



May 16, 2002 No. 2

Potential Early Season Sorghum Insects Part 1

(1. Common concerns - either localized or statewide)

Wireworms & other seed attacking insects

When and where to look:

Infestations are generally limited to isolated spots in scattered fields. Some fields have a history of infestation. In such fields you may want to establish bait stations prior to planting. Some wireworms are annual species that are present during one year then disappear, others feed as larvae for two years or more. Damage can appear anytime from the beginning of emergence up to about a month after planting.

What to look for:

Suspect infestation if poor emergence or plant loss occurs. Dig up wilted, stunted or dying plants, look for a hole near the crown in the underground portion of the stem. Look also for slender yellowish, cylindrical-shaped small to large worms (size can range from about 1/4" to about 1 1/2" in length).

Prevention or Control

Lindane seed treatment - can be planter box applied. This is often an inexpensive way to reduce risk, but performance varies. If seed was treated and serious damage occurs, check to see if larvae are present. If larvae are easy to find in the seed furrow, consider using a soil insecticide

if replanting is necessary. There is no rescue method available other than replanting damaged areas.

Gaucho or Cruiser seed treatment (systemics) - both are labeled as a preventative for wireworms, but must be commercially applied. Limited data suggest performance can vary from fair to good. Like lindane, if systemic seed treatment fails, use of a soil insecticide may be necessary.



Poor emergence or skips in stands suggests the possibility of wireworm damage.



Plants with leaves in the whorl dying can be a clue to wireworm damage.



Look underground for tunneling into the stalk near the root zone.

Chinch Bugs (Can they overwinter in wheat?)

Conditions could be threatening for portions of eastern Kansas, particularly in central and south central areas. They infested wheat in spots in south central Kansas in October and November. Though this happens sometimes, it is rare. And even if they do infest wheat in the fall, they almost never successfully overwinter in these fields. Chinch bugs need bunch grass for overwintering protection. Therefore, when we revisited McPherson County in March of 2002, we were surprised (shocked?) to find the bugs still active in the soil around the plants where we had seen them in November. Dale Fjell, KSU Extension Agronomist, says he also saw some in April in wheat in Cowley County. At that time, it looked like we might be on the verge of a serious outbreak at sorghum planting time, but the change in weather during May from dry to wet conditions could help to dilute this threat to some degree. Even so, be cautious about betting on the chances of escaping this problem.

Chinch bugs normally emerge from overwintering grasses in April, fly to wheat (esp. thin wheat), and lay eggs. Nymphs begin to appear in May. Hatching may continue into June. Look near the soil line behind the leaf sheath of wheat plants (from heading to harvest) for tiny bright red nymphs. Another way of inspecting is to carefully pull or dig a plant up out of the soil and look for nymphs crawling around in the soil attached to the roots.

As wheat matures, the immature bugs are forced to seek other food sources. Migration out of wheat usually occurs during the period of about one-week before to about one week after harvest. Typically, this occurs before they have developed functional wings. Look for the nymphs crawling on the surface of the soil between wheat and nearby sorghum or corn. Since sorghum is smaller, it usually suffers greater damage. Chinch bugs can survive on a wide variety of plants in the grass family, but they do not feed on legumes.



Typical beginning signs of chinch bug injury where sorghum borders wheat (especially thin wheat).



Newly hatched nymphs are bright red with a band of white. As they grow, they gradually become blackish. The white band disappears as the wing pads develop.



Checking for chinch bugs in a field where the sorghum was planted soon after a poor crop of wheat was destroyed (nymphs can be seen in the next picture).



Newly hatched nymphs, noticeable only by looking behind the leaf sheath and in the soil around the roots.

What to do (Management notes):

1. Use treated seed:

Use seed treated with either Gaucho or Cruiser in fields with a history of problems and especially where sorghum will be planted in the vicinity of thin wheat. Protection can be lost where sorghum is planted more than about 3 weeks prior to wheat maturity.

2. Use a soil insecticide:

If application equipment is available, another option when planting untreated seed is to use Furadan or Temik as a soil insecticide applied in the furrow at planting. This offers about the same length of protection that would be expected with seed treatment. Added expense and/or lack of equipment can limit this option.

For more information on seed and soil treatments, see publication MF-742, Sorghum Insect Management for 2002.

www.oznet.ksu.edu/library/ENTML2/Mf742.pdf

3. Some Growers use a trap crop:

Under heavy chinch bug pressure, some growers use an early-planted trap crop, about a 50-foot strip of sorghum or sudan planted between small grains and grain sorghum. As bugs move out of the small grain, they tend to concentrate in the trap strip where they can be controlled before they move into the regularly planted field.

4. Rescue treatment options

As soon as bugs begin to migrate from small grains, be ready to spray infested border rows of sorghum using ground equipment with the nozzles (10 -15 gal. /a.) directed toward the base of the plants. Since there is little residual protection afforded when spraying small plants, the application may need to be repeated two or three times. Details are listed on page 5 (see above) of the Sorghum Insect Management Recommendations.

