



INDEPENDENT FIELD TRIAL
TRIAL REPORT • 2021-22

AGRICENTER INTERNATIONAL • MEMPHIS, TENNESSEE

Winter Wheat Trial Report

A replicated, third-party evaluation of AgriTec soil nutrition programs in winter wheat — six treatments, four replications, one clear result: **every treated program out-yielded untreated ground.**

+20.2 bu/ac

Full program vs. untreated check

98.8 bu/ac

Top treatment yield • check: 78.6

P = .0001

Statistically significant response

One full soil program. Twenty more bushels of wheat.

In a replicated trial run by **Agricenter International** — an independent research farm in Memphis, Tennessee — winter wheat treated with the full AgriTec soil nutrition program yielded **98.8 bu/ac**, compared with **78.6 bu/ac** for the untreated check. Every treated program in the trial out-yielded untreated ground by a statistically significant margin.

+20.2 bu/ac

Full program vs. untreated check — a 26% yield increase

+9.5–14.4 bu/ac

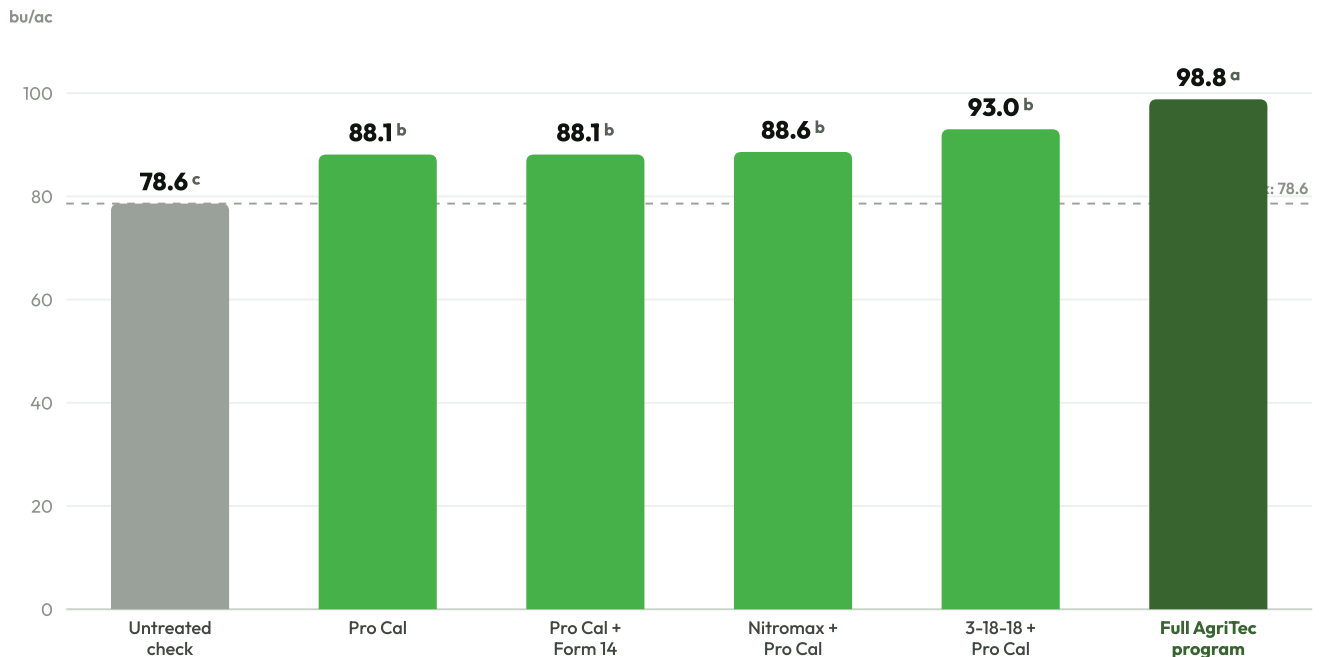
Gain from every partial program, from Pro Cal alone on up

P = .0001

Yield response confirmed by analysis of variance across 4 replications

Grain yield by treatment

Harvested 6/21/2022 · bu/ac standardized to 11% moisture · mean of 4 replicated plots



Bars labeled with different letters differ significantly (LSD, $P=.05 = 5.5$ bu/ac). Bars sharing a letter do not. Untreated check shown in gray; dashed line marks the check yield.

