



**AGRI-FOOD  
& BIOSCIENCES  
INSTITUTE**

Northern Ireland  
Honey Bee  
Husbandry Survey  
2020-21



## **Northern Ireland Honeybee Husbandry Survey 2020-21**

**An AFBI research report**

**About the Agri-food and Biosciences Institute ([www.afbini.gov.uk](http://www.afbini.gov.uk))**

The Agri-Food & Biosciences Institute (AFBI) was created on 1st April 2006 as an amalgamation of the Department of Agriculture and Rural Development (DARD) Science Service and the Agricultural Research Institute of Northern Ireland (ARINI). Based at seven sites around Northern Ireland, AFBI carries out research and development, statutory, analytical, and diagnostic testing functions for Government departments, public bodies and commercial companies.

**Report by:** Ivan Forsythe & Dr. Archie K. Murchie

**Other Staff involved:** Amanda Browne, AFBI Statistical Services Branch (website development)

**Period of survey investigation:** March to June 2021

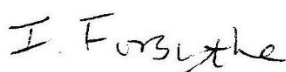
**Date of report:** July 2021

**Disclaimer:** There are currently estimated to be 1400 active beekeepers in Northern Ireland (c.2018). The data presented in this report was volunteered from 74 beekeeper respondents therefore it may not accurately reflect beekeeping husbandry practices during the period of investigation.


**Data Protection:** AFBI has processed the data from this survey in compliance with the EU General Data Protection Regulation (GDPR) which came into effect from 25<sup>th</sup> May 2018.

**Declaration:** We declare that this work was done under our supervision according to the procedures outlined and that the findings of this report are a true interpretation of the results obtained.

**Acknowledgements:** We gratefully acknowledge the assistance of Tom Williamson, DAERA Senior Bee Health Inspector; Trevor Dawson, Hon. Secretary of the Ulster Beekeepers' Association; Lyndon Wortley, Chairman of the Institute of Northern Ireland Beekeepers; the secretaries of all the local beekeeping associations and of course the beekeepers who gave up their time to fill in our questionnaire.



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**Ivan Forsythe**



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**Archie K. Murchie**

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## **Summary**

This is the thirteenth annual survey of beekeeping husbandry issues in Northern Ireland.

- Colony losses for the 2020-21 survey was 16% compared to 19% in 2019-20; 11% in 2018-19 and 30% in 2017-18.
- 51% of beekeepers reported no loss of colonies, which compares with 56% in 2019-20 and 64% in 2018-19.
- Of the 80 colonies reported as lost by the respondents, 34 (43%) were attributed to queen problems.
- Oxalic acid and products containing Amitraz and Thymol were three of the most popular Varroa mite treatments used by 61%, 45% and 44% of beekeepers respectively.
- 4 beekeepers imported queens. They came from Great Britain and the Republic of Ireland.
- There were 74 responses from beekeepers. This compares with 117 in 2019-20; 94 in 2018-19 and 106 in 2017-18.

## **Method**

The honeybee husbandry survey was made available to beekeepers in a questionnaire format available online at the AFBI website (<https://www.afbini.gov.uk/articles/bee-health>). This year the survey was exclusively completed electronically using PCs, laptops and mobile devices such as smartphones and tablets.

The survey closed on June 11<sup>th</sup> 2021.

## Questions and Responses

**Q1. In which county do you keep your bees in the majority of the season?**

County	Count of respondents
Antrim	15
Armagh	5
Down	35
Fermanagh	7
Londonderry/Derry	11
Tyrone	1

74 in total

**5. Make sure the data are for beekeepers IN YOUR OWN COUNTRY only, as far as can be determined from address/postcodes.**

Due to the above change, this year, in the COLOSS (Prevention of Honey Bee COLony LOSSes) European survey regulations, details received from a beekeeper in Donegal were unable to be included. They were passed on - in compliance with the EU General Data Protection Regulation (GDPR) - to the Department of Agriculture, Food and the Marine (DAFM) who oversee the Republic of Ireland honey bee survey.

**Q2. How many years have you kept bees?**

Number of year's beekeeping divided into categories				
Number of years keeping bees	1 - 3	4 – 10	11 – 20	>20
% of beekeepers	34	46	13	7

**Q3. To describe the location of your main apiary or operation, please state**

- The name of a city/town/village near to your apiary
- The post code of the apiary (or a post code nearby)

All answers received are confidential and are processed according to the AFBI Privacy Notice in compliance with the EU General Data Protection Regulation (GDPR).

**Q4. How many apiaries do you have?**

44 beekeepers (59%) had 1 apiary. 30 beekeepers (41%) had from 2-12 apiaries.

**Q5. If you have more than one apiary, are all your apiaries within a distance of about 15km (9 miles) of each other? (If you have only one apiary, please answer Yes)**

20 beekeepers responded 'Yes'; 10 beekeepers responded 'No'.

