

2013 Field Trial Results



Liquid Starter Fertilizer Comparison in Corn



Cropping Year: 2013

Date of Planting/Emergence/Harvest: May 15/ May 24/ December 3

Hybrid: A7188G8 (3050 CHU)

Population: 32,000 seeds/acre

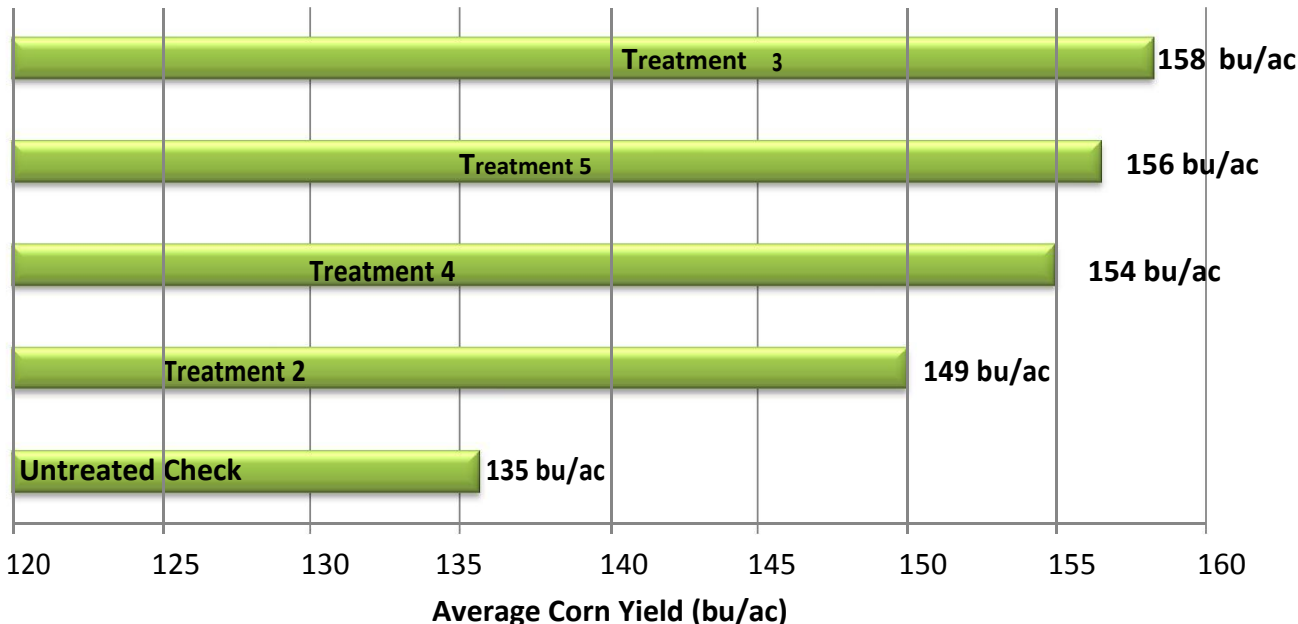
Plot Size (replications): 12 - 30" rows x 675ft (3)

Additional Information: Side dressed with 50 GPA 28% + 2.5 L/acre eNhance June 14.

Observation: Treatments 4 & 5 emerged 12 hours prior to Treatments 1-3.

Placing small to moderate amounts of plant nutrients in a band in close proximity to the seed at planting increases early-season growth and yield of grain crops (Bates, 1971; Walker et al., 1984; Reeves et al., 1986; Osborne 2005). Yield response to starter fertilizer has been observed even when soil test values are high (Touchton, 1988; Gordon and Whitney, 1995; Osborne 2005). Limited uptake of P early in the growing season can reduce yield because of the importance of adequate P nutrition in the development seeds (Tisdale et al. 1993; Osborne 2005). Starter fertilizer is known to increase corn yield, regardless of hybrid or planting date, by increasing early-season plant height and reducing grain moisture and days to silking (Mascagni and Boquet 1996; Osborne 2005).

