

PLANT DISEASE AND INSECT ADVISORY



Department Entomology and Plant Pathology
Oklahoma State University
127 Noble Research Center
Stillwater, OK 74078



Vol. 1, No. 20

Website: <http://plants.okstate.edu/Pddl/advisory.htm>

July 16, 2002

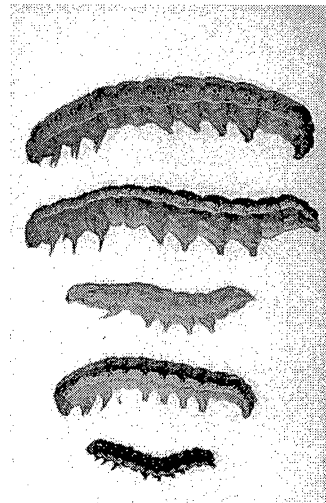
Managing Headworms in Sorghum, 2002

Tom A. Royer, Extension Entomologist

Reports out of Texas suggest that there is a potential threat of corn earworm infestations occurring in sorghum. Corn earworm, along with the fall armyworm and the sorghum webworm, are members of the "headworm" complex, one of several potential pest complexes of sorghum that can damage developing seed panicles and reduce yield potential.



The headworm complex feeds in the maturing head. Corn earworms and fall armyworms are striped caterpillars with very little body "hair". The fall armyworm has a distinctive white or yellow inverted "Y" on its head, which allows it to be distinguished from the corn earworm. Corn earworms don't have the inverted "Y" and vary greatly in color, ranging from light green or pink to nearly black. Sorghum webworm larvae are somewhat flattened, hairy, reddish to yellowish-brown, and have 4 dark stripes running along their body.



Damage from headworm feeding may go unnoticed until severe injury has occurred, so it is important to check fields regularly once the heads emerge from the boot. To scout, simply take a tall kitchen trash bag or a 5 gallon plastic bucket, carefully bend the head into the container and shake vigorously to dislodge any insects. Count all headworms found, and examine at least 30 heads before making a control decision. Generally, scouting can be stopped once the seed reaches hard dough stage.

For corn earworms and fall armyworms, the "rule of thumb" number for treating is an average of 2 worms per panicle. The following table, developed at Texas A&M University, provides economic injury levels for headworms.

Economic Injury Levels* For Corn Earworm and Fall Armyworm on Sorghum

Control Costs (\$) per Acre	Market Value of Crop (\$) per Acre					
	100	140	180	220	260	300
4.00	1*	0.9	0.8	0.7	0.6	0.5
6.00	1.5	1.3	1.1	0.9	0.7	0.5
8.00	2	1.7	1.5	1.2	1.0	0.7
10.00	2.5	2.2	1.9	1.5	1.2	0.9

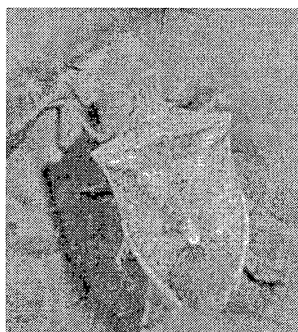
* Number of headworms per panicle

There are several insecticides registered for control of headworms. They include Asana XL at 5.8-9.6 fl oz/acre, Baythroid at 1.3 to 2.8 fl. oz/acre, Karate at 2.56-3.85 fl oz/acre, Lorsban 4E at 2 pt/acre, methomyl at 0.75-1.5 pt/acre/acre, Sevin XLR at 1-2 qt/acre, and Tracer at 1.5-3 fl oz/acre. Check the label for specific suggestions on control.

Managing Panicle-Feeding Insects in Sorghum, 2002

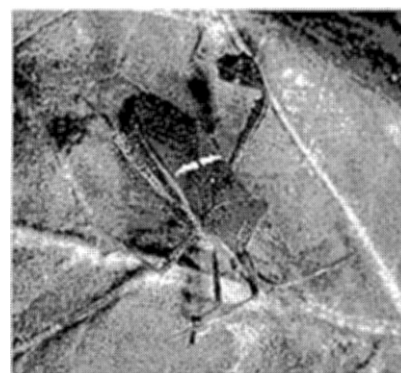
Tom A. Royer, Extension Entomologist

As sorghum begins to head, it is important to make sure your crop is not being damaged by any of the panicle-feeding insect complexes that can attack sorghum. One such complex is the panicle-feeding bug complex, which includes stink and leaf-footed bugs.



