b>11%</b> |
| Area grown (ha)         | -24%       | -19%       | -14%       | -13%      | -17%                 | -9%        | -3%        | -4%        | 10%       | -8%         | -2%        |



**Table 33: The area (sp ha) of oilseed rape treated with pesticides in Northern Ireland, 1990-2012.**

|                              | Survey Year  |              |              |            |              |            |            |            |              |              |              |              |
|------------------------------|--------------|--------------|--------------|------------|--------------|------------|------------|------------|--------------|--------------|--------------|--------------|
|                              | 1990         | 1992         | 1994         | 1996       | 1998         | 2000       | 2002       | 2004       | 2006         | 2008         | 2010         | 2012         |
| Pesticide type               | sp ha        | sp ha        | sp ha        | sp ha      | sp ha        | sp ha      | sp ha      | sp ha      | sp ha        | sp ha        | sp ha        | sp ha        |
| Fungicides                   | 467          | 525          | 86           | 226        | 664          | 244        | 70         | 238        | 646          | 737          | 1,337        | 1,265        |
| Herbicides & desiccants      | 1,603        | 1,343        | 597          | 292        | 1,171        | 366        | 194        | 448        | 970          | 972          | 1,054        | 1,694        |
| Insecticides                 |              |              |              |            |              |            |            |            |              |              |              |              |
| <i>Carbamates</i>            | .            | .            | .            | .          | 28.6         | .          | .          | .          | .            | .            | .            | 13           |
| <i>Organochlorines</i>       | .            | .            | .            | .          | .            | .          | .          | .          | .            | .            | .            | .            |
| <i>Organophosphates</i>      | .            | 67           | 180          | 25         | 5.4          | .          | .          | .          | .            | .            | .            | .            |
| <i>Pyrethroids</i>           | .            | 131          | .            | .          | 190          | .          | 49         | 55         | 149          | 316          | 361          | 132          |
| <i>Unknown insecticides</i>  | .            | .            | .            | .          | 10           | .          | .          | .          | .            | .            | .            | .            |
| All insecticides             | .            | 198          | 180          | 25         | 234          | .          | 49         | 55         | 149          | 316          | 361          | 146          |
| Molluscicides                | 810          | 871          | 216          | 72         | 522          | .          | 39         | .          | 68           | 120          | .            | 270          |
| Growth regulators            | .            | 84           | .            | .          | .            | .          | .          | .          | .            | .            | .            | .            |
| Other                        | .            | .            | .            | .          | .            | .          | .          | .          | .            | .            | 210          | 239          |
| Seed treatments              | 906          | 1,063        | 610          | 140        | 339          | 123        | 98         | 106        | 271          | 22           | 423          | 786          |
| <b><i>All pesticides</i></b> | <b>3,786</b> | <b>4,084</b> | <b>1,689</b> | <b>755</b> | <b>2,931</b> | <b>732</b> | <b>450</b> | <b>846</b> | <b>2,104</b> | <b>2,167</b> | <b>3,360</b> | <b>4,400</b> |
| Area grown (ha)              | 906          | 1,062        | 610          | 193        | 739          | 131        | 111        | 255        | 471          | 439          | 446          | 807          |

**Table 33 (cont.): The area (sp ha) of oilseed rape treated with pesticides in Northern Ireland, 1990-2012.**

|                              | 2012-90    | 2012-92   | 2012-94     | 2012-96     | Differences between: |             | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10    |
|------------------------------|------------|-----------|-------------|-------------|----------------------|-------------|-------------|-------------|-------------|-------------|------------|
| Pesticide type               | sp ha      | sp ha     | sp ha       | sp ha       | 2012-98              | 2012-00     | sp ha       | sp ha       | sp ha       | sp ha       | sp ha      |
| Fungicides                   | 171%       | 141%      | 1380%       | 460%        | 91%                  | 419%        | 1697%       | 433%        | 96%         | 72%         | -5%        |
| Herbicides & desiccants      | 6%         | 26%       | 184%        | 480%        | 45%                  | 363%        | 774%        | 278%        | 75%         | 74%         | 61%        |
| Insecticides                 |            |           |             |             |                      |             |             |             |             |             |            |
| <i>Carbamates</i>            | .          | .         | .           | .           | -53%                 | .           | .           | .           | .           | .           | .          |
| <i>Organochlorines</i>       | .          | .         | .           | .           | .                    | .           | .           | .           | .           | .           | .          |
| <i>Organophosphates</i>      | .          | .         | .           | .           | .                    | .           | .           | .           | .           | .           | .          |
| <i>Pyrethroids</i>           | .          | 1%        | .           | .           | -30%                 | .           | 171%        | 140%        | -11%        | -58%        | -63%       |
| <i>Unknown insecticides</i>  | .          | .         | .           | .           | .                    | .           | .           | .           | .           | .           | .          |
| All insecticides             | .          | -26%      | -19%        | 483%        | -38%                 | .           | 199%        | 166%        | -2%         | -54%        | -60%       |
| Molluscicides                | -67%       | -69%      | 25%         | 274%        | -48%                 | .           | 589%        | .           | 296%        | 125%        | .          |
| Growth regulators            | .          | .         | .           | .           | .                    | .           | .           | .           | .           | .           | .          |
| Other                        |            | .         | .           | .           | .                    | .           | .           | .           | .           | .           | 14%        |
| Seed treatments              | -13%       | -26%      | 29%         | 461%        | 132%                 | 539%        | 704%        | 643%        | 190%        | 3472%       | 86%        |
| <b><i>All pesticides</i></b> | <b>16%</b> | <b>8%</b> | <b>160%</b> | <b>483%</b> | <b>50%</b>           | <b>501%</b> | <b>878%</b> | <b>420%</b> | <b>109%</b> | <b>103%</b> | <b>31%</b> |
| Area grown (ha)              | -11%       | -24%      | 32%         | 318%        | 9%                   | 516%        | 627%        | 216%        | 71%         | 84%         | 81%        |

**Table 34: The quantity (tonnes) of pesticides applied to oilseed rape in Northern Ireland, 1990-2012.**

|                         | 1990          | 1992          | 1994          | 1996          | Survey Year<br>1998 | 2000          | 2002          | 2004          | 2006          | 2008          | 2010          | 2012          |
|-------------------------|---------------|---------------|---------------|---------------|---------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
| <b>Pesticide type</b>   | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b>       | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> | <b>tonnes</b> |
| Fungicides              | 0.53          | 0.06          | 0.03          | 0.30          | 0.60                | 0.64          | 0.01          | 0.03          | 0.10          | 0.12          | 0.27          | 0.18          |
| Herbicides & desiccants | 1.31          | 0.98          | 0.62          | 0.20          | 0.74                | 0.16          | 0.10          | 0.25          | 0.76          | 0.81          | 0.65          | 1.14          |
| Insecticides            |               |               |               |               |                     |               |               |               |               |               |               |               |
| <i>Carbamates</i>       | .             | .             | .             | .             | 0.004               | .             | .             | .             | .             | .             | .             | 0.00195       |
| <i>Organochlorines</i>  | .             | .             | .             | .             | <0.001              | .             | .             | .             | .             | .             | .             | .             |
| <i>Organophosphates</i> | .             | 0.02          | 0.08          | 0.01          | 0.004               | .             | .             | .             | .             | .             | .             | .             |
| <i>Pyrethroids</i>      | .             | 0.01          | .             | .             | 0.001               | .             | 0.0001        | 0.0003        | 0.001         | 0.011         | 0.002         | 0.0008        |
| All insecticides        | .             | 0.03          | 0.08          | 0.01          | 0.009               | .             | 0.0001        | 0.0003        | 0.001         | 0.011         | 0.003         | 0.0027        |
| Molluscicides           | 0.32          | 0.27          | 0.11          | 0.01          | 0.06                | .             | 0.01          | .             | 0.01          | 0.03          | .             | 0.0224        |
| Growth regulators       | .             | 0.04          | .             | .             | .                   | .             | .             | .             | .             | .             | .             | .             |
| Seed treatments         | 0.05          | 0.11          | 0.06          | 0.02          | 0.005               | .             | 0.01          | 0.002         | 0.005         | 0.001         | 0.007         | 0.0105        |
| <b>All pesticides</b>   | <b>2.21</b>   | <b>1.49</b>   | <b>0.90</b>   | <b>0.54</b>   | <b>1.41</b>         | <b>0.81</b>   | <b>0.13</b>   | <b>0.28</b>   | <b>0.88</b>   | <b>0.96</b>   | <b>1.11</b>   | <b>1.55</b>   |
| Area grown (ha)         | 906           | 1,062         | 610           | 193           | 739                 | 131           | 111           | 255           | 471           | 439           | 446           | 807           |

**Table 34 (cont.): The quantity (tonnes) of pesticides applied to oilseed rape in Northern Ireland, 1990-2012.**

|                         | 2012-90     | 2012-92   | 2012-94    | 2012-96     | Differences between: |            | 2012-02      | 2012-04     | 2012-06    | 2012-08    | 2012-10    |
|-------------------------|-------------|-----------|------------|-------------|----------------------|------------|--------------|-------------|------------|------------|------------|
| Pesticide type          | tonnes      | tonnes    | tonnes     | tonnes      | 2012-98              | 2012-00    | tonnes       | tonnes      | tonnes     | tonnes     | tonnes     |
| Fungicides              | -66%        | 203%      | 448%       | -39%        | -70%                 | -72%       | 1425%        | 505%        | 76%        | 56%        | -33%       |
| Herbicides & desiccants | -13%        | 16%       | 85%        | 468%        | 54%                  | 610%       | 1060%        | 354%        | 50%        | 40%        | 75%        |
| Insecticides            |             |           |            |             |                      |            |              |             |            |            |            |
| <i>Carbamates</i>       | .           | .         | .          | .           | -51%                 | .          | .            | .           | .          | .          | .          |
| <i>Organochlorines</i>  | .           | .         | .          | .           | .                    | .          | .            | .           | .          | .          | .          |
| <i>Organophosphates</i> | .           | .         | .          | .           | .                    | .          | .            | .           | .          | .          | .          |
| <i>Pyrethroids</i>      | .           | -92%      | .          | .           | -30%                 | .          | 670%         | 157%        | -36%       | -93%       | -62%       |
| All insecticides        | .           | -91%      | -96%       | -73%        | -70%                 | .          | 2620%        | 907%        | 127%       | -75%       | -9%        |
| Molluscicides           | -93%        | -92%      | -80%       | 124%        | -63%                 | .          | 116%         | .           | 60%        | -17%       | .          |
| Growth regulators       | .           | .         | .          | .           | .                    | .          | .            | .           | .          | .          | .          |
| Seed treatments         | -79%        | -90%      | -82%       | -48%        | 132%                 | .          | -24%         | 410%        | 110%       | 948%       | 50%        |
| <b>All pesticides</b>   | <b>-30%</b> | <b>4%</b> | <b>73%</b> | <b>187%</b> | <b>10%</b>           | <b>92%</b> | <b>1057%</b> | <b>454%</b> | <b>76%</b> | <b>61%</b> | <b>40%</b> |
| Area grown (ha)         | -11%        | -24%      | 32%        | 318%        | 9%                   | 516%       | 627%         | 216%        | 71%        | 84%        | 81%        |