ARF 2013 Corn Starter Fertilizer Trial Average Yields



Treatment	Rate
1) Untreated Check	
2) Competitor (6-24-6)	5 GPA
3) Progerm Water	2.5 GPA 2.5 GPA
4) Progerm	2.5 GPA
5) Progerm Sure K Micro 500 Liberate Ca	3 GPA 5 GPA 1 L/acre 1 L/acre

Note: All starter fertilizer is applied in-furrow below the seed.

Micronutrients in Starter Fertilizer on Corn



Cropping Year: 2013

Date of Planting/ Emergence/Harvest: May 15/ May 24/ December 3

Hybrid: A7188G8 (3050 CHU)

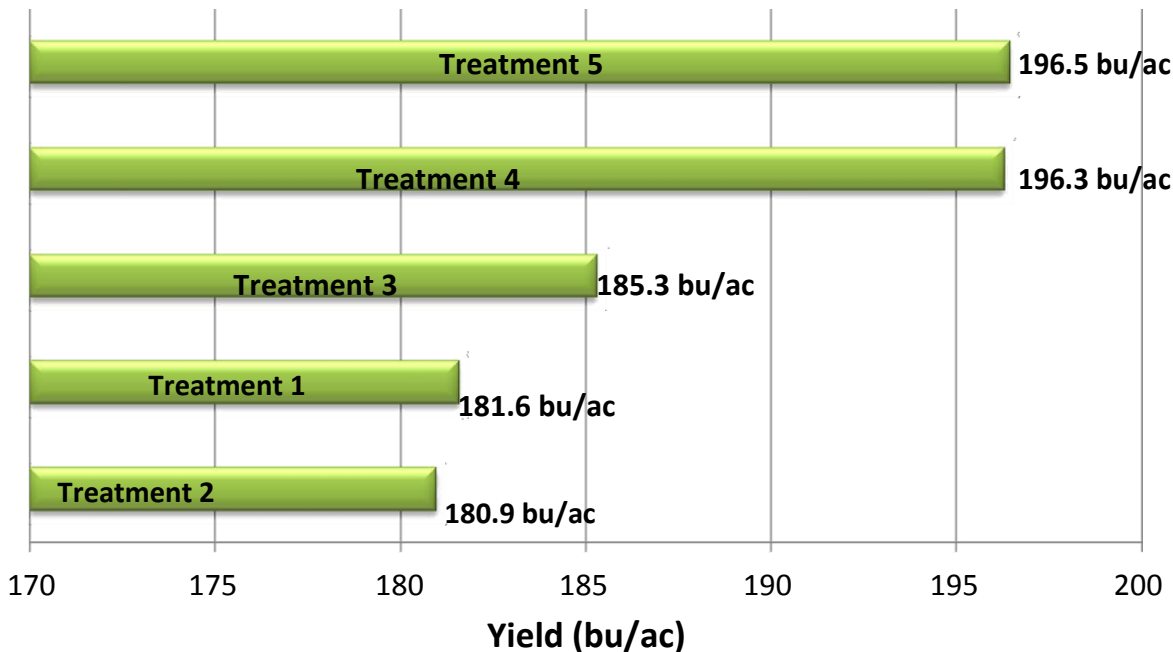
Population: 32,000 seeds/acre

Plot Size (replications): 12 - 30" rows x 950ft (2)

Additional Information: side-dressed with 50 GPA 28% + 2.5 L/acre eNhance June 14.

Proper fertilizer management in corn production is important, both from economic and environmental standpoints (Osborne 2005). Starter fertilizer containing N and P has been shown to increase grain yield, reduce the number of thermal units needed from emergence to maturity, decrease grain-moisture content at harvest, and increase total P uptake (grain plus stover at maturity) (Gordon and Pierzynski 2006). Most starter-fertilizer studies have evaluated crop response to various combinations of only the three major elements: N, P, and K (Gordon and Pierzynski 2006). However, few studies have investigated the yield response to a more complete complement of fertilizer nutrients (Gordon and Pierzynski 2006). Here at ARF we aim to close this knowledge gap.