Stink bugs are “true bugs” and get their name from their ability to produce a noxious smell when disturbed from glands located near their “neck”. Several species including the brown, green, rice, and southern green stink bugs as well as the conchuela can attack sorghum. All have a characteristic shield-shape and large triangular plate on their back. They tend to cause more damage during early kernel development as well.

Like the stink bug, the leaf-footed bug is a “true bug.” This brown, oblong-shaped insect measures about ¾ inches long and can be easily recognized by the dilated, leaf-like portion of their hind leg that resembles a “leaf”, and a white stripe that bisects its back. It has piercing-sucking mouthparts that it uses to feed on developing sorghum kernels. Leaf-footed and stink bugs have the potential to cause more damage to sorghum seed when it is in early development. Damaged seeds are often smaller, with less weight, and are less likely to germinate. Damaged seeds are generally blown out of the combine and lost, which reduces harvested yield.



SAMPLING: Sorghum heads must be examined to determine the need for control of panicle-feeding bugs. The shake bucket/baggie method of scouting works well for sampling fields. Carefully move to a plant without disturbing it, quickly insert the head into the bucket or plastic bag, and shake vigorously. Count all leaf-footed and stink bugs that fall into the bucket or garbage bag. These bugs will fly out of the bucket, so be prepared to count “flying” bugs.

Inspect at least 1 head per acre of field (minimum 30 samples) and continue scouting sorghum until the head has reached soft dough.

TREATMENT THRESHOLDS: To help make treatment decisions, I offer a “rule-of-thumb” treatment threshold and a more detailed set of economic injury levels that were developed by Texas A&M entomologists in the late 1980’s. While the rule-of-thumb number provides a quick decision, the use of economic injury levels is based upon yield potential and cost of control, which allows for making a sound business decision.

The rule-of-thumb treatment threshold for stink or leaf-footed bugs in sorghum at milk stage is 5 bugs per panicle, and is 9 bugs per panicle at soft dough stage. See the tables below for more detailed economic thresholds for stink and leaf-footed bugs.

Economic Injury Levels* For Panicle-feeding Bugs On Sorghum at Milk Stage of Growth

Control Costs (\$) per Acre	Market Value of Crop (\$) per Acre					
	100	140	180	220	260	300
4.00	4*	4	3	3	2	2
6.00	5	4	4	3	3	2
8.00	5	5	4	4	3	3
10.00	6	5	5	4	4	3

* Number of leaffooted bugs + stink bugs per panicle

Economic Injury Levels* For Panicle-feeding Bugs on Sorghum at Soft Dough Stage of Growth

Control Costs (\$) per Acre	Market Value of Crop (\$) per Acre					
	100	140	180	220	260	300
4.00	7*	6	5	5	4	3
6.00	8	7	6	6	5	4
8.00	9	8	7	6	6	5
10.00	10	9	8	7	6	5

* Number of leaffooted bugs + stink bugs per panicle

CONTROL: There are several insecticides registered for control of panicle-feeding bugs. Sevin applied at 1-2 qt/acre; Baythroid applied at 1.3-2.8 fl oz/acre; Karate/Warrior applied at 2.56-3.84 fl oz/acre; or ethyl (NOT METHYL) parathion applied at 0.5 pt/acre have all been shown to be effective. Harvest restrictions range from 12 to 30 days after application. Always read the label for additional information on application rates and restrictions.

Oklahoma State University, in compliance with Title IV and VII of the Civil Rights Act of 1964, Executive Order of 11246 as amended, Title IX of the Education Amendments of 1972, Americans with Disabilities Act of 1990, and other federal laws and regulations, does not discriminate on the basis of race, color, national origin, sex, age, religion, disability, or status as a veteran in any of its policies, practices or procedures. This includes but is not limited to admissions, employment, financial aid, and educational services.

Issued in furtherance of Cooperative Extension work, acts of May 8 and June 30, 1914, in cooperation with the U.S. Department of Agriculture, Samuel E. Curl, Director of Cooperative Extension Service, Oklahoma State University, Stillwater, Oklahoma. This publication is printed and issued by Oklahoma State University as authorized by the Dean of Agricultural Sciences and Natural Resources.