**Soybean Aphid: A New Pest for North America**

The soybean aphid (*Aphis glycines*), originally a native of China and Japan, was first identified in the United States during the summer and fall of 2000. Infestations were confirmed in several Midwestern states from Ohio to West Virginia and Kentucky, west into Missouri and Iowa. Late last summer, the heaviest infestations were located in Michigan, Wisconsin, Minnesota, and Illinois. At the moment, we do not know of confirmed infestations within the state of Kansas, with the nearest verified sightings occurring about midway through Iowa and Missouri.

This small, yellow aphid has black 'tailpipes' (known as cornicles) at the tip of its abdomen. It is the only aphid in North America to develop large colonies on soybeans. The soybean aphid can pass through 15 to 18 generations each year but must have buckthorn (a species of *Rhamnus*) for successful overwintering. Two wingless generations are completed on buckthorn before the first winged generation is produced early in the year. The winged aphids leave buckthorn for soybeans, where many generations of mostly female offspring develop. In the fall, winged females fly back to buckthorn, producing a wingless generation of female aphids. Males leave soybean fields to mate with the females located on buckthorn. These females then lay eggs on buckthorn. The eggs on buckthorn allow the aphid to survive the winter in some locations, thus providing the seed stock for the cycle to repeat during the next growing season.

Infestations that peak during the R1-R2 (bloom) growth stage of soybean can stunt the plants so that fewer pods and seeds develop, thereby lowering yields. Leaves may be distorted, turn yellow, and plant parts may become covered with a dark sooty mold that grows on the honeydew or waste products released by the aphids.

This aphid also can transmit many virus diseases including alfalfa mosaic, soybean mosaic, bean yellow mosaic, peanut mottle, peanut stunt, and peanut stripe. Depending on the disease, virus-affected plants often exhibit symptoms of mosaic or yellow and green mottling of leaves, pronounced distortion of leaves, deformed pods, fewer pods, and discolored seed. Prevention of virus transmission through aphid suppression is not feasible.

Soybean aphid populations can build at any time from early vegetative through the bloom stages. Initially, most colonies will be found at the outer canopy on new leaves. As the plants reach maturity, the aphids may move deeper into the canopy, most commonly on the undersides of leaves, and many may be found on stems and pods as well. Some reports indicate that a second wave of population increase may occur from late August through early September.

No economic thresholds currently exist, but natural enemies are known to have killed many aphids in infested areas last year. Preliminary insecticide trials were conducted during the 2000 growing season in some infested areas and a number of products sometimes employed against other soybean

pests performed reasonably well. Therefore, it is likely that some insecticides will be labeled to control or suppress populations of this insect in the near future. As with any new pest where the loss potential has yet to be determined under local growing conditions, there is concern that some people will be tempted to overreact and start treatments where subsequent research may later show such treatments were not warranted. Well-designed research is the only way to ascertain the true risk and the best management response. Until naturally occurring populations of the soybean aphid are found in Kansas, it is likely that we will be relying heavily on research from other states to guide us in our quest for insight into this new pest problem.

If you observe heavy populations of aphids on soybeans within Kansas, you are urged to contact the K-State Research and Extension Office in your county or send us an email so that we can track the infestation and learn more about this potentially serious pest. We will post more information as it becomes available at http://www.oznet.ksu.edu/entomology/extension/topics.htm Regional updates regarding the soybean aphid will be maintained at http://www.pmcenters.org/nc/nchome.html where a number of documents and links used to prepare the above material are maintained in electronic form. The North Central Region Pest Management Center website (cited above) also contains a wide variety of images useful in identifying this pest, its hosts, and related distribution maps that should be of interest.

--- Randy Higgins

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