



Wireworms

Fact Sheet No. 14

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Description

Wireworms are the larvae (immatures) of click beetles. Adults are elongate, slender, hard-shelled beetles that take their name from their habit of flipping into the air (sometimes with an audible clicking sound) when they are placed on their backs. Depending on the species, their size varies from about 1/4 to 1 1/4 inches and color from tan to black. Larvae of various species may be hard, brown, smooth, and wire-like, or soft and white with yellowish-brown heads and tails.

Members of the genus Limonis are most common in irrigated crops. In areas with less than about 15 inches annual precipitation, the Great Basin wireworm, Ctenicera pruinina, is more common and may be a problem in dryland crops or land that was previously undisturbed rangeland.

Life Cycle

Wireworms require from 2 to 6 years to mature. Larvae live in the soil and overwinter at depths from 12 to 24 inches. In spring, the larvae move toward the surface when temperatures reach about 50 degrees F. at 6-inch depth. When temperatures at this depth reach about 80 degrees F., the larvae move deeper into the soil. Pupation occurs in the soil. Adults are poor fliers, so the spread of wireworms from field to field is generally slow.

Habits and Damage

Food habits of the larvae vary with some of them developing in rotting wood and others feeding on the seeds, roots, crowns, and stalks of various plants. Larvae of most economic species range from 3/8 to 1 inch when fully grown. Crops that are potentially affected by wireworms are numerous. They include small grains such as wheat and barley, clover, corn, potatoes, and various other truck crops.

Early season damage results from larvae boring into seeds before or during germination. This either prevents germination or kills the seedling before it breaks through the soil surface. Small plants may be killed or stunted by wireworms feeding on the root systems or boring

into the base of the plants. Plants will often wilt suddenly with no apparent cause. Larvae may also eat into the base of large plants and bore up the inside of the stalk for several inches above soil level. Wireworm damage is often worst in cool, wet spring weather.

Control

Soil sampling for wireworms is recommended before making treatment decisions. One method is to visually examine soil following plowing in the fall. Another is the use of baits, which consist of dry flour inserted in to the soil using a corn planter. About 25 baits stations are placed per acre, with stations being checked after 2 or 3 days. If 2 or 3 wireworms are found per bait, potential severe damage is indicated for the next crop.

There are no effective postemergence controls for wireworms. Materials must be applied at or before planting. Early season damage to some types of seeds can be minimized with the use of planter box seed treatments. With the exception of formulations containing chlorpyrifos or diazinon, most insecticides for wireworm control are made for agricultural purposes and are not meant to be used in home gardens. Many home uses of chlorpyrifos and diazinon have been canceled or will be canceled in the near future, leaving homeowners few alternatives for wireworm control. However, such products already in the possession of a homeowner can still be used according to label directions.

Insecticides for wireworm control include liquid and granular formulations, seed treatments, and fumigants. Treatment methods for wireworms include pre-plant broadcast treatments with soil incorporation, sidedress, in-furrow, and seed treatments. Ideally the treatment should remain toxic until soil temperature is 60 degrees F. at 6-inch depth. Treatments for wireworms should not be applied unless wireworms are known to be present or caused damage in the previous season. Soil fumigant treatments are not recommended for control of wireworms alone.

Granular and liquid formulations labeled for wireworms include products containing the active ingredients bifenthrin (Capture), carbofuran (Furadan), chlorpyrifos (Chlorfos, Lorsban), cyfluthrin plus phostebupirim (Aztec), diazinon, ethoprop (Mocap), fipronil (Regent), imidacloprid (Admire, Genesis), lindane, permethrin (Arctic, Astro, Pounce), phorate (Thimet), and terbufos (Counter). Most seed treatments consist of lindane alone or in combination with captan, carboxin, diazinon, maneb, or metalaxyl (Enhance, Germate, Isotox, Kernel Guard, Kickstart). Another seed treatment is thiamethoxam (Adage). Fumigant active ingredients include chloropicrin (Chlor-O-Pic, Metapicrin), dichloropropene (Telone), and methyl bromide (Brom-O-Gas, Metabrom, Meth-O-Gas), or combinations of these (Agrox, Tri-Con, Tri-Clor, etc.).

Not all insecticides are labeled for all crops that may be affected by wireworms. Apply insecticides only to crops or other sites that are specifically listed on the label. Restrictions on uses for the treated crop or planting restrictions for subsequent crops may be imposed by the application of some insecticides. Many insecticides labeled for wireworms are restricted-use-pesticides and can only be purchased and applied by certified applicators.

Birds consume some wireworm larvae but do not reduce them below economic levels. No effective parasites or biological insecticides are known, and entomopathogenic nematodes have not been shown to be effective. Proper selection of rotated crops can reduce problems

with wireworms. Susceptible crops such as clover, small grains, or truck crops can be planted into alfalfa for 3 or 4 seasons, which tends to dry the soil and reduce wireworm populations.

Precautionary Statement

All pesticides have both benefits and risks. Benefits can be maximized and risks minimized by reading and following the labeling. Pay close attention to the directions for use and the precautionary statements. The information on pesticide labels contains both instructions and limitations. Pesticide labels are legal documents, and it is a violation of both federal and state laws to use a pesticide inconsistent with its labeling. The pesticide applicator is legally responsible for proper use. Always read and follow the label.

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