JULY 2014

Mosaic® AgriFacts®

SUGARBEET

MicroEssentials® Sugarbeet Fertility

Objectives

- Evaluate the yield response of sugarbeets to MAP (11-52-0) + starter (10-34-0) compared to MicroEssentials® S10™ (12-40-0-10S) + starter, MicroEssentials SZ™ (12-40-0-10S-1Zn) + starter and MicroEssentials SZ + MicroEssentials SZ starter.
- Evaluate the RSA (Recoverable Sugar per Acre) of sugarbeets to MAP (11-52-0) + starter (10-34-0) compared to MicroEssentials S10 (12-40-0-10S) + starter, MicroEssentials SZ (12-40-0-10S-1Zn) + starter, and MicroEssentials SZ + MicroEssentials SZ starter.
- Evaluate the synergy of MicroEssentials SZ + K-Mag® (0-0-0-22-11Mg-22S) + starter compared to other treatments without magnesium (Mg).

Overview

- MAP + 10-34-0 is commonly used as a primary phosphate fertilizer source in sugarbeet-growing regions of North America.
- In addition to N, P, K, sugarbeets are very responsive to Mg, S and Zn.
- Mg plays a very important role in phloem loading of sucrose. Phloem export of sucrose is severely impaired at a very early stage of Mg deficiency, even before any noticeable changes appear in shoot growth.

Trial Details

CROP: Sugarbeet (Beta vulgaris)

YEARS: 2010–2012

DATA SOURCE: North Dakota State University, Fargo, N.D.

EXPERIMENTAL DESIGN: Small-plot RCBD with 4 replications.

CROPPING CONDITIONS:
P Rate: Balanced across treatments at 35 lbs P_2O_5/ac.
K Rate: Balanced across treatments at 60 lbs K_2O/ac.
Liquid Starter: 3 gal/ac

Summary

- Treatments including MicroEssentials S10 and MicroEssentials SZ resulted in higher root yield and RSA than the MAP treatment alone.
- MicroEssentials SZ + MicroEssentials SZ as starter produced the highest root yield and RSA, which were 12% and 8% higher than MAP+10-34-0, respectively.
- The second-highest root yield and RSA were produced with MicroEssentials SZ + K-Mag, which can be explained by the role of Mg in sugar transport to the roots.
- MicroEssentials and K-Mag are superior alternatives to the common practice of MAP.

Yield

Fig. 1: Sugarbeet Root Yield

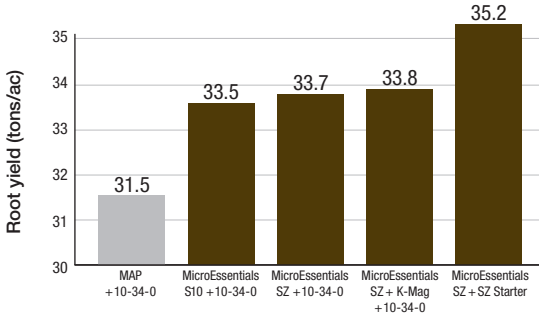
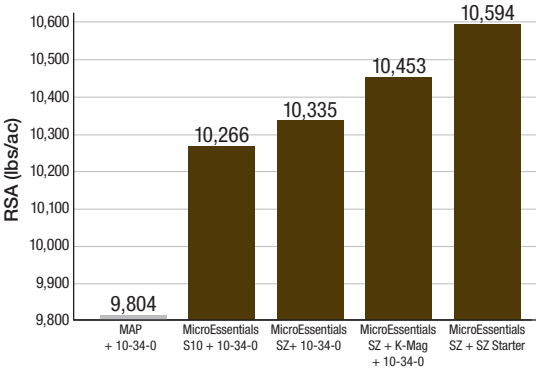


Fig. 2: Sugarbeet Recoverable Sugar per Acre (RSA)



MicroEssentials®

12%
yield advantage
with MicroEssentials SZ (pre + starter) over MAP + 10-34-0

8%
RSA advantage
with MicroEssentials SZ (pre + starter) over MAP + 10-34-0

Mosaic®

Individual results may vary, and performance may vary from location to location and from year to year. This result may not be an indicator of results you may obtain, as local growing, soil and weather conditions may vary. Growers should evaluate data from multiple locations and years whenever possible.

For more information, go to **MicroEssentials.com**.