ARF 2013 Corn Micronutrient Trial Yields



Treatment	Rate
<u>BASIC</u>	
1) Progerm	3 GPA
Sure K	5 GPA
Liberate Ca	1 L/acre
Micro500	1 L/acre
2) BASIC + Zinc	1 L/acre
3) BASIC + eNhance	1 L/acre
4) BASIC +	-
5) Progerm	3 GPA
Sure K	5 GPA
Liberate Ca	1 L/acre
Micro500	1 L/acre
Zinc	1 L/acre
eNhance	1 L/acre
Boron	1 L/acre

Side-Dressed Fertilizer on Corn



Cropping Year: 2013

Date of Planting/ Emergence/Harvest: May 15/ May 24/ December

3 Application Date (Stage): June 15 (7-8 leaf)

Hybrid: A6535G8 (2950 CHU)

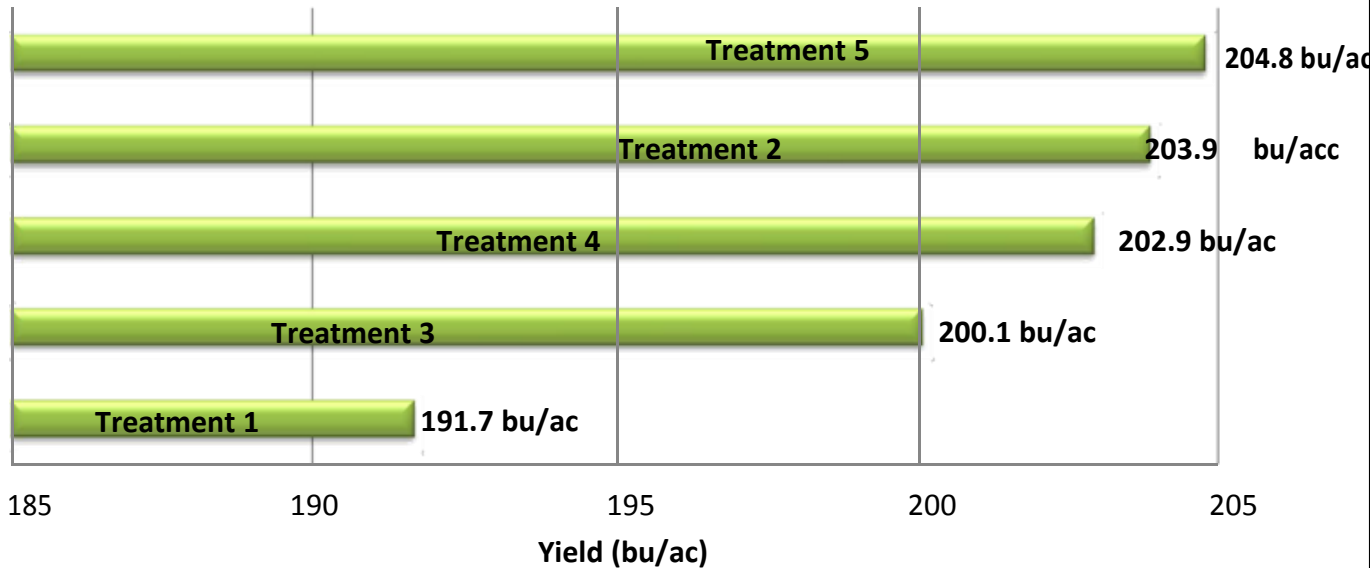
Population: 30,000 seeds/acre

Plot Size (replications): 12 - 30" rows x 1050ft (3)

Additional Information: Starter fertilizer: Progerm 2.5 GPA + Sure K 3 GPA + eNhance 1 L/ac + Liberate Ca 1 L/acre.

Increases in energy costs have not only resulted in higher fuel costs for farmers, but also higher nitrogen (N) fertilizer prices (Williams et al. 2010). Environmental concerns stemming from N levels in groundwater, lakes and rivers over past decades continue to stimulate interest in improved agricultural management of N (Williams et al. 2010). Historically, producers have applied more N fertilizer on corn than is used by the crop in a given season (Williams et al. 2010). This is because of the previously low cost of applying ample N fertilizer to ensure that it would not be limited, regardless of environmental and climatic conditions (Williams et al. 2010). Here at ARF we aim to fertilize crops in an environmentally responsible manner while still meeting the needs of the crop, using side-dressed applications of fertilizer.

