

Kansas Insect Newsletter

For Agribusinesses, Consultants,
Applicators and Extension Personnel



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CORN INSECT ALERT - PARTICULARLY FOR NC KANSAS:

In an unusual situation, probably developing as a consequence of the mild winter, south-western corn borers are active in northern Kansas. In a few locations, limited local first generation populations of this southern Kansas insect were produced within whorl-stage corn. The adults derived from those first generation larvae are now



in the initial stages of emerging (particularly in a few fields within Jewell, Republic, and Cloud Counties).

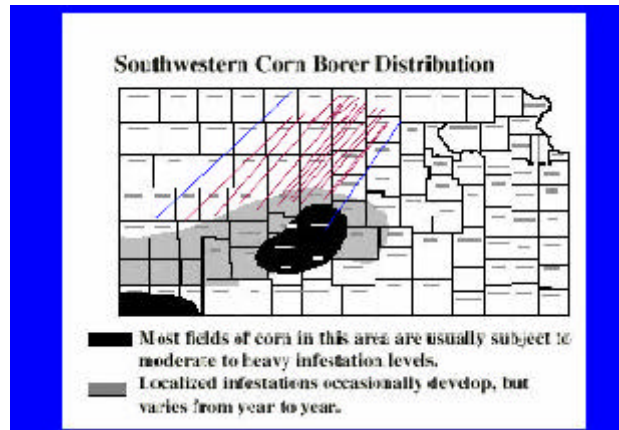
First generation survival in Mitchell County of southwestern corn borers also has been verified in the last few days (see following information on sorghum).

Moths that produce the second generation are capable of flying for miles in search of attractive corn on which to deposit their eggs. Thus, second generation damage can be severe in fields where first generation activity was



negligible or even absent.

Red lines indicated areas of special concern for second generation southwestern corn borer during the 2000 growing season

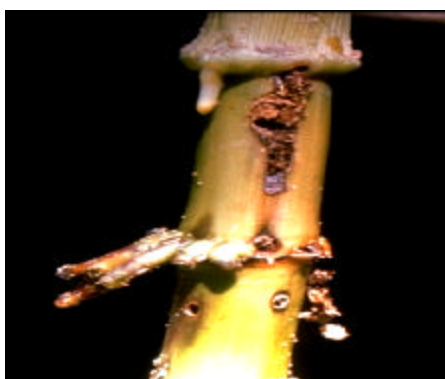


This serious corn insect is well-known to producers south of Great Bend and in the irrigated southwestern parts of Kansas, but is seldom found in NC or NE parts of Kansas. Each bright white larva covered with black spots gets larger than a



European corn borer larva.

Small larvae feeding on tassel-stage corn usually can be found between the husk layers of the primary ears and ear shoots and later may feed on the cob and ear shank. When the larvae are several days old, they bore into the stalk and begin tunneling. It tunnels extensively from near the ear zone down to ground level (20 to 30 inches per insect) in contrast to the 3 to 5+ inches that is typically associated with infestations of European corn borer larvae. Sometimes, southwestern corn



borer larvae will bore out of the stalk and back into it one or more times making visible exit and entry holes.

In late summer, it also girdles the plant from the inside, causing the stalk to break or lodge just above ground level.



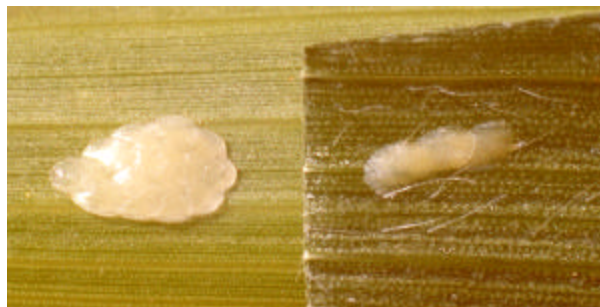
Serious infestations create tremendous harvest



problems in addition to the plant stress losses associated with tunneling as grain is filling.

We have measured 70+ bushels of grain on the ground in heavily infested plots in SC Kansas where insecticides were not used. Because it is cannibalistic, seldom are more than one larva found per plant by the time they finish feeding.

Scouting should start immediately and continue for the next 2 to 3 weeks in the infested area. Fresh eggs are creamy-white in color and oval in shape, with a slightly raised or convex upper surface. Each egg is a little less than 1/8 inch in diameter.



European corn borer egg mass (left) Southwestern corn borer egg mass (right)

Although single eggs can sometimes be found, eggs generally are laid in groups of two to five, overlapping slightly often in a chain-like pattern. Eggs may be laid anywhere on the plant, but most are laid in the upper surfaces of leaves. The eggs change color as they mature, developing three parallel rows of reddish-orange lines prior to hatching, which is commonly referred to as the red-bar stage.



Pictures of these egg masses, a southwestern corn borer larva, and the adult occur on our K-State Research and Extension web pages <http://www.oznet.ksu.edu/library/entml1/SWCB.pdf> in an electronic limited distribution document entitled: Southwestern Corn Borer.

Eggs are deposited on either side of leaves located primarily in the ear region. They generally seem to be more common on the tops of leaves, unlike European corn borers which prefer to lay eggs on the underside of leaves, right next to the midribs. Newly hatched southwestern corn borer larvae begin feeding on leaves, but prefer to feed on ear shoots, husks, and silks. Within 10 to 12 days (or even less), this generation also begins tunneling within the stalk, generally below the ear zone.

