

The Armyworm and the Army Cutworm

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Armyworm and army cutworm feed on a wide variety of crops in North Dakota. Though the names are similar, these two insects are distinct, feeding at different times of the growing season. Identifying, finding, and recognizing factors where these insects become an economic threat will aid in a successful control program.

Armyworm

Description

The adult armyworm is a light brownish gray moth or "miller" (Figure 1) with a conspicuous white spot about the size of a pinhead on each front wing. When expanded, the wings are about 1 1/2 inches across.

Figure 1. Armyworm moth.



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Armyworm larvae (Figure 2) are pale green in the early growth stage and dark green in later stages. Full grown larvae are smooth, striped and almost hairless. They grow to a length of 1 1/2 to 2 inches. A series of longitudinal stripes on the body are arranged as follows:

- a thin, white, broken line down the middle of the back.
- a wide, dark, mottled stripe halfway down the side.
- a pale orange stripe with white border.
- next, a brownish mottled stripe.
- slightly above the legs, there is another pale orange stripe with white borders.

Figure 2. Armyworm larva.



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Life Cycle

The armyworm does not survive North Dakota winters. Armyworm infestations are due to moth migrations from the south. Heavy infestations in southern states produce large moth numbers that fly or are blown northward on southerly winds. Moth migrations that produce infestations normally occur during early June and July. If weather, egg laying, and food conditions are favorable here, outbreaks can occur. However, armyworm parasites increase rapidly and help prevent outbreaks.

Moths lay eggs at night in folded leaves or under leaf sheaths of small grain plants and other grasses. They prefer to lay eggs in moist, shady areas of lodged, hail, or wind damaged grains or grasses.

Armyworm eggs look like small white beads laid in masses or rows resembling miniature pearls. In eight -10 days, eggs hatch into larvae. Larvae complete feeding in three to four weeks, staying in the area where they hatched until fully grown

or until they run out of food. If all food is consumed, worms often move in hordes or "armies," eating and destroying vegetation as they move.

When feeding is complete, larvae move under litter and soil clods, or burrow 2 to 3 inches into the soil, where they make small cells and pupate. About two weeks later, moths emerge from pupal cases, mate, and lay eggs for the next generation. Only one generation is produced in North Dakota during most seasons.

Habits and Damage

The armyworm is primarily a pest of grasses, small grain crops and corn in North Dakota. The insect will also attack alfalfa, beans, clover, flax, millet, and sugarbeets. Feeding and movement occur at night or on cloudy days. During the daytime, armyworms hide under vegetation, loose soil or in soil cracks. Caterpillars consume more and more vegetation as they grow. Since they feed at night and hide during the daytime, armyworms often cause considerable damage before being discovered.

Scouting, Economic Thresholds, and Control

It is extremely important to detect and control armyworms while they are small and before extensive damage is done. Controlling nearly mature larva that have completed their feeding is a waste of time and money. Late spraying for armyworms is often referred to as "revenge" spraying since the crop damage has been done and no economic benefit is realized.

Initial field scouting for armyworms should be done in field margins, low areas with rank plant growth, and areas where plants have lodged. Indications of armyworm feeding include leaf damage, worm frass (droppings) around the base of plants, and severed leaf material that has fallen to the ground. Look for larvae beneath plant debris around the base of plants and in heads of wheat and barley.

Insecticides may be applied with ground or aerial equipment. Refer to insecticide labels for recommended water volumes to insure thorough, uniform coverage. When armyworms migrate from small grains or grass into corn, flax, beans, or other late crops, spray a couple of swaths ahead of the infestation in the direction of movement to form a barrier strip.

Consider treatment if armyworms are $\frac{1}{2}$ to 1 $\frac{1}{2}$ inches long, most larvae do not exhibit signs of parasitization (white eggs behind the head or small brown cocoons attached to the body), and leaf feeding or head clipping is evident. If armyworms are more than 1 $\frac{1}{2}$ inches long, control is not likely to provide economic return.

Threshold for Small Grains

Preheading: Treat when four or more worms per square foot are present.

Heading (head clipping): Treat when two or more worms per square foot are present.

Threshold for Corn

Treat when 25 to 30% of the plants have two or more worms or 75% of the plants have one worm.

Migrating Armyworms

Treat a couple of swaths ahead of the infestation in the direction of movement to form a barrier strip.



