

MANAGING ALFALFA FIELDS WHEN COLD, WET, AND FREEZING OCCURS, PLUS MORE!

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Black stem, heaving, sulfur, and weevils is not the name of a new punk band. As spring arrives, these are some of the things that can impact your alfalfa crop. Soil heaving occurs almost every year somewhere in the Midwest, the alfalfa weevil is the most common early-season insect pest in the Midwest, and spring black stem and leaf spot can have a significant impact on yield and quality.



Crop Science

The severity of spring black stem and leaf spot, like other fungal diseases, is dependent on the weather. A wet and cool spring can result in significant infection that can cause leaf drop, impacting both yield and quality. Initial symptoms first appear on the leaves and stems as small black spots, referred to as tar spots. As the spots grow, they become irregular in shape, merge, and can cover almost the entire leaflet. The leaflet will become yellow and drop from the plant. As the lesions merge on the stems, they can girdle the stem, causing it to die above the girdle point. A control tactic is to harvest early if the symptoms are common on the lower part of the plant. If the plants are heavily infected, delaying harvest can result in significant yield and quality loss as leaf loss can be significant. The pathogen overwinters on stems and dropped leaves, so grazing the aftermath in the fall can help reduce the inoculum for the coming year. The impact of the disease can be reduced by managing the crop for optimal plant vigor, maintaining proper pH, harvest schedule, and soil fertility.

Soil heaving is most common on heavier soils that have been subjected to repeated cycles of freezing and thawing. High soil moisture levels, lack of snow cover, and older stands with large tap roots are also contributing factors. Heaving or lifting the tap root out of the soil exposes the crown to injury by harvest equipment and cold temperatures. The tap root can also be snapped. Often the plant will "green-up" above the break when temperatures warm, but the plant usually will die as the spring progresses. Generally, if the tap root is broken at 1.5 inches or more from the crown, the plants will be significantly damaged at the first cutting. These fields should be rotated out. If the plants are heaved an inch or less, they most likely are not snapped and will produce at least a first cutting. If this is the case, set the cutter bar higher to minimize injury to the crown and harvest the field later than normal. Do not roll or try to press the plants back in to the soil, as this will result in more injury. Evaluate the field in late summer to determine if the plants have re-seated themselves; if not, plan on taking the field out in the upcoming season.

Sulfur deficiencies have become more common in the Midwest over the past 15 years. Alfalfa can be particularly susceptible to sulfur deficiency, particularly on lighter and irrigated soils. While tissue sampling is the only reliable method of ascertaining a deficiency, a removal rate rule of thumb developed is 5 lbs of actual sulfur per ton of dry matter yield. The University of Wisconsin recommends 15-25 lbs/acre of sulfur in the sulfate form should be broadcast on established stands annually, with the lower figure on higher-organic-matter soils and the higher figure on coarse-textured soils. Sulfate forms are best applied prior to green-up in the spring. Sulfate forms include: ammonium sulfate 21-0-0-24), potassium sulfate (0-0-50-18), sulfate of potash magnesia (Sul-Po-Mag or K-Mag) (0-0-22), or calcium sulfate (gypsum) (0-0-0-17). All are equally effective, so the decision can be made on price and availability.

Alfalfa weevils overwinter as adults and can be active very early in the growing season. The adult rarely causes economic injury, but the larvae can cause significant injury especially if the first cutting is delayed. Larvae are light green with a white lateral stripe and shiny black head capsule. They feed on emerging leaf tips and can consume a significant amount of leaf tissue as they grow. A developmental model for the alfalfa weevil exists and is a reliable method to plan management tactics. Begin sampling for larval injury when degree days reach 250 using a base temperature of 48°F accumulating beginning on January 1. There are management guidelines and sampling protocols available from your local Extension office.

Timing for the first cutting will depend on the final use of the crop. In general, taking the first crop as early as possible will help limit the impact of the alfalfa weevil and spring black stem and leaf spot. If the first cutting is delayed as the result of winter injury, scouting your alfalfa fields for these two pests may be a wise decision.