ARF 2013 Corn Side-Dress Trial Yields



Treatment	Rate
1) 28%	50 GPA
2) 28% eNhance	40 GPA 5 L/acre
3) 28% eNhance Sure K	40 GPA 5 L/acre 5 GPA
4) 28% S-Calate	40 GPA 4.5 GPA
5) High-N	30 GPA

ARF's 300 bu/ac Liquid Fertilizer Yield Challenge



Cropping Year: 2013

Date of Planting/ Emergence/Harvest: May 7/ May 17/ December 3

Hybrid: A7188G8 (3050 CHU)

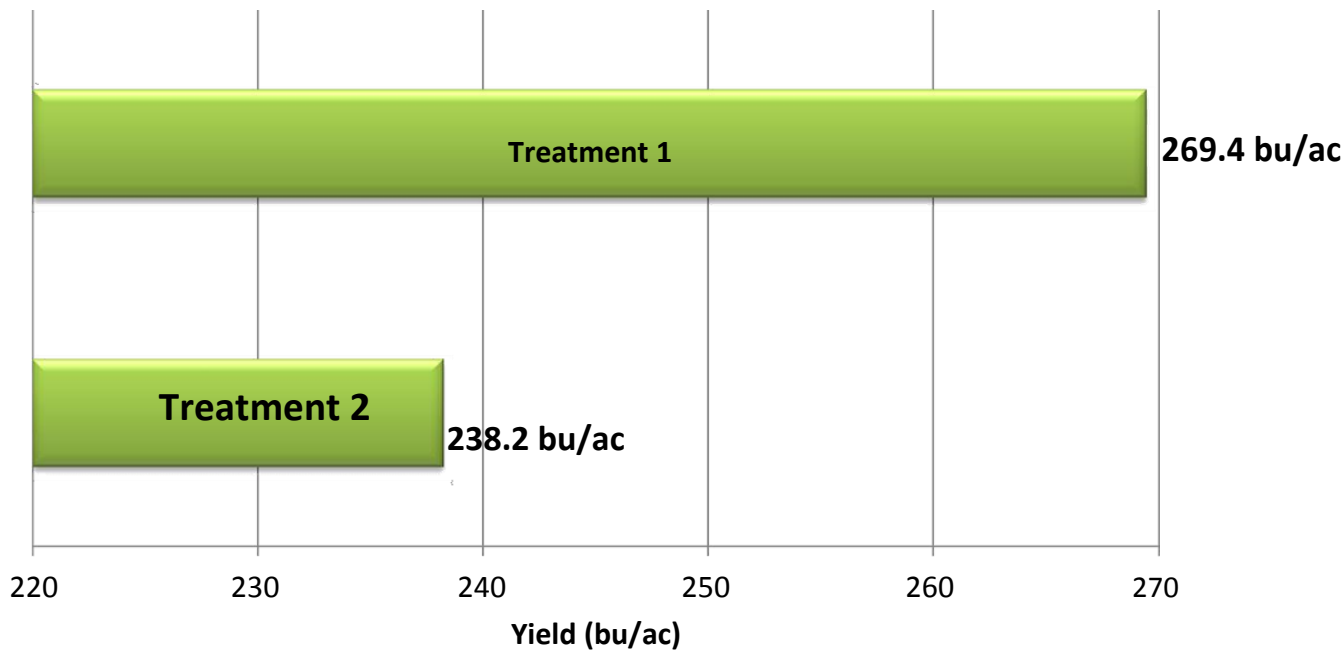
Population: 36,000 seeds/acre

Plot Size: 7.3 ac/trt

Additional Information:

- Starter Fertilizer:** Progerm 4 GPA + Sure K 5 GPA + eNhance 2 L/acre + Micro500 2 L/acre + Liberate Ca 1 L/acre + Boron 1 L/acre
- Fungicide Application (VT Stage) :** Quilt Fungicide 0.5 L-acre

ARF's 2013 300 bu/ac Liquid Fertilizer Yield Challenge Results



Treatment	Rate
1) <u>Pre-Plant Fertilizer Application</u> 28% eNhance	21 GPA 2 L/acre
<u>Side-Dress Fertilizer Application (9 leaf)</u> High-N	30 GPA
2) <u>Pre-Plant Fertilizer Application</u> 28% eNhance	60 GPA 3 L/acre
<i>*This treatment did not receive any side-dressed fertilizer.</i>	

