AN ALFALFA DISEASE CALENDAR

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Introduction

The following calendar provides producers and agricultural professionals with insights that may improve alfalfa production in several ways. First, knowing when to expect certain diseases improves one's ability to diagnose disease problems, which is a fundamental foundation for disease management. The many UK Extension Service publications on alfalfa as well as publications like the Alfalfa Analyst and the Compendium of Alfalfa Diseases, all are useful for diagnosis, but none provides a precise calendar of when to expect activity of alfalfa diseases in Kentucky. An alfalfa disease calendar can also provide occasional insights into timely management practices. For example, being able to recognize when leaf spots are attacking your crop helps aid in making the decision to harvest promptly to avoid losses in yield and quality. As another example, recognizing when Aphanomyces root rot has been active on a farm can help guide a producer to selecting a resistant variety in the future. Finally, having a better understanding of disease dynamics in alfalfa helps the producer and agricultural professional to better develop and customize alfalfa production systems suited to the unique circumstances on each farm.

In the calendar below, each month is represented by two sections: early to mid-month and mid- to late month. Each of these can be read as stand-alone sections, without reference to other sections of the calendar. Thus, readers can use only those sections needed for any given time of year.

Alfalfa Disease Calendar

December through February

Very little obvious disease activity takes place. However, infections of Sclerotinia crown and stem rot can kill crowns during this period, as well as spread from plant to plant. Plants affected by the "crown rot complex" or Phytophthora root rot may die for lack of sufficient root reserves.
March

*Early to Mid-March*

As alfalfa breaks dormancy, one can begin to see whether wintertime stand loss has occurred. Wintertime stand loss in a field seeded the previous autumn is most commonly due to Sclerotinia crown and stem rot; survival bodies called *sclerotia* will be present on dead plants. In established stands, plants killed during the winter from the "crown rot complex" or Phytophthora root rot will fail to regrow at this time.

*Mid- to Late March*

Winterkill induced by Sclerotinia crown and stem rot will still be evident. Plants that have survived the winter with Sclerotinia infections exhibit wilting, yellowing, and death.

April

*Early to Mid-April*

Early cases of Lepto leaf spot are found in established alfalfa. Lepto can be very active on plants regrowing following a late freeze. Bacterial stem blight may also occur when wet weather follows frost injury. Early cases of spring black stem and leaf spot can also be found. Plants infected with Sclerotinia crown and stem rot continue to die. Early seedings may be exhibiting damping off symptoms due to Pythium and Phytophthora in cool, wet soils. If re-seeding these fields, be sure to use Apron-treated seed of Phytophthora-resistant varieties.

*Mid- to Late April*

Lepto leaf spot can be very active now, especially on plants regrowing following a late freeze. Bacterial stem blight may also occur when wet weather follows frost injury. Spring black stem and leaf spot can be found during periods of wet weather. Plants infected with Sclerotinia crown and stem rot continue to die. Fields with severe outbreaks of Sclerotinia can be re-sown to alfalfa if the whole stand has been dead for several weeks, since Sclerotinia goes dormant when the plants are completely killed. However, if plants have been dying throughout April, re-seeding is risky, since the seedlings are very susceptible to attack if Sclerotinia remains active. Seedlings in cool, wet soils may exhibit damping off; if re-seeding these fields, be sure to use Apron-treated seed of Phytophthora-resistant varieties.

May

*Early to Mid-May*

Lepto leaf spot may be active, especially in cool, wet weather. Spring black stem and leaf spot can be common. Late cases of bacterial stem blight develop during extended periods of cool, wet conditions. For all foliar diseases, take the first cutting as soon as is agronomically acceptable. Activity of Sclerotinia crown and stem rot tapers off. It is, however, risky to reseed fields with severe stand loss
from mid-May on, because of the risk of water stress on the young alfalfa seedlings, so a re-seeding window could be very narrow. Early cases of Aphanomyces root rot appear, especially in early plantings in western Kentucky. Seedling damping off may occur.

**Mid- to Late May**

Lepto leaf spot may be active, especially in cool, wet weather. Spring black stem and leaf spot can be common. Symptoms of Aphanomyces root rot are very pronounced. Seedling damping off may occur in late plantings during cool, wet weather, but it is too late to re-seed. Seedling blight due to Phytophthora root rot may begin to show in early plantings. Early cases of stem canker can be found, especially in new seedings; no rescue treatment is available. Early cases of bacterial wilt can be found in stand that are several years old.

