Controlling leaf diseases in seed corn in 2000

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Abstract
Now is the time to be looking for early symptoms of leaf diseases in seed corn. The dry conditions of the early season were not favorable for reproduction and spread of these fungi, but recent rains may be sufficient to initiate some infections. Seed corn presents different challenges (and opportunities) when it comes to disease management. Some unique features of seed production compared with grain production are as follows.

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Controlling leaf diseases in seed corn in 2000

Now is the time to be looking for early symptoms of leaf diseases in seed corn. The dry conditions of the early season were not favorable for reproduction and spread of these fungi, but recent rains may be sufficient to initiate some infections. Seed corn presents different challenges (and opportunities) when it comes to disease management. Some unique features of seed production compared with grain production are as follows:

1. high value per acre,
2. a broader range of leaf diseases cause economic damage,
3. a need to grow specific genotypes regardless of susceptibility,
4. leaf loss due to detasseling, and
5. more fungicide options.

Some of these features lead to a greater need for fungicidal disease control in seed corn compared with field corn. The benefits of foliar fungicides on seed corn have been researched for several years at Iowa State University. Protecting susceptible inbreds with a fungicide has proven to be very profitable.

Leaf disease problems in seed corn include gray leaf spot (*Cercospora zeae-maydis*), eyespot (*Aureobasidium zeae*), common rust (*Puccinia sorghi*), northern leaf spot (*Bipolaris zeicola*, also known as *Helminthosporium carbonum*), and northern leaf blight (*Exserohilum turcicum*).

For now, guidelines (listed below) for foliar disease control are based on scouting, relative susceptibility of the seed parent inbred, and weather. We are currently researching methods to predict gray leaf spot so that fungicide application decision-making can be improved. In general, the most profitable results occur when spraying begins early in the season. Attempts...
to stop an epidemic will likely be unprofitable if the first fungicide application is made after detasseling.

- Do not plant seed corn in a field where corn was the previous crop, unless absolutely necessary.
- Know the susceptibility of the inbreds you are growing. This is a crucial point because the more resistant inbreds rarely need a fungicide. The more susceptible the inbred, the more likely fungicide use will be profitable.
- Scout fields early, when plants are at approximately the V6 to V8 growth stage. Observe at least 100 plants throughout the field. Record the average number of pustules or lesions per plant, disregarding the bottom three leaves.
- Scout every 1-2 weeks depending on weather and susceptibility. The interval should be shorter in wet, cool weather and on the most susceptible inbreds, and longer in hot, dry weather and on more resistant inbreds.
- When there is an average of 1 or 2 pustules or lesions per plant, and weather is favorable for disease (moderate temperatures and frequent rains or dews), begin spraying susceptible inbreds. Remember that fungicides are most effective when sprayed before infection takes place, so you must consider the weather forecast as well as previous weather.
- Leave an unsprayed area for comparison. There is always a temptation to protect everything, but an unsprayed check provides valuable information on the effects of spraying.
- Follow label instructions for rates and spray intervals. Because symptoms of infection do not appear for 10-20 days, infections that occurred before you sprayed continue to appear after you spray. So your decision to spray again should be based on the label instructions, weather, and disease development in unsprayed areas.
- Continue spraying until limited by the preharvest interval or if weather turns hot and dry.
- If diseases have not appeared before tasseling, spraying is probably unnecessary.

There are four fungicides (chlorothalonil, copper, mancozeb, propiconazole) registered for use on corn for seed production. The fungicides differ in their efficacy against certain diseases and in their restrictions such as the preharvest interval and livestock feeding. Check the label to determine whether the fungicide may be applied, rates permitted, and for any restrictions of application. A recent change is that Tilt can now be applied up to 30 days preharvest (but forage and fodder may not be fed to livestock if Tilt is applied after silking). Tilt is the preferred product for gray leaf spot and eyespot control; it has protective and curative activity. Chlorothalonil (Bravo), copper salts (Tenncop), and mancozeb products (Manzate, Dithane, and Penncozeb) have protective activity only. These products are effective against rust, northern and southern leaf blights, and northern leaf spot. Penncozeb also specifies gray leaf spot control on the label. Some newer fungicides are being developed for corn, and they look very good, but are not yet registered.

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