



TRIAL REPORT
2023 Season · Soybean

INDEPENDENT REPLICATED TRIAL

2023 Evaluation of AgriTec Products in Soybean

Pro-Cal, Bioact, 3-18-18 & Nitromaxx programs in AG48X7 soybeans — a randomized complete block trial conducted by Agricenter International, Memphis, Tennessee.

57.6 bu/ac

Top yield — full-rate Bioact program

+4.0 bu/ac

Over the reduced-rate program, significant at $P = .05$

4 reps

Randomized complete block · 12 plots

2.8%

Coefficient of variation on yield



2023 REPLICATED SOYBEAN TRIAL · AGRICENTER INTERNATIONAL

Full-rate Bioact program delivered +4.0 bu/ac in soybeans.

Third-party evaluation of AgriTec liquid programs in AG48X7 soybeans, conducted by Dr. K. Bruce Kirksey at Agricenter International under a randomized complete block design. The statistical difference in yield and harvest weight was driven by Bioact rate.

Variety AG48X7

Planted Jun 6 · Harvested Nov 29, 2023

RCB · 4 reps × 3 treatments · 12 plots

Falaya-Waverly silt loam

Yield P(F) = 0.029

57.6 bu/ac

Top yield — Trt 1, full-rate
Bioact program

+4.0 bu/ac

Advantage over reduced-rate
program (Trt 2), significant at
P=.05

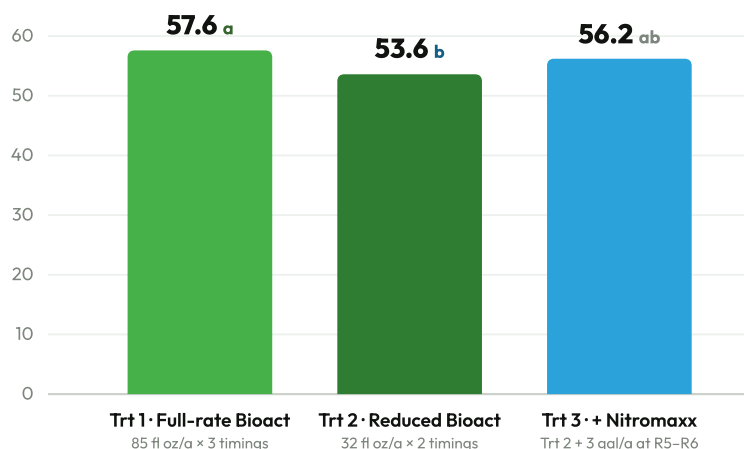
+0.88 lb/plot

Harvest weight gain, Trt 1 vs Trt
2 (P = 0.022)

2.8%

Trial CV on yield — a clean,
tightly run study

GRAIN YIELD BY TREATMENT · BU/AC AT 13% MOISTURE



Means with the same letter do not differ significantly (P = .05, LSD = 2.69 bu). Treatment P(F) = 0.0287. All programs shared the same Pro-Cal + 3-18-18 base.

WHAT THE TRIAL SHOWED

- **Bioact rate paid.** Moving from 32 fl oz to 85 fl oz per application — and adding the at-plant broadcast pass — was worth 4.0 bu/ac, a statistically significant gain.
- **The gain showed up in the scale weights.** Trt 1 was also the only treatment significantly heavier in harvested weight per plot (12.11 lb vs 11.24 lb).
- **Late-season Nitromaxx closed most of the gap.** Adding 3 gal/a at R5-R6 to the reduced-rate program recovered +2.6 bu/ac (56.2 bu), though not statistically separable from either program.
- **It wasn't a stand effect.** Emergence was uniform — 137,900–139,400 plants/ac across all treatments (NS). The yield difference came after the stand was set.

Where and how the trial was run

Field-scale small-plot research at Agricenter International, 7777 Walnut Grove Road, Memphis, Tennessee (Shelby County) — conventional-till field site, randomized complete block.

