Managing cutworms in winter wheat

Army cutworm

Pale western cutworm

Army cutworm

The army cutworm has one generation per year and spends the winter as a partially grown caterpillar. It will feed on warmer days throughout the winter. In the spring it feeds more frequently and development proceeds more rapidly. As daytime temperatures rise, the army cutworm is found under soil clods and other debris during the day. In spite of spending so much time in the soil, this is a climbing cutworm that always feeds above ground.

After development is complete a small pupation chamber is built several inches below the soil surface. Moths emerge in May and June and migrate to higher elevations in the Rocky Mountains to escape high summertime temperatures. These moths are the "millers" that become a household nuisance following outbreaks. In late summer and early fall the moths return to the plains to lay their eggs in wheat fields and other cultivated areas. With sufficient moisture eggs hatch and larvae of the next generation start feeding as weather conditions permit.

Army cutworms have a very wide host range and will feed on most crops grown. They will feed on just about any green tissue presented to them, although they will show preferences when given a choice. For example, army cutworms have been observed to prefer broadleaf weeds in wheat fields to wheat. Damage to wheat occurs in the spring.

Because of the sporadic nature of army cutworm outbreaks, management options are limited to the use of insecticides. Consider treatment if counts are more than four to five per square foot.

Pale western cutworm

The pale western cutworm is a subterranean soft bodied caterpillar; grayish-white in color, unmarked by spots or stripes, with two distinct vertical brown bars on the front of the head capsule. A fully developed larvae is about one inch in length.

Adult moths emerge from the soil in late summer and fall. Eggs are deposited in loose soil and usually hatch within two weeks. Hatch may be delayed for up to several months if moisture and temperature conditions are unfavorable. Larvae prefer loose, sandy or dusty soil and are found most easily in the driest parts of the field, such as hilltops. After feeding is completed, pale western cutworm larvae move to pupal chambers constructed several inches below the soil surface. Adult emergence can begin in late July.

Outbreaks are associated with dry conditions in the previous spring. If the preceding May and June had fewer than 10 days with ¼ inch or more of rainfall, then pale western cutworm populations can

be expected to increase. If the preceding May and June had more than 15 such days the cutworm will almost totally disappear. Rainfall events of more than ¼ inch tend to drive the cutworms to the soil surface and exposes them to more than usual levels of predation and parasitization.

Pale western cutworm is a subterranean cutworm feeding on stems at the crown. Small grains, corn, and a variety of other crops have been damaged by pale western cutworm.

Because of the sporadic nature of pale western cutworm outbreaks, management options are limited to the use of insecticides. Pale western cutworms seem to feed more under dry conditions, so yield relationships are difficult to define. Early detection of their presence is essential. Consider insecticide treatment if more than two to three larvae per foot of row are present.

Insecticide Recommendations

It has been many years since there have been any opportunities to test insecticides against these pests. However, some years ago Stan Pilcher and I conducted three trials that clearly demonstrated the superiority of pyrethroid insecticides for the control of these two insects, which are summarized below. It is important to note that not all of these treatments are labeled for use in wheat. For example, only the Lorsban 4E, 0.50, rate would be allowable on the current label. Also, the relative superiority of the pyrethroids increases under drier soil conditions, and soil moisture was greater for Trial 2 than for the other two.

Trial 1. Control of pale western cutworm, Springfield, CO, April 1986

Product, lbs (AI)/acre[1]	**% Control[2]**
Karate (=Warrior)1E, 0.01	93
Baythroid 2E, 0.02	93
Lorsban 4E, 1.00	57
Lorsban 4E, 0.75	21

[1] not all treatments are presented in this table.
[2]The untreated control averaged 0.6 large larvae per foot of drill row.

Trial 2. Control of pale western cutworm, Arriba, CO, May 1990

Product, lbs (AI)/acre[1]	**% Control[2]**
Pounce 3.2E, 0.10	95
Asana XL, 0.03	86
Pounce 3.2E, 0.075	86
Lorsban 4E, 0.75	86
Lorsban 4E, 1.00	86
Lorsban 4E, 0.50	62
Untreated	0 (2.1 larvae/sq. ft)

[1] One week after treatment.

Trial 3a. Control of pale western cutworm, Akron, CO, April 1991

Treatment	**Pale western cutworms/sq. ft.**[1]
Average of 7 pyrethroid	0.1
Untreated	4.5

[1] Two weeks after treatment.

Trial 3b. Control of army cutworm, Akron, CO, April 1991

Treatment	**Army cutworms/sq. ft.**[1]
Average of 7 pyrethroid treatments	0.04
Untreated	2.0

[1] Two weeks after treatment.

The other question that comes up is what is the best product choice if there is a second pest, e.g., brown wheat mite or Russian wheat aphid, present in the same field? In the case of Russian wheat aphid, pyrethroids at the highest label rate will provide adequate control although not quite at the level of chlorpyrifos (Lorsban 4E and others). Such treatments would be an appropriate choice for a combination of cutworms and aphids.

In the case of brown wheat mite, we have data from one trial in which control of brown wheat mite with Warrior II was similar to that achieved with Lorsban Advanced and a bit lower than that achieved with dimethoate. We have much more data supporting the effectiveness of dimethoate for the control of brown wheat mite. A pyrethroid/dimethoate combination, therefore, might be the best choice for a combination of cutworms and brown wheat mites.

Frank Peairs
Department of Bioagricultural Sciences and Pest Management
Colorado State University
970.491.5945
frank.peairs@colostate.edu