Foliar Feed on Soybeans (Early)

(1 of 3)

Cropping Year: 2013

Date of Planting/Emergence/Harvest: May 21/ May 27/ October 12

Application Date (Stage): June 15 (R2 – Full Bloom)

Variety: PS2393R2 (Maturity Group 2.3)

Population: 160,000 seeds/acre

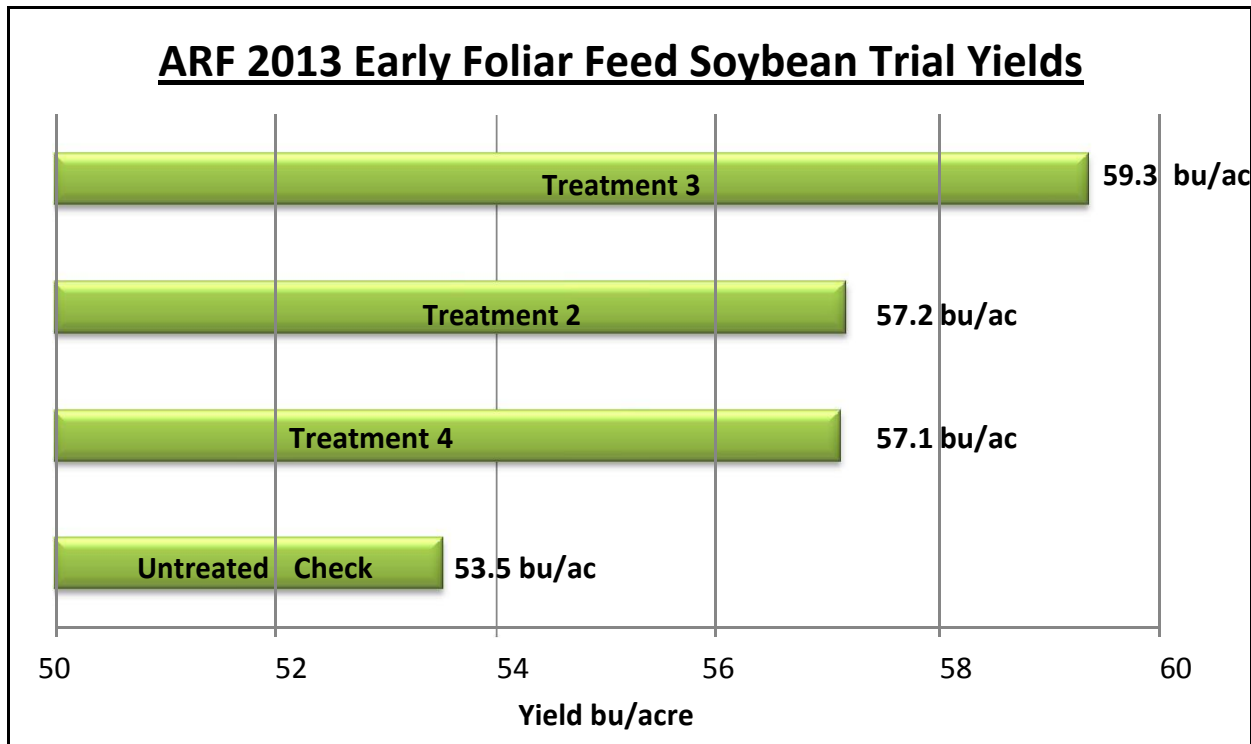
Plot Size (replications): 12 - 30" rows x 1011ft (3)

Additional Information: Applied in-furrow at planting – 2 GPA SureK + 1 L/acre Liberate Ca.



The Spring of 2013 saw cool temperatures and an excess of rainfall, which slightly delayed the soybean planting season in Southwestern Ontario. This left some producers wondering if foliar fertilization could help to improve soybean growth and yield. Therefore, here at ARF, we set out to determine the effects of early (R2) and late (R4) foliar fertilization on soybeans that started the growing season in cool, wet conditions.

