

SMBSC Fertility Analysis Program for the 2019 Crop

The sugar and purity content of a field are influenced by several factors; however, proper nitrogen fertilization is critical to maximizing sugar extraction and revenue. SMBSC believes a high quality soil sample provides the foundation for increasing the quality of the sugar beets at our cooperative and thus, increasing the revenue to our shareholders. The number of fields in the SMBSC Agronomic Practice Database with soil sample information has decreased over the past 10 years. This is a trend SMBSC would like to reverse. In this update we will review the requirements of the SMBSC Soil Analysis Program as well as introduce two changes to the program for the 2019 crop season. A similar newsletter will be distributed to soil samplers and industry partners of SMBSC to make them aware of the program and the new changes. Your cooperation is a vital part of increasing the quality of the sugar beets grown in our cooperative and thus increasing the revenue per acre for our shareholders.

Soil Fertility Analysis Program Requirements for the 2019 Crop

Soil samples can be submitted to either Agvise or MVTL for analysis. Discuss with your soil sampler where your samples will be sent and analyzed. The Soil Analysis Program criteria are as follows:

Soil samples should be taken by management zones or by a grid system. Fields sampled with only one composite sample for the entire field will not be accepted.

Fields sampled by management zones should have a minimum of one composite sample taken per management zone. If the zone is very large and the consultant or sampler determines that more than one sample should be taken from the zone that is not a problem with the program.

Soil samples should be analyzed for the following criteria: nitrate nitrogen, phosphorus, potassium, organic matter, and soil pH.

For nitrate nitrogen, a minimum of 36" sample depth is required (48" preferred). SMBSC strongly recommends a deep nitrate sample to know the levels of deep nitrogen present in your field. The presence of significant levels of deep soil nitrate can decrease the quality of your sugar beet crop.

SMBSC recommends nitrate nitrogen samples are not taken until soil temperatures are below 50 degrees F.

Fields must be planted to sugar beets for the 2019 season.

Soil samples that do not meet all the above criteria can still be submitted to either lab under the SMBSC program; however, because not all the criteria are met the cost of the sample analysis will be deducted from the shareholders November 2019 beet payment.

Any nutrient analysis requested by the shareholder or sampler other than the ones listed above are outside of the SMBSC Soil Analysis Program, and these costs will be charged to the shareholder. (Examples would be sulfur, zinc, or boron analysis). The extra analysis costs will be deducted from the shareholder's November 2019 beet payment.

New for 2019 Season

To encourage increased participation and deep nitrate sampling, SMBSC will be modifying the program for the 2019 season. The additions to the program are as follows:

SMBSC will directly compensate shareholders \$2 per acre for all fields that are sampled and submitted through the SMBSC Soil Analysis Program. To be eligible for this compensation, all requirements for the Soil Analysis Program must be met for each field submitted to the program. If any requirement of the program is not met, the shareholder will not be eligible for the \$2 compensation for that field. This compensation will be paid directly to the SMBSC shareholder through a line item on one of the 2019 sugar beet checks.

The second change is that SMBSC will accept nitrogen only samples for the Soil Analysis Program and the analysis fees on these samples will be paid. These nitrogen only samples must be taken to a minimum of a 36 inch depth. If nitrogen only samples are submitted through the Soil Analysis Program, these fields would not be eligible for the \$2 per acre compensation because not all the program criteria would be met.

Nitrogen Recommendations for the 2019 Sugar Beet Crop

Nitrogen management is extremely important part of sugar beet production. The presence of excess nitrogen fertilizer decreases sugar accumulation in the root and also decreases processing purity of the beet. These result in decreased sugar production in your factory. High quality nitrate nitrogen samples taken at the proper time and recommended depth are an important part of a nitrogen management program. **SMBSC recommends a total of 110 lbs. of nitrogen per acre (residual + applied) based on a four foot soil sample.** SMBSC also has guidelines to vary the nitrogen recommendation based on the organic matter content of the management zones in the field. These guidelines are as follows:

| Organic Matter Content | Total Nitrogen per Acre |
|------------------------|-------------------------|
| 0-3% | 130 lbs. |
| 3-4% | 120 lbs. |
| 4-5% | 110 lbs. |
| 5-7% | 100 lbs. |
| 7+% | 80 lbs. |

SMBSC Management Zone Maps and Mapping Program

SMBSC recommends that soil samples are taken on a management zone or grid basis. Soil sampling and fertilizer application by the management zone is an important part of increasing the sugar contents and revenue of sugar beets grown in the SMBSC growing area. In 2012 SMBSC introduced a zone mapping program for use in shareholder's sugar beet fields. SMBSC's goal for this program is to increase sugar contents of the sugar beet crop and maximize sugar production per acre by applying nitrogen fertilizer to the zones that need nitrogen, and to not over-apply nitrogen to zones in the field with high organic matter and higher residual nitrogen. This system uses bare soil imagery to delineate management zones within fields for soil sampling. These zones can then be used for soil sampling the field, or may be added as a layer to management zone maps you may already be using on your farm.

Discuss the SMBSC zone mapping system with your soil sampler for use on your 2019 sugar beet fields. Contact Jody Steffel at 320-329-4144 for questions regarding the SMBSC zone mapping system.

Summary

The SMBSC Fertility Analysis Program and Zone Mapping Program were implemented to help shareholders raise higher quality sugar beet crops and also to obtain quality soil fertility information for the SMBSC Agronomic Practice Database. It is difficult to design a program that fits all users, but we are interested in suggestions that could make the program better. Please forward any suggestions you may have for the SMBSC Fertility Analysis Program to mark.bloomquist@smbc.com or jody.steffel@smbc.com.

SMBSC would like to thank all past participants in the SMBSC Fertility Analysis Program and encourage everyone to take advantage of the program for their 2019 sugar beet crop.

Mark Bloomquist

Jody Steffel