Alfalfa X-12

Cutworms

*Sue Blodgett, Frank B. Peairs revision, (Michael J. Brewer Frank B. Peairs Jay D. Donahue original)*

**Introduction**

Pale western and army cutworms are the two most consistently damaging species although variegated and dingy cutworms have been known to cause occasional damage in this region. The army cutworm primarily causes damage to alfalfa and winter wheat but may also damage canola and sugarbeet crops. However, feeding may occur during warm fall periods, causing fall damage to winter wheat and alfalfa. Pale western cutworm overwinters in the egg stage and therefore occurs later in the spring. Cutworm outbreaks tend to be separated by several years in which they cause very little damage. Cutworm larva avoid sunlight feeding at night or on overcast days, making populations difficult to sample.

**Identification (and life cycle/seasonal history)**

**Army cutworm** larvae are nearly two inches long when fully grown, generally colored light gray with lighter markings and a pale stripe running down the back. Adults are small moths, with a wingspan of about 1 1/2 inches. The army cutworm is the primary "millers" moth species which are a nuisance in early summer, entering homes in outbreak years.

The army cutworm has one generation per year and spends the winter as a partially grown caterpillar, feeding during warm periods throughout the winter. Fall outbreaks occasionally occur, especially in warmer regions of the High Plains. In the spring it feeds more frequently and development proceeds more rapidly. After development is complete, a small pupation chamber is built several inches below the soil surface. Adults emerge soon afterward.

Army cutworm or miller moths migrate from cropland into the Rocky Mountains to spend the summer aggregated at high elevation sites. Army cutworm moths have been seen aggregated at 12,000 feet elevation in the Snowy Range of Wyoming and Beartooth Mountains of Montana. The aggregations have been documented as a food resource for grizzly bears. As day length shortens, adults fly back to the Plains traveling hundreds of miles. Pheromone traps are used to detect their fall activity and to forecast next year’s populations. Eggs are usually laid in the soil in late summer through fall. Larvae feed above ground on the young stems of grasses at night, retreating under the soil during the day. The larvae over-winter as partially grown caterpillars, completing their development in the spring. Pupation takes place in the soil as summer begins.

**Pale western cutworm** had one generation per year and spends winter in the egg stage. It
hatches in the spring, feeding below ground at night. This the more damaging of the species because it clips stems, rather than defoliating above ground plant parts like the army cutworm. Following feeding it pupates in the soil and remains there for the summer, emerging in the fall to mate and egg lay coinciding with the army cutworm flight. The pale western cutworm adult activity is monitored by using pheromone traps and used to predict larval populations the following spring.

**Plant Response and Damage**

Cutworms cause economic damage by cutting plants off at the soil surface (pale western and dingy cutworm species) or by foliar feeding (army cutworm, variegated, and darksided cutworm species). The damaging larval stage occurs in the spring. Young alfalfa seedlings have small reserves of food to regenerate top growth cut off by cutworms. Older established plants are less likely to be killed, but yields can be reduced or growth slowed under high densities of cutworm larvae.

**Monitoring**

There are two methods to monitor cutworm activity. Adult activity may be monitored in the fall when moths are flying, mating and laying eggs. This program has been conducted in a multi-state region including the High Plains. Results may be reviewed at http://cutworm.org/

Larvae may be sampled in the spring though this is time consuming and many samples must be taken to compensate for the random field distribution of these pests. Larvae hide in loose soil at the base of the plants or under soil clods during the day and can be detected by sieving soil or visual inspection.

**Economic Thresholds**

Chemical control may be justifiable when their density reaches three to four per square foot in mature stands. For new stands, two larvae per square foot cause economic damage. Under heavy pressure or high residue conditions, control may be difficult.

**Management Approaches**

**Cultural methods**

Growers should avoid rotations from grass hay or grain into alfalfa if cutworms have been problems in the past. Adequate irrigation and fertilization of new stands may help the young plants grow past the most vulnerable stage for damage from cutworms.

