

Protecting Field Crops from Armyworm

by Robert F. Ruppel
Department of Entomology

Appearance

The larva of the armyworm is a typical caterpillar with a cylindrical, hairless body; dark head; six small, jointed legs just behind the head; and five pair of fleshy legs near the rear. The armyworm is usually nearly black but some of them, especially the smaller worms, are greenish. The armyworm can be distinguished from other caterpillars by a broad light stripe along each side of the body. Newly hatched caterpillars are very small and inconspicuous. They grow through six stages and become 1½ to 2 inches long when fully grown.

Crops Attacked

The armyworm feeds primarily on grasses, small grains, and corn but will feed on almost any crop when the worms are abundant. Armyworms feed from the margins of the leaves and can leave only midribs when the worms are numerous. The large worms also chew at the bases of the heads of maturing small grains and clip the heads off of the stems. The worms occasionally feed in the whorl of young corn where their damage resembles that of the European corn borer and billbug. The worms usually feed at night and hide near the bases of the plants during the day. They will feed night and day when their populations become very large and swarm out of the field into adjacent fields. This "marching" gives the common name of armyworm to this pest.

Biology

The armyworm overwinters in the worm stage in the soil or under old leaves and trash. The worms change to pupae (a resting stage) in the soil with

warm weather in the spring. The adult moths emerge from the pupae in June or July. The females lay their eggs on the upper surfaces of the leaves of grasses and roll and tie the edges of the leaves over the eggs with silk. Most of these eggs are laid in dense grasses or heavy stands of small grains, such as in the headlands of the grain fields. The eggs are often laid in weed grasses in corn fields. The pupae



The caterpillar of the armyworm can be identified by the light-colored stripe along its sides. The white spots just behind the head are eggs of a parasitic fly.

and eggs are hidden; the moths are active only at night and are not usually seen in the fields. The feeding damage, green sawdust-like droppings, and worms can be seen easily. Look for these signs of armyworm in the field.

The armyworm has several generations during the year. It is the first generation in June to July that causes damage to our crops. The feeding of the small worms is hard to see. The feeding of the medium-sized worms (about ¾-inch long) can be spotted readily and this is the time to control the armyworm if needed. The medium-sized worms start to appear in our fields when a fixed number of heat-units (450 day-degree with a base of 50°F) is reached. Your County Extension Agent can tell you when to start checking your fields for the worms. You can help by reporting your finds of armyworm to your County Extension Agent so that the alert can be sent to your neighbors.

Field Checks

Start looking for the feeding damage, droppings, or the worms themselves hiding in the upper layer of soil near the base of the plants when you are alerted to the possible presence of the armyworm. Armyworms often build up in fields of grasses or grains and may later move into adjacent fields. Check neighboring grain or grassy fields to see if the armyworms are present. If armyworms are found in significant numbers in neighboring fields, spray a 20- to 40-foot border in the field you are protecting.

The worms are often found only in some areas of the field (margins, headlands, and weedy or grassy spots). Check several areas in each field and check the likely problem areas especially well. If the armyworms are found only in certain areas of the field, treat only the infested area and a 20-foot border around it.

Determining Treatment

Check your fields regularly for the worms to find them when they are still small. Spray just as soon as possible after the armyworm threat has been determined. **Do not delay.** The large worms cause the bulk

of the damage and are very difficult to kill. If the worms are not detected until they are large and a lot of damage has already been done, treatment is usually not worthwhile on most crops. However, if large worms are discovered in small grains, treatment is essential to prevent head clipping.

Field crops, other than corn, should be treated with one of the insecticides in the table when there are 4 or more worms per foot of row.

Corn should be treated when:

- there are about 3 or more worms per plant in whorl stage, or
- there are about 5 or more worms per plant with some feeding in the leaves at ear height or higher on tasseled corn. No control is needed if they are feeding only on the leaves below the ear.