**Table 35: The area (spha) of peas and beans treated with pesticides in Northern Ireland, 1998-2012.**

|                             | Survey Year |              |            |                |              |             |              |             | Differences between: |             |             |             |             |             |             |
|-----------------------------|-------------|--------------|------------|----------------|--------------|-------------|--------------|-------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                             | 1998        | 2000         | 2002       | 2004           | 2006         | 2008        | 2010         | 2012        | 2012-98              | 2012-00     | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10     |
| Pesticide type              | sp ha       | sp ha        | sp ha      | sp ha          | sp ha        | sp ha       | sp ha        | sp ha       | sp ha                | sp ha       | sp ha       | sp ha       | sp ha       | sp ha       | sp ha       |
| Fungicides                  | 314         | 138          | 302.7      | 676.7          | 19.0         | 8.0         | 296.0        | .           | .                    | .           | .           | .           | .           | .           | .           |
| Herbicides & desiccants     | 444         | 199          | 241.1      | 321.5          | 120.0        | 63.0        | 137.0        | 20.7        | -95%                 | -90%        | -91%        | -94%        | -83%        | -67%        | -85%        |
| Insecticides                |             |              |            |                |              |             |              |             |                      |             |             |             |             |             |             |
| <i>Carbamates</i>           | 19          | 18.3         | 54.2       | .              | .            | .           | .            | .           | .                    | .           | .           | .           | .           | .           | .           |
| <i>Organochlorines</i>      | .           | .            | .          | .              | .            | .           | .            | .           | .                    | .           | .           | .           | .           | .           | .           |
| <i>Organophosphates</i>     | 22          | .            | .          | .              | .            | .           | .            | .           | .                    | .           | .           | .           | .           | .           | .           |
| <i>Pyrethroids</i>          | 64          | .            | 66.1       | 197.20         | 12.00        | 8.00        | 99.00        | .           | .                    | .           | .           | .           | .           | .           | .           |
| <i>Unknown insecticides</i> | .           | .            | .          | .              |              |             |              | .           | .                    | .           | .           | .           | .           | .           | .           |
| All insecticides            | 105         | 18.3         | 120.3      | 197.2          | 12.00        | 8.00        | 99.00        | .           | .                    | .           | .           | .           | .           | .           | .           |
| Molluscicides               | .           | .            | .          | .              | .            | .           | .            | .           | .                    | .           | .           | .           | .           | .           | .           |
| Growth regulators           | .           | .            | .          | .              | .            | .           | .            | .           | .                    | .           | .           | .           | .           | .           | .           |
| Seed treatments             | .           | 105          | 137.9      | 15.1           | .            | 8           | 72           | .           | .                    | .           | .           | .           | .           | .           | .           |
| <b>All pesticides</b>       | <b>863</b>  | <b>459.9</b> | <b>802</b> | <b>1,210.5</b> | <b>151.0</b> | <b>88.0</b> | <b>604.0</b> | <b>20.7</b> | <b>-98%</b>          | <b>-95%</b> | <b>-97%</b> | <b>-98%</b> | <b>-86%</b> | <b>-76%</b> | <b>-97%</b> |
| Area grown (ha)             | 199         | 273          | 197        | 212            | 83           | 55          | 85           | 10          | -95%                 | -96%        | -95%        | -95%        | -88%        | -82%        | -88%        |

**Table 36: The quantity (tonnes) of pesticides applied to peas & beans in Northern Ireland, 1998-2012.**

|                         | Survey Year  |              |               |              |               |                   |                   |              | Differences between: |             |             |             |             |             |             |
|-------------------------|--------------|--------------|---------------|--------------|---------------|-------------------|-------------------|--------------|----------------------|-------------|-------------|-------------|-------------|-------------|-------------|
|                         | 1998         | 2000         | 2002          | 2004         | 2006          | 2008              | 2010              | 2012         | 2012-98              | 2012-00     | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10     |
| Pesticide type          | tonnes       | tonnes       | tonnes        | tonnes       | tonnes        | tonnes            | tonnes            | tonnes       | tonnes               | tonnes      | tonnes      | tonnes      | tonnes      | tonnes      | tonnes      |
| Fungicides              | 0.20         | 0.05         | 0.1055        | 0.540        | 0.009         | 0.006             | 0.180             | .            | .                    | .           | .           | .           | .           | .           | .           |
| Herbicides & desiccants | 0.41         | 0.20         | 0.2545        | 0.197        | 0.098         | 0.062             | 0.132             | 0.018        | -96%                 | -91%        | -93%        | -91%        | -82%        | -71%        | -86%        |
| Insecticides            |              |              |               |              |               |                   |                   |              |                      |             |             |             |             |             |             |
| <i>Carbamates</i>       | <i>0.003</i> | <i>0.005</i> | <i>0.003</i>  | .            | .             | .                 | .                 | .            | .                    | .           | .           | .           | .           | .           | .           |
| <i>Organochlorines</i>  | .            | .            | .             | .            | .             | .                 | .                 | .            | .                    | .           | .           | .           | .           | .           | .           |
| <i>Organophosphates</i> | <i>0.002</i> | .            | .             | .            | .             | .                 | .                 | .            | .                    | .           | .           | .           | .           | .           | .           |
| <i>Pyrethroids</i>      | <i>0.001</i> | .            | <i>0.0002</i> | <i>0.001</i> | <i>0.0001</i> | <i>&lt;0.0001</i> | <i>&lt;0.0001</i> | .            | .                    | .           | .           | .           | .           | .           | .           |
| All insecticides        | 0.006        | 0.005        | 0.0032        | 0.001        | 0.0001        | <i>&lt;0.0001</i> | <i>&lt;0.0001</i> | .            | .                    | .           | .           | .           | .           | .           | .           |
| Molluscicides           | .            | .            | .             | .            | .             | .                 | .                 | .            | .                    | .           | .           | .           | .           | .           | .           |
| Growth regulators       | .            | .            | .             | .            | .             | .                 | .                 | .            | .                    | .           | .           | .           | .           | .           | .           |
| Seed treatments         | .            | 0.112        | 0.015         | 0.002        | .             | 0.005             | 0.018             | .            | .                    | .           | .           | .           | .           | .           | .           |
| <b>All pesticides</b>   | <b>0.614</b> | <b>0.367</b> | <b>0.3782</b> | <b>0.740</b> | <b>0.107</b>  | <b>0.073</b>      | <b>0.334</b>      | <b>0.018</b> | <b>-97%</b>          | <b>-95%</b> | <b>-95%</b> | <b>-98%</b> | <b>-83%</b> | <b>-75%</b> | <b>-95%</b> |
| Area grown (ha)         | 199          | 273          | 197           | 212          | 83            | 55                | 85                | 10           | -95%                 | -96%        | -95%        | -95%        | -88%        | -82%        | -88%        |

**Table 37: The area (spha) of set-aside treated with pesticides in Northern Ireland, 2000-2012.**

|                         | Survey Year |              |            |            | Differences between: |             |            |
|-------------------------|-------------|--------------|------------|------------|----------------------|-------------|------------|
|                         | 2000        | 2002         | 2004       | 2006       | 2006-00              | 2006-02     | 2006-04    |
| Pesticide type          | sp ha       | sp ha        | sp ha      | sp ha      | sp ha                | sp ha       | sp ha      |
| Fungicides              | .           | .            | .          | .          | .                    | .           | .          |
| Herbicides & desiccants | 912         | 1,395        | 657        | 650        | -29%                 | -53%        | -1%        |
| Insecticides            |             |              |            |            |                      |             |            |
| <i>Carbamates</i>       | .           | .            | .          | .          | .                    | .           | .          |
| <i>Organochlorines</i>  | .           | .            | .          | .          | .                    | .           | .          |
| <i>Organophosphates</i> | .           | .            | .          | 12         | .                    | .           | .          |
| <i>Pyrethroids</i>      | .           | .            | .          | 13         | .                    | .           | .          |
| All insecticides        | .           | .            | .          | 25         | .                    | .           | .          |
| Molluscicides           | .           | .            | .          | .          | .                    | .           | .          |
| Growth regulators       | .           | .            | .          | .          | .                    | .           | .          |
| Seed treatments         | .           | .            | .          | 189        | .                    | .           | .          |
| <b>All pesticides</b>   | <b>912</b>  | <b>1,395</b> | <b>657</b> | <b>864</b> | <b>-5%</b>           | <b>-38%</b> | <b>31%</b> |
| Area grown (ha)         | 2,451       | 3,013        | 3,394      | 2,284      | -7%                  | -24%        | -33%       |

**Table 38: The quantity (tonnes) of pesticides applied to set-aside in Northern Ireland, 2000-2012.**

|                         | Survey Year  |              |              |               | Differences between: |             |            |
|-------------------------|--------------|--------------|--------------|---------------|----------------------|-------------|------------|
|                         | 2000         | 2002         | 2004         | 2006          | 2006-00              | 2006-02     | 2006-04    |
| Pesticide type          | tonnes       | tonnes       | tonnes       | tonnes        | tonnes               | tonnes      | tonnes     |
| Fungicides              | .            | .            | .            | .             | .                    | .           | .          |
| Herbicides & desiccants | 0.866        | 1.037        | 0.551        | 0.677         | -22%                 | -35%        | 23%        |
| Insecticides            |              |              |              |               |                      |             |            |
| <i>Carbamates</i>       | .            | .            | .            | .             | .                    | .           | .          |
| <i>Organochlorines</i>  | .            | .            | .            | .             | .                    | .           | .          |
| <i>Organophosphates</i> | .            | .            | .            | 0.009         | .                    | .           | .          |
| <i>Pyrethroids</i>      | .            | .            | .            | 0.0004        | .                    | .           | .          |
| All insecticides        | .            | .            | .            | 0.0094        | .                    | .           | .          |
| Molluscicides           | .            | .            | .            | .             | .                    | .           | .          |
| Growth regulators       | .            | .            | .            | .             | .                    | .           | .          |
| Seed treatments         | .            | .            | .            | 0.003         | .                    | .           | .          |
| <b>All pesticides</b>   | <b>0.866</b> | <b>1.037</b> | <b>0.551</b> | <b>0.6894</b> | <b>-20%</b>          | <b>-34%</b> | <b>25%</b> |
| Area grown (ha)         | 2,451        | 3,013        | 3,394        | 2,284         | -7%                  | -24%        | -33%       |



