AGRICULTURAL BEET

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Cercospora Leafspot

Southern Minnesota Beet Sugar Cooperative
Renville, MN
www.smbsc.com | 320.329.8305

Begin Planning for 2019 Cercospora Management this Fall

SMBSC Research Department

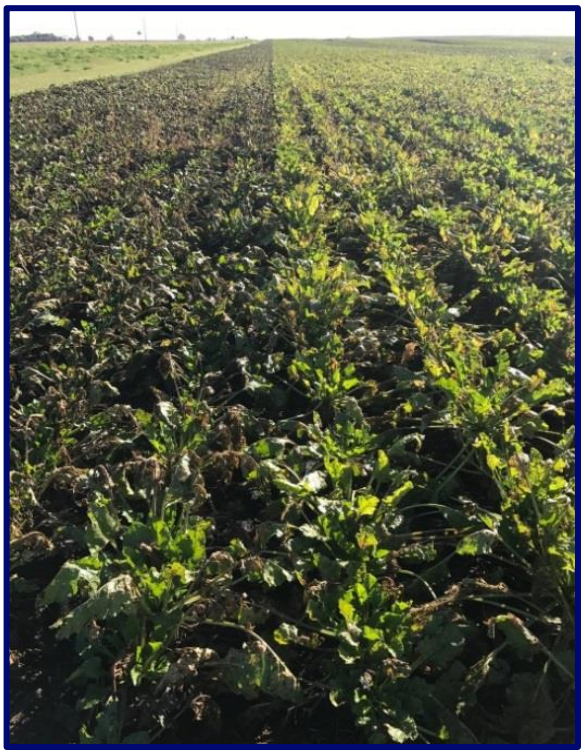
The 2018 growing season has been another season with high levels of Cercospora leafspot. High levels of Cercospora this season will mean high levels of inoculum for the 2019 growing season. In this edition of the Agricultural Beet, we will discuss several cultural practices that you can implement this fall to help reduce the Cercospora pressure on your fields next season.

Aggressive Tillage

1. Aggressive tillage on 2018 sugar beet field borders that will be next to a 2019 sugar beet field. Large amounts of inoculum will be present in the 2018 sugar beet fields. Burying the inoculum will decrease the survivability of the spores for next season. This will help reduce the disease pressure on the common lines in 2019. On 2018 sugar beet fields that will have common borders to 2019 sugar beet fields, consider an aggressive tillage pass for 150-200' along the common border. Aggressive tillage would include a DMI type disc-chisel or a moldboard plow. Both of these implements will bury a majority of the leaf residue and thus the inoculum. Field cultivators and Salford type implements leave residue on top of the soil surface and will not be aggressive enough to bury the residue. Do not drag residue from a 2018 sugar beet field into a 2019 sugar beet field with tillage as this will drag CLS inoculum with the residue.

Common Line Management

2. Common Line Management
    a. Plant the most Cercospora resistant variety available along the outside 200' on the field borders that are common lines to 2018 sugar beet fields. This will help slow the development of Cercospora along this high disease potential area of the field. Variety placement is extremely important to help manage this disease. When you order seed this winter, visit with your Agriculturist regarding the best Cercospora resistant varieties for these common line fields. The picture on the right shows the difference in variety tolerance to Cercospora.



Common Line Management continued

b. Consider not planting sugar beets along the common line to a 2018 sugar beet field. Plant another crop along this border to reduce disease pressure in the remainder of the field.

Nitrogen Management

3. Nitrogen management. Excess nitrogen stimulates sugar beet plants to grow additional leaves. The additional nitrogen creates larger leaf canopies than the sugar beet needs to maximize yield. In addition to decreased sugar content with excess nitrogen application, excess nitrogen has the following potential effects on Cercospora management in sugar beets.
   a. Microclimates of high humidity develop under sugar beet canopies and these microclimates favor Cercospora disease development. Large leaf canopies due to excess nitrogen create extended favorable microclimate conditions and make Cercospora management more difficult.
   b. Nearly all of our fungicides are protectant fungicides that require complete coverage of the foliage. Sugar beet canopies with excess leaf area reduce the ability to cover all leaves with fungicide applications. Incomplete fungicide coverage allows Cercospora to continue to infect non-protected leaf surfaces. In 2018, fields with excess leaf canopies were more difficult to successfully manage Cercospora despite timely fungicide applications.
   c. In the literature it is reported that a range of crop pathogens can cause more severe damage with excess nitrogen inputs (Huber, 1981; Matson et al., 1997). Examples of excess nitrogen fertilization increasing disease in crops includes: powdery mildew and rust in wheat, gray leaf spot of corn, and brown leaf spot in rice (Agrios, 2005). Proper nitrogen management is a cultural practice to reduce disease severity in a range of crops.

Cercospora leafspot has been a large issue at SMBSC over the past several seasons. By utilizing cultural controls this fall and spring, we can help to reduce the selection pressure on our fungicides and help manage this disease.

References:

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Research Department
Southern Minnesota Beet Sugar Cooperative

Mark Bloomquist | Cody Groen | David Mettler