

# Agricultural Beet

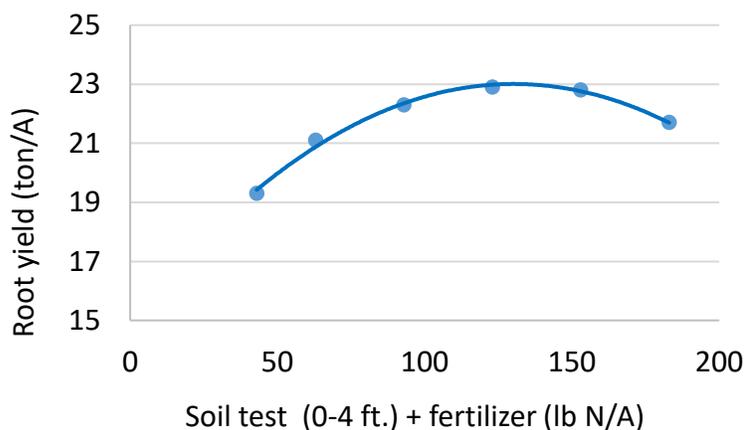
April 8<sup>th</sup>, 2020

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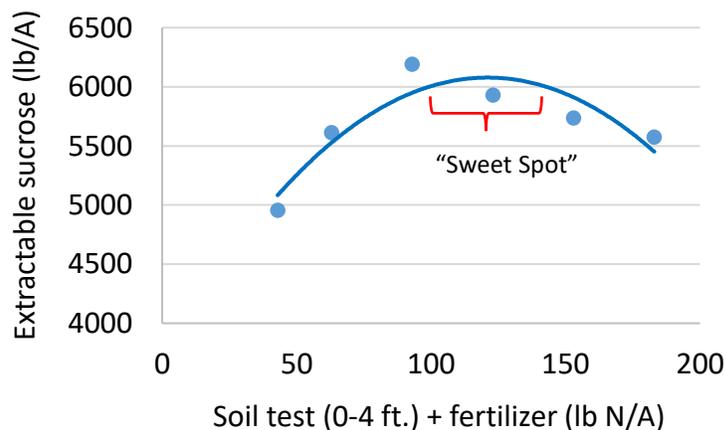
## 2020 Spring Fertility Recommendation

Over the past few years the weather, in particular rainfall frequency and intensity, have not been consistent with what we have come to expect based on previous weather patterns. These changes can have an impact on how best to manage nitrogen fertility in our beet fields. Data generated by SMBSC research would suggest there is a **“Sweet Spot” (100 to 150lbs/acre)** for total nitrogen for a sugar beet crop. This provides some flexibility to consider the array of conditions a grower may be facing this spring. Hopefully you had a conversation about this topic during the contracting discussion with your Agriculturalist this past winter. Too little nitrogen and both tons and sucrose per acre are limited. Likewise, there is good evidence that too much nitrogen can negatively impact sucrose per acre (see graphs below) and thus profitability. Staying within the “Sweet Spot” allows the flexibility needed to be able manage nitrogen fertility appropriately in your sugar beet crop.

