SMBSC Soil Fertility Analysis Program – Crop Year 2026

With the highly fertile and productive soils in the SMBSC growing area, precise management of available nitrogen is critical to maximize sugar per acre. Our sampling program has played a crucial role in providing the decision making data we need to make the best fertilizer recommendations for a high quality crop. As nitrogen residual and applied rate trends upward, it is a good idea to utilize accurate data for ideal nitrogen use efficiency as well as saving money on inputs. With the samples submitted through the program we are able to provide valuable insight for shareholders, agriculturalists, and industry agronomists**.**

Participation in the SMBSC soil fertility analysis program and Ag Practice Database are vital tools for identifying fertilization management options and strategies that can improve sugarbeet yield and quality, as well as shareholder revenue. SMBSC promotes the sustainable recommendation and utilization of fertilizers within the cooperative. This program allows our shareholders the opportunity to practice excellent nutrient stewardship within their operations.

SMBSC understands that the physical cost of sampling your field can easily incur costs over $5 per acre. SMBSC will provide a **$2/acre cost share incentive** available for fields sampled to a 36" minimum depth for nitrate. Fields must meet all other program criteria outlined below.

Soil Fertility Analysis Program Requirements for the 2026 Crop

Soil samples can be submitted to either Agvise or MVTL for analysis. Discuss with your soil sampler where your samples will be sent. This document will serve as the official policy for the program. Determination of meeting the minimum program criteria and the reimbursement will be at the discretion of SMBSC.

Contact Agvise at 320-843-4109 or MVTL at 800-782-3557 for information on submitting samples and the proper forms to complete.

Program criteria for analysis compensation by SMBSC

1) Samples should be taken by management zones or grid system. Fields sampled with only one composite sample for the entire field will not be compensated.
    a) Fields sampled by management zones should have a minimum of one composite sample taken per management zone, with a minimum of two zones.
    b) Where management zones are quite large, multiple samples should be taken from the zone. This does not disqualify reimbursement within the program.
    c) Best practices are to utilize 6 - 8 soil probes per composite sample taken on management zones less than 30 acres, and 8 - 12 soil probes per composite sample on management zones greater than 30 acres.

2) Analyze 0 - 6” for N, P, K, OM, and pH.
3) 24” minimum sample depth for nitrate nitrogen (48” preferred).
   a) Analyze 6 - 24” for nitrate nitrogen. **Minimum program requirement.**
   b) Analyze 24 - 36” + for nitrate nitrogen. **This is mandatory to qualify for $2 cost share.**
   c) **Nitrate samples must be submitted after September 15th.**
4) Fields must be planted to sugar beet for the program year in the successive season.
5) SMBSC will pay 100% of the sample analysis fees for the above required tests for all fields sampled, planted to sugar beets in the subsequent year, and submitted to the lab through the SMBSC Soil Fertility 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 the 36” minimum depth nitrate test is performed, the shareholder will receive a $2/acre cost share. This compensation will be paid directly to the SMBSC shareholder through a line item in the subsequent February sugarbeet payment.
6) In addition to the nutrients listed above, SMBSC will also accept and pay the analysis fees on nitrogen-only samples when nitrogen is the only nutrient analysis requested, but these fields would not be eligible for the $2/acre cost share.
7) SMBSC recommends soil testing after 4” soil temps fall below 50˚ F as a good agronomic practice. This avoids changes from nitrate mobility at higher temperatures.

Soil samples not meeting 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 shareholder’s February sugarbeet payment. **This also applies to additional tests such as sulfur, zinc, or boron. These nutrients do not have an economically significant impact on sugarbeet in the vast majority of our growing area and analyses will be deducted from the grower payment**.

