



Cercospora 2014 - Back to the Basics...

Each year the sugarbeet fields planted at Minn-Dak are plagued with one of the most destructive diseases in sugarbeet – Cercospora Leaf Spot. Although everyone is well aware of the disease, very few actually know some of the most basic principles regarding its life cycle, symptomology and the overall importance of its control...

Where does it come from?

Cercospora Leaf Spot (CLS) is a fungal disease that produces spores during the course of its life cycle. The spores present on infected leaves are incorporated into the soil during harvest defoliation and/or fall tillage. From there, the spores overwinter in the soil and are spread by wind and rain to new plants the following growing season. Once it makes contact with a new plant, the spores germinate and cause infection (usually multiple times throughout the season) - and the entire process begins to repeat itself.

Does infection occur as soon as I see spots?

The short answer is no - Infection occurs BEFORE you can physically see spots. If environmental conditions are ideal (warm and humid), spots appear on the leaves in as few as 5 days after the initial infection has occurred and may not be visible for up to 10 days or more if weather is less suitable for disease development. This is why fungicide timing is so very important. Growers need to start spraying early and keep on a methodical schedule to avoid “playing catch up.”

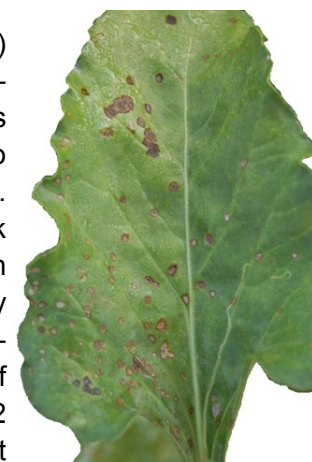
What type of weather conditions favor disease development?

Cercospora Leaf Spot is VERY dependent on the weather. The ideal temperature for spore germination is right around 76° F with very high humidity. If these weather conditions are present, spores can germinate and cause infection in as little as an 8-hour timeframe. Once the plant is infected, new spores can be produced anywhere between 50° – 95° F with a relative humidity of > 60%. Keep in mind that only one day of suitable weather every 10 days can cause a very severe disease problem.

Can the symptoms caused by Cercospora be confused with anything else?

To the naked eye, it can be very difficult to tell the difference between Cercospora Leaf Spot and Bacterial Leaf Spot, another common leaf disease in the Red River Valley.

Bacterial Leaf Spot (right) generally produces irregular-shaped to circular spots measuring roughly 3/16 to 1/4 of an inch in diameter. Take note of the tan/dark brown centers all of which have very dark to nearly black borders. Favoring cooler weather, Bacterial Leaf Spot generally appears 1-2 weeks before Cercospora. It rarely causes any sort of economic damage.



Bacterial Leaf Spot

Cercospora Leaf Spot (left) are almost always circular, about 1/8 to 3/16 of an inch in diameter, with light to dark tan centers and dark-brown to reddish-purple borders. These lesions can occur just about anywhere on the leaf including the blades, veins and petioles. Close examination will reveal “little black dots” about the size of a pepper grain in the center of the lesion.



Cercospora Leaf Spot

Are some varieties more resistant than others?

Absolutely – Varieties approved for sale at Minn-Dak can greatly differ in their susceptibility to Cercospora Leaf Spot (CLS). To quantify these differences, every variety entered into the Minn-Dak Official Variety Trials is put through a rigorous screening process in several inoculated disease nurseries. Rated multiple times throughout the summer, a variety must have an average score of a 5.36 or less (on a 0-9 scale) over a 3-year period in order to be approved for sale. Varieties with a low CLS rating (around 4.30) may need one less fungicide application that varieties that are more susceptible (rating > 5.0). Listed to the right are the CLS ratings for the ten most popular varieties planted at Minn-Dak for the 2014 season. The lower the number, the more resistant the variety is to Cercospora Leaf Spot.

Variety	CLS Rating
Betaseed 7222	4.24
Hilleshög 4062	4.28
Hilleshög 4022	4.32
ACH 228	4.36
ACH 260	4.46
Betaseed 7099	4.55
Seedex Vapor	4.68
Betaseed 7070	4.68
ACH 012	4.70
ACH 830	4.70



**3% of Leaf Surface Infected
PROVEN YIELD LOSS**

I know Cercospora control is important, but at what point will I start to lose money?

It's actually a lot lower than you would think - A proven economic loss occurs when only 3% of the leaf surface area is covered with lesions (60-70 spots). When the disease progress to this point the result will likely be reduced tonnage and sugar content, increased impurities and losses during long-term storage (both of which complicates processing in the factory).

2014 Minn-Dak Cercospora Leaf Spot Fungicide Program

Spray Program	First Application	Second Application	Third Application
One-Spray	Triazole	_____	_____
Two-Spray	Triazole	Strobilurin	_____
Three-Spray	Triazole	Strobilurin	TPTH

Fungicide Class	Trade Name	Rate per acre	Pre-Harvest Interval	Re-Entry Interval
Triazole	Eminent	13 oz	14 Day	12 Hours
	Proline	5.7 oz	7 Day	12 Hours
	Inspire	7 oz	21 Day	12 Hours
Strobilurins	Headline	9 oz	7 Day	4 Hours
	Gem	3.5 oz	21 Day	12 Hours
Triphenyltin Hydroxide (TPTH)	AgriTin	5 oz	7 Day	48 Hours
	Super Tin 80WP	5 oz	7 Day	48 Hours
	AgriTin 4L	8 oz	7 Day	48 Hours
	Super Tin 4L	8 oz	7 Day	48 Hours

Your Agriculturist is the best source for information regarding CLS - keep in close contact with them for rates & timing