**Table 39: The area (spha) of potato crops treated with pesticides in Northern Ireland, 1990-2012.**

|                             | Survey Year   |               |               |               |               |          |               |               |               |               |               |               |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|
|                             | 1990          | 1992          | 1994          | 1996          | 1998          | 2000     | 2002          | 2004          | 2006          | 2008          | 2010          | 2012          |
| Pesticide type              | sp ha         | sp ha         | sp ha         | sp ha         | sp ha         | sp ha    | sp ha         | sp ha         | sp ha         | sp ha         | sp ha         | sp ha         |
| Fungicides                  | 68,384        | 68,178        | 72,369        | 64,727        | 75,933        | .        | 66,810        | 52,149        | 45,397        | 52,189        | 55,289        | 50,685        |
| Herbicides & desiccants     | 21,146        | 21,819        | 15,927        | 17,663        | 16,616        | .        | 14,852        | 19,839        | 15,971        | 19,843        | 17,753        | 17,356        |
| Insecticides                |               |               |               |               |               |          |               |               |               |               |               |               |
| <i>Carbamates</i>           | .             | 23            | .             | 28            | .             | .        | 357           | 473           | 30            | 431           | .             | 98            |
| <i>Organochlorines</i>      | .             | .             | .             | .             | .             | .        | .             | .             | .             | .             | .             | .             |
| <i>Organophosphates</i>     | 308           | 28            | 88            | 612           | 123           | .        | 125           | 365           | 55            | .             | .             | .             |
| <i>Pyrethroids</i>          | 512           | .             | .             | 656           | 353           | .        | 1,340         | 2,408         | 1,553         | 913           | 1,094         | 438           |
| <i>Azomethine</i>           | .             | .             | .             | .             | .             | .        | .             | 673           | 71            | .             | .             | 272           |
| <i>Neonicotinoid</i>        | .             | .             | .             | .             | .             | .        | .             | .             | 96            | .             | 78            | 274           |
| <i>Feeding blocker</i>      | .             | .             | .             | .             | .             | .        | .             | .             | .             | 252           | 77            | 66            |
| <i>Mixed Formulation</i>    | .             | .             | .             | .             | .             | .        | .             | 581           | 96            | .             | 129           | .             |
| <i>Unknown insecticides</i> | .             | .             | 14            | .             | 20            | .        | .             | 66            | .             | .             | .             | .             |
| All insecticides            | 820           | 51            | 102           | 1,295         | 492           | .        | 1,823         | 4,565         | 1,900         | 1,595         | 1,379         | 1,369         |
| Molluscicides               | .             | .             | .             | 195           | 472           | .        | 1,581         | 114           | 930           | 664           | 491           | 2,906         |
| Mixed formulations          | 233           | 186           | 134           | 137           | 128           | .        | 86            | .             | .             | .             | .             | .             |
| Growth regulators           | .             | .             | .             | .             | .             | .        | 72            | .             | .             | 23            | 56            | 10            |
| Seed treatments             | *             | 3,738         | 2,420         | 3,314         | 4,017         | .        | 3,071         | 3,679         | 2,756         | 3,158         | 2,117         | 2,666         |
| <b>All pesticides</b>       | <b>90,583</b> | <b>93,972</b> | <b>90,952</b> | <b>87,330</b> | <b>97,658</b> | <b>.</b> | <b>88,295</b> | <b>80,347</b> | <b>66,954</b> | <b>77,473</b> | <b>77,085</b> | <b>74,992</b> |
| Area grown (ha)             | 11,835        | 11,064        | 8,404         | 8,488         | 7,513         | .        | 6,708         | 6,068         | 5,118         | 5,501         | 4,940         | 4,150         |

**Table 39 (cont.): The area (spha) of potato crops treated with pesticides in Northern Ireland, 1990-2012.**

|                             | 2012-90     | 2012-92     | 2012-94     | 2012-96     | Differences between: |          | 2012-02     | 2012-04    | 2012-06    | 2012-08    | 2012-10    |
|-----------------------------|-------------|-------------|-------------|-------------|----------------------|----------|-------------|------------|------------|------------|------------|
| Pesticide type              | sp ha       | sp ha       | sp ha       | sp ha       | 2012-98              | 2012-00  | sp ha       | sp ha      | sp ha      | sp ha      | sp ha      |
| Fungicides                  | -26%        | -26%        | -30%        | -22%        | -33%                 | .        | -24%        | -3%        | 12%        | -3%        | -8%        |
| Herbicides & desiccants     | -18%        | -20%        | 9%          | -2%         | 4%                   | .        | 17%         | -13%       | 9%         | -13%       | -2%        |
| Insecticides                |             |             |             |             |                      |          |             |            |            |            |            |
| <i>Carbamates</i>           | .           | 327%        | .           | 251%        | .                    | .        | -73%        | -79%       | 228%       | -77%       | .          |
| <i>Organochlorines</i>      | .           | .           | .           | .           | .                    | .        | .           | .          | .          | .          | .          |
| <i>Organophosphates</i>     | .           | .           | .           | .           | .                    | .        | .           | .          | .          | .          | .          |
| <i>Pyrethroids</i>          | -14%        | .           | .           | -33%        | 24%                  | .        | -67%        | -82%       | -72%       | -52%       | -60%       |
| <i>Azomethine</i>           | .           | .           | .           | .           | .                    | .        | .           | -60%       | 283%       | .          | .          |
| <i>Neonicotinoid</i>        | .           | .           | .           | .           | .                    | .        | .           | .          | 185%       | .          | 251%       |
| <i>Feeding blocker</i>      | .           | .           | .           | .           | .                    | .        | .           | .          | .          | -74%       | -14%       |
| <i>Mixed Formulation</i>    | .           | .           | .           | .           | .                    | .        | .           | -78%       | 34%        | .          | .          |
| <i>Unknown insecticides</i> |             |             |             |             |                      | .        |             |            |            |            |            |
| All insecticides            | 67%         | 2584%       | 1249%       | 6%          | 178%                 | .        | -25%        | -70%       | -28%       | -14%       | -1%        |
| Molluscicides               | .           | .           | .           | 1390%       | 516%                 | .        | 84%         | 2449%      | 212%       | 338%       | 492%       |
| Mixed formulations          | .           | .           | .           | .           | .                    | .        | .           | .          | .          | .          | .          |
| Growth regulators           | .           | .           | .           | .           | .                    | .        | -86%        | .          | .          | -56%       | -82%       |
| Seed treatments             | .           | -29%        | 10%         | -20%        | -34%                 | .        | -13%        | -28%       | -3%        | -16%       | 26%        |
| <b>All pesticides</b>       | <b>-17%</b> | <b>-20%</b> | <b>-18%</b> | <b>-14%</b> | <b>-23%</b>          | <b>.</b> | <b>-15%</b> | <b>-7%</b> | <b>12%</b> | <b>-3%</b> | <b>-3%</b> |
| Area grown (ha)             | -65%        | -62%        | -51%        | -51%        | -45%                 | .        | -38%        | -32%       | -19%       | -25%       | -16%       |

**Table 40: The quantity (tonnes) of pesticides applied to potato crops in Northern Ireland, 1990-2012.**

|                             | Survey Year   |               |               |               |               |          |               |               |               |              |              |              |
|-----------------------------|---------------|---------------|---------------|---------------|---------------|----------|---------------|---------------|---------------|--------------|--------------|--------------|
|                             | 1990          | 1992          | 1994          | 1996          | 1998          | 2000     | 2002          | 2004          | 2006          | 2008         | 2010         | 2012         |
| Pesticide type              | tonnes        | tonnes        | tonnes        | tonnes        | tonnes        | tonnes   | tonnes        | tonnes        | tonnes        | tonnes       | tonnes       | tonnes       |
| Fungicides                  | 82.07         | 83.28         | 76.00         | 69.41         | 67.43         | .        | 69.90         | 51.33         | 46.93         | 45.02        | 39.80        | 27.40        |
| Herbicides & desiccants     | 197.20        | 171.75        | 97.28         | 293.26        | 290.23        | .        | 354.01        | 211.18        | 101.78        | 12.22        | 11.70        | 10.59        |
| Insecticides                |               |               |               |               |               |          |               |               |               |              |              |              |
| <i>Carbamates</i>           | .             | <0.01         | .             | <0.01         | .             | .        | 0.05          | 0.07          | 0.004         | 0.060        | .            | 0.01376      |
| <i>Organochlorines</i>      | .             | .             | .             | .             | .             | .        | .             | .             | .             | .            | .            | .            |
| <i>Organophosphates</i>     | 0.17          | 0.10          | 0.28          | 0.26          | 0.12          | .        | 0.02          | 0.12          | 0.164         | .            | .            | .            |
| <i>Pyrethroids</i>          | 0.01          | .             | .             | 0.02          | <0.01         | .        | 0.01          | 0.01          | 0.006         | 0.007        | 0.010        | 0.004        |
| <i>Azomethine</i>           | .             | .             | .             | .             | .             | .        | .             | 0.102         | 0.005         | .            | .            | 0.043        |
| <i>Neonicotinoid</i>        | .             | .             | .             | .             | .             | .        | .             | .             | 0.010         | .            | 0.006        | 0.021        |
| <i>Feeding blocker</i>      | .             | .             | .             | .             | .             | .        | .             | .             | .             | 0.020        | 0.006        | 0.005        |
| <i>Mixed Formulation</i>    | .             | .             | .             | .             | .             | .        | .             | 0.051         | 0.015         | .            | 0.014        | .            |
| <i>Unknown insecticides</i> | .             | .             | .             | .             | .             | .        | .             | 0.003         | .             | .            | .            | .            |
| All insecticides            | 0.17          | 0.10          | 0.28          | 0.28          | 0.13          | .        | 0.08          | 0.36          | 0.20          | 0.087        | 0.04         | 0.09         |
| Molluscicides               | .             | .             | .             | 0.04          | 0.10          | .        | 0.26          | 0.02          | 0.23          | 0.07         | 0.09         | 0.24         |
| Mixed formulations          | 0.51          | 0.41          | 0.29          | 0.30          | 0.28          | .        | 0.13          | .             | .             | .            | .            | .            |
| Growth regulators           | .             | .             | .             | .             | .             | .        | 0.17          | .             | .             | 0.07         | 0.17         | 0.03         |
| Seed treatments             | *             | 2.71          | 1.20          | 0.61          | 1.99          | .        | 1.22          | 0.90          | 2.60          | 0.73         | 0.70         | 1.11         |
| <b>All pesticides</b>       | <b>279.95</b> | <b>258.25</b> | <b>175.06</b> | <b>363.89</b> | <b>360.16</b> | <b>.</b> | <b>425.84</b> | <b>263.78</b> | <b>151.75</b> | <b>58.20</b> | <b>52.48</b> | <b>39.46</b> |
| Area grown (ha)             | 11,835        | 11,064        | 8,404         | 8,488         | 7,513         | .        | 6,708         | 6,068         | 5,118         | 5,501        | 4,940        | 4,150        |