TRIAL DESIGN

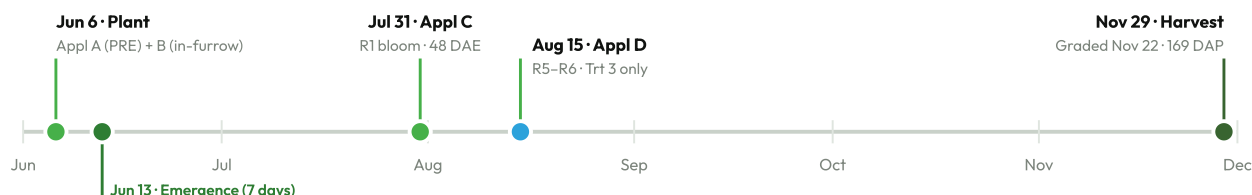
Study design	RCB, 4 replications	Treatments / plots	3 / 12
Plot size	6 × 30 ft (180 ft ²)	Rows per plot	4 @ 30-in spacing
Variety	Asgrow AG48X7	Seeding rate	140,000 seeds/ac
Planting depth / bed	1 in · friable	At-plant conditions	Soil 70°F, moisture excellent
Harvest	Almaco plot combine	Harvested area	5 × 30 ft per plot
Yield basis	60-lb bu @ 13% moisture	GLP / GEP	No / No

SOIL PROFILE — “2023 BAMBOO” FIELD

Texture — silt loam (Falaya, Waverly)

Sand	Silt	Clay	
29.6%	51.6%	18.6%	
pH	6.5	Organic matter	1.8%
CEC	7.8 meq/100g	Drainage	Good
Fertility level	Excellent	Tillage	Conventional

2023 SEASON TIMELINE



FIELD LAYOUT — RANDOMIZED COMPLETE BLOCK

Rep 1	Rep 2	Rep 3	Rep 4
101 · T1	201 · T3	301 · T2	401 · T3
102 · T2	202 · T1	302 · T3	402 · T1
103 · T3	203 · T2	303 · T1	403 · T2

Each plot 6 × 30 ft · 1 ft between blocks · 0.5 ft between plots

■ Trt 1 · Full-rate Bioact ■ Trt 2 · Reduced Bioact
■ Trt 3 · + Nitromaxx

STAND ESTABLISHMENT — PLANTS/AC AT 14 DAYS



Stand counts 14 days after planting (Jun 20) were statistically equal across treatments ($P = 0.14$) — 98–99.6% of the seeding rate emerged. Yield differences were not driven by population.

Three programs, one variable at a time

Every treatment received the same Pro-Cal + 3-18-18 base program. The trial isolated two questions: what is the full Bioact rate worth, and can late-season Nitromaxx make up for cutting it?

TREATMENT 1 Full-Rate Bioact Program		TREATMENT 2 Reduced-Rate Bioact		TREATMENT 3 Reduced Bioact + Nitromaxx	
PRE Jun 6	Pro-Cal 5 gal/a + Bioact 85 fl oz/a — broadcast to soil	PRE Jun 6	Pro-Cal 5 gal/a — no Bioact in the PRE pass	PRE Jun 6	Pro-Cal 5 gal/a
IN-FURROW Jun 6	3-18-18 6 gal/a + Bioact 85 fl oz/a	IN-FURROW Jun 6	3-18-18 6 gal/a + Bioact 0.25 gal/a (32 fl oz)	IN-FURROW Jun 6	3-18-18 6 gal/a + Bioact 0.25 gal/a
R1 Jul 31	3-18-18 6 gal/a + Bioact 85 fl oz/a	R1 Jul 31	3-18-18 6 gal/a + Bioact 0.25 gal/a	R1 Jul 31	3-18-18 6 gal/a + Bioact 0.25 gal/a
				R5-R6 Aug 15	Nitromaxx 3 gal/a — late-season N push
57.6 bu/ac sig. letter a		53.6 bu/ac sig. letter b		56.2 bu/ac sig. letter ab	

