

Cooperative Extension Service

NORTH DAKOTA STATE UNIVERSITY - FARGO, NORTH DAKOTA 58102
UNITED STATES DEPARTMENT OF AGRICULTURE COOPERATING

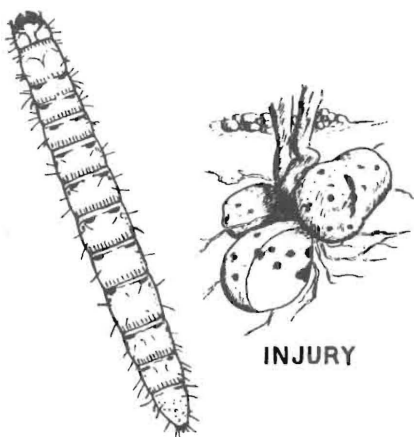
CIRCULAR
E-188

Revised JANUARY 1977

wireworm control

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NORTH DAKOTA
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INJURY

At least three species of wireworms in North Dakota are injurious to crops. Some appear in the early spring and attack the seed and young seedlings, others in the fall damage root crops such as potatoes and sugarbeets.

Wireworms prefer loose, light and well drained soils although they may also occur in the heavier clay soils during some seasons.

Description: The adult "click beetle" is dark in color and about 1/2 inch in length.

Larvae are yellow to red-brown in color and vary in size up to 3/4 inch in length. They remain and feed in the soil for several years, depending upon species and feeding conditions.

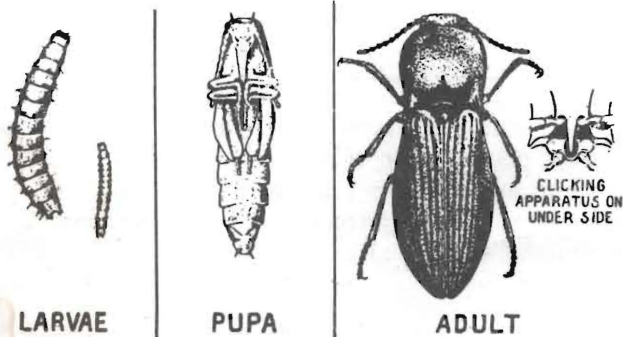
Crops Attacked: The pests prefer grass. However, they will attack small grains, corn, potatoes, sugarbeets and vegetables. Legumes are not likely to be injured.

Feeding Habits: Wireworms do most of their damage in the early spring when they are near the surface of the soil. During the summer months the larvae move deeper into the soil where it is cooler and where moisture supplies are plentiful. During the winter they hibernate about 6 to 10 inches below the surface of the soil.

How Wireworms Damage Crops: The larvae feed upon the germinating seed or upon the young seedling. Damaged plants soon wilt and die, resulting in thin stands. In a heavy infestation bare spots may appear in the field and reseeded is necessary.

Potato "seed pieces" are seldom damaged to a point where poor stands result. However, the new tubers can be damaged severely. Wireworm infested tubers have tunnels in them which allow disease organisms to enter. Wireworm damaged tubers are usually of less market value.

How To Check For Wireworms: There is no easy way to determine the severity of infestation without taking soil samples. Infestations vary from year to year, depending upon the season. There also may be considerable variation within a field and between fields. Sometimes the past history of a field is a good indicator, especially if wireworms have been a problem in previous years.



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Corn on the right of the two check rows was treated with Thimet at 1 pound actual toxicant per acre.



Wireworms damage seedlings by tunneling into the below-ground portion of the stem.

The soil sampling technique for determining wireworm infestation involves taking approximately 20 well-spaced samples from each 40 acres of land. Each sample should be about 1 square foot of soil taken down to a depth of 3 to 4 inches. Spread each sample out on a piece of burlap or tarp and count the number of wireworms collected in the samples.

If you find:

0 to 5 wireworms in 20 samples, the field is safe for all crops, including potatoes.

5 to 8 wireworms in 20 samples, the field is safe for all crops, except potatoes.

9 to 15 wireworms in 20 samples, the field is safe for small grains only, not including corn.

20 or more wireworms in 20 samples, damage is likely to occur to all crops. Such fields should be treated with an insecticide, seeded to legumes or summerfallowed.

TYPES OF SEED TREATMENT

Dry of Dust Method: Insecticides may be applied to the seed in any type of treater that will give uniform coverage. In small lots of seed, hand treating will be satisfactory. However, it is extremely important to avoid overtreating or overdosing. Insecticides may also be applied in combination with a fungicide.

Liquid Seed Treater: Several liquid insecticide formulations are recommended for use in custom seed treaters. These treaters are designed to treat seed with insecticide, fungicide or both.

Before using an emulsifiable concentrate, check to be sure the insecticide has been formulated spe-

cifically for seed treatment. Most agricultural insecticidal formulations are not suitable and, if used, may cause serious injury to the seed.

Do not store treated grain in bins intended for grain going into commercial food or feed channels.

Drill Box Application: Growers who do not have custom treaters available may use the drill box method of treatment. Mix insecticide thoroughly with the seed prior to planting to insure thorough coverage and maximum control. Heptachlor and Lindane may be used at rates suggested for seed treatment.

Soil Treatment: This method is recommended primarily for corn (severe infestations), potatoes and sugarbeets. The insecticide is applied to the soil as a dust, spray or granules, then worked into the soil to a depth of 4 to 6 inches immediately after application. Treatment should be in advance of seeding time.

