

Insects

Western Corn Rootworm

Charles R. Patrick, Professor, Entomology & Plant Pathology
Angela Thompson, Assistant Professor, Plant Sciences & Landscape Systems
Scott Stewart, Associate Professor, Entomology and Plant Pathology

Introduction

Three species of corn rootworms are found in Tennessee. The Western corn rootworm is the most destructive of the three species. This insect is now prevalent from Texas to the Dakotas, and has moved into Tennessee within the past 10 to 15 years. Until 1955, this rootworm was found in Nebraska, Colorado, Kansas, South Dakota and Iowa. The Western corn rootworm has traditionally moved into the territory of the Northern corn rootworm, which is also found in Tennessee.

Appearance and Life History

The adult is about ¼ inch long; it is yellow with a black stripe on the outside of each wing cover. Males and females differ somewhat in their markings. The males' entire posterior half of each wing cover is black. The female has more pronounced stripes than the male. Some variation in color pattern can also occur.

The Western corn rootworm (Fig. 1) has only one generation per year. Eggs are deposited in the soil in mid to late summer by the adult females. Eggs are white, shaped like a football and less than .004 inch long. They are usually found near the bases of corn plants and between the rows in fields. The eggs are usually concentrated in the upper 6 inches of the soil. New egg hatch occurs as early as mid-May, depending on soil



Figure 1. Adult Western Corn Rootworm

temperature. After hatching, the larvae move toward the corn roots and begin to feed. These larvae may move as much as 20 inches to a food source.

After about three weeks, the larvae stop feeding and construct a small cell in the soil to pupate. The pupal stage is white, delicate and resembles the adult. Pupation occurs in about five to 10 days, depending on the temperature. After pupation, the adults emerge from the soil. Males usually emerge before the females. The adults mate and females begin to lay eggs after about 14 days.



Damage

Several symptoms can be recognized as damage from the corn rootworms. The most obvious is “goose-necking” of the more mature corn plants. This is caused by the larvae feeding on the root-hairs and pruning the roots. Falling over of plants will occur in severely damaged plants.

Controls

Corn rootworms usually follow fields in which corn has been repeatedly planted. Rotation (two years away from corn production) may be necessary, because some eggs may hatch the second year. However, if rotation is not an option, granular insecticides must be used at planting to control this pest. Insecticides can either be placed in-furrow or banded. Recommended corn rootworm

insecticides are listed below. Adult beetles should be controlled during silking of corn to prevent clipping of corn silks. (See Fig. 2)



Figure 2. Rootworm Adult Silk Clipping (Damaged silk on right side.)

Material (Larval Stage)	Rate	Placement
Lorsban 4E	8 oz/1000 row ft	In-furrow/banded
Force 3G	8-10 oz/1000 row ft	In-furrow/banded
Counter 20CR	6 oz/1000 row ft	In-furrow/banded*
Cruiser 5FS	5.1-9.0/100 lb seed	Seed treatment only
Gaicho 600	6 oz/80,000 seed units	Seed treatment only
Poncho	1.13 oz/80,000 seed units	Seed treatment only
Material (Adult Stages)		
Warrior T	3.64 oz/acre	Foliar (See label) adult stage
Sevin XLR Plus	1-2 qt/acre	See label adult stage.
Fury 1.5EC	2.9 to 4.3 oz/acre	See label
Baythroid 2	1.6 to 2.8 oz/acre	See label
Mustang Max	2.72 to 4.0 oz/acre	See label

*Precaution – If using Accent or Beacon, damage may occur to plants from herbicide interaction. Check labels.

Cultural Practices

Rotation is a valued practice if it is an option. Planting corn in the same fields usually leads to corn rootworm problems.

Soil types can influence the degree of rootworm infestations. Rootworms are not usually a problem on sandy soil that is not irrigated. Wet, cool springs influence

rootworm development. More eggs will be deposited in moist soil rather than dry soil.

Acknowledgment

A special thanks to Kevin Rose of Giles County for providing the photos for this publication.

Precautionary Statement

To protect people and the environment, pesticides should be used safely. This is everyone’s responsibility, especially the user. Read and follow label directions carefully before you buy, mix, apply, store, or dispose of a pesticide. According to laws regulating pesticides, they must be used only as directed by the label. Persons who do not obey the law will be subject to penalties.

Disclaimer Statement

Pesticides recommended in this publication were registered for the prescribed uses when printed. Pesticides registrations are continuously reviewed. Should registration of a recommended pesticide be canceled, it would no longer be recommended by the University of Tennessee. Use of trade or brand names in this publication is for clarity and information; it does not imply approval of the product to the exclusion of others which may be of similar, suitable composition, nor does it guarantee or warrant the standard of the product.

04-0293 SP341-Y Rev. 4/04 E12-4615

The Agricultural Extension Service offers its programs to all eligible persons regardless of race, religion, color, national origin, sex, age, disability or veteran status and is an Equal Opportunity Employer. COOPERATIVE EXTENSION WORK IN AGRICULTURE AND HOME ECONOMICS The University of Tennessee Institute of Agriculture, U.S. Department of Agriculture, and county governments cooperating in furtherance of Acts of May 8 and June 30, 1914. Agricultural Extension Service Charles L. Norman, Dean