



INDEPENDENT THIRD-PARTY TRIAL
AGRICENTER INTERNATIONAL · MEMPHIS, TN

2023 RESEARCH TRIAL REPORT · TRIAL ID: 2023 AGRITEC RICE

AgriTec Foliar Programs in Rice: Yield & Milling Response

A replicated small-plot evaluation of three AgriTec fertility programs against an untreated check — conducted under Dr. K. Bruce Kirksey, Director of Research.

+5.1 bu/ac

Numeric yield edge for Program 3 — 79.7 vs 74.6 bu/ac untreated — from the lowest-rate program tested.

+3.2 pts

Head rice over the untreated check with Program 1 (53.8% vs 50.6%) — the milling number that drives price.

4 × 4

Treatments × replications in a randomized complete block — 16 plots, drilled PVL03, single site.

Treatment differences were not statistically significant at $P = .05$ in this single-site trial — statistics on page 4.



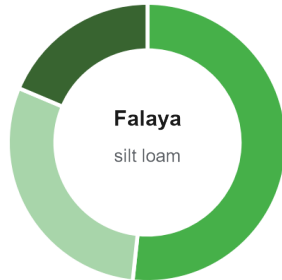


Trial at a glance

Site & crop

LOCATION	Agricenter International, Memphis, TN (Shelby Co.)
STUDY DIRECTOR	Dr. K. Bruce Kirksey, Director of Research
CROP / VARIETY	Dry-seeded paddy rice · PVL03
PLANTING	May 30, 2023 · 50 lb/ac, drilled, 7.5-in rows
EMERGENCE	June 7, 2023 — 8 days, excellent soil moisture
PLOT SIZE	6 × 30 ft treated plots, 9 rows per plot
DESIGN	Randomized complete block · 4 reps · 16 plots
APPLICATIONS	CO2 backpack, flat-fan, 15 gal/ac water carrier
HARVEST	Oct 27, 2023 · Almaco plot combine, 5 × 30 ft

Soil — 2023 rice field



Silt	51.6%
Sand	29.6%
Clay	18.6%

pH

6.3

OM

1.8%

CEC

7.6

Fertility

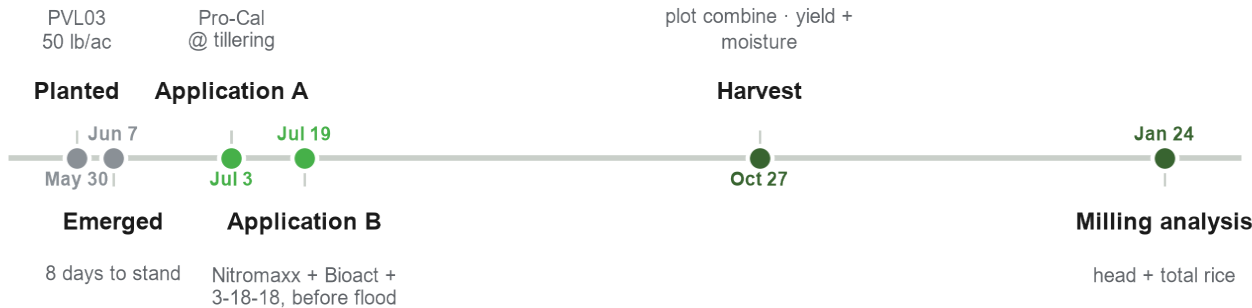
Good

Drainage

Good

A Falaya silt loam with modest organic matter and CEC — a fair, representative Mid-South rice soil rated in good condition.

Season timeline



Two application timings: Pro-Cal at tillering (App A, Jul 3 — 26 days after emergence, BBCH 23), then the Nitromaxx / Bioact / 3-18-18 mix ahead of flood (App B, Jul 19 — BBCH 34). Grain was harvested Oct 27 and milled for quality Jan 24.

CONDITIONS AT APPLICATION

App A · Jul 3: 94°F · 78% RH · wind 3 mph SSW · soil 80°F · dry canopy
App B · Jul 19: 91°F · 44% RH · wind 3 mph S · soil 82°F · dry canopy



The programs tested

Every AgriTec program opened with Pro-Cal at tillering, then delivered nitrogen, biology, and NPK ahead of flood. The three programs vary the Nitromaxx and 3-18-18 rates — standard, high, and low — with Program 3 adding a second shot of Bioact. The untreated check received no AgriTec products.