**Q6. How many production colonies did you have before winter 2020-21?**

The majority of respondent beekeepers had 3 - 5 production colonies. The total number was 505.

Table 1. The numbers of production colonies, divided into categories, maintained by individual beekeepers before winter 2020-21

	No. of production colonies maintained				
	1 - 2	3 - 5	6 - 10	11 - 20	20+
No. of beekeepers	19	33	10	8	4

**Q7. How many of these colonies (in Q6.) did you lose**

1. Because they were alive but had unsolvable queen problems? ..... 34
2. Because of a natural hazard (e.g. storm/wind damage, floods)?..... 1
3. Because they were dead?..... 45

Overwintering losses in 2020/21 were **16%** compared to 19% in 2019-20, 11% in 2018-19 and 30% in 2017-18. Table 2 shows the breakdown per county.

Table 2. Colony losses during the winter of 2020-21 per county

County	Live before winter	Colonies lost	% loss
Antrim	68	12	18
Armagh	105	16	15
Down	233	32	14
Fermanagh	38	8	21
Londonderry/Derry	60	12	20
Tyrone	1	0	0
<b>TOTAL</b>	<b>505</b>	<b>80</b>	<b>X = 16</b>

51% of respondent beekeepers had no losses. In 2019-20 it was 56% and in 2018-19 it was 64%.

**Q8. How many of the dead colonies or empty hives (in Q7. 3.)**

- a. Had many dead bees in or in front of the hive?..... 6
- b. Had no or only a few dead bees in or in front of the hive?..... 6
- c. Had dead workers in cells and no food present in the hive (signs of starvation)?..... 7
- d. Had dead workers in cells while food was present in the hive?..... 25
- e. Had none of the above or unknown symptoms?..... 1

**Q9. How many of the wintered colonies were weak but queenright after winter 2020-21?**

Of the 425 surviving colonies, 137 (32%) were reported as weak but queenright.

**Q10. How many production colonies did you have in**

- a. Spring 2020 (last year)?                      382 in total.
- b. Spring 2021 (this year)?                      425 in total.

**Q11. How many of your wintered colonies had a new queen in 2020?**

65 beekeepers had a total of 244 wintered colonies with a new queen.

**Q12. What are the origins of your queens?**

- Reared by the colony itself**    42 beekeepers used home-bred colonies.
- Reared by one of your own selected queens**                      19 used their own selected queens.
- Acquired from local beekeepers**                                      34 were acquired locally.
- Imported**    Yes: 4 beekeepers      No: 70 beekeepers.

**If you answered ‘Yes’ to Imported, from which country did you import and how many queens?**

	Number of Queens	
GB (England, Scotland & Wales)	10	* Please specify EU/Non EU countries below
Other Non-EU countries *	0	
EU countries (inc. ROI) *	2	Republic of Ireland

21 beekeepers used two or more of the above origins.

**Q13. To what extent did you observe queen problems in your colonies during the foraging season of 2020 compared to what you usually have**

More? ..... 18%  
 Normal? .....58%  
 Less?.....15%  
 Don't know ..... 9%

**Q14. Compared with your colonies with old queens, have your colonies with young queens survived winter**

Better? .....22%  
 No differently? .....40%  
 Worse? .....12%  
 Don't know/not applicable.....26%

**Q15. How many of your surviving colonies had a large amount of faeces inside the hive after winter?**

4 beekeepers had a total of 7 colonies with a large amount of faeces inside the hive after winter.

**Q16. Did you treat your colonies for *Nosema* before overwintering in 2020?**

Yes: 7                                      No/Don't Know: 67

1 beekeeper treated with Apiguard.

**Q17. Did you migrate any of your colonies at least once for honey production or pollination in 2020?**

Yes: 7 (9%)                                      No: 67 (91%)

**Q18. Approximately what proportion of brood combs did you replace with comb foundation per colony in 2020?**

0%..... 13 (18%)  
 1-30%..... 46 (62%)  
 31-50%..... 14 (19%)  
 More than 50%..... 1 (1%)



**Q19. Did the majority of your bee colonies have a significant flow on one or more of the following plants in 2020?**

<b>a. Orchards</b>	Yes: 28%	No: 53%	Don't Know: 19%
<b>b. Oil seed rape</b>	Yes: 18%	No: 63%	Don't Know: 19%
<b>c. Maize</b>	Yes: 1%	No: 74%	Don't Know: 25%
<b>d. Sunflower</b>	Yes: 3%	No: 72%	Don't Know: 25%
<b>e. Heather</b>	Yes: 14%	No: 66%	Don't Know: 20%
<b>f. Autumn forage crops</b>	Yes: 49%	No: 31%	Don't Know: 20%

34% of beekeepers responded 'Yes' to two or more of the above.

