

# UNDERLYING FACTORS AFFECTING MUSHROOM DISEASE CONTROL

Project Lead: Mairead Kilpatrick (AFBI) Policy Lead: Siobhan Thompson (DARD)  
January 2012 to December 2014



## Background- need for research

Mushroom production based on Phase 3 (bulk spawn run) compost offers the greatest potential for the sustainability of a competitive Industry in Ireland. Yet the Industry is experiencing disease problems with both *Trichoderma aggressivum* (Green Mould) and Mushroom Virus X (MVX) that are inherent to new production technologies. Targeted research is required to inform the science knowledge base underpinning these diseases and present control strategies.

While initial research concentrated on detection and diagnostic methods, less is known about the underlying factors that effect the expression of these diseases.

## Research proposed

Results from the project will provide mushroom growers and compost manufacturers with:

- a better understanding of how *Trichoderma aggressivum* and MVX infect mushroom compost and how they are spread by the various production stages.
- greater knowledge of how compost substrates and environmental factors impact on the expression and epidemiology of the diseases.

## Benefits of research

Mushroom compost production and growing Industries have advanced technologically but so too have the diseases that affect them. This project will:

- Provide knowledge of how compost and casing factors impact on the expression and epidemiology of mushroom diseases.
- Determine the impact of environmental conditions during composting and cropping on disease expression.
- Increase our understanding of how the diseases infect compost and are spread by the various production stages.

- Evaluate the efficacy of a commercially available bio-control agent in Phase 3 systems.
- Provide information that will lead to improved control strategies and a reduction in economic losses.

A forecast 50% reduction in the impact of *Trichoderma* and MVX at the compost manufacturers will have a direct knock-on benefit to all growers as the success of both industries is inextricably linked to disease-free compost. With the Industries in Ireland valued at ca £130M and estimated losses due to these diseases of 4% of total output, the forecast cost benefit ratio of 11 is well above the target benchmark for government research.

Further, a consortium of 16 SME-AG and RTD partners across Europe representing the major production industries in Ireland, Poland, Belgium UK and The Netherlands have come together in an EU FP7 Industry lead co-funding proposal to address practical solutions for control with the parallel DARD funded work investigating the underlying factors affecting mushroom disease control. This partnership will foster greater co-operation across Europe and ensure the most effective and efficient KTT through the SME AG Industrial partners

## Collaboration

This Project will involve collaboration with the following individuals and RTD organisations:

- Dr Helen Grogan, Teagasc - Agriculture and Food Development Authority, Ireland
- Dr Johan Baars, Provinciaal Onderzoeks en Voorlichtingscentrum voor Land en Tuinbouw (POVLT), Belgium
- Dr Kerry Burton, East Malling Research, United Kingdom
- Mr Johan Ramon, Stichting Dienst Landbouwkundig Onderzoek (PRI), Netherlands.