

Chuck Bremer, Former Agronomy Information Manager

## KEY POINTS:

- Wireworm larvae can attack crop seeds and seedlings, primarily corn, causing stand loss.
- The highest risk of wireworm problems is following sod or pasture.
- Seed applied insecticides can suppress damage, but planter applied insecticides may be needed to control heavy infestations.

## PEST FACTS AND IMPACT ON CROP

- Scientific names of the larvae of many click beetle species are *Agriotes*, *Conoderus*, *Limonius*, *Hemicrepidius* and *Melanotus*.
- Important in many spring seeded crops because of potential stand losses.
- Direct crop damage can occur, especially in tuber rooted crops such as potato and sugar beets
- In most cases, wireworms are spring pests only as they move deeper as soils warm during the summer.



## PEST SYMPTOMS AND INJURY IDENTIFICATION

- Wireworms feeding on the seed may prevent germination and result in missing plants and uneven stands.
- Feeding on the young plant or root system can cause uneven plant development and reduced uniformity within the row.
- Feeding on the coleoptile or growing point above the seeds can kill plants or result in stunted, abnormal development.



## PEST IDENTIFICATION

### Signs of Wireworm Damage

- Missing plant or seed
- Stunted or misshapen seedling
- Holes across leaves as whorl unrolls
- For positive ID, wireworm must be found

### Related/Confused Species with Look-Alike Injury



**Billbug:** adult and larvae feeds on young seedling; adult may feed above growing point and make similar row of holes in expanding leaves



**Stinkbug:** may probe young seedling and dissolve growing point causing stunting, tillering and holes in leaves



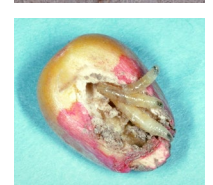
**Cutworm:** feeding on growing point may cause stunting, holes in leaves or tillering



**Seed Corn Beetle:** damaged kernel or young seedling



**White Grub:** root feeding cause uneven emergence and early growth; are often found along with wireworms in the field

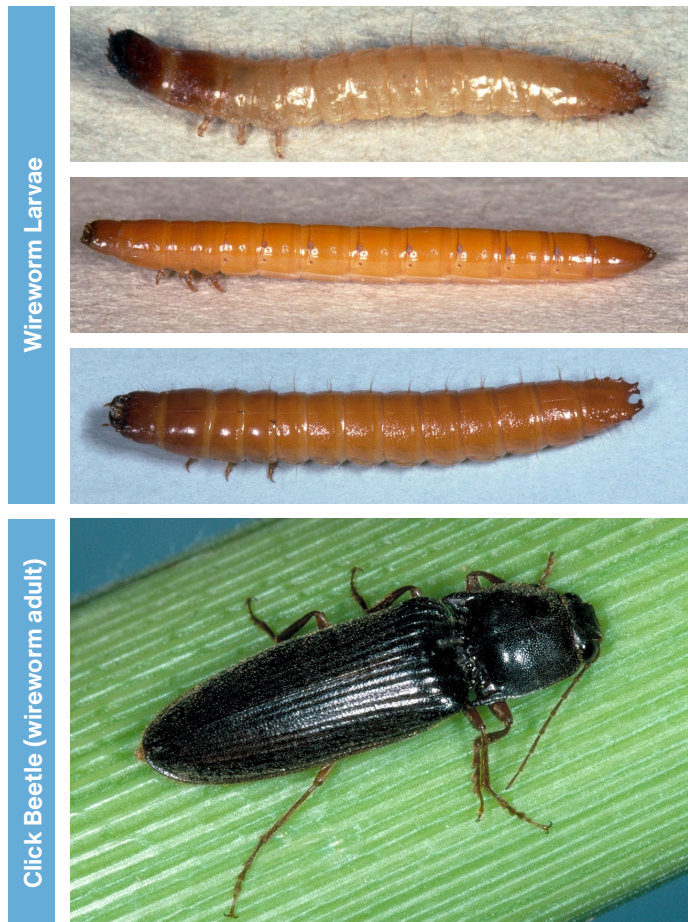


**Seed Corn Maggot:** damaged kernel, maggot or pupa may be present

## HOSTS

- Any fibrous rooted plant species, including corn, pasture, small grains and other grasses.
- Larvae are opportunistic, able to move no more than a few inches in the soil, and must feed on what is present.
- Wireworm species are important pests of crop plants worldwide, especially in temperate regions.

## WIREWORM LIFECYCLE



Wireworm Larvae

Click Beetle (wireworm adult)

- Develop through complete metamorphosis.
  - Egg, larva, pupa, adult (click beetle).
- Eggs are laid in the soil.
- Larvae have shiny yellow to brown hard bodies or creamy white soft bodies with dark and hardened heads and tails, ½ to 1½ inches long.
- Larval development can require one to six years depending on species. Problem areas can persist in a field across years.
- Generations often overlap.
- Overwinter in soil.
- Adults are yellow, brown, black, or gray and slender with a bullet-shaped abdomen.

## MANAGEMENT CONSIDERATIONS

- Favorable conditions for wireworm include porous, well-drained loam; previous crops of grasses and small grains in the rotation; and early planting.
- Large numbers of wireworms can be clustered in localized areas throughout the field.
- Infestations can persist for several years.
- Larvae at different development levels coexist in soil.
- Damage is mostly below ground level.
- Larvae bore into seed or into the base of the plant.
- Feeding injury can stop germination or destroy seedlings.
- Larvae will move deeper as soils warm in late spring.

## BEST MANAGEMENT PRACTICES

- Wireworms can be trapped in the early spring to assess relative populations using several different methods or attractants.
- Hybrids available with insecticide seed treatment (IST) options provide early-season suppression of wireworms. High-rate ISTs are more effective.
- Heavy infestations may require a soil insecticide treatment at planting.
- Rescue treatments after emergence are ineffective as it is difficult to place insecticide in the seed row after planting.
- Currently there is no Bt or other Transgenic technology effective against wireworm.



*Corn field showing reduced stand due to wireworm feeding. Wireworms may tunnel in the corn seed or seedling, often killing the plant.*

*The foregoing is provided for informational use only. Please contact your sales professional for information and suggestions specific to your operation. Product performance is variable and depends on many factors such as moisture and heat stress, soil type, management practices and environmental stress as well as disease and pest pressures. Individual results may vary.*