

# Calculate the risk of wireworm infestation in the field

## Problem

Wireworms, the larvae of the click beetle, can cause severe damage to potatoes (and other susceptible crops). They burrow into the tubers and render them unsuitable to be marketed for consumption. Wireworms usually live in the top soil layers in spring and autumn, but during summer as the heat increases, they move downward. If the heat and dry weather persist, they actively seek the watery tubers and start burrowing.

## Solution

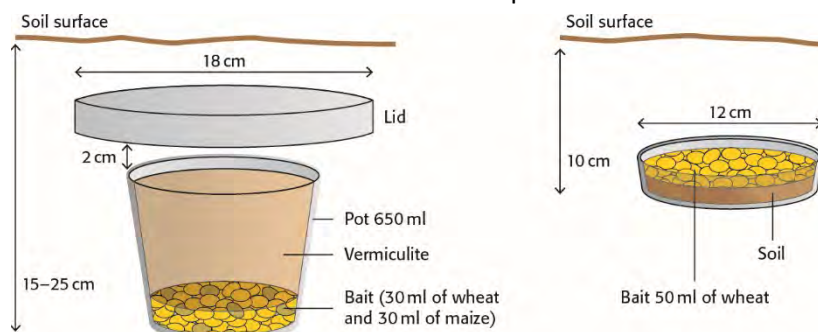
By setting up wireworm traps during spring, the number of wireworms can be determined before planting the potatoes. The traps are based on the premise that wireworms are drawn to sources of CO<sub>2</sub> (like sprouting roots).

## Outcome

With this measure, a field can be evaluated and deemed fit for cultivating potatoes. Thanks to the assessment of the number of wireworms, high economic yield losses due to unmarketable tubers can largely be avoided. The assessment of wireworm density provides a quite reliable indication to infestation risk because wireworms are not very mobile.

## Practical recommendation

- In spring, with a soil temperature of at least 8 °C, place a pot full of cereal or maize grains into water and allow it soak for 24 hours.
- Spread out the soaked grains on about 20 cardboard or plastic plates, pot traps, stockings with adequate mesh size or similar materials. Sealable containers must have several holes; through which the worms can access the trap (Figure 1).
- Position the traps at a depth of 10 cm with at least 10 to 15 traps per field. The more traps per ha, the more reliable the results. Cover the traps with earth to soil-level and mark the locations.



**Figure 1: Schematic representation of a pot and plate trap as well as an image of a Meles pot trap** (Photo: Meles GmbH, [www.melesbio.at](http://www.melesbio.at)).

## Applicability box

### Theme

Pest and disease control, crop-specific measures

### Geographical coverage

Potato cultivation areas

### Application time

In spring, when temperature rises above 15 °C

### Required time

Swell cereal grains, fill up traps and set them up, collect traps and count wireworms

### Period of impact

Preventive measure for the succeeding crop

### Equipment

Shovel, 20 wireworm traps, cereal grains

### Best on

Before cultivating potatoes or other crops susceptible to wireworms, like carrots, onions or salad

- After 7 to 10 days, dig out the traps, collect them and count the wireworms.
- If one or more wireworms per trap is found, the field is infested quite strongly: economic losses are to be expected. In this case, cultivating sensitive crops like potatoes, salad, carrots or onions should be avoided. Cereals and millet are considered tolerant crops.
- Attention: If the traps contain few to no wireworms, it does not mean that potatoes should be cultivated on the field!

## 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

### Video

- [Drahtwurmbekämpfung im Biokartoffelanbau<sup>i</sup>](#), a Swiss-German FiBL-video with English subtitles, gives insight in well-proven and new approaches on wireworm control in potato cultivation.

### Links

- The technical leaflet [Organic Potatoes](#) (German edition) contains further tips on preventive measures against yield-reducing wireworm infestation as well as references to publications on this pest. The English version of the guide will be available in summer 2017 at [FiBL-Shop](#).
- The [Farmknowledge platform<sup>ii</sup>](#) contains information on the control of potato-related pests.
- Check the [wireworm control options<sup>iii</sup>](#) provided by NCAT, giving information on how to detect and treat wireworm infestation.
- For gardeners, the [Practical Herbalist](#) provides [Natural Tips for a Wire Worm-Free Garden<sup>iv</sup>](#) to expulse or trap wireworms.

## About this practice abstract and OK-Net Arable

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among farmers, farm advisers and scientists with the aim to increase productivity and quality in organic arable cropping all over Europe.

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<sup>i</sup> FiBL (2017): Drahtwurmbekämpfung im Biokartoffelanbau; available at:

[www.youtube.com/watch?v=Po0hyHcgd2s&list=PL1dOum9RiVPj9oI0R8lupH8056fWpG907&index=3](https://www.youtube.com/watch?v=Po0hyHcgd2s&list=PL1dOum9RiVPj9oI0R8lupH8056fWpG907&index=3)

<sup>ii</sup> 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>

<sup>iii</sup> National Center for Appropriate Technology (2017), Montana; available at:

[https://attra.ncat.org/calendar/question.php/what\\_information\\_can\\_you\\_give\\_me\\_on\\_wire](https://attra.ncat.org/calendar/question.php/what_information_can_you_give_me_on_wire)

<sup>iv</sup> The Practical Herbalist (2009): Natural Tips for a Wire Worm-free Garden; available at: [www.thepracticalherbalist.com/holistic-medicine-how-to/wire-worm-free-garden](http://www.thepracticalherbalist.com/holistic-medicine-how-to/wire-worm-free-garden)

