Agricultural Beet

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Management Considerations for Unharvested Sugar Beets

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Best Management Practices for Unharvested Sugar Beets

The 2021 growing season will result in a crop size that will require some amount of sugar beet acreage to remain unharvested. This edition of the Agricultural Beet will concentrate on Best Management Practices for these unharvested acres. The Best Management Practices in this article will include defoliation, tillage, preferred crops to plant, and crop fertility concerns. The BMP's listed here will help reduce the potential for yield decreases or planting problems with 2022 crops planted on these acres.

Fall 2021 – What should I do with these acres?

- **Defoliation:**
  - Defoliate the unharvested acres with a defoliator or stalk chopper this fall.
  - Defoliating the crop will chop up the foliage and especially the petioles. If the beets are left undefoliated, the long petioles will turn into a twine-type material. These petiole twines will wrap around both your spring tillage and planting equipment and will likely cause problems at planting. Defoliate as low as you feel comfortable, removing as much petiole/crown as possible.
  - Removing the foliage will allow a quicker decomposition of the sugar beet in the field. The foliage will insulate the beet and slow the freeze thaw process that will help decompose the beets.
- **Tillage:**
  - Consider no fall tillage on these acres.
  - The unharvested sugar beets are currently well distributed in the soil with a majority of the beet under ground. This is favorable for the best breakdown of the beets prior to the 2022 season.
  - Tillage that brings beets to the surface will slow the breakdown of the sugar beets and potentially cause more issues for planting the upcoming crop.
  - Sugar beets that are left above the soil surface are subject to floating off the field with water movement during the spring thaw or during rain events. These beets may float off the field onto non-crop areas or block drainage pathways.

Crop Choices and Considerations

1. Consider planting soybean in the field in 2022. Research indicates that soybean will grow much better than corn following sugar beet, particularly when the sugar beet is not harvested. For soybean, take a soil test for phosphorus and potassium and apply fertilizer if the soil test results indicate a need.
2. If you must grow corn; get a soil test for phosphorus and potassium. Apply the potassium if the soil test results indicate a need. Since sugar beet is not a host for fungi that facilitate uptake of phosphorus and zinc, no matter what the soil test indicates, you must use an in-furrow starter fertilizer of about 20 lb P_2O_5/A and 1 lb Zn/A. **It must be applied as an in-furrow starter.** If your soil test indicates that you need more phosphate, broadcast apply the rest. Similar to fallow syndrome following harvested sugar beets, a broadcast application following unharvested sugar beets, will not work. **As for nitrogen, fertilize the corn as if it were a corn-on-corn situation.** The amount of residue left in the field following a 30 ton beet crop will likely have similar nitrogen tie-up to a high yield corn crop. With the higher cost of inputs going into 2022 it would be beneficial to soil sample these acres so that you do not apply any unnecessary fertilizer.

Soil Fertility for Corn Grown after Unharvested Sugar Beets

Table 1. Corn grain yield and statistical analysis for 2020 corn following unharvested sugar beets from 2019.

Treatment	Beets	Starter	N rate	Grain yield (bu/A)
1.	Not harvested	none	0	107
2.	Not harvested	7 gallons 10-34-0 plus 1 lb Zn/acre	0	126
3.	Not harvested	7 gallons 10-34-0 plus 1 lb Zn/acre	Recommended – 40 lb N/A (115 lb N/A)	224
4.	Not harvested	7 gallons 10-34-0 plus 1 lb Zn/acre	Recommended (155 lb N/A)	234
5.	Not harvested	7 gallons 10-34-0 plus 1 lb Zn/acre	Recommended + 40 lb N/A (195 lb N/A)	255
6.	Not harvested	7 gallons 10-34-0 plus 1 lb Zn/acre	Recommended +80 N/A (235 lb N/A)	241
7.	Harvested	7 gallons 10-34-0 plus 1 lb Zn/acre	Recommended (155 lb N/A)	251
8.	Harvested	None	0	150
9.	Harvested	7 gallons 10-34-0 plus 1 lb Zn/acre	0	160

The situations created when growing a crop after un-harvested sugar beet are not optimal but following the guidelines will help produce a good crop next year:

- The best option is to grow soybeans following unharvested beets.
- If that is not possible in your rotation:
  - **Apply 40lbs/A of nitrogen above the UofM recommendation.**
  - **Apply an in furrow starter with about 20 lb P_2O_5/A and 1 lb Zn/A.**

Your Agriculturist is an excellent source of agronomic information. Contact your Agriculturist with your questions on unharvested sugar beet management.

The full data set for the above table can be found in the 2020 Research Report on page 74: https://www.smbsc.com/Agronomy/Research/2020%20Combined%20Research%20Report.pdf

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