



Corn Soybean Sorghum

Balanced Crop Nutrition in a Cropping System

Objective

- Quantify the effect of a comprehensive fertility program including MicroEssentials[®] SZ[®] (12-40-0-10S-1Zn) + Aspire[®] (0-0-58-0.5B) compared to a conventional fertility program of MAP (11-52-0) + MOP (0-0-60) or MAP Only in a four-year cropping system.

Overview

- Balanced crop nutrition is key to maximum crop production.
- MicroEssentials SZ supplies N, P, S, and Zn in every granule thanks to our patented Fusion[®] technology. Features include uniform nutrient distribution, increased nutrient uptake, and two forms of sulfur for season-long availability.
- Using NutriForm[®] technology, Aspire supplies K + B in each granule and provides two forms of B for season-long boron availability.
- Using only two fertilizer sources, growers can partially or completely manage six crop nutrients.

Trial Details

CROP: Soybean (*Glycine max*), Sorghum (*Sorghum bicolor*), Corn (*Zea mays*)

YEARS: 2015-2018

LOCATION: Pine Tree Research Station in Colt, AR

DATA SOURCE: Dr. Nathan Slaton, University of Arkansas

EXPERIMENTAL DESIGN: Small-plot RCBD with 4 replications

TREATMENTS:

- MAP (11-52-0)
- MAP + MOP (0-0-60)
- MicroEssentials SZ (12-40-0-10S-1Zn) + Aspire (0-0-58-0.5B)

P Rate: 30, 60, 90, and 120 lbs P₂O₅/ac as MAP or MicroEssentials SZ. Because P rate was typically not a significant effect, responses were averaged across all P rates.

K Rate: 90 lbs K₂O/ac as MOP or Aspire (2015-2017) or 120 lbs K₂O/ac as MOP only or 50:50 MOP Aspire blend (2018).

Application Details: Preplant broadcast and incorporated

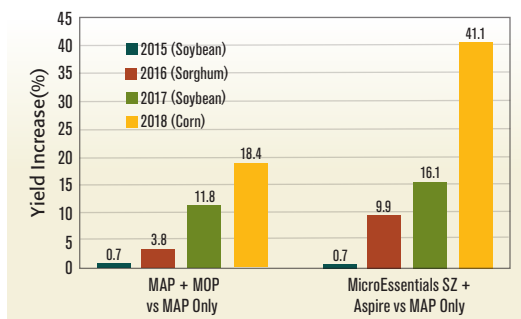
Results

Table 1. Effect of fertility treatment and crop-year combination on yield response within a cropping system.

Treatment	Soybean (2015)	Sorghum (2016)	Soybean (2017)	Corn (2018)
	Yield (bu/ac)			
MAP Only	60.4	97.0	63.3	163.1
MAP + MOP	60.8	100.7	70.8	193.1
MicroEssentials SZ + Aspire	60.8	106.6	73.5	230.2

LSD (0.1) values by year: 2015 (ns), 2016 (6.1), 2017 (1.8), 2018 (12.0).

Fig 1. Yield increase (%) as a function of fertility treatment and crop-year combination within a cropping system.



Summary

- Balanced crop nutrition significantly increased yield throughout a multi-year cropping system study (Table 1).
- The magnitude of yield response to MicroEssentials SZ + Aspire over MAP Only increased over time: +0.7% (2015), +9.9% (2016), +16.1% (2017), +41.1% (2018).
- Notably, a 67.1 bu/ac and 37.1 bu/ac response was observed in corn (2018) when MicroEssentials SZ + Aspire was compared to MAP Only and MAP + MOP, respectively.
- These data suggest the potential for synergistic and compounded benefits with repeated balanced crop nutrition usage.

MicroEssentials[®] SZ[®]

Aspire[®]

9.9% - 41.1%

Yield increase with MicroEssentials SZ + Aspire over MAP Only from 2016-2018

3.8% - 18.4%

Yield increase with MAP + MOP over MAP Only from 2016-2018

Mosaic[®]

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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 AspireBoron.com