

# AGRICULTURAL BEET

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CLS Inoculum Reduction for 2020

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## Cercospora Leafspot Inoculum Reduction Trial

Cercospora Leafspot pressure has been high for several seasons in a row. A key to lowering disease pressure moving forward will be to limit or reduce the amount of Cercospora inoculum that is present in our growing area. Reducing the level of inoculum addresses an important leg of the disease triangle relating to the level of the pathogen present and is a proven strategy to reduce the disease potential in upcoming seasons. This spring, the SMBSC Research Team conducted a trial designed to look at potential treatments that could reduce the Cercospora inoculum from the previous season. In this edition of the Agricultural Beet, we will report on the results of the first season of this trial.

### Trial Information:

The trial was initiated in the spring of 2019 on the site of the 2018 SMBSC CLS variety nursery near Renville. This area was heavily infected with CLS during 2018. At the end of the 2018 season, the beets were defoliated, and the residue left on the soil surface, there was no fall tillage performed. In the spring of 2019, our treatments were applied (see treatment list below), and sugar beets were no-till planted back into the site. The trial was maintained for weed control, and at full canopy, we began rating the plots for development of CLS. The plots were rated using the KWS CLS scale (1-9) where 1 is no disease and 9 is completely brown. Ratings were conducted several times a week for three weeks to gauge disease development. The goal of the trial was to see if disease development was different between the five treatments.



Heat treatment (LP burner)

### Treatments

1. Untreated
2. Peroxyacetic acid (2.5% v/v) sprayed on soil surface.
3. Tillage (Tilled to 4" depth with tiller) to bury the residue from the 2018 sugar beet crop.
4. Copper hydroxide/oxychloride (4 pts./acre) in a low pH solution sprayed on soil surface.
5. Heat (burned with LP burner).

Trt	Treatment Name	Overall Rating Average
1	Untreated	4.8bc
2	Peroxyacetic acid (2.5% conc.)	4.5b
3	Tilled (4" deep)	3.6a
4	Copper (4 pts.) + N-tense	5.5c
5	Heat (propane burner)	3.2a
Mean		4.3
CV		13.8
Pr>F		0.0009
lsd(0.05)		0.9

\* Leaf ratings using KWS (1-9) scale. Lower numbers are better.  
 \*\*Ratings are an average of all raters.  
 \*\*\*Ratings followed by different letters are statistically different from each other.

## Trial Results

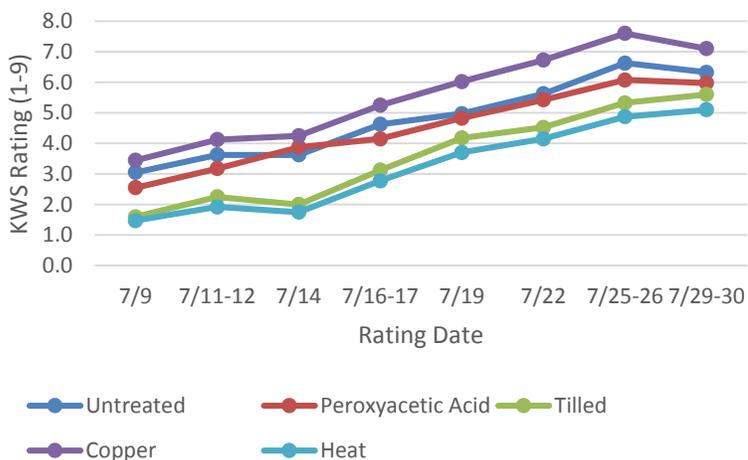
Disease ratings were taken on 8 dates from each individual plot. The overall average rating is shown in the chart to the left and the plot of the disease progression is shown below.

Plots that were tilled or had the heat treatment applied to them had significantly lower levels of disease. The disease progressed at a similar rate for all treatments, however the tillage treatment and the heat treatment started and finished the trial with the lowest disease levels.

## Potential Practices for 2020

- Consider aggressively tilling sugar beet field borders that will be a common line to 2020 beet fields. This could be moldboard plowing 70-100' along the field border or aggressively tilling this border area with a disk-chisel to bury the 2019 sugar beet leaf residue.
- Using a weed burner (used on organic farms for weed control) or other type of machine to burn the sugar beet leaves in the 2019 sugar beet field borders that will be common lines to 2020 fields. This may work best shortly after the area is harvested, but extreme care would need to be taken to avoid the potential of fires to dry crops along the borders.
- Inoculum reduction through residue management is a proven strategy to reduce and delay disease development in the following season for many diseases.

2019 Inoculum Reduction Trial - Renville



## For More Information

For more information on any of the practices mentioned in this Agricultural Beet, contact your Agriculturist.



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