UNTREATED CHECK No AgriTec products Total product <i>Baseline for comparison</i>	Trt 1 —
PROGRAM 1 · STANDARD RATE Pro-Cal 4 gal/ac · tillering Nitromaxx 12 gal/ac · pre-flood Bioact 0.25 gal/ac · pre-flood 3-18-18 6 gal/ac · pre-flood Total product <i>The core rice program as sold</i>	Trt 2 22.25 gal/ac
PROGRAM 2 · HIGH RATE Pro-Cal 4 gal/ac · tillering Nitromaxx 15 gal/ac · pre-flood Bioact 0.25 gal/ac · pre-flood 3-18-18 8 gal/ac · pre-flood Total product <i>Tests whether more product pays</i>	Trt 3 27.25 gal/ac
PROGRAM 3 · LOW RATE + 2× BIOACT Pro-Cal 4 gal/ac · tillering Nitromaxx 8 gal/ac · pre-flood Bioact 0.25 + 0.25 gal/ac · pre-flood 3-18-18 4 gal/ac · pre-flood Total product <i>Leanest inputs, doubled biology</i>	Trt 4 16.50 gal/ac

Field layout — randomized complete block

401 Program 2	402 Program 3	403 Program 1	404 Untreated
301 Program 1	302 Untreated	303 Program 2	304 Program 3
201 Program 3	202 Program 2	203 Program 1	204 Untreated
101 Untreated	102 Program 1	103 Program 2	104 Program 3

Each block (row) contains all four treatments once.

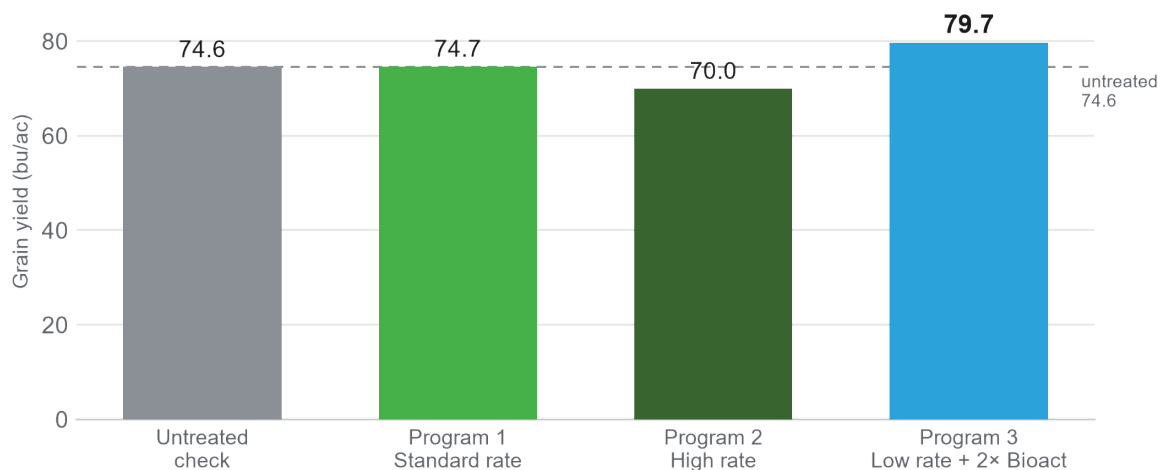
- Untreated
- Program 1
- Program 2
- Program 3

Randomization protects the comparison: every treatment appears once per block, so soil or moisture gradients across the field can't favor any one program.



