



Figure 1. Sunflower moth, *Homoeosoma electellum*.

Sunflower

Moths & Banded Sunflower Moths

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Two species of sunflower moths attack cultivated sunflower heads in South Dakota: the sunflower moth, *Homoeosoma electellum* (Huist), and the banded sunflower moth, *Cochylis hospes* (Walsingham). Damage is caused by larvae of both species. Biology and management of the two species are similar but not identical.

Description

The sunflower moth is a tan or gray moth about 3/8 of an inch long with a 3/4 inch wingspan (Figures 1 and 2). Larvae have alternating stripes of light and dark bands running lengthwise on the body and are about 3/4 of an inch long when fully developed (Figure 3).

The banded sunflower moth is about 1/4 inch long with a 1/2 inch wingspan. The front wings have a straw-colored background with a dark brown band across the middle of the wings (Figure 4). Larvae vary in color depending on the stage of development; early stage larvae are cream-colored, whereas later-stage larvae will be pink, red, and finally green at maturity. Fully developed larvae are about 7/16 of an inch long.

Life Cycle

Sunflower moths do not overwinter in South Dakota. They migrate into the state from southern areas, usually arriving about the time that sunflowers begin to bloom. The adults are strongly attracted to sunflower fields which are just beginning to bloom. Adults may deposit up to 30 eggs per day on the sunflower head. Larvae initially feed on pollen and florets until they reach the third instar at which time they begin to burrow into seeds. Larval development requires 15 to 19 days.

Banded sunflower moths overwinter in South Dakota in the soil as larvae which pupate in June. Adults begin to emerge in late June or July and peak egg laying usually coincides with the late bud stage of sunflower development. When larvae reach the third instar, they

begin tunneling into the seeds, consuming part or all of the contents of the developing seed. Larvae develop through five growth stages and may be present in sunflower heads from July through September before dropping to the ground and spinning a cocoon to spend the winter.

Figure 2. Sunflower moth, *Homoeosoma electellum*.



Figure 3. Sunflower moth larvae.

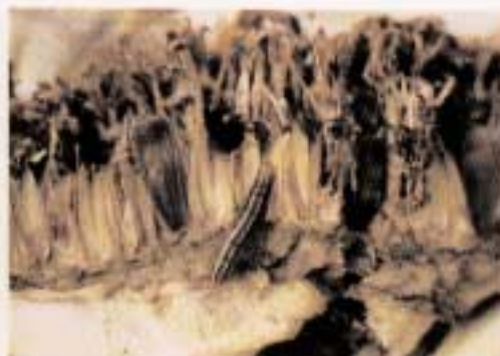


Figure 4. Banded sunflower moth, *Cochylis hospes*.



Damage

Early-stage sunflower moth larvae feed primarily on pollen and florets but later tunnel into seeds and other head tissue. Each larva may damage 4 to 6 seeds during development. Severe infestations of sunflower moth can result in 30 to 60% yield reductions.

Banded sunflower moth larvae also initially feed on florets and later tunnel into seeds, but they do not damage other parts of the head. Feeding on the florets may reduce the total number of seeds produced by the head. Sunflowers are only susceptible to infestation during the flowering period. Each banded sunflower moth larva can consume 6 or 7 seeds. A characteristic sign of banded sunflower moth infestations is areas of silken webbing over the surface of the sunflower head.

Scouting

Scout for both of these moths in early morning or evening hours. Moths will be most active in the head region at these times, but they will be hiding under leaves and similar protected areas during the daytime. Examine 20 plants at each of at least 5 locations in the field, counting the number of moths per head. All sample sites should be at least 100 feet in from the field margin; both species tend to congregate in field margins. **Maintain separate counts for the two species because economic thresholds are different for the two moths.**

Economic Thresholds

Sunflower Moth

Treatment is justified when sampling reveals two adult sunflower head moths per five heads at the onset of bloom or within seven days of the moths' first appearance. Pheromone traps may be used to indicate the arrival of adults. Research has indicated that fields that are in bloom, or that bloom two weeks or more after the first adults appear, have very low potential for damage even if moths occur in economic numbers.

Banded Sunflower Moth

Research in North Dakota has indicated that approximately

one banded sunflower moth per two heads is a reasonable economic threshold. These moths congregate in field margins just prior to flowering, and treatment of field margins at this time may significantly reduce adult populations while reducing insecticide inputs.

Control

Cultural controls such as tillage and date of planting have been somewhat effective in controlling banded sunflower moth, but these management options also carry with them undesirable consequences. For instance, fall plowing in Manitoba has reduced emergence of banded sunflower moth adults by 80 percent, but this obviously makes it difficult to comply with residue requirements and still would not provide complete control.

Delaying planting of sunflowers in North Dakota until late May or early June has reduced infestations by banded sunflower moth. However, research in South Dakota indicates that late planting increases infestation levels of sunflower seed weevil and may result in reduced yield and oil content.

If you wish to manipulate planting dates to control insect pests, consider the impact on all insect species which may infest sunflowers. Also consider if a planting date change could affect other aspects of sunflower production.

Insecticide applications for both moth species must take place at very early bloom to be most effective. Insecticide applications after visible signs of larvae damage have not been effective, nor are they economically sound.

Consult South Dakota State University Extension Fact Sheet 888-OS, "Insect Control for Oilseed Crops," for specific insecticide recommendations for controlling both species of sunflower moths.

If an insecticide application is necessary, make applications in early morning or evening hours to minimize risk to honey bees. If blooming sunflowers must be treated, notify local beekeepers to allow for movement or confinement of hives before applications are made.

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