PRACTICE ABSTRACT NO.031

Controlling potato beetles with Bt

Problem

Potato beetles can develop rapidly, especially in warm summers on late-maturing crops, causing extensive damage to the potato plants.

Solution

In the case of a large infestation, direct control measures e.g. the use of biological plant protection products like Novodor are justified. Novodor contains a bacterium, *Bacillus thuringuensis tenebrionis* (Bt), whose toxins (protein crystals) destroy the intestinal tract of potato beetle larvae.

Outcome

The *Bacillus thuringiensis* has a selective effect and is not harmful to bees. Disadvantages: It only is effective against young larvae stages, it is very UV sensitive and its effect is reduced strongly in case of temperatures above 30 °C.

Applicability box

Theme
Pest and disease control

Geographical coverage
Potato cultivation areas

Application time
During peak hatching of larvae

Required time
Usually two spray applications

Period of impact
Current crop

Equipment
Usual spraying devices

Best on
Potatoes

Practical recommendation

Check the state of infestation

- When the potato plants start to emerge, walk the field every 7 days in a straight line and check plants at regular intervals.
- If clusters of eggs are found on more than every third plant, apply Novodor four days after discovering the first clusters.

Apply the agent

- Dissolve 5 l of Novodor in 500 l of water per hectare of potatoes.
- Novodor can be applied together with copper products.

Optimal conditions:

- The potato beetles are still in an early larval stage (L1 to L2).
- Temperature between 15 °C and 25 °C.
- Avoid direct sunlight: spray late in the evening or when the sky is overcast.
- No rain is due within 8 hours after spraying.

Comments

- After a successful treatment, the larvae will turn black after a few days.
- If the effect is insufficient, the larvae will stay mobile. In this case, the treatment should be repeated within the following 10 days.

Research Institute of Organic Agriculture FiBL. Control potato beetles with Bt.
OK-Net Arable Practice Abstract.

PRACTICE ABSTRACT

Left: Potatoe beetle egg clusters, middle: Larval stages L1 and L2, right: Adult beetle (Photos: Hansueli Dierauer, FiBL).

Evaluation and sharing of the results

Use the comment section on the Farmknowledge platform to share your experiences with other farmers, advisors and scientists! If you have any questions concerning the method, please contact the author of the practice abstract by e-mail.

Further information

Links

- The subpage Pest and disease control[i] on the information website farmknowledge provides information on the control of potato-related pests.
- The technical leaflet Organic Potatoes[ii] (German edition) contains further tips on preventive measures against yield-reducing potato beetle infestation as well as references to extensive publications on this pest. The English version of the guide will be available in summer 2017 at FiBL-Shop.
- The posts Potato Beetle[iii] and Organic Methods for Controlling Colorado Potato Beetle[iv] inform gardeners on how to control the potato beetle.

About this practice abstract and OK-Net Arable

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[i] OK-Net Arable (2017): OK-Net Arable - exchange knowledge, enhance organic farming; available at: http://farmknowledge.org/index.php/discussion-forum/pest-and-disease-control
[ii] FiBL (2017): Organic Potatoes; available at: https://shop.fibl.org/chde/1404-biokartoffel.html
[iii] Planet Natural Research Center, Montana (2004-2017): Potato Beetle; available at: https://www.planetnatural.com/pest-problem-solver/garden-pests/colorado-potato-beetle-control/
[iv] The spruce (2016): Organic Methods for controlling Colorado Potato Beetle; available at: https://www.thespruce.com/controlling-colorado-potato-beetle-organic-methods-2539840

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