Treatment

Apply the insecticide in the evening, if possible, to have fresh insecticide when the worms become active that night. Sprays may be applied as ground or aerial applications. Complete coverage of the plants is not needed and as little as 10 gallons of mixed spray per acre is sufficient for ground applications. Center the nozzle over the row and concentrate the spray on the plants in row crops such as corn, dry beans, soybeans, and sugarbeets. Baits containing Sevin or toxaphene may be available and can be used if equipment for their application is accessible. Follow the label instructions on the baits to determine the crops that they can be used on and the amounts to be applied.

The insecticides recommended for control of the armyworm in field crops are given in the table. Toxaphene, methomyl (Lannate or Nudrin), trichlorfon (Dylox or Proxol), and Sevin are more effective against large worms than the others and should be used whenever possible when large worms are present. Both methomyl and parathion are Restricted Use Pesticides and a Pesticide Applicator Certificate obtained from the Michigan Department of Agriculture is needed to buy and apply them.

Insecticides Recommended for Control of Armyworm in Field Crops.

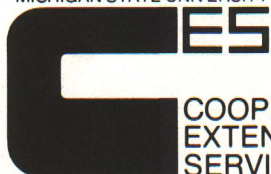
Crop	Insecticide ^a	Lbs. active insecticide/acre ^b	Limits ^c
Alfalfa, clover, hay and pasture grasses	Sevin	1.50	0 days
	diazinon plus methoxychlor (Alfa-Tox)	3 qts of formulation	7 days
	malathion	1.25	0 days
	parathion	0.38	15 days
	trichlorfon (Dylox or Proxol)	1.00	0 days
● Alfalfa only	methomyl (Lannate or Nudrin)	0.45	7 days
● Hay and pasture grasses only	Dibrom	1.00	Do not graze lactating animals
● Pasture only	ULV malathion	16 liquid ounces	5 days
Corn	Sevin	2.00	0 days
	diazinon	2.00	10 days
	malathion	1.50	5 days
	methomyl (Lannate or Nudrin)	0.45	0 days grain; 3 days forage
	toxaphene	1.50	0 days; grain only
	trichlorfon (Dylox or Proxol)	1.50	0 days
Small grains	Sevin	2.00	0 days; do not apply after boot stage
	malathion	1.25	7 days
	parathion	0.38	15 days; do not apply to rye
	toxaphene	1.50	0 days
	trichlorfon (Dylox or Proxol)	1.50	21 days grain; 3 days forage; do not apply to rye
	methomyl (Lannate)	0.45	7 days
Dry beans	Sevin	1.50	0 days
	trichlorfon (Dylox or Proxol)	1.50	14 days
	methomyl (Lannate or Nudrin)	0.45	25 days
Soybeans	Sevin	1.50	0 days
	methomyl (Lannate or Nudrin)	0.45	14 days harvest; 3 days forage; 7 days hay
Sugarbeets	Sevin	1.50	14 days
	parathion	0.50	14 days
	trichlorfon (Dylox or Proxol)	1.50	14 days
	methomyl (Lannate or Nudrin)	0.45	7 days beets; 30 days tops

^a The names in parentheses are commercial brand names of the insecticide.

^b The amount must be adjusted for the concentration of active insecticide in the formulation that is used.

^c The time, in days, between application and harvest or other uses of the crop.

MICHIGAN STATE UNIVERSITY



COOPERATIVE
EXTENSION
SERVICE

MSU is an Affirmative Action/Equal Opportunity Institution. Cooperative Extension Service programs are open to all without regard to race, color, national origin, or sex.

Issued in furtherance of cooperative extension work in agriculture and home economics, acts of May 8, and June 30, 1914, in cooperation with the U.S. Department of Agriculture. Gordon E. Guyer, Director, Cooperative Extension Service, Michigan State University, E. Lansing, MI 48824.

This information is for educational purposes only. Reference to commercial products or trade names does not imply endorsement by the Cooperative Extension Service or bias against those not mentioned. This bulletin becomes public property upon publication and may be reprinted verbatim as a separate or within another publication with credit to MSU. Reprinting cannot be used to endorse or advertise a commercial product or company.

O-12823

1P-6M-4:81-UP, Price 15 cents. Single copy free to Michigan residents.

Michigan State University Printing