APPLICATION TIMINGS & CONDITIONS

Appl	Date	Crop stage	Placement	Equipment	Carrier vol.	Air temp	RH	Wind	Soil temp (4 in)
A	Jun 6	At planting (PRE)	Broadcast, soil	CO ₂ backpack, 8002 flat fan	15 gal/ac	90°F	45%	3 mph SSW	70°F
B	Jun 6	At planting	In-furrow	In-furrow rig, orifice nozzle	5 gal/ac	90°F	45%	3 mph SSW	70°F
C	Jul 31	R1 bloom · 48 DAE (BBCH 60)	Broadcast, soil	CO ₂ backpack, 8002 flat fan	15 gal/ac	93°F	34%	2 mph S	75°F
D	Aug 15	R5-R6 · 63 DAE (BBCH 79)	Broadcast, soil	CO ₂ backpack, 8002 flat fan	15 gal/ac	94°F	39%	4 mph S	77°F

All applications sprayed in water, dry leaves, 30 PSI (25 PSI in-furrow), CO₂ propellant. Application D applied to Treatment 3 only.

THE ONE VARIABLE THAT MATTERED — TOTAL BIOACT PER ACRE

Trt 1	PRE 85	In-furrow 85	R1 85	255 fl oz/a season total
Trt 2 & 3	IF 32	R1 32		64 fl oz/a season total

Trt 1 applied 4× the total Bioact of the reduced programs, split across three timings starting at planting.

Harvest results — November 22, 2023

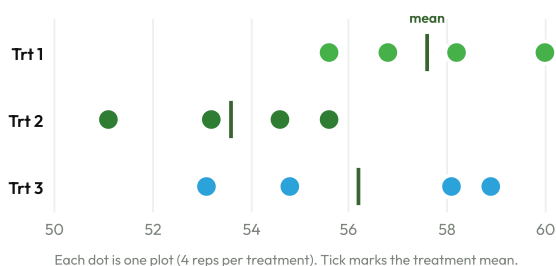
Grain harvested from the center 5 × 30 ft of each plot; yields corrected to 13% moisture, 60-lb bushels. Means separated by LSD at P = .05.

TREATMENT MEANS — ALL MEASURED VARIABLES

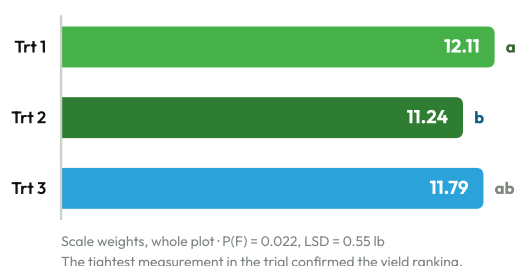
Treatment	Stand (plants/row)	Plants/ac	Moisture %	Weight lb/plot	Test wt lb/bu	Yield bu/ac
1• Full-rate Bioact	240.0	139,392	14.47	12.11 a	61.63	57.6 a
2• Reduced Bioact	238.0	138,230	14.17	11.24 b	61.37	53.6 b
3• Reduced + Nitromaxx	237.5	137,940	14.24	11.79 ab	60.81	56.2 ab
LSD (P=.05)	2.77	1,606	0.50	0.55	2.11	2.69
CV %	0.67	0.67	2.02	2.72	1.99	2.78
Treatment P(F)	0.143	0.143	0.372	0.022	0.646	0.029

Means followed by the same letter do not significantly differ (P = .05, LSD). Mean comparisons performed only when AOV treatment P(F) is significant. Stand, moisture, and test weight showed no treatment effect — the program differences expressed in harvested weight and yield.

EVERY PLOT, EVERY REP — YIELD SPREAD (BU/AC)



HARVESTED WEIGHT PER PLOT (LB)



BOTTOM LINE FOR YOUR PROGRAM

In this trial, keeping Bioact at the full 85 fl oz rate across all three timings returned **+4.0 bu/ac** over the cut-rate program — at \$12/bu soybeans, roughly **\$48/ac of grain** from the rate difference. Late Nitromaxx recovered most, but not all, of the yield given up by cutting Bioact. One year, one site: pair these results with your own soil test before setting rates.

Next step: request a soil test and program review with your AgriTec agronomist • agritecint.com