K·STATE Research and Extension | Meadowlark District

July 2, 2020

David G. Hallauer
District Extension Agent
Crops & Soils/Horticulture

Soybean Defoliation from Insect Feeding

Defoliation is not uncommon in soybeans from emergence through harvest. Fortunately, they tend to respond fairly well in most cases, particularly if pressure is only from a single pest. We often see pressure from multiple pests. That's when an understanding of the defoliation compensation capacity of the soybean can be important.

Research from the University of Nebraska has shown that the key driver for yield losses in soybeans from defoliating insects is the degree that said defoliation reduces light interception for the canopy. The plants can actually lose a tremendous amount of leaf area if the remaining leaves are still intercepting ninety percent of the available light.

Small canopies have less capacity for loss than larger canopies. Vegetative defoliation tends to be less severe than defoliation during reproductive phases. Good weather trumps bad weather. In the end, many entomologists point to defoliation thresholds of around 40 percent prior to flowering and closer to 20 percent when insects are present during pod-forming or filling stages. NOTE: this may vary from five to ten percent depending on growth stage, etc…

Defoliation levels are difficult to estimate and are almost always over estimated. Damage in the upper canopy is much more visible than lower canopy injury. Different insects feed on different areas within the canopy. Scouting the entire canopy in multiple areas of the field is integral to getting a correct estimate.

Both the 40 and 20 percent damage levels will likely be much more than you think. For a visual representation, check out the UNL Cropwatch publication available online at: https://cropwatch.unl.edu/evaluating-soybean-defoliation-and-treatment-need . For insect damage thresholds based on insect numbers, check out the KSU Soybean Insect Management Guide at: https://bookstore.ksre.ksu.edu/pubs/MF743.pdf .

Tomatoes Not Setting Fruit

If you've been caring for your tomatoes all spring, you certainly want them to produce. Maybe you've noted blooms, but don't see any fruit yet. If so, don't let panic set in – just yet. It could be one of a couple of issues.

First, consider your fertility program. Tomatoes don't like too much nitrogen since it encourages vegetation growth over fruit production. At the very least, flower production could be decreased and fruit set diminished when flowers are produced. If you see flowers that don't set flowers at all, or flowers that don't set fruit, consider your nitrogen program.

Another issue is our annual string of hot July temperatures. When nighttime temperatures are above 75 degrees or daytime temperatures are above 95 degrees and accompanied by hot/dry winds, fruit set can be diminished. Different varieties respond differently, and cherry tomatoes may be more forgiving than slicing tomatoes, but day and nighttime temperatures could well be an issue if you have flowering but no fruit production.

It's difficult to be patient, but if temperatures are your issue, things should straighten out a little when temperatures moderate. Until then, continue to maintain even adequate watering for good production when possible.