SUGGESTED CONTROL METHODS

Cultural Control: This includes any cultivation or seeding practice which will discourage wireworm feeding in the field. Such practices as shallow tillage, shallow seeding, seeding with press drill and clean summerfallow are all helpful in reducing wireworm damage.

Chemical Control: Several insecticides are now approved for use as seed treatments for the control of wireworms. Insecticides applied to the seed just before planting time is an inexpensive means of preventing wireworm damage to growing crops. For maximum benefits, treat shortly before seeding as prolonged storage after treatment may reduce ger-

mination. If home treaters are used, be sure they are properly calibrated to apply the recommended dosages.

Corn: Granular formulations of Counter, Furadan, Mocap and Thimet are registered for reduction of wireworms in corn. Counter is to be applied in a 7-inch band or in the furrow at planting time at the rate of 1 pound actual per acre. Furadan is registered at 2 to 3 pounds actual per acre applied in a band or in the furrow. Mocap and Thimet are to be applied as band treatments only at 1 pound actual per acre. Do not place Mocap or Thimet in direct contact with seed.

Small Grain: Seed treatment is primarily a protective measure and does not necessarily result in eliminating the wireworm menace from a field.

Sugarbeets: For the control of wireworms in sugarbeets, Diazinon is registered as a broadcast treatment at 3 to 4 pounds actual per acre using the EC, WP or granular formulation. Dyfonate EC or 10 percent granules also have restrictions for wireworm control in beets at 4 pounds actual per acre broadcast. Application of either Diazinon or Dyfonate should be made prior to planting and disked into the upper 4 to 6 inches of the soil.

Potatoes: Thimet is registered for wireworm control in potatoes as a band or furrow treatment.

In light or sandy soils use 2 pounds actual per acre and in heavy or clay soils use 3 pounds actual per acre.

RECOMMENDED INSECTICIDES FOR SEED TREATMENT

| <u>COMMERCIAL TREATMENT</u> | <u>DRILL BOX TREATMENT</u> |
|---|----------------------------|
| Heptachlor | Heptachlor |
| Heptachlor + Phenyl mercury acetate fungicide | Lindane |
| | Lindane + Maneb fungicide |
| | Lindane + Captan fungicide |

Dosage rates for the insecticides listed above are given on the insecticide container.

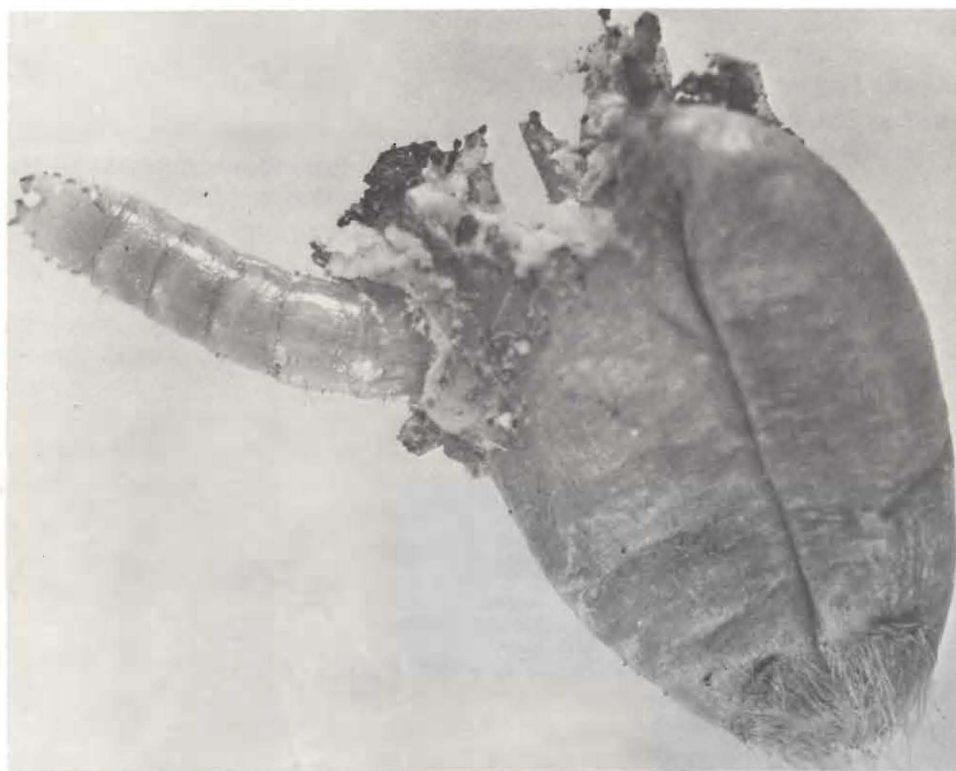
Read the label and understand it before treating your seed.

NOTE: Soil treatments with Lindane or BHC are not recommended for potatoes, due to taste contamination of new tubers. Heptachlor and Lindane cannot be used as a soil or seed treatment on potatoes or sugarbeets due to residue problems. Lindane is approved for sunflower seed treatment.

Precautions:

- Use good seed.
- Apply correct dosage.
- Treat seed uniformly.
- Avoid prolonged storage after treatment.

Remember that seed treated with an insecticide or fungicide must not be sold on the market, except as seed, nor should it be fed to livestock.



Wireworms damage grain seed.