Randomized complete block

6 treatments × 4 replications

Silt loam · pH 5.4

Drilled 10/25/2021

Harvested 6/21/2022

Study director: Dr. K. Bruce Kirksey

A third-party trial, built to be believed

Agricenter International designed and ran this trial on its research farm using a randomized complete block layout — six treatments, each repeated in four separate plots, so results reflect the products rather than luck of position in the field. AgriTec supplied the products and the protocol; Agricenter did the planting, spraying, rating, and harvest.



SITE & SOIL

Location	Memphis, TN
Texture	Silt loam
Soil pH	5.4
CEC	4.3 meq/100g
Organic matter	1.8%
Drainage	Good

An acid, low-CEC soil — ground where calcium availability holds crops back and a soluble calcium program has real work to do.

APPLICATION

Timing	Pre-emergence
Target	Soil surface
Carrier	Water, 20 gal/ac
Equipment	CO ₂ backpack, 30 PSI
Conditions	55°F air · 52°F soil
Soil moisture	Good

One pass, at drilling time. No in-season foliar applications were part of this protocol.

DESIGN & ANALYSIS

Design	Randomized complete block
Treatments	6
Replications	4
Plot size	6 x 30 ft
Statistics	ANOVA + LSD (P=.05)
Study director	Dr. K. B. Kirksey

Yield CV of 4.1% — a tight, well-run trial by small-plot research standards.

THE SIX TREATMENTS

#	TREATMENT	PRODUCTS & RATES PER ACRE
1	Untreated check	No soil nutrition applied — the baseline every treatment is measured against
2	Pro Cal	Pro Cal 5 gal
3	Pro Cal + Form 14	Pro Cal 5 gal · Form 14 0.5 gal
4	Nitromax + Pro Cal	Nitromax 3 gal · Pro Cal 5 gal
5	3-18-18 + Pro Cal	3-18-18 7 gal · Pro Cal 5 gal
6	Full AgriTec program	Pro Cal 5 gal · 3-18-18 7 gal · Form 14 0.5 gal · Nitromax 3 gal · Aerate 14 fl oz

Every treated plot out-yielded the check

All five programs raised yield significantly over untreated ground. Pro Cal alone was worth 9.5 bu/ac on this acid soil. Stacking the phosphorus-potassium blend on top pushed the gain to 14.4, and the complete five-product program reached +20.2 bu/ac — statistically ahead of everything else in the trial.

+9.5

Pro Cal
bu/ac vs. check

+9.5

Pro Cal + Form 14
bu/ac vs. check

+10.0

Nitromax + Pro Cal
bu/ac vs. check

+14.4

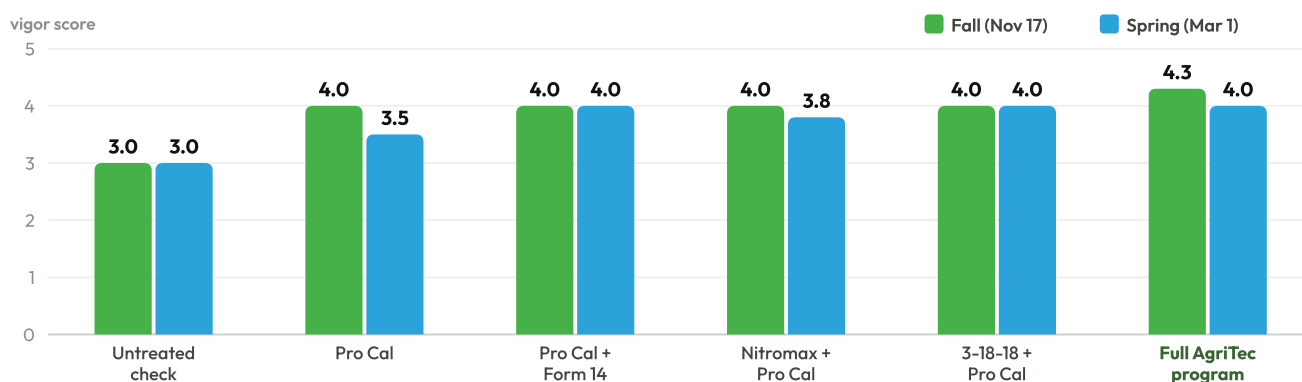
3-18-18 + Pro Cal
bu/ac vs. check

+20.2

Full program
bu/ac vs. check

Stand vigor: the difference showed up in 13 days

Visual vigor score, 1 (weak) to 5 (excellent) · rated 11/17/2021 and 3/1/2022 · mean of 4 plots



Two weeks after application every treated plot rated a full point ahead of the check, and the treated plots held their advantage through spring green-up. Letter groups for vigor appear in the data table on page 4.