**Biological control**

Soil moisture promotes fungal pathogens that kill many larvae in wet years. Pale western cutworm is particularly susceptible to wet periods that favor parasites, predators and disease causes populations to decline sharply. The number of days with at least 0.25 inch of rainfall ("wet days") is used to determine the potential impact of rainfall on the pale western cutworm population. If 12 or more "wet days" occur during the spring (March-June), the pale western population will be reduced to the point that it will take two or more dry springs to allow the
population to rebuild to significant levels. If there are 10 or fewer "wet days," the pale western cutworm population is likely to increase, and the potential for damage the next year is increased.

**Chemical control, Army Cutworm**

**Sampling/Surveying/Timing of sampling**

Fields should be checked in April and May. The larvae hide in the soil or under debris during the day, moving deeper into crevices in the soil under dry conditions. At night, larvae can be found feeding above the surface.

**Product List for Cutworms:**

<table>
<thead>
<tr>
<th>Insecticide</th>
<th>Product per Acre (Fl oz. or oz. product)</th>
<th>Preharvest Interval, remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baythroid XL R1</td>
<td>0.8-1.6</td>
<td>7 days. 12 hr REI. <strong>Extremely Hazardous to Bees!</strong> Maximum of 2.8 oz/ A applied per cutting and total 11.2 oz/A applied per season. Do not apply to seed alfalfa. Do not apply to mixed alfalfa grass stands.</td>
</tr>
<tr>
<td>carbaryl R1,2</td>
<td>See labels</td>
<td>7 days. 12 hr REI. Most formulations are <strong>Extremely Hazardous to Bees!</strong> Do not apply to alfalfa in bloom. Sevin XLR+ is safe for bees if applied at &lt;1.5 lbs ai/acre when no bees are in the field. Do not apply more than once per cutting.</td>
</tr>
<tr>
<td>chlorpyrifos 4ER R1,2</td>
<td>1 - 2 pts</td>
<td>14 days (1 pt), 21 days (over 1 pt rate). 24 hr REI. Do not make more than 4 applications/year or one application per cutting. <strong>Extremely Hazardous to Bees!</strong> Do not apply when bees are present. Minor phytotoxicity may occur on rapidly growing foliage.</td>
</tr>
<tr>
<td>Cobalt R1</td>
<td>19-26</td>
<td>7 days after application of 13 fl oz, 14 days after application of 26 fl oz, 21 days after application of rates above 26 fl oz per acre. <strong>Extremely Hazardous to Bees!</strong> Do not apply when bees are present.</td>
</tr>
<tr>
<td>lambda cyhalothrin R1,2</td>
<td>1.92 – 3.2</td>
<td>1 day PHI forage, 7 day PHI hay. 24 hr REI. <strong>Extremely Hazardous to Bees!</strong> Do not apply when bees are present. Maximum 3.84 oz/acre per cutting, 15.36 oz/A per season may be applied.</td>
</tr>
<tr>
<td>Lannate R1,2</td>
<td>4-16 (SP)</td>
<td><strong>Variegated Cutworm.</strong> 0 days, 7 days grazing or feeding, 48 hrs REI. <strong>Extremely Hazardous to Bees!</strong> Do not apply when bees are present. Do not apply more than 3.6 lbs ai/A or make more than 10 applications/crop.</td>
</tr>
<tr>
<td>Mustang Max ECR R1</td>
<td>2.24 – 4.0</td>
<td>3 days cutting, grazing. 12 hr REI. <strong>Extremely</strong></td>
</tr>
</tbody>
</table>
**Hazardous to Bees!** Do not apply when bees are present. Maximum of 4.0 oz per cutting, 12.0 oz per season.

**permethrin R,1,2** See labels

0 days if 0.1 lb ai/A or less, when rate is greater than 0.1 lb ai then 14 day. Do not apply more than 0.2 lb ai per cutting. **Extremely Hazardous to Bees!** Do not apply when bees are present.

**ProaxisR,1** 1.92 – 3.2

1 day forage, 7 day hay. 24 hr REI. **Extremely Hazardous to Bees!** Do not apply when bees are present. Maximum 3.84 oz/acre per cutting, 15.36 oz/acre per season may be applied.

**R** Restricted use pesticide  
**1** Labeled for chemigation  
**2** Generic active ingredient, several formulations

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**Categories:** Alfalfa, Insects, army cutworm, pale western cutworm

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