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Soybean Insects

It is the time of year to begin paying attention to soybeans for yield robbing insects. In addition to our normal insect pest like corn earworms, soybean loopers, armyworms, stink bugs, green cloverworms we have the Kudzu bugs to contend with as well. So far the numbers of Kudzu bugs in soybean fields have not reached a level to require treatment. There have been a few fields with high numbers on the field boarders but numbers of nymphs in the field have been below thresholds. When making a decision whether to apply an insecticide to soybeans this year factor in low levels of Kudzu bugs if worms are at or near threshold and soybeans are in the flowering to pod set stage of growth.

SCOUTING:

Check soybeans weekly from July 25 to mid-September. Place a high priority on checking fields in flowering from the last week of July through August. Corn earworm moths are attracted to blooming fields and will lay more eggs in open-canopied beans on high spots and lighter soil areas. From mid-August to mid-September, pay special attention to any fields near cotton because these areas often have the highest looper populations. Stink bugs can be difficult to scout for because they may not be found in all areas of a field. Stink bug damage can occur from pod set to when pods begin to yellow, but greatest injury occurs during early pod-fill.

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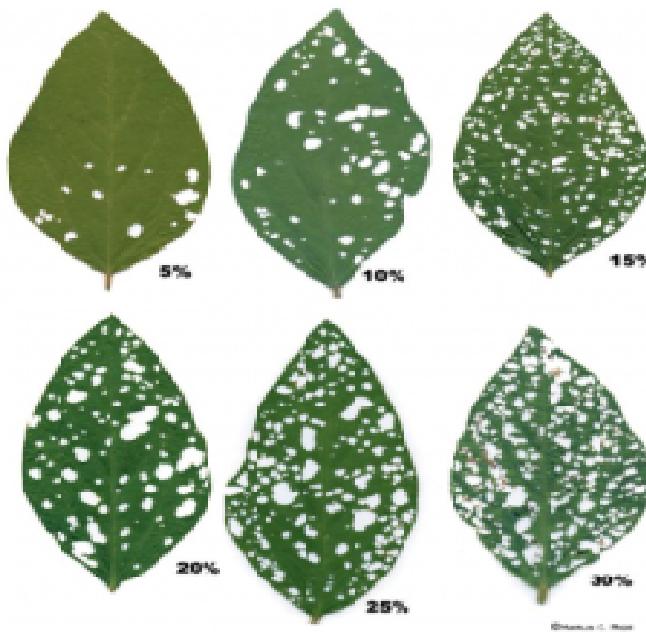
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The most important consideration for any field scouting program is to get a representative sample. If you can't scout all fields, at least sample representative varieties and planting dates each week. Don't treat all fields based on what is found in one variety or maturity group.

Treatment thresholds:

Treatment thresholds (defined as a point for which you can treat before economic damage is incurred) for foliage feeding insects in soybeans are relatively easy. The threshold for foliage feeding pests is 30% foliage loss throughout the canopy during the vegetative stages up to two weeks prior to flowering and 15% foliage loss throughout the canopy two weeks prior to flowering through the reproductive stages up to R6-R7. After this point, foliage loss is likely negligible.

One difficulty in assessing this threshold comes from assessing the foliage loss throughout the canopy. Foliage feeding insects rarely feed evenly in the upper and lower parts of the plants. One of the greatest difficulties also comes from our natural inclination to over-assess the percent of tissue defoliated, which the figure below illustrates well. Use this as a guide when applying the threshold.



Corn earworm thresholds -- for differing sampling techniques, row widths, and soybean selling prices. Thresholds do not decline as prices climb above 10.00 dollars per bushel due to plant compensation for low levels of pod damage.

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BEAT CLOTH OR RIGID BEAT CLOTH SAMPLER INSECT COUNTS

Table 1. Treatment thresholds (per 6-row ft.) for soybean insects sampled with beat cloth or rigid beat cloth.

Pest		38	30	21	14	7
stink bug		6	6	0.6	0.4	0.4
corn earworm*		4.8	3.8	.8	.14	0.6
Velvetbean caterpillar		14	12	8.3	5.5	2.7
soybean looper		18	16	11.6	7.7	3.8
*this is the pod-feeding threshold for corn earworm						

SWEEP NET:

Sweep net thresholds in drilled soybeans are not as well-defined as those for beat samples. Use percent defoliation estimates as an additional treatment guideline for foliage feeders. Prior to bloom, up to 30 percent defoliation is acceptable without economic yield loss, but once blooming begins, the guideline drops to 15 percent defoliation. A sweep net is a more practical alternative for sampling insects in drilled and narrow row soybeans. Use a 15-inch diameter heavy duty sweep net such that the upper edge of the net stays even with or slightly below the top of the canopy as you sweep it through the crop. Sweep forcefully with a back-and-forth motion as you walk through the field. Make one sweep with each stride. You actually make an elongated "figure 8" motion with the net; each pass covering two 38" rows or the equivalent width of narrow rows. Make 15 sweeps (each pass in either direction counts as a sweep); then count the number of insects in the net, being careful to sort through the leaves in the bottom of the net. Take a minimum of two sweep samples in each of two different areas of the field, or more until you are confident of your estimates.