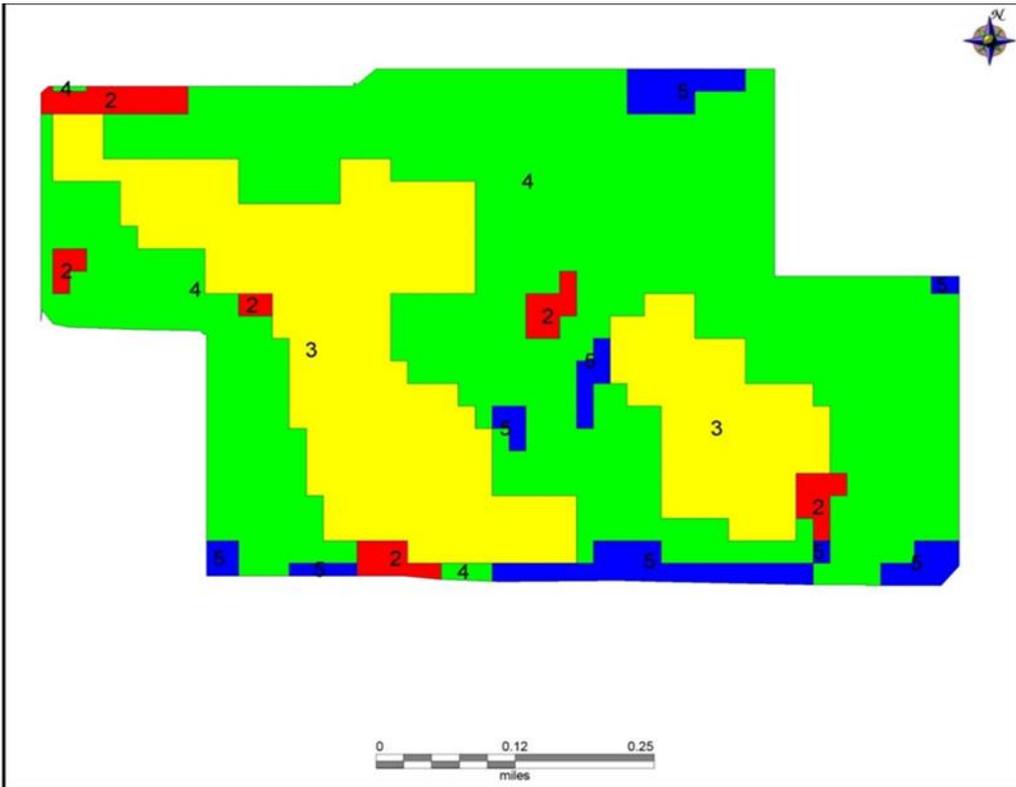
Root yield



Extractable sucrose per acre



One thing to keep in mind when considering your nitrogen fertility program is the difficulty in managing the variability across a field. We all recognize that there are going to be dissimilar levels of fertility in different areas of the field due to numerous factors such as soil type, organic matter content, topography and many more. Trying to manage close to either side of the curve can be extremely challenging because we don't want any part of the field to fall outside the “Sweet Spot”. The best way to do this is to have a comprehensive soil sampling program.



**Organic Matter Mapper showing varying soil organic matter.**

Before the correct nitrogen rate can be applied an accurate and representative soil sample needs to be taken. Soil sampling to a 36-48" depth provides the best estimate of the residual nitrogen present at each depth in your field. Using a zone or grid sampling method can greatly enhance your ability to stay within the "Sweet Spot" in any part of the field. Soil sampling by 20 acre strips is not a good indicator of residual nitrogen. Strip sampling will not detect variability in soil fertility within the strip and as a result, some areas of the field will not have enough nitrogen and other areas will have excess nitrogen. Using our Organic Matter Mapper is a good place to create management zones in your field.

## Things to Consider

- There is a good chance that the nitrogen (N) levels in your field have changed since last fall with the mild winter. Consider getting a reduced number of spring soil samples before applying fertilizer this spring to make sure you know where you are at.
- Spring soil samples in fields that were prevent plant last year is very important as you are not following a normal cropping system.
- In general, sugar beet production at SMBSC requires a **minimum of 65 lbs of N in the top 2 feet** as this N is critically important to provide a bridge of N for early growth and for reaching full canopy. This provides adequate nitrogen until organic matter mineralization processes begin and roots develop to reach deeper N.
- In most cases applying a starter fertilizer can be beneficial to early growth of the sugar beet.
- Side dressing nitrogen after 4 leaf beets has not shown to be beneficial to extractable sugar per acre yield except on irrigated coarse texture soils.
- Nitrogen management strategies do not exist in a vacuum from other factors. A "Sweet Spot" exists and allows shareholders with flexibility to account for specific cropping systems and management strategies.

Your agriculturalist is a great resource if you want to discuss plans for spring fertilizer applications in sugar beets. If you have other questions feel free to contact David Mettler at [david.mettler@smbc.com](mailto:david.mettler@smbc.com) or 320-522-3836.



**Agricultural Department**  
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