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Greenbugs

Heavy flights out of wheat (either locally or from southern areas) can coincide with sorghum emergence and result in light to heavy numbers on small sorghum plants. This is serious at times, though it has been rare in recent years. It is hard to predict the risk of infestation prior to planting. Those planting later in the season may gain some insight by monitoring plants in the earliest emerging fields in the community for signs of developing infestation.

Resistant Hybrids

Resistant hybrids can tolerate some infestation, but may be damaged during periods of heavy infestation. Biotypes are designated as “E,” “I,” and “K”. The predominant biotype is “I” and to some extent “K.” Hybrids with “E” resistance, but without “I” are thought to offer little if any protection in Kansas. Phil Sloderbeck recently compiled this list of hybrids with claims for resistance to “E”, “I” and “K” biotypes. *

DeKalb DKS 54-00 E, I;
DeLange DSA 123Y E, I;
Golden Harvest H-499Y E, I, K;
Mycogen 576 E, I, K;
Mycogen 627 E, I, K;
Mycogen 697 E, I, K;
Mycogen 3696 E, I;
NC+7Y57-K E, I, K;
Triumph TR 465 E, I.

* Source: Farmer's seed book for Kansas 2002 by Steve Watson -- Lone Tree Publishing Co.

Seed Treatment:

Gaucha or Cruiser seed treatment. This could be a consideration where susceptible hybrids are planted. Protection against greenbugs appears to last longer than it does against chinch bugs.

Rescue treatment:

Foliar sprays may be needed if infestations begin to approach the treatment thresholds as listed in the Sorghum Insect Management Recommendations. Insecticides suggested for greenbugs include carbofuran (Furadan 4F, SLN label # 88001), parathion (in this case ethyl not methyl parathion), chlorpyrifos (Lorsban 4E), dimethoate

(Dimethoate, Dimate) and malathion (some malathion labels no longer list sorghum). Chlorpyrifos, dimethoate and malathion are lower in toxicity and better suited for application by growers in ground equipment. Lorsban 4E is labeled for use in overhead sprinkler systems. All but dimethoate and malathion are Restricted Use. Consult the product label for detailed information on uses and restrictions. For information on making treatment decisions, rates and a summary of major restrictions of insecticides, see pages 9 to 12 in the Sorghum Insect Management Recommendations, also see pages 6 & 7 for additional notices on use of ethyl parathion:

www.oznet.ksu.edu/library/ENTML2/Mf742.pdf



1-leaf stage seedlings can be overwhelmed in a matter of hours during periods when the air is filled with winged greenbugs.



The small pinpoint reddish spots are typical of greenbug feeding. Sometimes symptoms persist after the insects have disappeared.



At first glance, there is little to suggest that this field is in trouble. All that is needed to diagnose it is look on the undersurface of the leaves (next picture).



Though these plants still look healthy, a serious greenbug infestation is developing. One clue is the mixture of both adults and offspring suggesting that a rapid increase is in progress.

Cutworms

When damage develops, it is most likely to occur during the first two weeks following planting within the period from late May to mid-June. Scout fields closely during this period. Sometimes the threat to sorghum is greater in areas where there was earlier damage in corn, but this pattern is far from consistent. If the infestations consist of larvae already an inch and a half in length, you are not likely to gain a benefit from trying to control them. Why? Because they are approaching maturity, they have almost completed their larval feeding period and within a couple of days, they will start to become less noticeable as they crawl down in the soil to pupate. Smaller ones, however, will cut additional plants. There is always a range in size distribution. The need for rescue treatment is usually greater if the majority of the worms are 1/2" or less in length. Assume that each 1/2" worm is capable of destroying another four to six additional plants before it reaches maturity. One way to examine the seriousness of damage is to determine the minimum plant population recommended for the hybrid being grown and compare this with the actual population in the

field. Partially, because of its ability to tiller, sorghum can tolerate more damage than corn. However, cutworm damage usually is spotty in its distribution across the field. This may result in a need for rescue treatment in some portions of a field, but not necessarily the entire field. Look at the number and length of the skips. Richard Vanderlip has determined that plants may be able to compensate for short skips by producing additional tillers, but plants lose this ability when the skips are longer than about two feet in length. He says other things being equal; cutworm damage becomes more serious the later it is planted. There was a time when there was a lack of effective rescue treatments for cutworms in sorghum. When faced with the problem, the only option was to wait for a week to 10 days, then replant damaged areas. Growers now have available several options including Esfenvalerate (Asana), Cyfluthrin (Baythroid), Lambda-cyhalothrin (Warrior formulations), and chlorpyrifos (Lorsban and Nufos). For details see page 3 of the Sorghum Insect Management Recommendations:

www.oznet.ksu.edu/library/ENTML2/Mf742.pdf



Leaves with holes or leaves that are severed may be the first sign of cutworm damage. In this case the small worm causing the damage is visible.



As worms get larger, they cut off plants near the soil line. They tend to hide in the soil except on cloudy days.

Sincerely,

H. Leroy Brooks
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Insecticides (Pesticidal Safety)