\* Seed treatments not recorded

**Table 40 (cont.): The quantity (tonnes) of pesticides applied to potato crops in Northern Ireland, 1990-2012.**

|                             | 2012-90     | 2012-92     | 2012-94     | 2012-96     | Differences between: |          | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10     |
|-----------------------------|-------------|-------------|-------------|-------------|----------------------|----------|-------------|-------------|-------------|-------------|-------------|
| Pesticide type              | tonnes      | tonnes      | tonnes      | tonnes      | 2012-98              | 2012-00  | tonnes      | tonnes      | tonnes      | tonnes      | tonnes      |
| Fungicides                  | -67%        | -67%        | -64%        | -61%        | -59%                 | .        | -61%        | -47%        | -42%        | -39%        | -31%        |
| Herbicides & desiccants     | -95%        | -94%        | -89%        | -96%        | -96%                 | .        | -97%        | -95%        | -90%        | -13%        | -9%         |
| Insecticides                |             |             |             |             |                      |          |             |             |             |             |             |
| <i>Carbamates</i>           | .           | .           | .           | .           | .                    | .        | -73%        | -79%        | 244%        | -77%        | .           |
| <i>Organochlorines</i>      | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| <i>Organophosphates</i>     | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| <i>Pyrethroids</i>          | -58%        | .           | .           | -79%        | .                    | .        | -50%        | -58%        | -30%        | -40%        | -58%        |
| <i>Azomethine</i>           | .           | .           | .           | .           | .                    | .        | .           | -58%        | 766%        | .           | .           |
| <i>Neonicotinoid</i>        | .           | .           | .           | .           | .                    | .        | .           | .           | 111%        | .           | 252%        |
| <i>Feeding blocker</i>      | .           | .           | .           | .           | .                    | .        | .           | .           | .           | -74%        | -12%        |
| <i>Mixed Formulation</i>    | .           | .           | .           | .           | .                    | .        | .           | -73%        | -7%         | .           | .           |
| <i>Unknown insecticides</i> | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| All insecticides            | -48%        | -12%        | -69%        | -69%        | -33%                 | .        | 17%         | -76%        | -57%        | 1%          | 144%        |
| Molluscicides               | .           | .           | .           | 125%        | -8%                  | .        | -66%        | 463%        | -61%        | 22%         | .           |
| Mixed formulations          | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| Growth regulators           | .           | .           | .           | .           | .                    | .        | -2%         | .           | .           | 143%        | .           |
| Seed treatments             | .           | -74%        | -42%        | 14%         | -65%                 | .        | -43%        | -23%        | -73%        | -4%         | .           |
| <b>All pesticides</b>       | <b>-86%</b> | <b>-85%</b> | <b>-77%</b> | <b>-89%</b> | <b>-89%</b>          | <b>.</b> | <b>-91%</b> | <b>-85%</b> | <b>-74%</b> | <b>-32%</b> | <b>-25%</b> |
| Area grown (ha)             | -65%        | -62%        | -51%        | -51%        | -45%                 | .        | -38%        | -32%        | -19%        | -25%        | -16%        |

**Table 41: The area (spha) of seed potatoes treated with pesticides in Northern Ireland, 1990-2012.**

|                           | Survey Year   |               |               |               |               |          |               |               |              |               |              |              |
|---------------------------|---------------|---------------|---------------|---------------|---------------|----------|---------------|---------------|--------------|---------------|--------------|--------------|
|                           | 1990          | 1992          | 1994          | 1996          | 1998          | 2000     | 2002          | 2004          | 2006         | 2008          | 2010         | 2012         |
| Pesticide type            | sp ha         | sp ha         | sp ha         | sp ha         | sp ha         | sp ha    | sp ha         | sp ha         | sp ha        | sp ha         | sp ha        | sp ha        |
| Fungicides                | 18,326        | 18,603        | 16,465        | 13,462        | 14,242        | .        | 9,219         | 10,226        | 5,618        | 5,530         | 6,662        | 6,076        |
| Herbicides & desiccants   | 6,535         | 8,118         | 3,784         | 4,035         | 3,363         | .        | 2,650         | 4,917         | 2,285        | 3,170         | 2,240        | 2,344        |
| Insecticides              |               |               |               |               |               |          |               |               |              |               |              |              |
| <i>Carbamates</i>         | .             | 23            | .             | .             | .             | .        | .             | 365           | .            | 252           | .            | .            |
| <i>Organochlorines</i>    | .             | .             | .             | .             | .             | .        | .             | .             | .            | .             | .            | .            |
| <i>Organophosphates</i>   | .             | 18            | .             | .             | 26            | .        | .             | 365           | .            | .             | .            | .            |
| <i>Pyrethroids</i>        | 501           | .             | .             | 586           | 205           | .        | 16            | 406           | 931          | 168           | 84           | 369          |
| <i>Azomethine</i>         | .             | .             | .             | .             | .             | .        | .             | .             | .            | .             | .            | 204          |
| <i>Neonicotinoid</i>      | .             | .             | .             | .             | .             | .        | .             | .             | 39           | .             | .            | 249          |
| <i>Feeding blocker</i>    | .             | .             | .             | .             | .             | .        | .             | .             | .            | 252           | 77           | 65           |
| <i>Mixed Formulations</i> | .             | .             | .             | .             | .             | .        | .             | 453           | 39           | .             | 120          | .            |
| All insecticides          | 501           | 41            | 8             | 586           | 230           | .        | 16            | 1,589         | 1,008        | 671           | 281          | 887          |
| Molluscicides             | .             | .             | .             | .             | 66            | .        | 267           | .             | 77           | 160           | 86           | 71           |
| Mixed formulations        | 8             | .             | .             | .             | .             | .        | .             | .             | .            | .             | .            | .            |
| Seed treatments           | *             | 2,039         | 744           | 1,065         | 882           | .        | 512           | 1,224         | 303          | 622           | 238          | 562          |
| <b>All pesticides</b>     | <b>25,370</b> | <b>28,801</b> | <b>21,000</b> | <b>19,148</b> | <b>18,783</b> | <b>.</b> | <b>12,665</b> | <b>17,956</b> | <b>9,291</b> | <b>10,153</b> | <b>9,507</b> | <b>9,940</b> |
| Area grown (ha)           | 3,509         | 3,688         | 1,678         | 1,798         | 1,607         | .        | 1,239         | 1,148         | 763          | 792           | 707          | 555          |

\* Seed treatments not recorded

**Table 41 (cont.):** The area (spha) of seed potatoes treated with pesticides in Northern Ireland, 1990-2012.

|                           | 2012-90     | 2012-92     | 2012-94     | 2012-96     | Differences between: |          | 2012-02     | 2012-04     | 2012-06   | 2012-08    | 2012-10   |
|---------------------------|-------------|-------------|-------------|-------------|----------------------|----------|-------------|-------------|-----------|------------|-----------|
| Pesticide type            | sp ha       | sp ha       | sp ha       | sp ha       | 2012-98              | 2012-00  | sp ha       | sp ha       | sp ha     | sp ha      | sp ha     |
| Fungicides                | -67%        | -67%        | -63%        | -55%        | -57%                 | .        | -34%        | -41%        | 8%        | 10%        | -9%       |
| Herbicides & desiccants   | -64%        | -71%        | -38%        | -42%        | -30%                 | .        | -12%        | -52%        | 3%        | -26%       | 5%        |
| Insecticides              |             |             |             |             |                      |          |             |             |           |            |           |
| <i>Carbamates</i>         | .           | .           | .           | .           | .                    | .        | .           | .           | .         | .          | .         |
| <i>Organochlorines</i>    | .           | .           | .           | .           | .                    | .        | .           | .           | .         | .          | .         |
| <i>Organophosphates</i>   | .           | .           | .           | .           | .                    | .        | .           | .           | .         | .          | .         |
| <i>Pyrethroids</i>        | -26%        | .           | .           | -37%        | 80%                  | .        | 2162%       | -9%         | -60%      | 119%       | 339%      |
| <i>Azomethine</i>         | .           | .           | .           | .           | .                    | .        | .           | .           | .         | .          | .         |
| <i>Neonicotinoid</i>      | .           | .           | .           | .           | .                    | .        | .           | .           | 538%      | .          | .         |
| <i>Feeding blocker</i>    | .           | .           | .           | .           | .                    | .        | .           | .           | .         | -74%       | -16%      |
| <i>Mixed Formulations</i> | .           | .           | .           | .           | .                    | .        | .           | -74%        | 208%      | .          | .         |
| All insecticides          | 77%         | 2064%       | 11277%      | 51%         | 285%                 | .        | 5344%       | -44%        | -12%      | 32%        | 216%      |
| Molluscicides             | .           | .           | .           | .           | 31%                  | .        | -68%        | .           | 12%       | -46%       | .         |
| Mixed formulations        | .           | .           | .           | .           | .                    | .        | .           | .           | .         | .          | .         |
| Seed treatments           | .           | -88%        | -68%        | -78%        | -73%                 | .        | -53%        | -81%        | -21%      | -62%       | .         |
| <b>All pesticides</b>     | <b>-61%</b> | <b>-65%</b> | <b>-53%</b> | <b>-48%</b> | <b>-47%</b>          | <b>.</b> | <b>-22%</b> | <b>-45%</b> | <b>7%</b> | <b>-2%</b> | <b>5%</b> |
| Area grown (ha)           | -84%        | -85%        | -67%        | -69%        | -65%                 | .        | -55%        | -52%        | -27%      | -30%       | -21%      |

**Table 42: The quantity (tonnes) of pesticides applied to seed potatoes in Northern Ireland, 1990-2012.**

|                           | Survey Year   |               |              |               |               |          |               |              |              |             |             |             |
|---------------------------|---------------|---------------|--------------|---------------|---------------|----------|---------------|--------------|--------------|-------------|-------------|-------------|
|                           | 1990          | 1992          | 1994         | 1996          | 1998          | 2000     | 2002          | 2004         | 2006         | 2008        | 2010        | 2012        |
| Pesticide type            | tonnes        | tonnes        | tonnes       | tonnes        | tonnes        | tonnes   | tonnes        | tonnes       | tonnes       | tonnes      | tonnes      | tonnes      |
| Fungicides                | 22.92         | 24.82         | 15.24        | 13.45         | 14.29         | .        | 9.08          | 8.79         | 6.16         | 3.14        | 5.99        | 3.07        |
| Herbicides & desiccants   | 127.42        | 100.45        | 41.73        | 146.03        | 148.63        | .        | 129.71        | 31.62        | 7.38         | 2.88        | 1.41        | 1.48        |
| Insecticides              |               |               |              |               |               |          |               |              |              |             |             |             |
| <i>Carbamates</i>         | .             | <0.01         | .            | .             | .             | .        | .             | 0.051        | .            | 0.035       | .           | .           |
| <i>Organochlorines</i>    | .             | .             | .            | .             | .             | .        | .             | .            | .            | .           | .           | .           |
| <i>Organophosphates</i>   | .             | 0.06          | .            | .             | <0.01         | .        | .             | 0.124        | .            | .           | .           | .           |
| <i>Pyrethroids</i>        | 0.01          | .             | .            | 0.02          | <0.01         | .        | <0.01         | 0.002        | 0.004        | 0.002       | <0.001      | 0.002       |
| <i>Azomethine</i>         | .             | .             | .            | .             | .             | .        | .             | .            | .            | .           | .           | 0.033       |
| <i>Neonicotinoid</i>      | .             | .             | .            | .             | .             | .        | .             | .            | 0.004        | .           | .           | 0.019       |
| <i>Feeding blocker</i>    | .             | .             | .            | .             | .             | .        | .             | .            | .            | 0.02        | 0.006       | 0.005       |
| <i>Mixed Formulations</i> | .             | .             | .            | .             | .             | .        | .             | 0.04         | 0.006        |             | 0.013       | .           |
| All insecticides          | 0.01          | 0.06          | 0.03         | 0.02          | 0.01          | .        | <0.01         | 0.22         | 0.014        | 0.057       | 0.020       | 0.059       |
| Molluscicides             | .             | .             | .            | .             | 0.01          | .        | 0.04          | .            | 0.02         | 0.01        | 0.01        | 0.003       |
| Mixed formulations        | 0.02          | .             | .            | .             | .             | .        | .             | .            | .            | .           | .           | .           |
| Seed treatments           | *             | 1.97          | 0.30         | 0.21          | 0.74          | .        | 0.08          | 0.41         | 0.11         | 0.17        | 0.10        | 0.27        |
| <b>All pesticides</b>     | <b>150.37</b> | <b>127.30</b> | <b>57.30</b> | <b>159.70</b> | <b>163.68</b> | <b>.</b> | <b>138.91</b> | <b>41.04</b> | <b>13.67</b> | <b>6.27</b> | <b>7.52</b> | <b>4.89</b> |
| Area grown (ha)           | 3,509         | 3,688         | 1,678        | 1,798         | 1,607         | .        | 1,239         | 1,148        | 763          | 792         | 707         | 555         |