**Q20. What particular measures apply for the majority of your beekeeping?**

<b>a. Screened bottom board in winter</b>	Yes: 73%	No/Don't Know: 27%
<b>b. Insulated hives in winter (including double-walled hives)</b>	Yes: 47%	No/Don't Know: 53%
<b>c. Hives made from synthetic materials</b>	Yes: 28%	No/Don't Know: 72%
<b>d. Certified organic beekeeping</b>	Yes: 3%	No/Don't Know: 97%
<b>e. Queens bred from Varroa tolerant/resistant stock</b>	Yes: 9%	No/Don't Know: 91%
<b>f. Small brood cell size (5.1mm or less)</b>	Yes: 11%	No/Don't Know: 89%
<b>g. Comb without foundation</b>	Yes: 8%	No/Don't Know: 92%
<b>h. Purchase wax from outside own operation</b>	Yes: 72%	No/Don't Know: 28%
<b>i. Non-wax foundation in brood chamber</b>	Yes: 1%	No/Don't Know: 99%

**Q21. Have you monitored your colonies for Varroa during the period April 2020 – March 2021?**

58 out of 74 beekeepers (78%) responded ‘Yes’ to monitoring for Varroa.

**Q22. Have you treated your colonies for Varroa during the period April 2020 – March 2021?**

71 out of 74 beekeepers (96%) responded ‘Yes’ to treating for Varroa.

The top 5 treatments used were: Oxalic acid (61%); Amitraz (Apivar) strips (45%); Thymol (Apiguard / ApiLife Var) (44%); Drone brood removal (20%) and Formic acid (14%).

**Q23. What method did you use to monitor your production colonies for Varroa during the 2020-21 season?**

Alcohol wash .....	1%
Sticky board or collection tray below the hive .....	79%
Sugar shake / roll .....	14%
Visual inspection of adult bees .....	55%
Visual inspection of drone brood .....	41%
Sent sample to laboratory .....	1%
Other .....	0%

66 out of 74 beekeepers (89%) used one or more of the above methods to monitor for Varroa.

**Q24. Have you noticed bees with crippled/deformed wings in your colonies during the 2020 summer season? (These are signs of the presence of Deformed Wing Virus, which is spread by Varroa mites)**

Not at all .....	68%
To a limited extent .....	32%
To a large extent .....	0%
Don't know .....	0%

**Q25. Did you feed your colonies between April 2020 and March 2021?**

Yes = 71 (96%)

No = 3 (4%)

**Table 3. Feeding methods used by beekeepers in Northern Ireland**

Feed for bees	Count of beekeepers (n = 71)	% of beekeepers
Ambrosia	8	11
Pollen/Patty feed product	15	21
Candy/Fondant	66	93
Feed supplement (e.g. Vita Feed, HiveAlive etc.) *	20	28
Honey	8	11
Sugar Syrup	59	83
Beet Sugar	2	3
Inverted Beet Sugar Syrup	5	7
High Fructose Corn Syrup (HFCS)	1	1
Other	0	0

\* HiveAlive was the most popular Feed supplement

**Q26. Can you recognize and/or do you know any information about the following bee diseases and pests?**

- a. Acarine..... 54%
- b. Nosema..... 82%
- c. Chalkbrood..... 99%
- d. Sacbrood..... 73%
- e. American Foulbrood (AFB)..... 96%
- f. European Foulbrood (EFB)..... 95%
- g. Varroa..... 100%
- h. Wax moths..... 89%
- i. Asian Hornet..... 82%

33 beekeepers (45%) recognised and/or knew information about all 9 diseases/pests.

**Q27. Have you made use of any of the following services, provided by DAERA/AFBI, in 2020-21?**

- A bee health apiary visit by DAERA Bee inspectors ..... 6 beekeepers
- Sent a sample of bees/brood comb for laboratory examination to AFBI ..... 13 beekeepers
- Asked for advice from either DAERA or AFBI ..... 9 beekeepers
- Registered on DataBees ..... 17 beekeepers

If you would like information about registering on DataBees, please go to <https://www.daera-ni.gov.uk/articles/beekeepers-voluntary-registration>

36 out of 74 beekeepers (49%) made use of one or more of the above services.

**Q28. If you found it difficult to answer the questionnaire, please indicate which question(s) you found difficult to answer and say why they were difficult to answer.**

**Comment**

Question 25 - Not sure what the difference is between sugar syrup and inverted beet sugar syrup?

**Reply**

Sugar syrup is extracted from sugar cane and beet sugar syrup is extracted from sugar beet. Inverted refers to a process of separating out the mix of different components in sugar to produce a slightly sweeter and thicker syrup.

Questions 3-11, 13-15 & 17-24 are standardized by CoLOSS as part of their European survey and unfortunately cannot be changed. The other questions will be reviewed in response to further comments.