ARF 2013 Early Foliar Feed Soybean Trial Yields



Treatment	Rate
1) Untreated Check	
2) Ferti-Rain	3 GPA
3) Sure K	3 GPA
4) Sure K Manganese	3 GPA 2 L/acre

Foliar Feed on Soybeans (Late)

(2 of 3)

Cropping Year: 2013

Date of Planting/Emergence/ Harvest: May 21/ May 27/ October 12

Application Date (Stage): July 14(R4 – Full Pod)

Variety: PS1162R2 (Maturity Group 1.1)

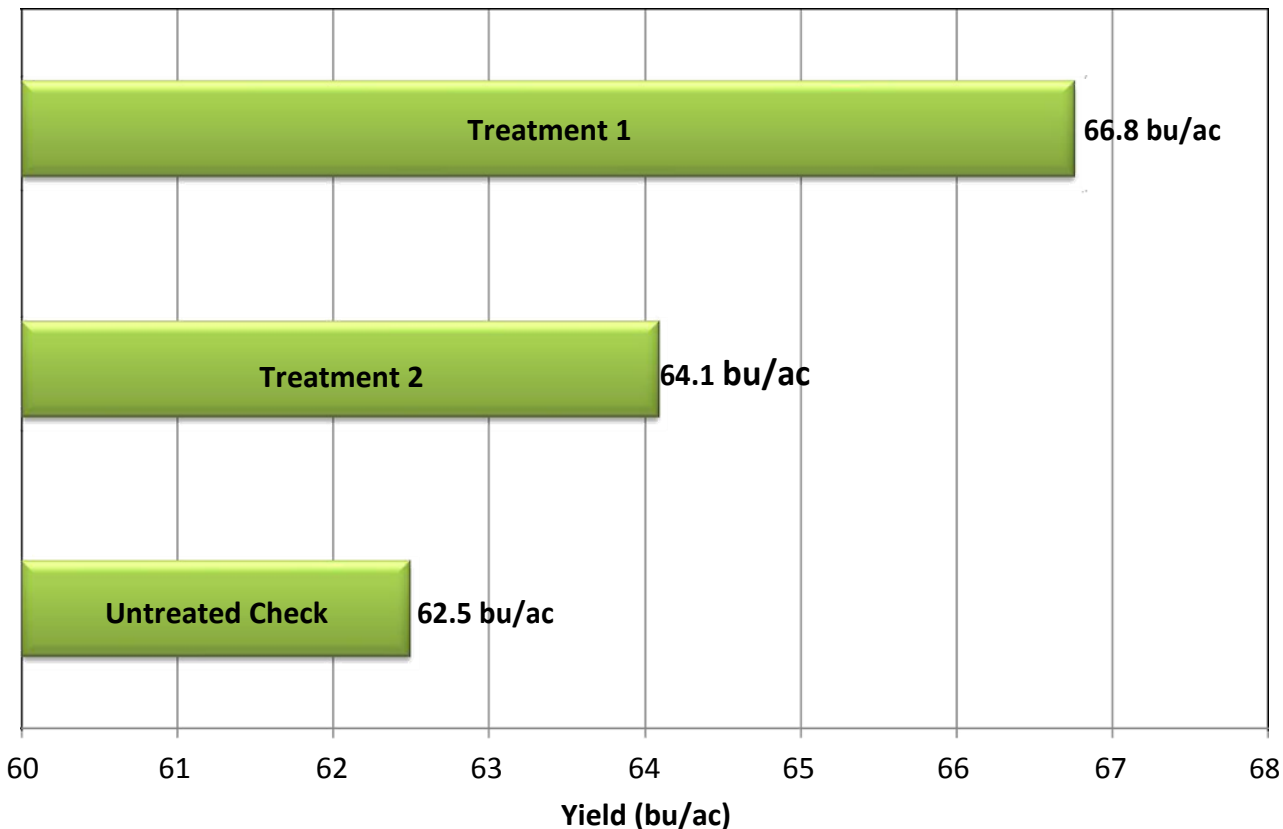
Population: 160,000 seeds/acre

Plot Size (replications): 36 - 10" rows x 1230ft (3)

Additional Information: No starter fertilizer applied to this trial.