\* Seed treatments not recorded

**Table 42 (cont.): The quantity (tonnes) of pesticides applied to seed potatoes in Northern Ireland, 1990-2012.**

|                           | 2012-90     | 2012-92     | 2012-94     | 2012-96     | Differences between: |          | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10     |
|---------------------------|-------------|-------------|-------------|-------------|----------------------|----------|-------------|-------------|-------------|-------------|-------------|
| Pesticide type            | tonnes      | tonnes      | tonnes      | tonnes      | tonnes               | tonnes   | tonnes      | tonnes      | tonnes      | tonnes      | tonnes      |
| Fungicides                | -87%        | -88%        | -80%        | -77%        | -79%                 | .        | -66%        | -65%        | -50%        | -2%         | -49%        |
| Herbicides & desiccants   | -99%        | -99%        | -96%        | -99%        | -99%                 | .        | -99%        | -95%        | -80%        | -49%        | 5%          |
| Insecticides              |             |             |             |             |                      |          |             |             |             |             |             |
| <i>Carbamates</i>         | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| <i>Organochlorines</i>    | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| <i>Organophosphates</i>   | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| <i>Pyrethroids</i>        | -78%        | .           | .           | -89%        | .                    | .        | .           | 9%          | -46%        | 9%          | .           |
| <i>Azomethine</i>         | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| <i>Neonicotinoid</i>      | .           | .           | .           | .           | .                    | .        | .           | .           | 368%        | .           | .           |
| <i>Feeding blocker</i>    | .           | .           | .           | .           | .                    | .        | .           | .           | .           | -74%        | -12%        |
| <i>Mixed Formulations</i> | .           | .           | .           | .           | .                    | .        | .           | -65%        | 117%        | .           | .           |
| All insecticides          | 493%        | -1%         | 125%        | 197%        | 489%                 | .        | .           | -72%        | 324%        | 4%          | 197%        |
| Molluscicides             | .           | .           | .           | .           | -80%                 | .        | -94%        | .           | -83%        | -78%        | -60%        |
| Mixed formulations        | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| Seed treatments           | .           | -86%        | -9%         | 29%         | -63%                 | .        | 254%        | -33%        | 159%        | 57%         | 174%        |
| <b>All pesticides</b>     | <b>-97%</b> | <b>-96%</b> | <b>-91%</b> | <b>-97%</b> | <b>-97%</b>          | <b>.</b> | <b>-96%</b> | <b>-88%</b> | <b>-64%</b> | <b>-22%</b> | <b>-35%</b> |
| Area grown (ha)           | -84%        | -85%        | -67%        | -69%        | -65%                 | .        | -55%        | -52%        | -27%        | -30%        | -21%        |



**Table 43: The area (spha) of early potatoes treated with pesticides in Northern Ireland, 1990-2012.**

|                            | Survey Year  |              |              |              |              |          |              |              |              |              |              |              |
|----------------------------|--------------|--------------|--------------|--------------|--------------|----------|--------------|--------------|--------------|--------------|--------------|--------------|
|                            | 1990         | 1992         | 1994         | 1996         | 1998         | 2000     | 2002         | 2004         | 2006         | 2008         | 2010         | 2012         |
| Pesticide type             | sp ha        | sp ha        | sp ha        | sp ha        | sp ha        | sp ha    | sp ha        | sp ha        | sp ha        | sp ha        | sp ha        | sp ha        |
| Fungicides                 | 2,037        | 3,250        | 3,706        | 3,089        | 1,693        | .        | 5,561        | 2,116        | 2,080        | 2,154        | 1,096        | 1,056        |
| Herbicides & desiccants    | 849          | 1,304        | 835          | 1,312        | 618          | .        | 1,520        | 841          | 1,124        | 1,280        | 484          | 665          |
| Insecticides               |              |              |              |              |              |          |              |              |              |              |              |              |
| <i>Carbamates</i>          | .            | .            | .            | 28           | .            | .        | .            | 87           | .            | .            | .            | 17           |
| <i>Organochlorines</i>     | .            | .            | .            | .            | .            | .        | .            | .            | .            | .            | .            | .            |
| <i>Organophosphates</i>    | .            | .            | .            | 63           | 66           | .        | 24           | .            | 25           | .            | .            | .            |
| <i>Pyrethroids</i>         | .            | .            | .            | .            | 39           | .        | 173          | 150          | .            | 22           | 37           | 8            |
| <i>Unknown insecticide</i> | .            | .            | .            | .            | 2.2          | .        | .            | .            | .            | .            | .            | .            |
| <i>Azomethine</i>          | .            | .            | .            | .            | .            | .        | .            | 30           | .            | .            | .            | .            |
| All insecticides           | .            | .            | .            | 90           | 107          | .        | 197          | 267          | 25           | 22           | 37           | 26           |
| Molluscicides              | .            | .            | .            | .            | 10           | .        | 206          | .            | .            | 58           | 20           | 81           |
| Seed treatments            | *            | 360          | 130          | 303          | 154          | .        | 481          | 212          | 147          | 327          | 68           | 130          |
| <b>All pesticides</b>      | <b>2,886</b> | <b>4,914</b> | <b>4,672</b> | <b>4,794</b> | <b>2,582</b> | <b>.</b> | <b>7,966</b> | <b>3,436</b> | <b>3,376</b> | <b>3,842</b> | <b>1,705</b> | <b>1,958</b> |
| Area grown (ha)            | 463          | 836          | 813          | 729          | 391          | .        | 728          | 403          | 370          | 401          | 191          | 192          |

\* Seed treatments not recorded

**Table 43 (cont.): The area (spha) of early potatoes treated with pesticides in Northern Ireland, 1990-2012.**

|                            | 2012-90     | 2012-92     | 2012-94     | 2012-96     | Differences between: |          | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10    |
|----------------------------|-------------|-------------|-------------|-------------|----------------------|----------|-------------|-------------|-------------|-------------|------------|
| Pesticide type             | sp ha       | sp ha       | sp ha       | sp ha       | sp ha                | sp ha    | sp ha       | sp ha       | sp ha       | sp ha       | sp ha      |
| Fungicides                 | -48%        | -68%        | -72%        | -66%        | -38%                 | .        | -81%        | -50%        | -49%        | -51%        | -4%        |
| Herbicides & desiccants    | -22%        | -49%        | -20%        | -49%        | 8%                   | .        | -56%        | -21%        | -41%        | -48%        | 37%        |
| Insecticides               |             |             |             |             |                      |          |             |             |             |             |            |
| <i>Carbamates</i>          | .           | .           | .           | -38%        | .                    | .        | .           | -80%        | .           | .           | .          |
| <i>Organochlorines</i>     | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .          |
| <i>Organophosphates</i>    | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .          |
| <i>Pyrethroids</i>         | .           | .           | .           | .           | -79%                 | .        | -95%        | -95%        | .           | -63%        | -78%       |
| <i>Unknown insecticide</i> | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .          |
| <i>Azomethine</i>          | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .          |
| All insecticides           | .           | .           | .           | -72%        | -76%                 | .        | -87%        | -90%        | 2%          | 16%         | -31%       |
| Molluscicides              | .           | .           | .           | .           | 694%                 | .        | -61%        | .           | .           | 40%         | 307%       |
| Seed treatments            | .           | -64%        | 0%          | -57%        | -16%                 | .        | -73%        | -39%        | -12%        | -60%        | 91%        |
| <b>All pesticides</b>      | <b>-32%</b> | <b>-60%</b> | <b>-58%</b> | <b>-59%</b> | <b>-24%</b>          | <b>.</b> | <b>-75%</b> | <b>-43%</b> | <b>-42%</b> | <b>-49%</b> | <b>15%</b> |
| Area grown (ha)            | -59%        | -77%        | -76%        | -74%        | -51%                 | .        | -74%        | -52%        | -48%        | -52%        | 1%         |

**Table 44:** The quantity (tonnes) of pesticides applied to early potatoes in Northern Ireland, 1990-2012.

|                         | Survey Year |             |             |             |             |          |              |              |             |             |             |             |
|-------------------------|-------------|-------------|-------------|-------------|-------------|----------|--------------|--------------|-------------|-------------|-------------|-------------|
|                         | 1990        | 1992        | 1994        | 1996        | 1998        | 2000     | 2002         | 2004         | 2006        | 2008        | 2010        | 2012        |
| Pesticide type          | tonnes      | tonnes      | tonnes      | tonnes      | tonnes      | tonnes   | tonnes       | tonnes       | tonnes      | tonnes      | tonnes      | tonnes      |
| Fungicides              | 2.54        | 4.11        | 4.46        | 3.85        | 2.07        | .        | 5.48         | 2.43         | 1.99        | 1.92        | 0.66        | 0.59        |
| Herbicides & desiccants | 0.51        | 3.09        | 0.55        | 4.05        | 1.73        | .        | 32.56        | 24.26        | 1.70        | 0.74        | 0.43        | 0.52        |
| Insecticides            |             |             |             |             |             |          |              |              |             |             |             |             |
| <i>Carbamates</i>       | .           | .           | .           | < 0.1       | .           | .        | <.01         | 0.012        | .           | .           | .           | 0.002       |
| <i>Organochlorines</i>  | .           | .           | .           | .           | .           | .        | .            | .            | .           | .           | .           | .           |
| <i>Organophosphates</i> | .           | .           | .           | 0.02        | 0.08        | .        | 0.01         | .            | 0.074       | .           | .           | .           |
| <i>Pyrethroids</i>      | .           | .           | .           | .           | .           | .        | .            | 0.001        | .           | <0.0001     | <0.0001     | <0.0001     |
| <i>Azomethine</i>       | .           | .           | .           | .           | .           | .        | .            | 0.005        | .           | .           | .           | .           |
| All insecticides        | .           | .           | .           | 0.02        | 0.08        | .        | 0.01         | 0.02         | 0.074       | <0.0001     | <0.0001     | 0.002       |
| Molluscicides           | .           | .           | .           | .           | 0.002       | .        | 0.038        | .            | .           | 0.004       | 0.002       | 0.008       |
| Seed treatments         | *           | 0.20        | 0.04        | 0.05        | 0.03        | .        | 0.11         | 0.02         | 0.01        | 0.11        | 0.02        | 0.04        |
| <b>All pesticides</b>   | <b>3.05</b> | <b>7.40</b> | <b>5.05</b> | <b>7.96</b> | <b>3.92</b> | <b>.</b> | <b>38.21</b> | <b>26.72</b> | <b>3.78</b> | <b>2.77</b> | <b>1.11</b> | <b>1.16</b> |
| Area grown (ha)         | 463         | 836         | 813         | 729         | 391         | .        | 728          | 403          | 370         | 401         | 191         | 192         |

