



Maine Potato IPM Program

WIREWORMS

Coleoptera: Family: Elateridae

#206

GENERAL

The wireworm is a slender, hard-bodied “worm” or larva that is found when tilling the soil. It is present in most soil types year round. The larval color varies from yellowish-brown to orange (Figure 1).



The adult wireworm is known as the click beetle (Figure 2), because of its habit of clicking or snapping its body into the air when placed on its back. It varies in color from tan to black and ranges in length from one-quarter inch to over one inch, with the most common pest species averaging about one-half inch.



Various species of wireworms are distributed throughout North America and most of the world. While the different species have much in common, they can have quite varied life cycles.

LIFE CYCLE

Most species overwinter in the soil in either the larval or adult stage; however, a few species may overwinter as eggs. The adults, which live for several months, emerge in May and June. The female click beetle soon seeks sites for egg-laying. She burrows down into the soil and usually lays eggs singly on or near roots or grasses. Therefore, wireworm problems are normally associated with weedy (grassy) potato fields or fields that have recently been in sod. However, a few species are direct pests of certain crops and are attracted to these crops within, rather than to grasses. The eggs hatch two to four weeks, and the young larvae begin to search for food. The larvae may take from two to six years to reach full maturity and pupate. Because of this long life cycle, the wireworm can be quite a problem.



Usually, many stages and sizes of this insect can be found in the soil at the same time.

DAMAGE

Wireworms are destructive to a wide range of plants but can be especially severe on corn and potatoes. Estimated losses to farmers, because of these insects, reach several million dollars annually. The wireworm will feed on the seeds, roots and stems of their food plants. With potatoes, wireworms may attack the seed pieces, causing a poor stand. Once formed, the roots may also be attacked, resulting in plants with poor vigor and reduced yield. Finally, the potato tubers may be attacked directly (Figure 3). If damaged in early stages of tuber growth, the result may be a deformed tuber. If the attack occurs later, small holes (Figure 4) or tunnels will result, lowering the quality of the potato and opening the tuber to bacteria, other insects or fungal infections, such as fusarium.

MONITORING TECHNIQUES

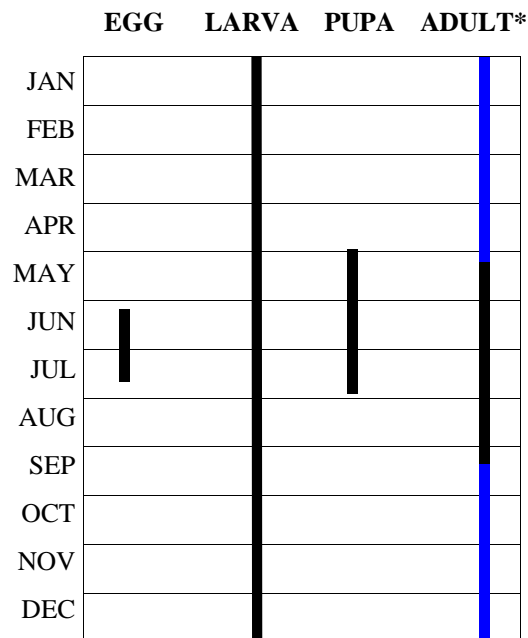
Pheromone traps have been developed for monitoring adult populations of certain wireworm species; however, these have not been widely used. Techniques for determining numbers of wireworms in the soil are more generally used. One method of sampling is to screen one square foot of soil to a depth of six inches. Several samples are taken from the field; and if the samples average one wireworm per square foot, chemical controls should be done in the spring, when soil temperatures are between 50 degrees and 80 degrees F. Extremes of soil temperatures, as well as dryness, force wireworms deeper into the soil.

Another technique is to dig several holes the size of a softball in the spring-plowed soil (two samples per 10 acres) and fill with either carrots, freshly cut potato seed pieces, or a mixture of soaked seeds (especially wheat and oats). Cover the hole and adjacent soil with a piece of black plastic approximately one square yard in size. In 4 – 5 days examine the baited holes to determine if wireworms are present.

MANAGEMENT

There are several soil-applied or seed treatment insecticides that can give satisfactory wireworm control. For a list of recommended insecticides, contact your local county Cooperative Extension office. Some natural controls, such as fungi and nematodes, may keep wireworm populations at tolerable levels.

WIREWORM OR CLICK BEETLE OCCURRENCE OF LIFE STAGES IN MAINE



*Overwintering stage species dependent

Revised by James D. Dwyer, Crops Specialist, James F. Dill, Pest Management Specialist, and Hannah S. Carter, Potato Pest Management Professional. Photographs by James F. Dill and James D. Dwyer. Revised April 2001: Replaces Potato IPM Fact Sheet #106.

If you require additional information, please contact Potato IPM Program, UMCE, P.O. Box 727, Presque Isle, ME 04769 or Pest Management Office, 491 College Ave., Orono, ME 04469-1295.

Published and distributed in furtherance of Acts of Congress of May 8 and June 30, 1914, by the University of Maine Cooperative Extension, the Land Grant University of the state of Maine and the U.S. Department of Agriculture cooperating. Cooperative Extension and other agencies of the U.S.D.A. provide equal opportunities in programs and employment. 02/01