

Detection and management of bacterial blotch in mushroom cultivation

Bioschamp project practice abstracts

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The problem

Bacterial blotch is caused by different *Pseudomonas* species, under which *P. gigneri* is the most aggressive one. The pathogen can be endemically present in casing soils and causes recurring disease problems in all countries in which the white button mushroom (*Agaricus bisporus*) is produced. Often symptoms become visible post-harvest. The economic damage of blotch outbreaks can be considerable. The effect of replacement of peat by alternatives on the risks of blotch is unknown.

The solution

Test casing materials for the presence of blotch-causing pathogens as sensitive detection methods are currently available. Avoid free water on mushrooms caps and, if allowed, avoid the spread of the bacteria by the use of chlorinated water. Use methods that makes the cultivation more resilient. Optimize the water regime for each casing soil composition.

Benefits

Application of the recommendations will result in a reduction of blotch incidence, which makes mushroom cultivation more profitable.



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Practical recommendations

(1) Use pathogen-free casing soils:

- The pathogens seem not to be present in all black peat used for casings. A method based on the enrichment of the pathogens from peat followed by a molecular (TaqMan) assay can be used to select blotch-pathogen-free peat resources. To test casing material, contact mushroom@wur.nl.

(2) Cultivation measures:

- Avoid the presence of free water on mushrooms during cultivation. This is one of the best ways to reduce blotch problems. Risks for droplets on developing mushrooms are high during humification. Wetting the floor helps to reduce this problem. During watering of the casing soil after the first flush, no free water should be present on the casing layer one day after application.
- Use of mushroom cultivars less susceptible to blotch. In former studies, differences in susceptibility between cultivars have been noticed.

(3) Results from the Bioschamp project

- Partial replacement of peat by alternatives can increase the suppressiveness of casings against blotch.
- In general, all peat alternatives are less able to retain water and, therefore, need to be watered more frequently. This may increase the risks for blotch in practice.



About BIOSCHAMP and this Practice Abstract

This practice abstract was elaborated in the **BIOSCHAMP project**, based on the EIP AGRI practice abstract format. © 2024

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Goal: develop an integrated approach to tackle the mushroom cultivation challenges, improving the mushroom sector industrial profitability while reducing the agronomical need for pesticides by 90 %.