**Table 44 (cont.): The quantity (tonnes) of pesticides applied to early potatoes in Northern Ireland, 1990-2012.**

|                         | 2012-90     | 2012-92     | 2012-94     | 2012-96     | Differences between: |          | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10   |
|-------------------------|-------------|-------------|-------------|-------------|----------------------|----------|-------------|-------------|-------------|-------------|-----------|
| Pesticide type          | tonnes      | tonnes      | tonnes      | tonnes      | 2012-98              | 2012-00  | tonnes      | tonnes      | tonnes      | tonnes      | tonnes    |
| Fungicides              | -77%        | -86%        | -87%        | -85%        | -72%                 | .        | -89%        | -76%        | -71%        | -69%        | -11%      |
| Herbicides & desiccants | 2%          | -83%        | -5%         | -87%        | -70%                 | .        | -98%        | -98%        | -70%        | -30%        | 22%       |
| Insecticides            |             |             |             |             |                      |          |             |             |             |             |           |
| <i>Carbamates</i>       | .           | .           | .           | .           | .                    | .        | .           | -80%        | .           | .           | .         |
| <i>Organochlorines</i>  | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .         |
| <i>Organophosphates</i> | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .         |
| <i>Pyrethroids</i>      | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .         |
| <i>Azomethine</i>       | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .         |
| All insecticides        | .           | .           | .           | -88%        | -97%                 | .        | -73%        | -86%        | -97%        | .           | .         |
| Molluscicides           | .           | .           | .           | .           | 361%                 | .        | -79%        | .           | .           | 104%        | 307%      |
| Seed treatments         | .           | -78%        | 6%          | -12%        | 45%                  | .        | -62%        | 192%        | 265%        | -60%        | 143%      |
| <b>All pesticides</b>   | <b>-62%</b> | <b>-84%</b> | <b>-77%</b> | <b>-85%</b> | <b>-70%</b>          | <b>.</b> | <b>-97%</b> | <b>-96%</b> | <b>-69%</b> | <b>-58%</b> | <b>4%</b> |
| Area grown (ha)         | -59%        | -77%        | -76%        | -74%        | -51%                 | .        | -74%        | -52%        | -48%        | -52%        | 1%        |

**Table 45: The area (spha) of maincrop potatoes treated with pesticides in Northern Ireland, 1990-2012.**

|                           | 1990          | 1992          | 1994          | 1996          | Survey Year   |          | 2002          | 2004          | 2006          | 2008          | 2010          | 2012          |
|---------------------------|---------------|---------------|---------------|---------------|---------------|----------|---------------|---------------|---------------|---------------|---------------|---------------|
|                           |               |               |               |               | 1998          | 2000     |               |               |               |               |               |               |
| Pesticide type            | sp ha         | sp ha         | sp ha         | sp ha         | sp ha         | sp ha    | sp ha         | sp ha         | sp ha         | sp ha         | sp ha         | sp ha         |
| Fungicides                | 48,021        | 46,325        | 52,198        | 48,176        | 59,998        | .        | 52,030        | 39,807        | 37,699        | 44,505        | 47,531        | 43,553        |
| Herbicides & desiccants   | 13,762        | 12,397        | 11,309        | 12,316        | 12,635        | .        | 10,682        | 14,081        | 12,562        | 15,393        | 15,029        | 14,347        |
| Insecticides              |               |               |               |               |               |          |               |               |               |               |               |               |
| <i>Carbamates</i>         | .             | .             | .             | .             | .             | .        | 357.4         | 20            | 30            | 179           | .             | 80.88         |
| <i>Organochlorines</i>    | .             | .             | .             | .             | .             | .        | .             | .             | .             | .             | .             | .             |
| <i>Organophosphates</i>   | 308           | 10            | .             | 549           | 32            | .        | 101           | .             | 30            | .             | .             | .             |
| <i>Pyrethroids</i>        | 11            | .             | .             | 70            | 110           | .        | 1151          | 1852          | 622           | 723           | 973           | 282.06        |
| <i>Azomethine</i>         | .             | .             | .             | .             | .             | .        | .             | 642           | 71            | .             | .             | 67.8          |
| <i>Neonicotinoid</i>      | .             | .             | .             | .             | .             | .        | .             | .             | 57            | .             | 78            | 25.09         |
| <i>Mixed Formulations</i> | .             | .             | .             | .             | .             | .        | .             | 128           | 57            | .             | 9             | .             |
| <i>Unkown insecticide</i> | .             | .             | .             | .             | .             | .        | .             | 66            | .             | .             | .             | .             |
| All insecticides          | 319           | 10            | 94            | 619           | 155           | .        | 1,609         | 2,709         | 867           | 902           | 1,061         | 456           |
| Molluscicides             | .             | .             | .             | 195           | 396           | .        | 1,108         | 114           | 853           | 446           | 385           | 2,754         |
| Growth regulators         | .             | .             | .             | .             | .             | .        | 72            | .             | .             | 23            | 56            | 10            |
| Mixed formulations        | 225           | 186           | 134           | 137           | 128           | .        | 86            | .             | .             | .             | .             | .             |
| Seed treatments           | *             | 1,339         | 1,546         | 1,945         | 2,980         | .        | 2,078         | 2,243         | 2,306         | 2,209         | 1,811         | 1,974         |
| <b>All pesticides</b>     | <b>62,328</b> | <b>60,257</b> | <b>65,280</b> | <b>63,388</b> | <b>76,292</b> | <b>.</b> | <b>67,664</b> | <b>58,955</b> | <b>54,287</b> | <b>63,478</b> | <b>65,873</b> | <b>63,094</b> |
| Area grown (ha)           | 7,863         | 6,540         | 5,913         | 5,961         | 5,515         | .        | 4,741         | 4,517         | 3,984         | 4,308         | 4,041         | 3,403         |

**Table 45: The area (spha) of maincrop potatoes treated with pesticides in Northern Ireland, 1990-2012.**

|                           | 2012-90   | 2012-92   | 2012-94    | 2012-96   | Differences between: |          | 2012-02    | 2012-04   | 2012-06    | 2012-08    | 2012-10    |
|---------------------------|-----------|-----------|------------|-----------|----------------------|----------|------------|-----------|------------|------------|------------|
| Pesticide type            | sp ha     | sp ha     | sp ha      | sp ha     | 2012-98              | 2012-00  | sp ha      | sp ha     | sp ha      | sp ha      | sp ha      |
| Fungicides                | -9%       | -6%       | -17%       | -10%      | -27%                 | .        | -16%       | 9%        | 16%        | -2%        | -8%        |
| Herbicides & desiccants   | 4%        | 16%       | 27%        | 16%       | 14%                  | .        | 34%        | 2%        | 14%        | -7%        | -5%        |
| Insecticides              |           |           |            |           |                      |          |            |           |            |            |            |
| <i>Carbamates</i>         | .         | .         | .          | .         | .                    | .        | -77%       | 304%      | 170%       | -55%       | .          |
| <i>Organochlorines</i>    | .         | .         | .          | .         | .                    | .        | .          | .         | .          | .          | .          |
| <i>Organophosphates</i>   | .         | .         | .          | .         | .                    | .        | .          | .         | .          | .          | .          |
| <i>Pyrethroids</i>        | 2464%     | .         | .          | 303%      | 157%                 | .        | -75%       | -85%      | -55%       | -61%       | -71%       |
| <i>Azomethine</i>         | .         | .         | .          | .         | .                    | .        | .          | -89%      | -5%        | .          | .          |
| <i>Neonicotinoid</i>      | .         | .         | .          | .         | .                    | .        | .          | .         | -56%       | .          | -68%       |
| <i>Mixed Formulations</i> | .         | .         | .          | .         | .                    | .        | .          | -93%      | -84%       | .          | .          |
| <i>Unkown insecticide</i> | .         | .         | .          | .         | .                    | .        | .          | .         | .          | .          | .          |
| All insecticides          | 43%       | 4458%     | 386%       | -26%      | 194%                 | .        | -72%       | -83%      | -47%       | -49%       | -57%       |
| Molluscicides             | .         | .         | .          | 1312%     | 596%                 | .        | 149%       | 2316%     | 223%       | 517%       | 615%       |
| Growth regulators         | .         | .         | .          | .         | .                    | .        | -86%       | .         | .          | -56%       | -82%       |
| Mixed formulations        | .         | .         | .          | .         | .                    | .        | .          | .         | .          | .          | .          |
| Seed treatments           | .         | 47%       | 28%        | 2%        | -34%                 | .        | -5%        | -12%      | -14%       | -11%       | 9%         |
| <b>All pesticides</b>     | <b>1%</b> | <b>5%</b> | <b>-3%</b> | <b>0%</b> | <b>-17%</b>          | <b>.</b> | <b>-7%</b> | <b>7%</b> | <b>16%</b> | <b>-1%</b> | <b>-4%</b> |
| Area grown (ha)           | -57%      | -48%      | -42%       | -43%      | -38%                 | .        | -28%       | -25%      | -15%       | -21%       | -16%       |