Control with insecticides is dependent upon getting an effective insecticide on the field before the larvae get inside the plant stalk. Insecticides should be applied when 20 to 25 percent of the

plants are infested with eggs or newly hatched larvae. If 20 percent or more of the plants are infested with eggs, then treatment is recommended when 50 percent emergence is expected and possibly retreat 7 to 10 days later. If some eggs are found but there are not enough to justify treatment, then rescout the field in 3 to 5 days. At that time, consider treatment if the **sum** of the two counts exceeds 25 percent. Realize that two applications still may be needed to prevent significant losses. If samples from two consecutive scouting trips are below threshold, a third sampling should be made 7 to 10 days after the first sampling date. Again, sum the results of all three sampling dates and consider treatment if the total exceeds the 25 percent threshold. With this light pressure one application a week or so after the predicted date of 50 percent emergence should provide adequate control.

Two treatments, spaced 7 to 10 days apart are sometimes required where heavy populations persist. Products recommended against second generation southwestern corn borer are similar to those commonly used against European corn borers. Check pre-harvest waiting intervals and all other restrictions on labels before applying one of these products.

- ! Carbofuran (Furadan 4F) 1 lb. a.i./acre
- ! Esfenvalerate (Asana XL 0.66) 0.03 to 0.05 lb. a.i./acre (5.8 to 9.6 fl.oz/a)
- ! Permethrin (Pounce 3.2EC, Ambush 2E) 0.1 to 0.2 lb. a.i./acre (0.15 lb. a.i./acre or higher rates are usually recommended)
- ! Lambda-cyhalothrin (Warrior T) 0.02 to 0.03 lb. a.i./acre (2.56 to 3.84 fl.oz./acre)
- ! Bifenthrin (Capture 2EC) 0.08 to 0.10 lb. a.i./acre (5.1 to 6.4 fl. oz./acre)

Seriousness of this problem for corn producers growing non-Bt corn will depend on mating success, attractiveness of fields, numbers of adults that select a given field, moth movement, and to a large part weather conditions. Moist, still nights favor mating and egg laying. Severe storms and driving rains will kill large numbers of adults, limiting the number of larvae that are trying to establish themselves within plants.

Bt corn hybrids based on Bt11, MON810, or CBH-351 events should be adequately protected against both European and south-western corn borer. Hybrids containing Bt event 176, however, have not provided the same degree of protection against late season infestations of corn borers in the area traditionally infested with second generation southwestern corn borers. For examples of Bt corn performance, view the information at:

http://www.oznet.ksu.edu/entomology/extension/to_pics.htm (scroll down the page to find the links to the Bt corn data).

Some Grain Sorghum in Mitchell County has first generation SWCB

Southwestern corn borer is not a recognized pest in grain sorghum (though some infestation has been observed from time to time), but Brad Johnson with Farmway Coop in Beloit brought a problem to our attention this week. A late-whorl stage sorghum field in Mitchell County planted no-till into corn stubble is infested with first generation southwestern corn borer larvae at levels ranging from 10%, and in spots, up to nearly 50%.



No-till sorghum in old corn stubble



Whorl-stage corn with feeding damage

This is the highest level that we can recall experiencing. Infested plants exhibit signs of shot hole feeding similar to corn earworm or European corn borer in whorl stage corn.



Last year's corn stubble: girdling injury

Larvae range from 0.5 inch long to mature and many are pupating. The corn stubble shows signs of being fairly heavily infested last fall.

As the moths developing from the overwintering larvae emerged a few weeks ago, many of the moths apparently remained in the vicinity and deposited eggs on the sorghum. The nearest corn may be close to two miles away. An adjacent sorghum field with some volunteer corn is

also infested. There was no sign of SWCB in fields of sorghum we examined that were located two to three miles away. Will the emerging moths remain in the sorghum and produce a 2nd generation? Frankly, we don't know. It could be hard to detect egg laying in sorghum because plants are harder to inspect. Are there other sorghum fields infested with SWCB? Brad had heard of a report in nearby Lincoln County, but details are not available. Is this likely to become more of a problem? Our first reaction is that it is doubtful, but the problem needs more attention. If you encounter or hear other reports of SWCB in sorghum, please keep us informed.

WATCH FOR FALL ARMYWORMS IN NORTHEAST KANSAS BROME/GRASS PASTURES:

We are starting to receive reports of worm infestations in Riley County brome grass pastures. The worms are described as blackish with yellow stripes. There are spots in some fields where the vegetation has nearly been destroyed. The Riley County larvae we examined turned out to be fall armyworms, but many seem to have more colorful stripes than normal and closely resemble true armyworms (as reported earlier on Friday). We have also had reports from Nemaha and Brown



Counties of larvae causing heavy feeding damage to brome pastures and to one alfalfa field.

Armyworm control in pastures is generally suggested where numbers average about 4 to 5 half-grown healthy worms per square foot. In practice, when damage is severe enough that it is noticed by most people, worms are often nearly grown and there is not much to be gained by going through the effort and expense of an insecticide application. In Riley County, Mike Christian found larvae ranged from about 0.5 inch to over one inch in length, small enough that they could still feed vigorously for a few more days. It generally takes around 14 to 16 days for this species to progress from hatching to larval maturity at this time of year. These larvae will be an inch-and-a-quarter to one-and-a-half inches in length at maturity. Only a limited number of products are registered for use in pastures.

Always check label instructions before using any insecticide and follow the label that is associated with the product in hand.

Insecticides for pastures include:

1. Carbaryl (Sevin) at 1 to 1.5 lbs a.i./acre. Check waiting intervals for grazing and harvest. There are a number of products containing carbaryl and waiting intervals vary from 0 to 14 days.
2. Malathion 1.25 lbs a.i./acre. 0 waiting period for grazing or harvest.
3. B.t. Products including Biobit (Abbott Laboratories) and Javelin (Thermo Trilogy) are labeled for this purpose with a 0 waiting interval. Very safe to use but may be somewhat slower acting.

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