Fertility 2017

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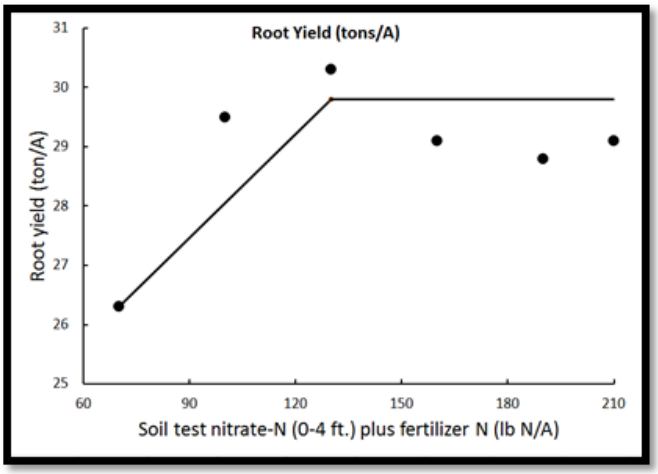
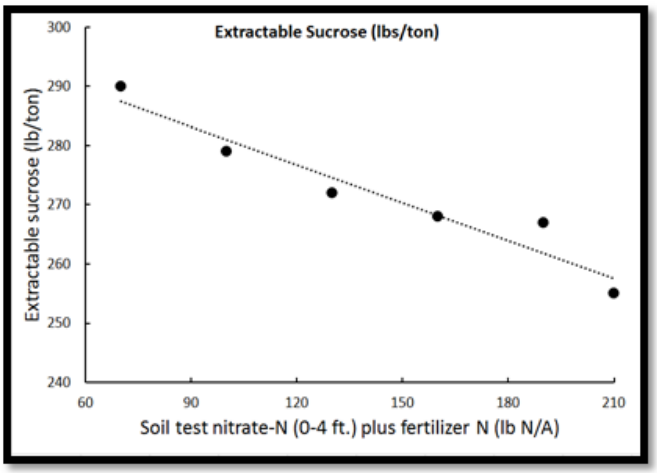
The Basics of Nitrogen:

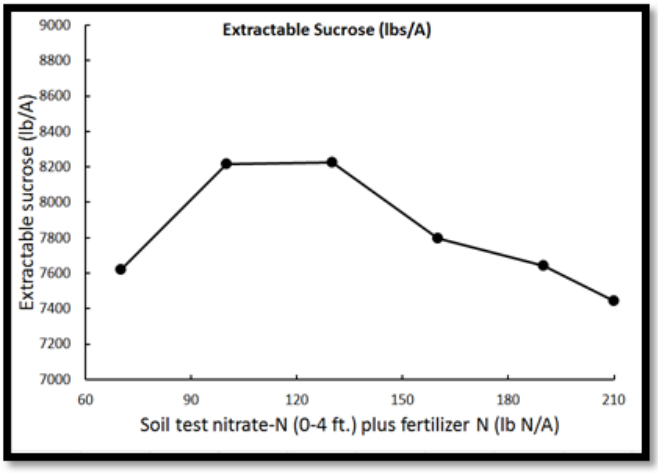
Proper nitrogen fertilizer use increases both root and sugar yield. Excessive nitrogen will increase impurities and decrease sugar content without creating additional tons.

Our recommendation is 110 lbs total nitrogen per acre (soil test N + applied N) for a 4’ sample and 80 lbs total nitrogen per acre for a 2’ sample.

- Take a soil sample for soil nitrate-N to a depth of 42-48 inches.
- Apply nitrogen fertilizer before planting or early in plant development when nitrogen is needed for optimum growth. Nitrogen rates should be based on residual soil nitrate determined by a soil sample and organic matter which will contribute to mineralization.
- Excess or late applications of nitrogen fertilizer will increase impurities and thus decrease the amount of extractable sucrose.
- Precise nitrogen management throughout the crop rotation can prevent over-application and buildup of nitrogen in the soil.
- If the nitrogen soil test results reveal over 150 lbs nitrogen per acre we do not recommend planting sugar beets in that field.







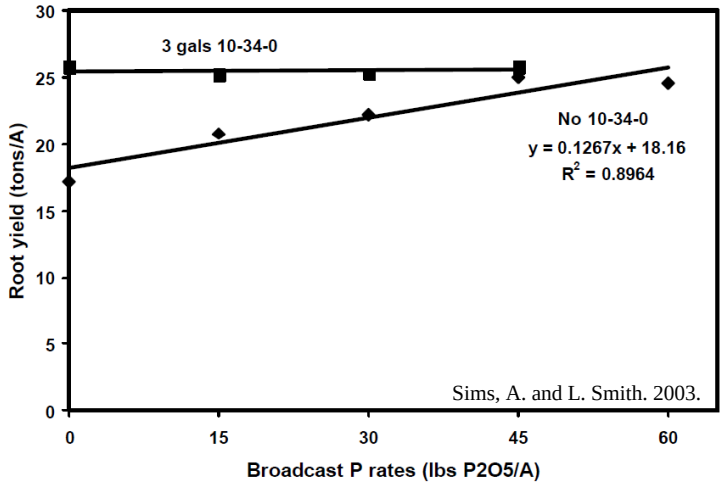
- Slow release nitrogen sources **do not** increase sugarbeet root yield.
- Split nitrogen applications **do not** show any significant advantage over spring preplant, **except** on coarse textured irrigated soils.
- N rate should be based on the organic matter content of the zone (see graphic).

Soil organic matter level	Total N (soil plus applied N)
%	lbs. N/A
0 - < 3	130
3 - < 4	120
4 - < 5	110
5 - 7	100
> 7	80

The Basics of Phosphorus:

In-furrow phosphorus can significantly increase sugar beet response early in the season. However, sugar beet is also sensitive to fertilizer salts so it is important to use low rates with these starter fertilizers. If a soil test reveals a deficiency (Bray<11ppm or Olsen<8ppm) in phosphorus use either 10-34-0 in-furrow or recommended broadcast P rate (55 lb/A of P_2O_5 for low P levels up to 80 lb/A P_2O_5 for very low levels of P).

- Significant increase in sugarbeet root yield compared to no P application and similar to high broadcast rates.
- No negative effect on beet quality.
- 3 gpa 10-34-0 in-furrow provides similar or better yields compared to broadcast applications.



Sugarbeet root yield response to increasing rates of broadcast P fertilizer applied prior to planting with and without 3 gals 10-34-0 A^{-1} banded in-furrow at planting at NWROC in 2003.

Information Credit:

Dr. John Lamb – Professor Emeritus
Mark Bloomquist – Director of Research
Cody Groen – Production Agronomist

Sims, A. and L. Smith. 2003. Use of Banded In-furrow Phosphorus to Reduce Broadcast Applications in Sugarbeet Production. Sugarbeet Research and Extension Reports. Volume 34, p. 129-138.