**Table 46: The quantity (tonnes) of pesticides applied to maincrop potatoes in Northern Ireland, 1990-2012.**

|                            | Survey Year   |               |               |               |               |          |               |               |               |              |              |              |
|----------------------------|---------------|---------------|---------------|---------------|---------------|----------|---------------|---------------|---------------|--------------|--------------|--------------|
|                            | 1990          | 1992          | 1994          | 1996          | 1998          | 2000     | 2002          | 2004          | 2006          | 2008         | 2010         | 2012         |
| Pesticide type             | tonnes        | tonnes        | tonnes        | tonnes        | tonnes        | tonnes   | tonnes        | tonnes        | tonnes        | tonnes       | tonnes       | tonnes       |
| Fungicides                 | 56.61         | 54.36         | 56.29         | 52.11         | 51.07         | .        | 55.34         | 40.10         | 38.78         | 39.96        | 33.14        | 23.75        |
| Herbicides & desiccants    | 69.27         | 68.21         | 55.01         | 143.18        | 139.86        | .        | 191.80        | 155.30        | 92.70         | 8.60         | 9.86         | 8.59         |
| Insecticides               |               |               |               |               |               |          |               |               |               |              |              |              |
| <i>Carbamates</i>          | .             | .             | .             | .             | .             | .        | 0.05          | 0.003         | 0.004         | 0.025        | .            | 0.011        |
| <i>Organochlorines</i>     | .             | .             | .             | .             | .             | .        | .             | .             | .             | .            | .            | .            |
| <i>Organophosphates</i>    | 0.17          | 0.03          | .             | 0.24          | 0.03          | .        | 0.01          | .             | 0.09          | .            | .            | .            |
| <i>Pyrethroids</i>         | < 0.01        | .             | .             | < 0.01        | <0.01         | .        | <0.01         | 0.01          | 0.002         | 0.005        | 0.009        | 0.002        |
| <i>Azomethines</i>         | .             | .             | .             | .             | .             | .        | .             | 0.097         | 0.005         | .            | .            | 0.010        |
| <i>Neonicotinoid</i>       | .             | .             | .             | .             | .             | .        | .             | .             | 0.006         | .            | 0.006        | 0.002        |
| <i>Mixed formulations</i>  | .             | .             | .             | .             | .             | .        | .             | 0.014         | 0.009         | .            | 0.001        | .            |
| <i>Unknown insecticide</i> | .             | .             | .             | .             | .             | .        | .             | 0.003         | .             | .            | .            | .            |
| All insecticides           | 0.17          | 0.03          | 0.25          | 0.24          | 0.04          | .        | 0.07          | 0.13          | 0.116         | 0.030        | 0.016        | 0.026        |
| Molluscicides              | .             | .             | .             | 0.04          | 0.08          | .        | 0.18          | 0.02          | 0.21          | 0.06         | 0.08         | 0.227        |
| Growth regulators          | .             | .             | .             | .             | .             | .        | 0.1721        | .             | .             | 0.069        | 0.168        | 0.031        |
| Mixed formulations         | 0.50          | 0.41          | 0.29          | 0.30          | 0.28          | .        | 0.13          | .             | .             | .            | .            | .            |
| Seed treatments            | *             | 0.54          | 0.86          | 0.36          | 1.22          | .        | .             | 0.48          | 2.49          | 0.44         | 0.58         | 0.80         |
| <b>All pesticides</b>      | <b>126.55</b> | <b>123.55</b> | <b>112.71</b> | <b>196.23</b> | <b>192.56</b> | <b>.</b> | <b>248.72</b> | <b>196.03</b> | <b>134.30</b> | <b>49.16</b> | <b>43.85</b> | <b>33.42</b> |
| Area grown (ha)            | 7,863         | 6,540         | 5,913         | 5,961         | 5,515         | .        | 4,741         | 4,517         | 3,984         | 4,308        | 4,041        | 3,403        |

\* Seed treatments not recorded

**Table 46 (cont.): The quantity (tonnes) of pesticides applied to maincrop potatoes in Northern Ireland, 1990-2012.**

|                            | 2012-90     | 2012-92     | 2012-94     | 2012-96     | Differences between: |          | 2012-02     | 2012-04     | 2012-06     | 2012-08     | 2012-10     |
|----------------------------|-------------|-------------|-------------|-------------|----------------------|----------|-------------|-------------|-------------|-------------|-------------|
| Pesticide type             | tonnes      | tonnes      | tonnes      | tonnes      | 2012-98              | 2012-00  | tonnes      | tonnes      | tonnes      | tonnes      | tonnes      |
| Fungicides                 | -58%        | -56%        | -58%        | -54%        | -54%                 | .        | -57%        | -41%        | -39%        | -41%        | -28%        |
| Herbicides & desiccants    | -88%        | -87%        | -84%        | -94%        | -94%                 | .        | -96%        | -94%        | -91%        | 0%          | -13%        |
| Insecticides               |             |             |             |             |                      |          |             |             |             |             |             |
| <i>Carbamates</i>          | .           | .           | .           | .           | .                    | .        | -78%        | 277%        | 183%        | -55%        | .           |
| <i>Organochlorines</i>     | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| <i>Organophosphates</i>    | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| <i>Pyrethroids</i>         | .           | .           | .           | .           | .                    | .        | .           | -84%        | -3%         | -61%        | -78%        |
| <i>Azomethines</i>         | .           | .           | .           | .           | .                    | .        | .           | -90%        | 103%        | .           | .           |
| <i>Neonicotinoid</i>       | .           | .           | .           | .           | .                    | .        | .           | .           | -60%        | .           | -60%        |
| <i>Mixed formulations</i>  | .           | .           | .           | .           | .                    | .        | .           | -93%        | -89%        | .           | .           |
| <i>Unknown insecticide</i> | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| All insecticides           | -85%        | -14%        | -90%        | -89%        | -29%                 | .        | -61%        | -80%        | -78%        | -14%        | 62%         |
| Molluscicides              | .           | .           | .           | 466%        | 178%                 | .        | 26%         | 1316%       | 7%          | 297%        | 180%        |
| Growth regulators          | .           | .           | .           | .           | .                    | .        | -82%        | .           | .           | -56%        | -82%        |
| Mixed formulations         | .           | .           | .           | .           | .                    | .        | .           | .           | .           | .           | .           |
| Seed treatments            | .           | 47%         | -8%         | 121%        | -35%                 | .        | .           | 67%         | -68%        | 79%         | 38%         |
| <b>All pesticides</b>      | <b>-74%</b> | <b>-73%</b> | <b>-70%</b> | <b>-83%</b> | <b>-83%</b>          | <b>.</b> | <b>-87%</b> | <b>-83%</b> | <b>-75%</b> | <b>-32%</b> | <b>-24%</b> |
| Area grown (ha)            | -57%        | -48%        | -42%        | -43%        | -38%                 | .        | -28%        | -25%        | -15%        | -21%        | -16%        |



**Table 47: Estimated quantity (tonnes) of potato crops stored regionally in Northern Ireland, 2012.**

| Location of holding     | Early    | Ware          | Seed          | Total         |
|-------------------------|----------|---------------|---------------|---------------|
| Antrim                  | .        | 21,639        | 4768          | 26,406        |
| Down                    | .        | 19,172        | 6,391         | 25,563        |
| Londonderry             | .        | 14,018        | 1,462         | 15,479        |
| Tyrone                  | .        | 1,244         | 112           | 1,356         |
| <b>Northern Ireland</b> | <b>.</b> | <b>56,073</b> | <b>12,732</b> | <b>68,804</b> |

**Table 48: Estimated quantity (treated tonnes) of potatoes stored regionally in Northern Ireland, 2012.**

| Location of holding     | Ware         | Seed         | Total quantity treated (tt) |
|-------------------------|--------------|--------------|-----------------------------|
| Antrim                  | .            | 4,544        | 4,544                       |
| Down                    | .            | 92           | 92                          |
| Londonderry             | 3,183        | 315          | 3,498                       |
| <b>Northern Ireland</b> | <b>3,183</b> | <b>4,951</b> | <b>8,134</b>                |

**Table 49: The weight of pesticides (kg) applied regionally to potatoes stored in Northern Ireland, 2012.**

| Location of holding     | Ware         | Seed          | Total quantity (kg) |
|-------------------------|--------------|---------------|---------------------|
| Antrim                  | .            | 135.36        | 135.36              |
| Down                    | .            | 0.92          | 0.92                |
| Londonderry             | 78.31        | 3.15          | 81.46               |
| <b>Northern Ireland</b> | <b>78.31</b> | <b>139.43</b> | <b>217.74</b>       |

**Table 50: Estimated quantity (treated tonnes) of potatoes in storage receiving pesticide treatment in Northern Ireland, 2012.**

| Active ingredients     | Ware         | Seed         | Total quantity treated (tt) |
|------------------------|--------------|--------------|-----------------------------|
| Chlorpropham           | 3,183        | .            | 3,183                       |
| Imazalil               | .            | 2,382        | 2,382                       |
| Imazalil/thiabendazole | .            | 2,569        | 2,569                       |
| <b>All pesticides</b>  | <b>3,183</b> | <b>4,951</b> | <b>8,134</b>                |

**Table 51: Weight (kg) of active ingredients applied to stored potatoes in Northern Ireland, 2012 (weighted).**

| Active ingredients     | Ware         | Seed          | Total (kg)    |
|------------------------|--------------|---------------|---------------|
| Chlorpropham           | 78.31        | .             | 78.31         |
| Imazalil               | .            | 23.82         | 23.82         |
| Imazalil/thiabendazole | .            | 115.61        | 115.61        |
| <b>All pesticides</b>  | <b>78.31</b> | <b>139.43</b> | <b>217.74</b> |

**Table 52: The active ingredients applied to stored potatoes in Northern Ireland in 2012, ranked by weight (kg).**

|   | Active ingredients     | Quantity used (kg) |
|---|------------------------|--------------------|
| 1 | Imazalil/thiabendazole | 115.61             |
| 2 | Chlorpropham           | 78.31              |
| 3 | Imazalil               | 23.82              |

**Table 53: Type of storage building, storage method, potato type and quantity (tonnes) of potatoes stored in Northern Ireland, 2012.**

**Type of storage building**

| Barn store                                 | Early    | Ware          | Seed          | Total         |
|--------------------------------------------|----------|---------------|---------------|---------------|
| Boxed                                      | .        | 14,603        | 2,362         | 16,965        |
| Bulk                                       | .        | 928           | .             | 928           |
| Tray                                       | .        | .             | 55            | 55            |
| <b>All barn stores</b>                     | <b>.</b> | <b>15,531</b> | <b>2,418</b>  | <b>17,948</b> |
| <b>Modified Barn</b>                       |          |               |               |               |
| Boxed                                      | .        | 6,648         | 1,119         | 7,767         |
| Bulk                                       | .        | 3,281         | .             | 3,281         |
| <b>All modified barns</b>                  | <b>.</b> | <b>9,929</b>  | <b>1,119</b>  | <b>11,048</b> |
| <b>Purpose built ventilated store</b>      |          |               |               |               |
| Boxed                                      | .        | 2,940         | 1,860         | 4,801         |
| Bulk                                       | .        | .             | .             | .             |
| <b>All purpose built ventilated stores</b> | <b>.</b> | <b>2,940</b>  | <b>1,860</b>  | <b>4,801</b>  |
| <b>Refrigerated store</b>                  |          |               |               |               |
| Boxed                                      | .        | 27,672        | 7,335         | 35,007        |
| Bulk                                       | .        | .             | .             | .             |
| <b>All refrigerated stores</b>             | <b>.</b> | <b>27,672</b> | <b>7,335</b>  | <b>35,007</b> |
| <b>Total</b>                               | <b>.</b> | <b>56,073</b> | <b>12,732</b> | <b>68,804</b> |