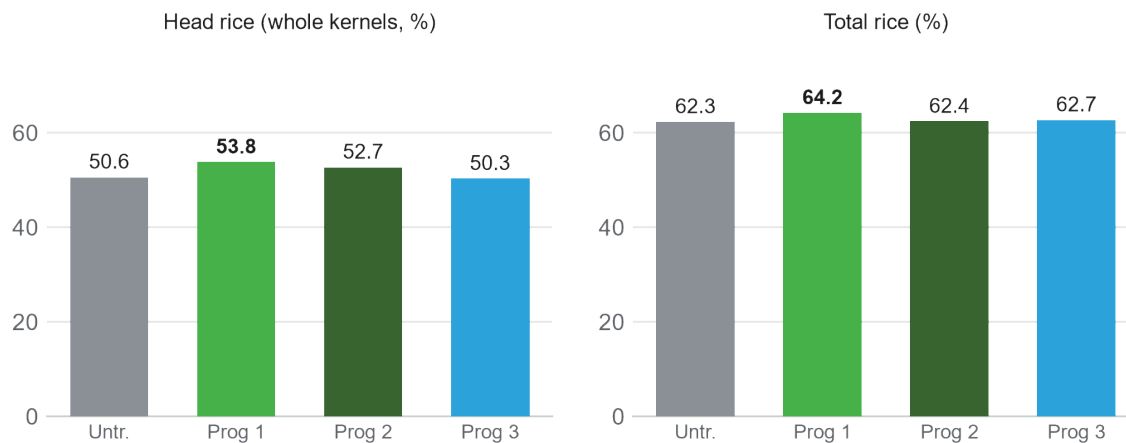
Results

Grain yield — adjusted to 11% standard moisture



Program 3 — the lowest-rate program with a doubled Bioact shot — posted the top numeric yield at 79.7 bu/ac, 5.1 bu over the untreated check. The high-rate Program 2 finished last at 70.0 bu/ac.

Milling quality — where rice earns its price



All three programs trended at or above the check on total rice, and Programs 1 and 2 carried a 2–3 point head-rice advantage — whole kernels are what the mill pays for.

READ THE STATISTICS HONESTLY

With the untreated check included, no treatment separated statistically at $P = .05$ (Student–Newman–Keuls; all means share letter “a”). Yield treatment $P(F) = 0.13$ against an LSD of 8.15 bu and a CV of 6.8% — the +5.1 bu and +3.2 pt head-rice differences are numeric trends from one site-year, not proven effects. They are consistent in direction, and worth confirming with another year of replicated data.



Full means & takeaways

	Untreated	Program 1	Program 2	Program 3	LSD (P=.05)
Stand, % (Jun 21)	82.5	80.0	85.0	85.0	5.50
Grain moisture, %	13.9	13.4	13.7	13.8	0.56
Plot weight, lb	11.95	11.90	11.19	12.75	1.26
Yield, bu/ac	74.6	74.7	70.0	79.7	8.15
Head rice, %	50.6	53.8	52.7	50.3	7.12
Total rice, %	62.3	64.2	62.4	62.7	4.58

Means of 4 replications. No means differed significantly at $P = .05$ (SNK). Bold = best numeric result. Yield adjusted to 11% standard moisture (45-lb bu).

What this trial tells us

1 Less product, most rice.

The leanest program (16.5 gal/ac total) delivered the top numeric yield — 79.7 bu/ac, +5.1 over untreated. Rate response was flat above that: the 27.25 gal/ac high-rate program finished last.

2 Biology may be the lever.

Program 3's only structural difference was a second 0.25 gal/ac shot of Bioact. That's the treatment worth re-testing before drawing conclusions.

3 Milling followed the program.

Head rice ran 2–3 points above the check on Programs 1–2 and total rice trended up across all three — quality, not just quantity.

4 A clean, fair test.

Stands (80–85%) and harvest moisture (13.4–13.9%) were even, so differences weren't driven by establishment. One site-year, $P = .05$ not reached — treat these as trends to confirm.

Next steps

Confirm the trend

A second replicated site-year — ideally on-farm strips — is the right way to promote Program 3's +5.1 bu signal to a claim.

Start with a soil test

Every AgriTec program is built from the field's own numbers — calcium, nitrogen, biology, and NPK matched to the soil report.

Get the raw data

The complete ARM package — site description, AOV tables, and trial map — is available on request for your agronomist to review.

See how a rice program fits your acres

Start where this trial started: a soil test and a program built on your numbers.

[Request a soil test · agritecint.com](https://agritecint.com)

