BIOFRUITNET
Boosting Innovation in ORGANIC FRUIT production through stronger networks

FiBL

PRACTICE ABSTRACT

Direct control of sooty blotch in organic pome fruit production

Problem

Sooty blotch is a complex of various epiphytic fungi that leave a more or less extensive blackish film, sticky to the touch on fruits (Pictures 1, 2, 3) and leaves. The consequences are that the fruits can no longer be marketed as table fruits, and the infested leaves' photosynthesis is impaired.

Solution

Organic fungicides can be used to achieve partial efficacy against sooty blotch. The success of the application is highly dependent on the weather, variety selection, infestation pressure and indirect measures taken.

Benefits

The use of organic fungicides to reduce infestations of sooty blotch can be combined with standard crop protection. In addition, the use of these agents also has an effect against other diseases.

Applicability box

Theme

Crop production, Horticulture, Temperate fruits

Keywords

Plant disease control, plant protection, apple

Context

Central Europe, recommendations can be used where sooty blotch is a problem

Application time

July until just before harvest

Required time

The number of applications depends on the infestation pressure in the orchard and the actual weather conditions.

Period of impact

Midsummer until harvest

Equipment

Air blast spraying system used by a tractor

Best in

Intensively managed pome fruit orchards

Practical recommendations

Introduction

- The pathogen agents change from region to region, and during the season, the most common agents are: *Cladosporium* sp., *Alternaria* sp., *Schizothyrium* sp., *Aureobasidium* sp., *Phoma* sp., *Fusarium* sp., *Peltaster* sp., *Botrytis* sp., *Penicillium* sp., *Epicoccum* sp., *Gloeodes pomigena*, *Geastrumia* sp., *Stomiopeltis* sp., etc.
- The pathogens responsible for sooty blotch overwinter in the orchard on branch tips, bark crevices, dead wood and mummified fruits.
- Young fruits can be infected by the fungi very early after flowering, but the first symptoms appear only during July.

Time of application and strategies

- Because the pathogens of sooty blotch disease can infect the apples throughout the growing season, repeated treatments are necessary during the growing season.
- Especially in orchards with increased infestation pressure and in years with wet weather conditions, early and regular treatments are essential to regulate the rain spot with biological preparations.
- For a sufficient effect, treatments must be started in June at the latest, before the first symptoms appear.
- Treatments against sooty blotch are often combined with applications against other diseases. Most products used in the primary season against scab have a positive side effect for controlling sooty blotch (see: Plant protection products).

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Plant protection products

- Products based on **potassium bicarbonate** have good efficacy against sooty blotch. It has been shown that unformulated carbonates do not match the effectiveness of formulated products. Adding **wettable sulfur** can improve the effect of potassium bicarbonates.
- Preparations with **copper** or **lime sulfur** also have some effect.
- The sole application of **wettable sulfur** or **acidified clay mineral** preparations do not have a sufficient effect.

Treatments

- Until June: Potassium bicarbonate (4-5 kg/ha)[2] and wettable sulphur[1] (2-4 kg/ha)[2], which are used to control apple scab, also have a good effect against sooty blotch.
- June to harvest: strategy can be continued against sooty blotch in humid phases, whereby the amount of sulphur[1] must be adjusted to the temperatures.

[1]**Sulfur**: The higher the temperature, the lower the dosage (risk of phytotoxic damage).

[2]**Dosage**: Dosage for 10,000 m^3 tree row volume (TRV) resp. 2 meters canopy height. Check country specifications and authorisation.

- France: Index of phytosanitary products
- Germany, Switzerland, Austria: FiBL input list
- Italy: Italian input List

Picture 1: Sooty blotch on apples at harvest (Photo: Clémence Boutry, FiBL).

Picture 2: Sooty blotch on apples at harvest (Photo: Jean-Charles Mouchet, FiBL).

Picture 3: Apples at harvest with and without sooty blotch (Photo: Clémence Boutry, FiBL).

Further information

Further reading

- Mora Vargas, A., Kelderer, M. 2023. Practice abstract Strategies to reduce sooty mould infection in organic apple production. Research Centre Laimburg. BIOFRUITNET.
- Weber, R., Späth, S., Buchleither, S. et al. 2016. A Review of Sooty Blotch and Flyspeck Disease in German Organic Apple Production. Erwerbs-Obstbau 58, 63–79. https://doi.org/10.1007/s10341-016-0266-x

Weblinks

- Check the Organic Farm Knowledge platform for more practical recommendations.

About this practice abstract

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