

BAITING WIREWORMS

By Joanna MacKenzie

Walking through a recently planted grain field, your eyes fall upon a stretch of yellowed seedlings. Bending over to look more closely, you tug at a plant only to pull it out of the ground, its roots severed. Looking closer still, you see it. It lurks just beneath the surface of the soil, a seemingly innocent although ubiquitous, worm-like creature with a hardened yellow surface. The two eyespots on its hind end betray its true identity: it is a European wireworm, the most ravenous of the species.

After many destructive years in the soil, the wireworm pupates, emerging the following spring as a click beetle. In contrast to the larval stage, the adult click beetle is short-lived, inconspicuous and docile. Named for their ability to right themselves by flipping into the air with an audible snap, click beetles survive only long enough to mate and lay their eggs that hatch into wireworms.

Wireworms are notoriously indiscriminate in their food choices, being attracted to the carbon dioxide emitted by any growing plant in the soil. Combine this voracious appetite with a lengthy lifecycle (up to five years) spent in the soil and you have a very destructive creature.

Countless crops are vulnerable to attack. Preferring the warm, damp soil conditions that prevail in the spring and autumn, the wireworm migrates to the soil

surface, only to retreat to the depths when the soil becomes too dry or cold. This movement renders crops such as grains susceptible to wireworm attack in the early stages of growth, and also puts late-harvested root crops at risk in the fall feeding period. It has been suggested that up to a



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quarter of potato crop losses in North America can be attributed to wireworm feeding, which riddles the surface and flesh of the tubers with holes thereby rendering the crop unmarketable.

Non-chemical strategies have been attempted with varying levels of success, such as altering the timing of planting or harvest in an attempt to avoid peak feeding periods, timing tillage operations to target the eggs and newly hatched larvae (the most susceptible life stages), instituting biological control measures, and the use of trap crops.

OACC, in conjunction with Agriculture and Agri-Food Canada, is examining the potential for the incorporation of unattractive or damaging crops in a cash crop rotation to reduce wireworm levels in infested fields. Crops under evaluation include:

- brown mustard that contains compounds harmful to the wireworm,
- flax that may be nutritionally inadequate to support larvae,
- alfalfa that may create an inhospitable soil environment with its water-wicking root system, and
- buckwheat with a rapid growth rate that may be amenable to tillage at those times at which wireworms are most susceptible.

Research is also targeted at the development of a strategy in which wireworms can be pulled away from a root cash crop through the use of an attractive bait crop.

Contemplating the history and significance of the creature that you still hold in your hand, you decide to take action. With a satisfying squish, one less wireworm will damage your crop. Now to tackle the rest!

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