

AGRONOMIC ALERT



SPIDER MITES IN SOYBEANS

Spider mite outbreaks in soybeans can occur in hot and dry weather conditions. Scouting of fields helps to detect outbreaks early and facilitates timely and effective control measures.

Twospotted Spider Mites

Twospotted spider mites are very small greenish, yellowish to orange arachnids with two dark spots on their abdomen. Adults can barely be seen with the naked eye, and they have 8 legs (not 6 as in insects). Spider mites progress through three stages (egg, nymph, and adult) in their life cycle, and complete multiple generations during the growing season. Egg to adult development takes 5 to 19 days, with the lesser amount of time at hotter temperatures.

Drought triggers spider mite outbreaks in soybeans. Hot and dry conditions reduce natural fungi that infect mites, and increase their reproductive rate. Soybean plant tissue also becomes a more attractive food source for mites under drought stress conditions, and movement to soybeans from other vegetation increases.

Spider mite infestations typically are first noticed near field edges or where soybeans are stressed (Figure 1). They establish colonies on the undersides of soybean leaves. The colonies produce a webbing on the leaf surface that earns them the name "spider" mites. They can be carried on a balloon of their webbing by wind and dispersed over a wide area.

Injury to Soybeans

Spider mite damage to soybeans is often noticed before the mites. They injure soybean leaves by piercing cells and sucking out the contents. This produces white or yellow spots or "stipling" most noticeable on the underside of the leaves (Figure 2). Feeding damage begins in the lower canopy and progresses upwards. As mite colonies grow and feeding intensifies, plants take on a yellowed then bronzed appearance. The leaves can eventually die and plants could defoliate with continued mite pressure.

Soybeans injured by mites can mature early, have increased shattering, and produce smaller and wrinkled seed. Yield can be significantly reduced with mite injury occurring during late vegetative and early reproductive growth stages.

Scouting for Spider Mites

Recognizing the speckling or stippling effect on the lower leaves



Figure 1. Spider mite injury on a soybean field edge (Above). Spider mites are sometimes visible on the underside of soybean leaves (Below).
[Photos courtesy Ronald B. Hammond]

when foliage is still green is important for early detection of mite feeding. Soybean fields should be scouted weekly for evidence of developing spider mite populations. Fields should be checked more often if drought conditions persist since damaging infestations can develop quickly.

When scouting for mites, look at soybean plants at the field edge first, especially adjacent to drainage ditches, alfalfa, or corn. Examine leaves from the bottom of the plant upwards. Look at the undersides of leaves and note any webbing, speckling or

Continued on page 2

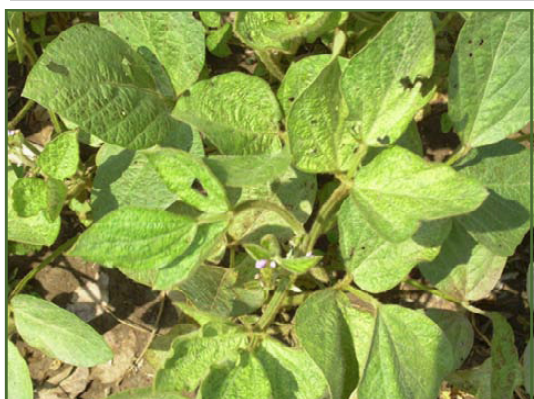
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stippling. Spider mites can be spotted by shaking plants over a white sheet of paper and look for moving specks on the paper. A hand lens is useful to observe the relative abundance of mites in egg, nymph, and adult stages. Examine how far the plant mites and symptoms have progressed. Then walk a “U” pattern checking plants along the way moving at least 100 feet into the field.

Management

Rescue treatments should be considered when spider mite feeding is commonly observed extending into the middle canopy. Treatments should be made before mites cause leaf bronzing and leaf drop. There are few insecticides that have good mite activity.



Spider mite infestations can be treated with chlorpyrifos and dimethoate. These products will not control eggs and have short residuals, so mites can begin rebuilding their population in a few days. Therefore, more than one application may be necessary to maintain control under the right conditions. It is also important to have adequate water volume and spray pressure since mites are on the undersides of leaves.

Dual infestation of soybean aphids and spider mites can complicate insecticide decisions. Pyrethroids used to control aphids have little to no control of spider mites. They can reduce the beneficial insects that keep spider mite numbers low causing populations to “explode” to levels greater than in untreated fields. Chlorpyrifos insecticides can be used when both mites and aphids warrant treatment.



Sources:

R. Hammond, A. Michel, and J. Easley. 2009. Twospotted Spider Mite on Soybean. The Ohio State University Extension Fact Sheet FC-ENT-0024-09. {Online} <http://ohioline.osu.edu> (last visited 13 July 2010).

K. Ostlie and B. Potter. 2009. Managing Two-Spotted Spider Mites on Soybeans in Minnesota. University of Minnesota Extension {Online} <http://www.soybeans.umn.edu> (last visited 13 July 2010).

Figure 2. Progression of spider mite injury on soybeans from leaves showing speckling or stippling (Top) to yellowing of leaves (Middle) to the bronzing and dying of leaves (Bottom). [Photos courtesy Ronald B. Hammond]

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

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