

Using crop rotation to control wireworms

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 can also cause significant damage to sugar beet, cereal, maize, legumes and various vegetables. Usually, several types of wireworms with different characteristics are involved.

In spring and autumn, the wireworms are usually found in the top soil layers, eating crop roots. In adverse conditions, the larvae retreat to deeper soil layers. In spring, the adult beetles lay their eggs into the loose, humid soil of permanent meadows and temporary grassland as well as cereals, but not in root crops. The beetles undergo a metamorphosis during 3-5 years with up to 15 larval stages. The larvae cause the most damage in their second and third year of metamorphosis.

So far, a direct control for wireworms in or immediately before susceptible crops has not yet been achieved.

Solution

Reduce the infestation risk by planning your crop rotation: By cultivating a one-year grass-clover ley and by placing the potatoes after the third or even fourth year of ploughing the ley, the intensity of infestation can be considerably lowered.

Outcome

Implementing a well-designed crop rotation has so far proven to be the most effective measure against wireworm damage. By minimising the share of grass-clover ley in the crop rotation, the metamorphosis of the larvae can be disturbed. In the fourth year after grass-clover ley or ploughing of soil, the risk of infestation is under 10 %.

Practical recommendation

- Perennial grass-clover leys promote wireworms. For this reason, a perennial cultivation of grass-clover ley should be avoided if there is any indication of wireworm infestation.
- After ploughing the meadows or the perennial grass-clover ley, wait until the third or, if possible, even fourth year to plant susceptible crops like potatoes, carrots, onions or salad.
- In general, a diverse crop rotation promotes various beneficial organisms and lowers the infestation of wireworms.
- No cultivation of potatoes in strongly affected areas!

Applicability box

Theme

Pest and disease control, crop-specific measures

Geographical coverage

Potato cultivation areas

Application time

Entire crop rotation

Required time

If necessary adaption of the crop rotation; effort for assessing the infestation

Period of impact

Succeeding potato crops

Equipment

None

Best on

Potatoes or other crops susceptible to wireworms, like carrots, onions or salad



Photo 1: Wireworm larvae (Photo: Wikimedia).