

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 seedlings 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 seedlings; 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.