July soybean disease scouting

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http://lib.dr.iastate.edu/cropnews/1018

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Abstract
Each season in Iowa is different and different seasons have different diseases. After soybean passed the flowering stages, soybean root and foliar diseases began showing up. First, came the report of viral disease being found in the last week of June, which was much earlier than in the past. Then, *Fusarium* wilt showed up. With weather like we’re experiencing, this season appears to be a mixed bag of soybean diseases. This article discusses some soybean diseases that occur in Iowa and that you may see while scouting in July.

Keywords
Plant Pathology

Disciplines
Agricultural Science | Agriculture | Plant Pathology
July soybean disease scouting

by X. B. Yang, Department of Plant Pathology

Each season in Iowa is different and different seasons have different diseases. After soybean passed the flowering stages, soybean root and foliar diseases began showing up. First, came the report of viral disease being found in the last week of June, which was much earlier than in the past. Then, Fusarium wilt showed up. With weather like we're experiencing, this season appears to be a mixed bag of soybean diseases. This article discusses some soybean diseases that occur in Iowa and that you may see while scouting in July.

Fusarium wilt

Last week, the Iowa State University Plant and Insect Diagnostic Clinic received a sample of one-foot-high soybean plants and diagnosed Fusarium wilt. Patches of soybean plants infected with this disease also were observed in fields in central Iowa. Previously, this disease was reported in 1999 and 2003 (when early summer was cool and wet), with sporadic and isolated occurrences. The disease could be misidentified with several diseases, although the importance of this disease in Iowa currently is minor.

Fusarium wilt, also called Fusarium blight, is caused by Fusarium oxysporum, a very common soilborne fungus. In July, wilting patches of affected plants can be seen in the distance (see photo below). Plants killed by this disease appear to have Phytophthora root rot and may be scattered or appear in small patches in the field. Upper leaves are wilted and seem to be scorched. The middle or lower leaves turn yellow or have pale yellow spots, then wither or drop prematurely upon splitting the stems of these plants from base up, like brown stem rot. In the root system, fine roots are rotten with purple discoloration evident on the lateral roots.
Fusarium wilt symptoms were evident in 2003. (Steve Barnhart)

**Fungal root rot**

Fungal root rot has been found in many soybean fields. Early in the spring, *Rhizoctonia* was prevalent and now Rhizoctonia root rot. *Fusarium* root, which is different from Fusarium wilt, also is part of fungal root rot. Patches of diseased plants in lower areas are yellowing. Affected plants lack lateral roots with discoloration (dark to red-brown) on taproots. Generally, the disease samples come from fields that also have other problems, such as soybean cyst nematode or iron chlorosis in high-pH fields. Consider cultivation to promote root growth if affected areas are large; cultivation generally helps soybean overcome such problems.

**Bacterial blight**

A week ago, many Iowa State University field agronomists reported bacterial blight because there was plenty of rain in June and temperatures were relatively cool in many areas. This disease occurs in Iowa every year without causing significant yield losses. It is caused by the bacterium *Pseudomonas syringae*. Lesions (small, angular, water-soaked, yellow-to-brown spots) of bacterial blight are normally first observed on top leaves. The lesions enlarge in rainy weather and merge to produce irregular dead areas. Sometimes, brown spot can be mistaken for bacterial blight, but the two diseases are easy to separate: bacterial blight occurs on upper, new leaves, and brown spot infects lower, aged leaves.

**Brown spot**

Another foliar disease commonly seen in July is brown spot, caused by the fungus *Septoria glycines*. Like bacterial blight, this disease occurs every year. Disease symptoms occur on the lower leaves of soybean plants. The fungus spreads by splashing rain, thus, current warm weather conditions may arrest the development of this disease. Symptoms include many irregular, dark brown spots on both upper and lower leaf surfaces. Adjacent lesions frequently merge to form irregularly shaped blotches. Brown spot usually does not cause damage unless the disease progresses due to frequent rains later in the season.

If you are considering applying fungicides for plant health treatment, a practice recently
promoted and interesting to some growers, watch the two foliar diseases together with *frogeye leaf spot*, which also has been found in central Iowa. Development of these diseases is associated with rainfall later in the summer, and these diseases, when severe, could affect yield by causing premature defoliation late in the season.

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This article originally appeared on page 223 of the IC-498(18) -- July 9, 2007 issue.

Updated 07/27/2007 - 11:59am