Wireworm in Minnesota Soybean

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NAME
Wireworm (Family: Elateridae, multiple species)

IDENTIFICATION
Adult: Adults are known as “click beetles”
- Brown or black, bullet shaped
- All have a flexible area between the first and second section of the thorax, which allows the beetle to catapult itself and creates a “clicking noise”

Eggs: Small, pearly white eggs are laid in the soil

Larvae (Figure 1):
- Slender and hard-bodied
- Range in color from yellow to brown
- Size can vary from ½ to 1 ½ inches

Pupae: White to tan colored, ½ to 1 ½ inches long (seldom seen)

NATURAL HISTORY
Wireworms have an extended life cycle, requiring 1-6 years to complete a single generation. Because of this variation, all stages of wireworm larvae can be found at any given time.

Depending on species, both larvae and adults can overwinter. After adults become active in mid- to late spring, they mate and lay eggs in the soil.

Eggs hatch in 3 to 4 weeks. As larvae develop, they move up and down within the soil profile for multiple years. Eventually, they pupate in the soil and emerge the following spring.

IMPACTS
Wireworms feed directly on germinating soybean seeds and also on soybean roots, which can cause stand loss or stunt plants.

Wireworm injury occurs mainly during the early stages of plant growth.
SCOUTING & MANAGEMENT

There are no rescue treatments for wireworm. Once wireworm injury is noticed, it is too late to use any control methods. All management decisions need to be made prior to planting.

Risk for infestation by wireworm is greater in:
- Fields with a history of infestation by this pest
- Fields previously in pasture, sod, CRP, or similar situations
- Early planting accompanied by cold weather

Scouting - Bait Sampling

Sampling for wireworms is done prior to planting through the use of bait stations (Figure 2). Bait stations are established in the following way:
- Create a mixture of untreated corn and wheat (1/2 cup total) and soak in water for 24 hours
- Dig a hole approximately 4" deep and 10" wide, and bury the mixture. Mound the soil over the top in a dome shape so rainwater runs off.
- Cover the mound with black plastic and mark the station with a flag
- After one week, collect the bait from each station and calculate the average number of wireworm larvae
- 10 bait stations/field is suggested
- If more than one wireworm per trap is found, the risk of crop injury is high

Chemical Control

Rescue treatments are not available for this pest. Preventative use of seed-applied or in-furrow insecticides may be considered for fields with high risk for economic infestation by wireworm (see above for risk factors). Follow instructions on the insecticide label.

Fig. 2 Wireworm bait station supplies (photo: John Obermeyer, Purdue Extension Entomology)

Estimation of stand loss and replant decisions

Fields should be inspected for stand loss during seedling growth stages. Soybean is a resilient crop, able to tolerate relatively high levels of stand loss. However, when significant stand loss occurs because of wireworm infestation or other causes, replanting may be required, but this option should be considered carefully. Information is available to how to estimate plant stand and guide replant decisions in soybean (U of MN Extension soybean replant guide).