**Table 54: Type of storage method, potato type and total quantity (tonnes) of potatoes stored in Northern Ireland, 2012.**

| Type of storage method | Early    | Ware          | Seed          | Total         |
|------------------------|----------|---------------|---------------|---------------|
| Boxed                  | .        | 51,864        | 12,676        | 64,540        |
| Bulk                   | .        | 4,209         | .             | 4,209         |
| Tray                   | .        | .             | 55            | 55            |
| <b>Total</b>           | <b>.</b> | <b>56,073</b> | <b>12,732</b> | <b>68,804</b> |

**Table 55: Comparison of ware potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2012.**

|                             | Ware potatoes |        |         |         |        |         |        |        |        |        | Difference between: |         |         |         |         |         |         |         |         |
|-----------------------------|---------------|--------|---------|---------|--------|---------|--------|--------|--------|--------|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|                             | 1992          | 1994   | 1996    | 1998    | 2002   | 2004    | 2006   | 2008   | 2010   | 2012   | 2012-92             | 2012-94 | 2012-96 | 2012-98 | 2012-02 | 2012-04 | 2012-06 | 2012-08 | 2012-10 |
| Quantity stored (t)         | 139,570       | 84,868 | 135,933 | 112,675 | 44,322 | 122,348 | 92,914 | 60,855 | 94,771 | 56,073 | -60%                | -34%    | -59%    | -50%    | 27%     | -54%    | -40%    | -8%     | -41%    |
| Quantity treated (tt)       | 16,289        | 11,630 | 19,022  | 5,899   | 9,024  | 3,099   | .      | 4680   | 9644   | 3,183  | -80%                | -73%    | -83%    | -46%    | -65%    | 3%      | .       | -32%    | -67%    |
| Quantity of pesticides (kg) | 1,998         | 1,001  | 750     | 227     | 439    | 148     | .      | 173    | 203    | 78     | -96%                | -92%    | -90%    | -66%    | -82%    | -47%    | .       | -55%    | -61%    |
| Quantity untreated (t)      | 123,281       | 73,238 | 116,910 | 106,777 | 35,298 | 119,249 | 92,914 | 56,175 | 85,127 | 52,889 | -57%                | -28%    | -55%    | -50%    | 50%     | -56%    | -43%    | -6%     | -38%    |

**Table 56: Comparison of seed potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2012.**

|                             | Seed potatoes |        |        |        |        |        |        |       |        |        | Difference between: |         |         |         |         |         |         |         |         |
|-----------------------------|---------------|--------|--------|--------|--------|--------|--------|-------|--------|--------|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|                             | 1992          | 1994   | 1996   | 1998   | 2002   | 2004   | 2006   | 2008  | 2010   | 2012   | 2012-92             | 2012-94 | 2012-96 | 2012-98 | 2012-02 | 2012-04 | 2012-06 | 2012-08 | 2012-10 |
| Quantity stored (t)         | 33,420        | 24,238 | 39,290 | 39,809 | 16,032 | 33,321 | 24,640 | 5,138 | 16,256 | 12,732 | -62%                | -47%    | -68%    | -68%    | -21%    | -62%    | -48%    | 148%    | -22%    |
| Quantity treated (tt)       | 7,536         | 14,950 | 12,915 | 5,628  | 4,029  | 673    | 76     | .     | .      | 4,951  | -34%                | -67%    | -62%    | -12%    | 23%     | 636%    | 6404%   | .       | .       |
| Quantity of pesticides (kg) | 1,052         | 851    | 480    | 896    | 48     | 5      | 0.76   | .     | .      | 139    | -87%                | -84%    | -71%    | -84%    | 190%    | 2444%   | 18217%  | .       | .       |
| Quantity untreated (t)      | 27,033        | 9,288  | 26,652 | 34,181 | 12,003 | 32,648 | 24,564 | .     | .      | 7,781  | -71%                | -16%    | -71%    | -77%    | -35%    | -76%    | -68%    | .       | .       |

**Table 57: Comparison of reserved potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2012.**

|                             | Reserved potatoes |      |        |        |      |      |      |      |      |      | Difference between: |         |         |         |         |         |         |         |         |
|-----------------------------|-------------------|------|--------|--------|------|------|------|------|------|------|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|                             | 1992              | 1994 | 1996   | 1998   | 2002 | 2004 | 2006 | 2008 | 2010 | 2012 | 2012-92             | 2012-94 | 2012-96 | 2012-98 | 2012-02 | 2012-04 | 2012-06 | 2012-08 | 2012-10 |
| Quantity stored (t)         | .                 | .    | 15,169 | 10,123 | .    | .    | .    | .    | .    | .    | .                   | .       | .       | .       | .       | .       | .       | .       | .       |
| Quantity treated (tt)       | .                 | .    | 6,705  | 2,524  | .    | .    | .    | .    | .    | .    | .                   | .       | .       | .       | .       | .       | .       | .       | .       |
| Quantity of pesticides (kg) | .                 | .    | 375    | 121    | .    | .    | .    | .    | .    | .    | .                   | .       | .       | .       | .       | .       | .       | .       | .       |
| Quantity untreated (t)      | .                 | .    | 8,464  | 7,599  | .    | .    | .    | .    | .    | .    | .                   | .       | .       | .       | .       | .       | .       | .       | .       |

**Table 58:** Comparison of all potatoes stored (tonnes), treated (treated tonnes) and the weight of pesticides applied (kilograms) to stored potatoes between 1992 and 2012.

|                             | All potatoes |         |         |         |        |         |         |        |         |        | Difference between: |         |         |         |         |         |         |         |         |
|-----------------------------|--------------|---------|---------|---------|--------|---------|---------|--------|---------|--------|---------------------|---------|---------|---------|---------|---------|---------|---------|---------|
|                             | 1992         | 1994    | 1996    | 1998    | 2002   | 2004    | 2006    | 2008   | 2010    | 2012   | 2012-92             | 2012-94 | 2012-96 | 2012-98 | 2012-02 | 2012-04 | 2012-06 | 2012-08 | 2012-10 |
| Quantity stored (t)         | 191,019      | 119,447 | 190,392 | 162,608 | 60,353 | 155,669 | 117,554 | 70,794 | 111,028 | 68,804 | -64%                | -42%    | -64%    | -58%    | 14%     | -56%    | -41%    | -3%     | -38%    |
| Quantity treated (tt)       | 23,825       | 26,580  | 38,624  | 14,051  | 13,053 | 3,772   | 76      | 4,680  | 9,644   | 8,134  | -66%                | -69%    | -79%    | -42%    | -38%    | 116%    | 10586%  | 74%     | -16%    |
| Quantity of pesticides (kg) | 3,050        | 1,852   | 1,605   | 1,245   | 488    | 154     | 1       | 173    | 203     | 218    | -93%                | -88%    | -86%    | -83%    | -55%    | 41%     | 28505%  | 26%     | 8%      |
| Quantity untreated (t)      | 168,344      | 92,868  | 152,027 | 148,557 | 47,300 | 151,897 | 117,478 | 66,114 | 101,384 | 60,670 | -64%                | -35%    | -60%    | -59%    | 28%     | -60%    | -48%    | -8%     | -40%    |

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|     |                                            |                  |
|-----|--------------------------------------------|------------------|
| 99  | Grassland & Fodder Crops 1989              | 1-855 27 079 X   |
| 105 | Arable Crops 1990                          | 1-855 27 130 3   |
| 106 | Soft Fruit Crops 1990                      | 1-855 27 149 4   |
| 109 | Vegetable Crops 1991                       | 1-855 27 137 0   |
| 110 | Protected Crops 1991 (edible & ornamental) | 1-855 27 283 0   |
| 111 | Mushroom Crops 1991                        | 1-855 27 150 8   |
| 117 | Arable Crops 1992                          | 1-855 27 193 1   |
| 118 | Top Fruit Crops 1992                       | 1-855 27 194 X   |
| 124 | Grassland & Fodder crops 1993              | 1-855 27 221 0   |
| 131 | Forestry 1993                              | 1-855 27 282 2   |
| 132 | Arable Crops 1994                          | 1-855 27 314 4   |
| 139 | Vegetable Crops 1995                       | 1-855 27 346 2   |
| 140 | Mushroom Crops 1995                        | 1-855 27 347 0   |
| 146 | Arable Crops 1996                          | 1-855 27 469 8   |
| 147 | Top fruit 1996                             | 1-855 27 470 1   |
| 156 | Grassland & Fodder Crops 1997              | 1-855 27 506 6   |
| 157 | Sheep Treatments 1997                      | 1-855 27 425 6   |
| 167 | Soft Fruit 1998                            | 1-855 27 540 6   |
| 168 | Arable Crops 1998                          | 1-855 27 536 8   |
| 169 | Vegetable Crops 1999                       | 1-855 27 561 9   |
| 170 | Mushroom Crops 1999                        | 1-855 27 549 X   |
| 177 | Arable Crops 2000                          | 1-855 27 670 450 |
| 178 | Top Fruit Crops 2002                       | 1-855 27 618 6   |
| 194 | Arable Crops 2002                          | 1-855 27 674 7   |
| 198 | Grassland & Fodder Crops 2003              | 1-855 27 797 2   |
| 199 | Hardy Nursery Stock Crops 2003             | 1-855 27 789 1   |
| 201 | Protected Ornamental Crops 2003            | 1-855 27 739 5   |
| 206 | Arable Crops 2004                          | 1-855 27 833 2   |
| 207 | Vegetable crops 2004                       | 1-855 27 869 3   |
| 208 | Grassland & Fodder Crops 2005              | 1-855 27 998 8   |
| 209 | Sheep Treatments 2005                      | 1-855 27 999 5   |
| 216 | Arable Crops 2006                          | 1-848 07 035 6   |
| 217 | Top Fruit Crops 2006                       | 1-848 07 019 6   |
| 218 | Soft Fruit Crops 2006                      | 1-848 07 036 3   |
| 222 | Vegetable Crops 2007                       | 1-848 07 062 2   |
| 223 | Mushroom Crops 2007                        | 1 848 07 061 5   |
| 230 | Arable Crops 2008                          | 1 848 07 135 3   |

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|     |                                |                |
|-----|--------------------------------|----------------|
| 231 | Top Fruit Crops 2008           | 1-848 07 134 6 |
| 238 | Grassland & Fodder Crops 2009  | 1-848 07 186 5 |
| 239 | Hardy Nursery Stock Crops 2009 | 1-848 07 187 2 |
| 240 | Soft Fruit Crops 2010          | 1-848 07 251 0 |
| 242 | Arable Crops 2010              | 1-848 07 252 7 |
| 245 | Mushroom Crops 2011            | 1-848 07 308 1 |
| 246 | Vegetable Crops 2011           | 1-848 07 309 8 |
| 248 | Soft Fruit Crops 2012          | 1-84807 402 6  |
| 249 | Top Fruit Crops 2012           | 1-84807 403 3  |

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