Field Identification

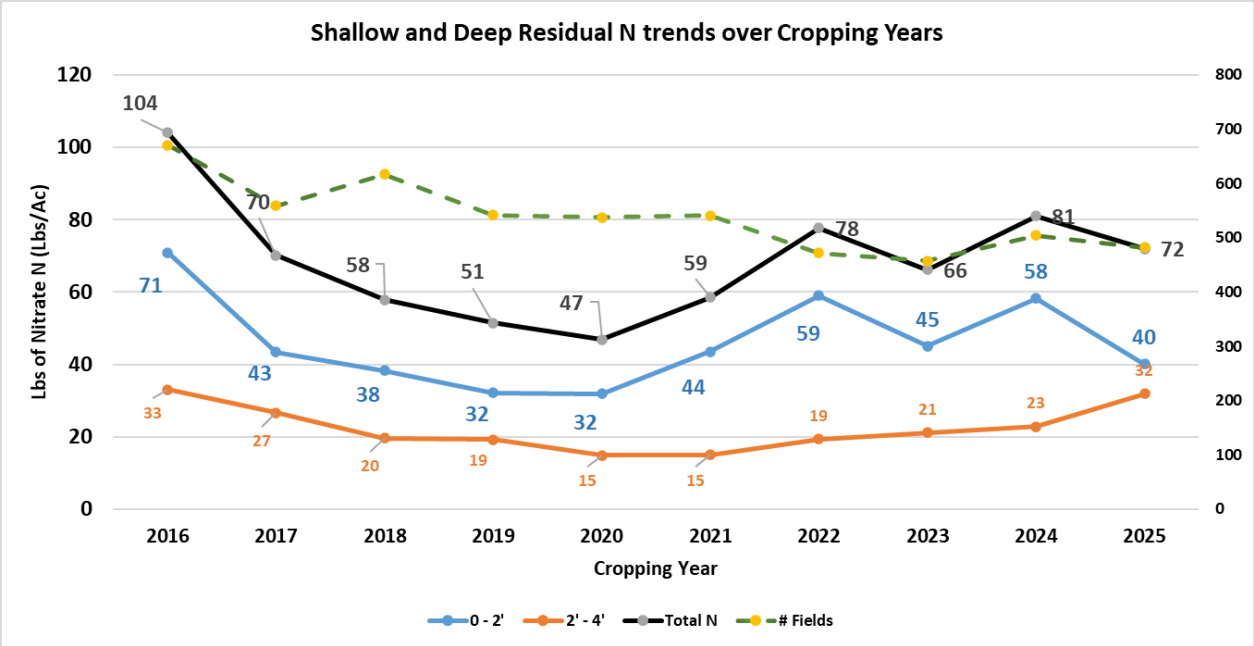
For many years the soil sampling program has utilized 40 codes for geospatial verification of sugarbeet fields and their corresponding samples. Starting in 2024 the official accepted format for field location is in decimal Latitude, Longitude format. Coordinates for each sample are not necessary. One Lat/Lon coordinate for each field, copied for each sample, will be accepted if the coordinate point is inside the field border. Example coordinates; 44.814825, -95.174153

Nitrogen Recommendations

Nitrogen management is an extremely important part of sugar beet production. The presence of excess nitrogen fertilizer decreases sugar content and overall beet purity, which when combined results 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 data over 10 years and 19 trial locations suggest managing nitrogen to *130* total lbs. per acre *(+/- 20 lbs. depending on individual field circumstances).* This total includes (residual + applied) based upon the use of a four-foot soil sample.** Adjustments

upward or downward from the recommended range may be required to compensate for field organic matter, manure history, tillage, crop residue, among other variables.

Due to no longer requiring deep nitrate samples for the program, recommendations for nitrogen fertility should be made carefully with several factors taken into consideration. Factors such as previous crop, yield of previous crop, rainfall, mineralization potential of soil types and textures, tillage practices and crop plans should all be considered. It is both common and recommended that when the sample depth reaches less than 48", an extrapolation should be made to determine the potentially available deep nitrate up to that total 48" depth. From 2021 through 2025 our average nitrate between 24" and 48" was 23.6 lbs, but 298 samples have been recorded showing more than 100 lbs. This is a good reason to consult with your agriculturalist and agronomist for nitrogen recommendations in your sugarbeet crop. Most of the cooperative growing area soils have the ability to hold on to some of that available N at these depths, even after the excess rainfall experienced this year. The following chart shows our nitrate trends over recent years and can serve as an indicator for general trends and aid in recommendations.



Through the soil analysis program we are able to maintain a large dataset including nearly 17,000 deep N samples with the following 5 year information on 24-48" soil test nitrate;

2021-2025 Deep N Stats	
Max	651.4
Min	1.3
Median	17.1
Mean	23.6
Std. Dev.	25.0

Please note the wide swing from Max to Min, and all factors should be considered before making recommendations without a deep nitrate sample. With the high deep residual last fall potentially being offset by excess rainfall, sampling for the 2026 crop will be critical.

SMBSC Management Zone Maps and Mapping Program

SMBSC recommends that soil samples be taken on a management zone or grid basis. Soil sampling and fertilizer application by the management zone is an important part of increasing sugarbeet quality and revenue. In 2012 SMBSC introduced a zone mapping program for use in our shareholders' sugarbeet fields. SMBSC's goal for this program is to increase cooperative average sugar content and maximize sugar production per acre by applying nitrogen fertilizer to zones that identify a need for additional nitrogen, and to refrain from over-application of nitrogen to zones possessing high organic matter and higher residual nitrogen. This system uses bare soil imagery to delineate management zones within fields for soil sampling. These zones are useful for soil sampling fields 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 2026 sugar beet fields. Contact Jody Steffel at 320-329-4144 for questions regarding the SMBSC zone mapping system.

Summary

The SMBSC Soil Fertility Analysis Program and Zone Mapping Program were implemented to help shareholders raise higher sugar per acre in their crops, and to obtain quality soil fertility information for the SMBSC Agronomic Practice Database. Although it is impossible to design a program that fits all operations or field specifics, we are interested in any suggestions that could make the program better. Please forward any suggestions or questions that you may have regarding the SMBSC Soil Fertility Analysis Program to cody.bakker@smbsc.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 next high quality sugar beet crop.

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