



# PLANT DISEASE AND INSECT ADVISORY

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## Soybean Aphids in Oklahoma???

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Before soybean growers get too excited about the title of this news release they should be cautioned that definitive confirmation of this occurrence has not been obtained for our state. During this week, Dr. Richard Grantham (Director, Plant Disease and Insect Diagnostic Laboratory) and Don Arnold (Survey Entomologist) made a trip to northeastern Oklahoma in response to some unusual aphids found while examining soybean rust samples. They collected several hundred aphids from R5-R6 stage soybeans that were planted late for wildlife feed in Washington County. We have also heard from Dr. George Driever, IPM Educator in Muskogee, that similar specimens have been recovered in Mayes County. The primary reason that confirmation is

tentative is because no winged adults were recovered, which is the most definitive method used to confirm they are soybean aphids, *Aphis glycines*, and not some other aphid species. Likewise, infestations discovered were quite spotty with numbers generally ranging from 5-50 per plant; however, the higher infestations were rare. Several other species of aphid feed on soybean, but they are generally migratory and do not colonize soybean. Therefore, according to the soybean aphid National Pest Alert ([http://www.ncipmc.org/alerts/soybeanaphid\\_alert.pdf](http://www.ncipmc.org/alerts/soybeanaphid_alert.pdf)) "...if colonies of tiny yellow aphids are found on soybeans, it is safe to assume they are soybean aphids". The operative word here may be "colonies". Many of the aphids collected would not be considered colonizing soybean; however, it seems apparent that these are most likely soybean aphids.

The next obvious question that comes to mind is what should or can be done about these insects at this point? The answer is likely nothing, in light of the low population numbers and the late stage of most soybeans used in commercial production. The most significant time of infestation would likely be in June or July for Oklahoma. Light populations that come in late in the season generally do not increase beyond threshold levels and are regulated by beneficial organisms. Thresholds for this insect are based on an average of 250 aphids per plant on 30 randomly sampled plants across an entire field. Researchers in Wisconsin and Minnesota,

where the aphids have been present for this entire decade, are now suggesting a speed-scouting method to make decisions on spraying for soybean aphid. Speed-scouting involves training your eye to accurately estimate what a group of 40 aphids on a leaf looks like. Next, sample up to 16 random plants in a “W” or “Z” pattern across the field. Look on the undersides of all leaves and once you have decided that each plant has more or less than 40 aphids, move to the next plant. After 11 plants have been sampled, if all the plants sampled do not have 40+ aphids per plant then sample the remaining 5 plants to confirm your first estimate. If more than 40+ aphids per plant are found on the first 11 plants, treatment can be considered. Forty aphids per plant is not considered a threshold, it just allows the scout too quickly and accurately (based on a mathematical model using detailed field data) scout a large amount of soybean acres and make a resemble decision with a minimum of effort. Regular visits to the field would be needed to ascertain if populations of aphids were increasing. The most critical period of time to monitor for soybean aphid is between the late seedling stage (V2, two fully expanded trifoliolate leaves) to blooming stage (R1-R2) of soybean.

The soybean aphid is a small yellow aphid with distinct black-tipped cornicles (tailpipes) on the tip of the abdomen. They can be found commonly on stem apices and young leaves of growing soybean plants. They have a complex life cycle that can involve as many as 15-20 generations per year and two very different types of host plants. Winter survival is experienced by the egg stage on species of *Rhamnus* (Buckthorn). Nymphs hatch in the spring and after two generations of wingless females, a generation of winged females is produced that migrates from buckthorn to soybean. During the summer, many generations exist on soybean until there is a migration back to buckthorn by winged females which give rise to wingless females that lay the eggs for the next generation. While on soybean plants, aphid feeding can cause distorted leaves, stunted plants, reduced pod and/or seed counts and yellowed color. Sooty mold may also develop on the honeydew excreted by these insects. On top of all this, soybean aphids have been “implicated” in transmission of a number of plant viruses including soybean mosaic, bean yellow mosaic, peanut stunt, alfalfa mosaic and peanut stripe.



If control is deemed necessary, many of the pyrethroids (Warrior, Mustang-Max, Asana, Baythroid, etc.) and organophosphates (e.g. – Lorsban, Dimethoate) are labeled for soybean aphids on soybean and are commonly used in this crop for this purpose. The latter compounds have a “fuming” action, which may work better in thick canopies or at higher temperatures. In contrast, pyrethroids provide longer control and tend to work better at temperatures below 90°F.

With this pest, if insecticidal control is needed, good coverage is essential; therefore, higher spray volumes (15-20 gallons/acre) under high pressure will help move the insecticide down into the canopy. During this late infestation period with soybeans in the infested area near harvest it is unlikely that treatment will be needed. Since its encroachment into the United States, entomologists have been searching for and discovering many beneficial insects (predators and parasitoids) that can keep these pests under natural control. Two such candidates that are common to Oklahoma include green lacewing larvae and *Lysiphlebis testicipes*, a common greenbug parasitoid.

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Dr. Richard Grantham, Director, Plant Disease and Insect Diagnostic Laboratory

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