Insecticides Registered for Controlling Armyworm

Insecticide		Dosage in Lb AI/Acre	Formulated Product/Acre	Restrictions on Use
permethrin (corn only)		0.1_0.2		Do not apply within 30 days of harvest. Apply a minimum of 1 gallon of finished spray per acre by air and 10 gallons per acre by ground equipment.
Ambush 2E	RUP		6.4-12.8 fl oz	
Pounce 3.2E	RUP		4-8 fl oz	
Asana XL (corn only)	RUP	0.03-0.05	5.8-9.6 fl oz	Do not apply within 21 days of harvest.
carbaryl (Sevin) (wheat and corn)		1-1.5	rate varies by formulation	Do not apply within 21 days of harvest. Do not make more than two applications after the boot stage.
Ethyl parathion 8EC (small grains, corn and sorghum)	RUP	0.5	8 fl oz	Aerial application only. Do not apply within 15 days of small grains harvest or within 12 days of corn and sorghum harvest. Do not enter treated fields within 3 days after application. Fields must be posted.
Lannate LV	RUP	0.225-0.45	12-24 fl oz	Do not harvest within 7 days or feed treated forage within 10 days of application. Field re-entry intervals are 2 days (corn) and 1 day (small grains).
Lorsban 4E (corn and sorghum)		0.5-1	1-2 pts	Do not apply more than 15 pints by postemergence application/season. Do not allow livestock to graze in treated areas within 14 days or feed treated corn silage, fodder or grain to meat or dairy animals within 35 days after treatment.
Malathion 57EC		1.25	2 pts	Do not harvest for 7 days.
Methyl parathion 8EC (small grains and corn)	RUP	0.5	8 fl oz	Aerial application only. Do not apply within 15 days of small grains harvest or 12 days of corn harvest. Do not enter treated fields within 48 hours or application. Fields must be posted.
PennCap-M (methyl parathion)	RUP	0.5-0.75	2-3 pts	Do not apply within 15 days of harvest. Do not enter treated fields within 48 hours after application. Fields must be posted.
Warrior (corn, sorghum, and wheat)	RUP	0.02-0.03	2.56-3.84 fl oz	Do not apply within 21 days (corn) or 30 days (sorghum and wheat) of harvest. When applying by air, apply in a minimum of 2 gallons of water per acre.

RUP - Restricted Use Pesticide

Army Cutworm

Description

The adult army cutworm (Figure 3) has a wingspan of 1  to 1  inch. The forewings are dark gray-brown with a number of

distinct markings. The hind wings are light gray-brown with a whitish fringe.

Figure 3. Army cutworm moth.



[Click here for larger photo](#) (18KB color photo)

Army cutworm larvae (Figure 4) attain a length of 1 1/4 to 2 inches. They are pale greenish-gray to brown with the back pale-striped and finely mottled white and brown coloration but without prominent marks. Skin texture consists of fine, close-set, irregular granules.

Figure 4. Army cutworm larvae.



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Life Cycle

Only one generation of army cutworms is produced annually. Partially grown larvae overwinter in the soil.

Moths emerge from the soil in late June. Moths fly to mountainous areas where they enter a period of inactivity during July and August, hiding under rubbish and soil lumps. From late August to late October, the moths become active and fly back to the plains to lay eggs in soft soil of freshly cultivated weedy fields or newly seeded winter wheat fields. Eggs are laid singly. Each female can lay 1,000 or more eggs. When moisture is adequate in September, eggs hatch in a few days to two weeks and larvae feed for as long as weather permits. Larvae remain in the soil during the day and come out at night to climb up on plants to feed on leaves. Larval development ceases when the soil freezes. Larvae are usually half grown at this time. Fall moisture is necessary for larvae to survive.

Cutworms remain inactive just beneath the surface of loose soil until the following spring. Once the soil has warmed, larvae emerge and start feeding on available vegetation. When larvae mature, they pupate about 2 to 3 inches below the soil surface in late May or early June.

Habits and Damage

The army cutworm is a climbing cutworm that "grazes" on the leaves of its host plants. In the north central plains states, army cutworms are primarily an early season pest of cereal crops, especially winter wheat in the Dakotas and Montana. As with other cutworms, they have a wide host range and can feed on a wide variety of crops, including alfalfa, canola, mustard, and flax. They also feed on garden plants, sugarbeets, various weeds, and grasses.

When the food source is depleted, larvae may move in large masses to new areas, thus the common name "army cutworms." Movements of up to three miles have been recorded. However, these large scale movements are uncommon.

Outbreaks can appear suddenly, often preceded by a year with a dry July and a wet fall. An abundance of moths in June does not necessarily mean a cutworm outbreak the following year. High rainfall in July can reduce moth populations by drowning or covering them with mud. A dry fall, especially during September, reduces overwintering larval populations by delaying hatch or increasing mortality of eggs and newly hatched larvae through desiccation.

Scouting, Economic Thresholds, and Control

As with armyworms, it is extremely important to detect and control army cutworms while they are small and before they

cause significant crop losses.

Monitor fields, especially small grain fields, in early spring for signs of small holes in plant leaves or plants with missing leaf tips. Larvae are found under rocks and dirt clods or in the upper 3 to 4 inches of soil. On cloudy days or late afternoons, larvae feed at the base of plants. When scouting fields for cutworm larvae, use a knife or trowel to scrape soil away from plants (including weeds) to find larvae. A screen or sieve can be helpful in separating larvae from soil.

Vigorous small grain plants 5 to 6 inches tall, which have adequate moisture, can withstand at least four larvae per foot of row without loss of yield. If plants are under 4 inches tall and two or more larvae per foot of row are present, consider treatment.

Insecticides Registered for Controlling Army Cutworm

Insecticide	Dosage in Lb AI/Acre	Formulated Product/Acre	Restrictions on Use
endosulfan (small grains) (Thiodan 3EC, WP, or WSB, and Phaser 3EC or WSB)	0.5	3EC - 2/3 pt WP - 1 pound WSB - 1 bag (1 pound unit)	Do not apply after heads begin to form. Do not feed treated forage to livestock. Do not make more than 2 applications per year. For aerial application, see label for recommended volumes and carrier.
Warrior RUP (wheat, corn, sunflower, and sorghum)	0.015-0.025	1.92-3.2 fl oz	Do not apply within 21 days (corn) or 30 days (sorghum and wheat) of harvest. When applying by air, apply in a minimum of 2 gallons of water per acre.

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