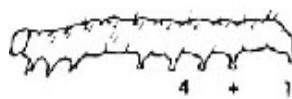
Table 2. Treatment guidelines for soybean insects sampled with a sweep net

Pest	Number per 15 sweeps	Comments
stink bug	3	
corn earworm*	1.7	
Velvetbean caterpillar	10 to 15	Or 15% foliage loss
soybean looper	15	Or 15% foliage loss
Kudzu Bugs	#/15 sweeps 15 nymphs	
For other foliage feeders use a threshold of 30% defoliation before first bloom, 15% after first bloom.		

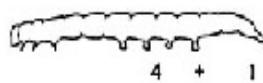
INSECT IDENTIFICATION

The four most common caterpillars found in soybean are the corn earworm, green cloverworm, velvetbean caterpillar, and soybean looper. Since color and size are quite variable, the field key below can be helpful in pointing out distinguishing characteristics.

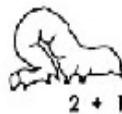
FIELD KEY TO COMMON SOYBEAN CATERPILLARS



CORN EARWORM
4 + 1 pair prolegs
Curls up in hand
Black "warts" on body



VELVETBEAN CATERPILLAR
4 + 1 pair prolegs
Very active when handled



SOYBEAN LOOPER
2 + 1 pair prolegs
Fatter at tail end
Looping movement



GREEN CLOVERWORM
3 + 1 pair prolegs
Not fatter at tail end
Looping movement

Control Options:

There have been some indications from vial testing that there could be pockets of corn earworm resistance developing in the state. I encourage you to be risk averse and to make an investment that will pay dividends for your valuable crop. Consider applying Belt, Steward, or Blackhawk (the new name for Tracer) for corn earworm. If you have stink bugs and are in the R4-R6 stages, you might want to tank mix one of these products with a pyrethroid. A tank mix of a pyrethroid and acephate are an option, but will wipe out all beneficial insects. If you do apply a pyrethroid for corn earworm, do not follow this spray with another pyrethroid for worms. Belt, Steward, or Blackhawk are also better control options for soybean loopers and armyworms, if present, but, will not control stink bugs. If you have Kudzu bugs products like Brigade, Brigadier, Endigo, or pyrethroid + Orthene have given the highest levels of control.

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Upcoming Events:

- August 7, 2012—Grain Sorghum Field Day, Stick Cameron's Farm, 13676 McDougald Road, Sanford, NC, no registration required.
- August 9, 2012—Weed Resistance Field Day, 4:00 p.m., Parks Farms in Seven Springs—Mount Olive, call the Extension office at 919-731-1521 to register.
- September 6, 2012—Peanut Field Day, Peanut Belt Research Station, Lewiston, NC, no registration required.
- September 12, 2012—Cotton Field Day, Coastal Plains Research Station, Rocky Mount, NC, no registration required. Topics: Tillage, agronomics, insect management, cotton diseases, cotton varieties, weed management, nozzle technology, rotational considerations.

12:30 p.m.—Arrival, Registration, Exhibits

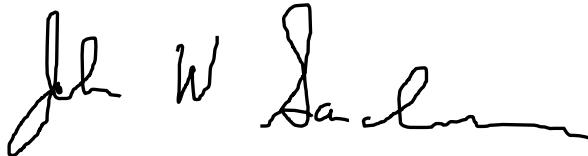
1:15 p.m.—Welcome

1:30 p.m.—Field Tours

5:30 p.m.—Dinner and program

- September 27, 2012—Pesticide Recertification Class, Subclass V (Safety), 10:00 a.m.—12:00 noon at the Wayne Center, call the Extension office at 919-731-1521 to register.
- September 27, 2012—Pesticide Recertification Class, Subclasses A, B, G, H, I, K, L, M, N, O, T, D, X, 1:00—3:00 p.m. at the Wayne Center, call the Extension office at 919-731-1521 to register.

I am pleased to be able to provide you this educational information.

A handwritten signature in black ink, appearing to read "John W. Sanderson".

John W. Sanderson
Extension Agent, Agriculture and Natural Resources

Recommendations for the use of chemicals are included in this publication as a convenience to the reader. The use of brand names and any mention or listing of commercial products or services does not imply endorsement by the North Carolina Cooperative Extension Service nor discrimination against similar products or services not mentioned. Individuals who use chemicals are responsible for ensuring that the intended use complies with current regulations and conforms to the product label. Be sure to obtain current information about usage and examine a current product label before applying any chemical.

For assistance, contact an agent from North Carolina Cooperative Extension.