Horticultural Development Company

New Project

M 47

Mushrooms: Factors and practices influencing the susceptibility of composts to infection by different compost moulds and to subsequent crop loss

Project Number:	M 47
Title:	Mushrooms: Factors and practices influencing the susceptibility of composts to infection by different compost moulds and to subsequent crop loss
Start and end dates:	1 April 2008 to 30 June 2009 (1 year, 3 months)
Project Leader:	Ralph Noble, WHRI
Project Co-ordinator:	To be agreed.
Location:	Warwick HRI, Wellesbourne, Warwick CV35 9EF

Background and project objectives

There have been recent severe problems caused by *Trichoderma aggressivum* in the Netherlands and Poland (European form or Th2) and in North America (American form or Th4), although the reasons for these outbreaks have not been established, i.e. faults in hygiene and/or compost factors. Compost mould problems in the UK industry have been identified as green mould (Th2), 'smoky mould' (*Penicillium* species) and 'black compost' (*Pythium oligandrum*) although other moulds may also be responsible for crop loss. The level of mould growth in composts does not necessarily relate to the level of mushroom crop loss. There have been significant changes in compost formulations in recent years, particularly with regard to the use of organic, fungicide-free straw, reductions in poultry manure and increased use of other nitrogen sources. Goody water nutrient and oxygen levels have also been shown to vary widely (M3e). Composting technologies (windrow and bunker), durations, temperatures, aeration, and formulations vary widely in the UK, Dutch and Irish mushroom composting industries. Straw also varies in type and age. These compost factors may significantly affect the growth of moulds and subsequent crop loss.

Supplementation of Phase II is recognised as encouraging the growth of certain compost moulds and supplementation of Phase III, which is more widely practiced, has also been shown to encourage the growth of *Trichoderma* Th4. The effects of spawn rate on compost mould growth are less established. Resistance of moulds to previously effective fungicides (carbendazim) has been reported in the USA.

The commercial objectives of the work are:

- Identify the properties of Phase II compost (physical, chemical and/or microbial) and associated compost ingredients (straw, nitrogen sources, recycled water) and composting conditions (temperature, oxygen, moisture) and practices that affect the susceptibility of composts to infection from different moulds.
- Determine the effect of compost factors on mushroom yield and/or quality losses resulting from infection from compost moulds.
- Determine the effect of spawning and supplementation practices on mould competition.
- Identify remedial action to reduce the susceptibility of composts to colonization by moulds.

Further information

Email the HDC office (hdc@hdc.org.uk), quoting your HDC number, alternatively contact the HDC at the address below.

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