2013 ARF Late Foliar Feed Soybean Trial Yields



Treatment	Rate
1) Ferti-Rain	3 GPA
2) iNPaKt + Mn	3 GPA
3) Untreated Check	

Late Foliar Feed Nitrogen on Soybeans

(3 of 3)

Cropping Year: 2013

Date of Planting/Emergence/ Harvest: May 21/ May 27/ October 12

Application Date (Stage): July 14(R4 – Full Pod)

Variety: PS0753R2 (Maturity Group 0.7)

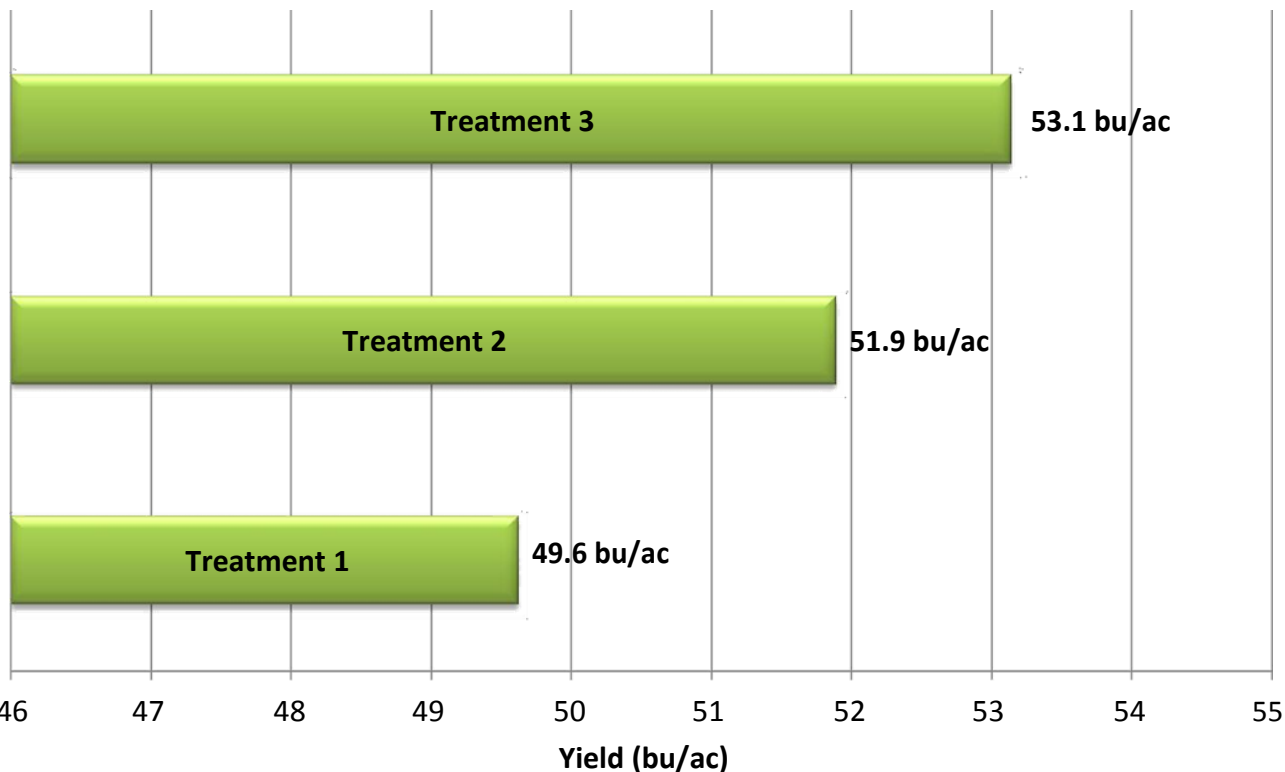
Population: 160,000 seeds/acre

Plot Size (replications): 36 - 10" rows x 1700ft (3)

Additional Information: No starter fertilizer applied to this trial.



ARF 2013 Late Foliar Feed Nitrogen on Soybeans Trial Yields



Treatment	Rate
1) Untreated Check	
2) N-Response	3 GPA
3) Ferti-Rain	3 GPA

References

Bates, T. E. 1971. Response of corn to small amounts of fertilizer placed with the seed. II. Summary of 22 field trials. *Agronomy Journal* 63: 369–371.

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