**June**

**Early to Mid-June**

Activity of Lepto leaf spot typically tapers off, although it can still be active in cool, wet weather. Spring black stem tapers off. Seedlings affected by Aphanomyces will be stunted and off-color. Symptoms of seedling blight due to Phytophthora root rot may still be evident. Stem canker can be common during warm, wet weather, especially in new stands; no rescue treatment is available. Plants in stands that are several years old may exhibit yellowing and wilting from bacterial wilt, especially under warm conditions. Although plants with crowns showing a general crown rot can be found at any time of the year, wilting and death from the "crown rot complex" starts to become common.

**Mid- to Late June**

Early outbreaks of anthracnose may appear. Lepto leaf spot may still be active during cool, wet weather. Spring black stem and leaf spot can occasionally be found during extended periods of cool, wet weather. Early cases of Stemphylium leaf spot can be found during warm, humid weather. Symptoms of Aphanomyces root rot are still evident. Seedling blight due to Phytophthora root rot may still be evident. Phytophthora root rot can cause reduced plant growth and yield in established plants, although no other symptoms may be present. Stem canker can be common during warm, wet weather, especially in new stands. Although no rescue treatment is available, most of the stand loss that this disease will cause in new stands has probably already occurred, and the alfalfa may compensate nicely for missing plants. Plants in stands that are several years old may exhibit yellowing and wilting from bacterial wilt, especially under warm conditions. Death from the "crown rot complex" becomes more common.
July

**Early to Mid-July**
Anthracnose and web blight may be active following extended periods of warm, humid weather. Lepto leaf spot can sometimes be active if weather is cool and wet. Stemphylium leaf spot begins to become common during extended periods of warm, humid weather. Early cases of summer black stem and leaf spot occur. Phytophthora root rot can cause reduced plant growth and yield, although no other symptoms may be present. Stem canker can be common during warm, wet weather. Plants in established stands with bacterial wilt may occur. Death from the "crown rot complex" is common.

**Mid- to Late July**
Anthracnose and web blight may be active following extended periods of warm, humid weather. Stemphylium leaf spot is common during warm, humid weather. Summer black stem and leaf spot increases in frequency. Lepto leaf spot can sometimes be active if weather is cool and wet. Phytophthora root rot can cause reduced plant growth and yield, although no other symptoms may be present. Stem canker can still be found during warm, wet weather. Plants in established stands with bacterial wilt may occur. Death from the "crown rot complex" is common.

August

**Early to Mid-August**
Stemphylium leaf spot and summer black stem/leaf spot are common during warm, humid weather. Lepto leaf spot can sometimes be active if weather is cool and wet. Web blight may be active during extended periods of warm, humid weather. Phytophthora root rot can cause reduced plant growth and yield, although no other symptoms may be present. Early cases of rust may occur. Stem canker can be found during warm, wet weather. Plants with bacterial wilt may occur. Anthracnose activity is highest this month in susceptible varieties. Death from the "crown rot complex" still may be found.

**Mid- to Late August**
Web blight may be active during extended periods of warm, humid weather. Stemphylium leaf spot summer black stem/leaf spot are common during warm, humid weather. Rust may occur on leaves, although usually not at damaging levels. Phytophthora root rot can cause reduced plant growth and yield, although no other symptoms may be present. Stem canker can be found during warm, wet weather. Plants with bacterial wilt may occur. Anthracnose may be active. Death from the "crown rot complex" still may be found.
September

*Early to Mid-September*
During unusually long periods of warm, humid weather, web blight may still be active. Stemphylium leaf spot and summer black stem/leaf spot may also still be active during warm, humid weather, although both are tapering off. Rust may occur on leaves, although usually not at damaging levels. Stem canker can be found during warm, wet weather. Bacterial wilt tapers off but still may occur. Anthracnose activity is tapering but damage may still be evident. Death from the "crown rot complex" is tapering off.

*Mid- to Late September*
Summer black stem and leaf spot may still be found. Rust may occur on leaves. Although timely cutting can reduce the impact of foliar diseases, it is often wiser to let the foliar diseases remain active in order to give alfalfa a chance to build root reserves before winter.

October

*Early to Mid-October*
Rust may occur on leaves, but cutting is not recommended because of the need to build root reserves for winter.

*Mid- to Late October*
Fruiting bodies (called apothecia) that lead to Sclerotinia crown and stem rot infections are produced, if the top inch or two of the soil remains moist for several days. Rust may occur on leaves.

November

*Early to Mid-November*
Sclerotinia crown and stem rot is often very active during this period. Apothecia will be evident when the soil is moist. The first infections on leaves and stems also are commonly present; the white mold of the fungus can be seen in humid conditions. Rust may occur on leaves.

*Mid- to Late November*
Apothecia will still be evident. Hard freezes will cause the number to decline drastically, but a smaller number of new ones will be produced during mild, wet conditions.