

AGRICULTURAL BEET

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What can hail do to our canopy?

Sugarbeets are mother nature's most efficient crop for producing sucrose. In many of our management practices we aim to steer that production in the right way. In preparation for storm season, let's review what damage can really be caused by hail. Following any hail damage, we feel the strong urge to do something that will "help" the crop we have invested in. Apart from making us feel better about doing something, any extra treatments applied may be entirely a waste of time and money. Still we want to know; Do sugarbeets actually recover on their own without help?

Hail events never have an even cutoff line running with the rows to perform a trial, so the best we can do is compare with neighboring fields that were missed by the hail event. With the hail events occurring in 2023, damaged fields were tracked to determine if they would be comparable to neighboring fields taken to final yield and quality.



Two major hail events occurred in 2023;

- July 13th – Maynard area
- August 11th – Lake Allie/Boon Lake area

We identified fields within these areas in which to take quality lab samples to track their recovery through full harvest.

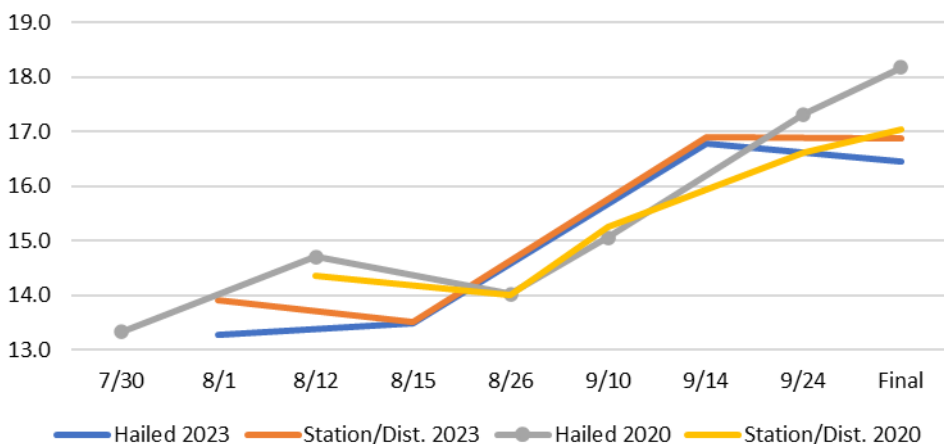
*The hailed fields chosen did not receive any rescue or recovery type of application.

To perform the most accurate comparison possible, hailed and unaffected fields were chosen with the following criteria;

- Mid-late summer samples would only be compared to same day averages of the field's contracted station.
- For final harvest results, neighboring fields had to receive 10% or less defoliation.
- For final yield the unaffected fields must be harvested within two days of the hailed field.
- The unaffected fields must be within 10 miles, and in the same or adjacent townships of the affected fields.

Following the 7/13 hail near Maynard, the affected fields were sampled at the same time as the agriculturalist second root sampling to get an idea on what the initial reduction in quality would be. With the sample timing of 8/1, the hailed beets had a chance to burn up some sugar and attempt to regain foliage. Recovery begins immediately, and the beets go into overdrive to shoot up the new leaves. When we compare those to the station and district average non-hailed fields, we will see a reduction in sugar through the end of the season.

2023 and 2020 Sugar % by Hail



If we look back at 2020 we see the same initial hit to sugar, only to rebound and closely track with other fields. Differences seen in final sugar and yield for both years are most likely **due to other variables like planting date and variety**. Knowing that grower fields will likely take a sugar hit, is there a practice or product that can aid in the recovery of the crop? Products with plant growth promoter characteristics have been tried with limited and inconsistent success.

Without replicated trial work, it is difficult to prove whether a fungicide or alternative product can help sugarbeets recover more quickly. Thus far, SMBSC has not conducted such trials because hail rarely affects significant acres and the final yield is not often severely affected.

2023 Hailed field yield comparison			
	Tons/Acre	Sugar	Purity
Station Average	29.67	16.2	89.3
Hailed Fields	29.73	15.6	88.7
Percent of Mean	100.2%	96.1%	99.4%

In 2023 a simulated hail trial was conducted at Lantic Sugar in Alberta. Their results indicate that a reduction in sugar content from the hail event remains lower through the end of the season. They provide a good example of the decision of whether to harvest hailed fields early or late. As expected, the example proved for maximized total sugar production it is best to leave the healthy fields the longest, and harvest the hailed fields early.

Most crop insurance loss adjustments for defoliation in beets will max out around 30%. This means that even total 100% defoliation at the worst possible time may lead to only 30% loss. Choosing to jump into action with a recovery treatment may or may not be worthwhile. Minimal industry trial work has been conducted with recovery options, and perhaps more will come in the future. With a history of July and August hail storms we hope to avoid any defoliation, but with nature's most efficient sucrose maker, crop recovery is a safe bet with minimal loss potential. Keep a watchful eye on your canopy development in the coming weeks and contact your Agriculturalist to keep your crop moving in the right direction. Have a wonderful Independence Day!

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Information Credit:
J. Anderson & P. Regitnig, Lantic Sugar

