

INTEGRATED CROP MANAGEMENT

Alfalfa leaf diseases appearing

Alfalfa is reportedly in good condition throughout the state with little winter injury and surprisingly few reports of leaf disease problems. But frequent April rains provided good conditions for leaf disease development, and significant levels of spring black stem and leaf spot were reported last week by extension field specialist Brian Lang in northeastern Iowa. The ISU Plant Disease Clinic also has received several samples with either spring black stem, common leaf spot, bacterial leaf spot, or stem blight.

A survey of alfalfa fields around Ames revealed several diseases. In most fields, spring black stem was found in many of the plants, but it was limited to the lower leaves. Fields in this condition should be monitored so that they can be cut if the disease starts to cause significant defoliation.

Downy mildew and *Leptosphaerulina* leaf spot were observed in other fields around Ames, but they were at low severity levels. Remember, the occurrence of foliar diseases is determined by last year's disease and local precipitation, so disease levels can differ tremendously around the state. Scouting can help you determine if you should be concerned about foliar diseases. Use the following information to help you identify the diseases if you find that leaf spots are a problem in your alfalfa.

Spring black stem produces numerous small, dark brown-to-black spots that first occur on the lower leaves and petioles, and later on stems. Irregularly shaped lesions on leaves increase in size and coalesce. Lesions on stems and petioles enlarge and may blacken sizable areas near the base of the plant. The fungus that causes this disease (*Phoma medicaginis*) is dispersed by splashing rain. Severe infection can result in defoliation; thus, early cutting generally is recommended so that defoliation can be avoided. Cutting as early as mid-bud stage may be necessary when the disease is severe.

Common leaf spot looks similar to spring black stem, but it appears only on the leaves and has larger, dark brown spots. This disease often does not appear until later in the season than spring black stem, but we have diagnosed it on clinic samples already.

Downy mildew is caused by the fungus *Peronospora trifoliorum*. This fungus infects alfalfa in the spring when temperatures are low and moisture is high. Symptoms of this disease are chlorotic blotches on the upper leaf surface and a white-to-gray mold on the lower leaf surface. Only young tissues are susceptible to infection. The fungus survives in shoots over the summer and spreads in the fall.

Leptosphaerulina leaf spot (*Leptosphaerulina medicaginis*) attacks mainly leaves. Both young and old leaves are susceptible to infection. Lesions often start as small, black spots

and either remain small or enlarge to lesions with light brown-to-tan centers, darker brown borders, and a yellowed "halo." The mechanism of spread of this disease is similar to that of spring black stem.

The bacterial diseases typically do not cause detectable yield loss, but can do so occasionally. Bacterial leaf spot is caused by *Xanthomonas campestris* pv. *alfalfa*. Symptoms are initially diffuse, yellowed areas on leaves, within which tiny water-soaked spots develop. Later, the areas die and dry out, leaving irregular, papery, tan lesions. Defoliation can follow. Bacterial stem blight is caused by *Pseudomonas syringae* pv. *syringae*, and its symptoms include water-soaked lesions on the stems. Severely affected stems die, with the leaves turning water-soaked and pale yellow. Eventually entire leaves die and dry out. This problem often is associated with early-spring freeze injury, although that would not be the case this year.

The best management option for the foliar diseases is to keep a close eye on symptom development and harvest the first cutting early (mid-bud stage or possibly early-bud stage) if defoliation is occurring.

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