

Scouting for Wireworms before Planting Vegetables

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Figure 1. Wireworms



Figure 2. *Melanotus* spp. wireworm and damage on sweet potato

Wireworms are the larval stage of click beetles (Coleoptera: Elateridae). They are worm-like, hard-bodied, and have 3 pair of legs and a distinct head (Fig. 1). They are approximately 0.5 to 1-inch in length and can range in color from tan to orange. Several different species occur in Virginia including *Melanotus* spp., *Conoderus* spp., and *Aeolus* spp. Wireworms are among the most difficult insects to control, the most destructive and most widespread pests. They attack a number of important agricultural crops in Virginia including: corn, small grains, grasses, potatoes, tobacco, and sweet potatoes, and also may be a pest in vegetable crops, particularly if planted in land following one of the aforementioned crops.

Wireworms injure crops by devouring seeds in the soil, by cutting off small underground stems and roots, and by boring in the larger stems, roots, and tubers (Fig. 2). Despite their importance to agriculture, much information is lacking on the biology and management of wireworms. One reason is that soil-inhabiting insects are difficult to study from a practical standpoint.

Another reason is that there are usually multiple species that occur in a given region, each with a different life cycle and seasonal biology. Some species found in Virginia have as many as 7 to 10 larval instars (stages), and can live up to 4 years in the soil as larvae, moving up and down the soil profile as temperatures and moisture change.

Predicting wireworm damage in fields is difficult. Click beetle females prefer grasses for laying their eggs. Thus, undisturbed sod, weedy fields, or fields where a cover crop was planted early will have a greater chance of wireworm pressure.

Fields can be evaluated for the potential for wireworm problems by inspecting the soil for wireworms when plowing and discing, and by setting out wireworm bait stations. Bait stations can be installed in the fall or spring when soil temperatures are above 45 degrees F. Soil-sampling using a 6-inch post-hole digger gives an accurate estimate, but it is labor intensive. Use the following procedure to make and set wireworm baits.

Mix a 1:1 combination of untreated wheat:corn seed as bait. Bury a handful of bait 4 to 6 inches deep, placing it in random locations in the field to obtain representative samples. Place more bait stations in suspected trouble spots, such as next to weedy or low areas. Use at least one bait per acre<the more stations, the better. Mound the soil above the bait, and cover it with plastic (trash bag) if the soil is cool. Mark the locations of the bait stations with flags. After 7 to 10 days, dig up the bait stations and check for wireworms. If approximately 1 wireworm/bait is found, then control measure should be taken before planting. Consult the most recent issue of Commercial Vegetable Production Recommendations - Virginia Cooperative Extension Publication Number 456-420 for labeled compounds on the various vegetable crops.

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