Agricultural Beet

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The Hidden Cost of Rhizoctonia

During the 2021 season a trial was conducted to compare infurrow and post emerge treatments for control of Rhizoctonia. During the harvest of the trial two separate quality samples were collected for each plot. One sample had all disease-free beets, which is a typical practice in most research trials. However, the goal of the second sample was to represent the level of Rhizoctonia disease present in the plot. For example, if the plot as a whole received a rating of a 2, then six clean beets and two beets that were a 3 or 4 would be used for the second quality sample (see scale below for reference).

The average sugar content for the 72 disease-free samples was 15.5%. The average sugar content for the rot representative samples with a rating of less than 2 was 15.15%, between 2 – 3 was 14.82%, and between 3 – 4 was 15.05%. This was a 0.35%, 0.68%, and 0.45% sugar loss with only low amounts of Rhizoctonia present in the quality samples. This is only the in-field sugar loss and does not include possible storage or factory processing issues associated with Rhizoctonia infected beets.

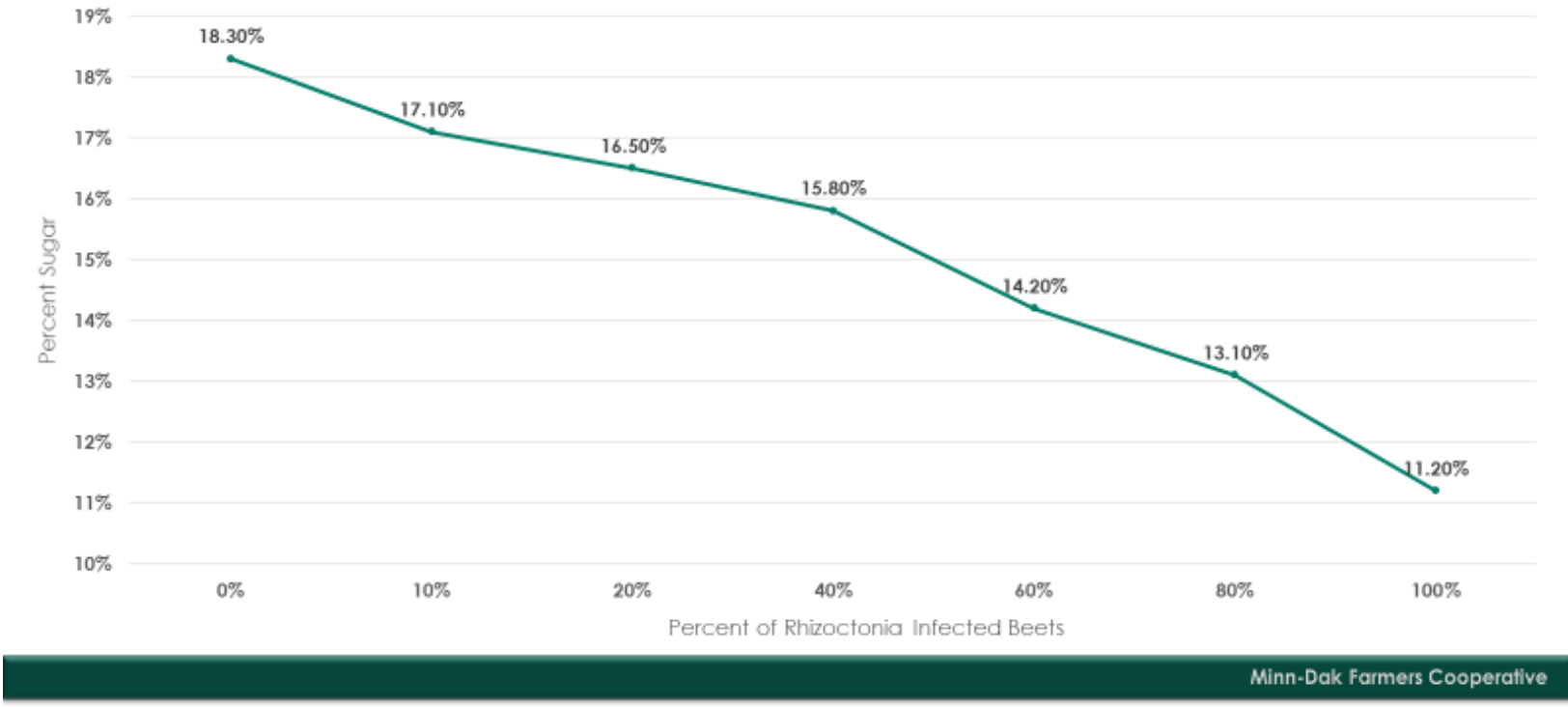
In 2019 we conducted a study to investigate the impact of root rot on storage. Similar to the field trial conducted in 2021 we saw a reduction in sugar content as the level of root rot increased. In addition to this in-field reduction of sugar content we also saw an increase in respiration rate in storage (not shown) and an increase in non-sucrose inverts as the level of root rot increased (below). The presence of non-sucrose inverts reduces the amount of sucrose that can be extracted and granulated by the factory.

Rot Rating	Raffinose	Sucrose	Glucose	Fructose	Betaine
1	0.171 b	16.24 a	0.104 b	0.071 b	0.083 b
3	0.183 b	15.62 a	0.145 b	0.049 b	0.109 b
5	0.231 a	14.12 b	0.218 a	0.124 a	0.143 a
Mean	0.195	15.33	0.155	0.081	0.111
CV%	15.3	3.8	29.8	46.2	22.6
Pr>F	0.0029	<.0001	0.0008	0.004	0.0011
lsd (0.05)	0.032	0.63	0.050	0.040	0.027

Photo Credit: Ashok Chanda

0 1 2 3 4 5 6 7 8 9 10

Impact of Rhizoctonia Infected Beets in Quality Sample



A trial conducted by Minn-Dak Farmers Cooperative showed similar results. In a sample of 10 disease free beets the sugar content was 18.3%. However, as more Rhizoctonia infected beets were added to the sample the lower the sugar content became. Even with just one beet having Rhizoctonia in the sample the sugar content dropped over 1%.

Even if Rhizoctonia does not impact your stand with early damping-off or with root rot later in the season that reduces tons, there could be a substantial penalty to sugar content with even low levels of infection.

For treatment options please review the Rhizoctonia Quicksheet on the website or contact your Agriculturist.

https://www.smbsc.com/agronomy/Quicksheets/2022%20Rhizoctonia%20Quicksheet.pdf

Information Credit:
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