YIELD WITHOUT A QUALITY PENALTY

TREATMENT	MOISTURE %	TEST WT LB/BU
Untreated check	13.9	60.0 ^{ab}
Pro Cal	13.9	60.2 ^a
Pro Cal + Form 14	13.8	59.3 ^{bc}
Nitromax + Pro Cal	13.8	59.0 ^{cd}
3-18-18 + Pro Cal	13.8	58.3 ^d
Full program	13.9	60.0 ^{ab}

Grain moisture was uniform across the trial. Test weights stayed in the 58–60 lb/bu range; the full program matched the check at 60.0 lb/bu, so the extra 20 bushels came at full grain quality.

HOW TO READ THE STATISTICS

Letters (a, b, c) — treatments sharing a letter are statistically the same; different letters mean the difference is real at 95% confidence, not field noise.

LSD = 5.5 bu/ac — the smallest yield difference this trial could reliably detect. The full program beat the next-best treatment by 5.8 bushels — above that bar.

P = .0001 — odds are about 1 in 10,000 that a yield spread this large would occur by chance if the products did nothing.

Complete trial means

Every measurement Agricenter took, averaged across the four replications. Values sharing a letter within a column do not differ significantly (LSD, P=.05).

TREATMENT	FALL VIGOR 1-5 · 11/17	SPRING VIGOR 1-5 · 3/1	MOISTURE %	PLOT WEIGHT LB	TEST WEIGHT LB/BU	YIELD BU/AC
1 · Untreated check	3.0 ^b	3.0 ^c	13.89 ^a	16.78 ^c	60.0 ^{ab}	78.6 ^c
2 · Pro Cal 5 gal/ac	4.0 ^a	3.5 ^b	13.86 ^{ab}	18.82 ^b	60.2 ^a	88.1 ^b
3 · Pro Cal + Form 14 5 + 0.5 gal/ac	4.0 ^a	4.0 ^a	13.78 ^c	18.80 ^b	59.3 ^{bc}	88.1 ^b
4 · Nitromax + Pro Cal 3 + 5 gal/ac	4.0 ^a	3.8 ^{ab}	13.81 ^{bc}	18.91 ^b	59.0 ^{cd}	88.6 ^b
5 · 3-18-18 + Pro Cal 7 + 5 gal/ac	4.0 ^a	4.0 ^a	13.78 ^c	19.85 ^b	58.3 ^d	93.0 ^b
6 · Full AgriTec program Pro Cal + 3-18-18 + Form 14 + Nitromax + Aerate	4.3 ^a	4.0 ^a	13.86 ^{ab}	21.10 ^a	60.0 ^{ab}	98.8 ^a
LSD (P=.05)	0.31	0.50	0.06	1.17	0.91	5.49
CV %	5.3	8.9	0.3	4.1	1.0	4.1
Grand mean	3.88	3.71	13.83	19.04	59.48	89.23
Treatment P(F)	.0001	.0032	.0079	.0001	.0025	.0001

FIELD PROTOCOL USED IN THIS TRIAL

Pro Cal — 5 gal/ac, diluted 5 gal water per gallon of product. Mixes with Form 14 and Aerate.

3-18-18 — 7 gal/ac at 3 gal water per gallon. Applied alone — do not tank-mix with Pro Cal.

Nitromax — 3 gal/ac mixed with 5 gal water. Sprayed separately from the calcium pass.

Aerate — 14 fl oz/ac, tank-mixed with Pro Cal and Form 14.

All products went on the soil surface at drilling time. Call us before you spray — we'll walk through mixing order for your setup.

WHAT THIS MEANS ON YOUR FARM

This trial sat on acid, low-CEC ground — soil a lot of wheat acres share. The stepwise gains tell the story: calcium first (+9.5 bu), feed the crop on top of it (+14.4), and address the whole soil (+20.2). A soil test tells us which of those steps your fields actually need — the program above isn't a prescription, it's what this soil called for.

See what your soil is missing

Start where this trial started: a soil test. We'll read it with you and build a wheat program for your fields — nothing more than the soil says it needs.

REQUEST A SOIL TEST

(800) 758-1617

agritecint.com

Source: "2022 Evaluation of Various Plant Nutrients in Winter Wheat," ARM trial 2022 AgriTec Wheat, Agricenter International, Memphis, TN. Study director Dr. K. Bruce Kirksey; sponsor contact Jonathan Barrett, AgriTec International. Planted 10/25/2021, harvested 6/21/2022. Yields standardized to 11% grain moisture. Results are from one replicated small-plot trial in one season; responses on your farm will vary with soil, weather, and management.