

YIELD RESPONSE TO APPLICATION OF AZOSPIRILLUM BACTERIA TO STARTER FERTILIZER IN DRYLAND CORN

Investigator:

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Statement of Problem:

Determine yield changes in response to addition of Micro-AZ azospirillum inoculant to in-furrow application of starter fertilizer in dryland corn.

Project Objective:

Measure yield response to addition of Micro-AZ azospirillum inoculant.

METHODOLOGY

- John Deere 1790 planter with in furrow liquid fertilizer application
- 8410T tractor with GPS guidance
- Planted all checks with straight 10-34-0 fertilizer, skipping every other pass
- Added one 2.5 gal jug of Micro AZ-IF azospirillum bacteria to 10-34-0 tank on tractor and planted test strips on skipped passes. Cost per acre is \$4.80.



AZOSPIRILLUM

Azospirillum is a Gram negative motile bacteria associated with roots of monocots, including important crops, such as wheat, corn and rice. Both in greenhouse and in field trials, several strains of *Azospirillum* were shown to exert beneficial effects on plant growth and crop yields, under various soil and climatic conditions, and are thus qualified as Plant Growth-Promoting Rhizobacteria (PGPR).



Actually, *Azospirillum* is the primary commercial phytostimulator inoculant for cereals worldwide. In the context of sustainable agriculture, plant inoculation with *Azospirillum* is a good alternative to reduce chemical inputs.

MicroAZ-IF Liquid™

In Furrow Treatment for Corn

Contains Azospirillum in TerraMax's enhanced Stabilization Formula for maximum growth potential.

www.terramaxag.com



2.5 Gallon:

Net Contents: 2.5 gallons (9.46 L)
Net Weight: 21.25lbs. (9.69 Kg)

Guaranteed Minimum Analysis:

- 2×10^4 Azospirillum per ml.

Application Rate:

- 12.8 fluid ounces per acre.
- 125 ml per acre.
- Treats 25 acres

Directions for Application:

- Apply at the rate of 12.8 fl oz per acre.
- Apply in furrow on or below seed or in a 1x1 or 2x2 placement.
- For compatible fungicides visit www.terramaxag.com
- Open package only when needed.
- Avoid freezing.
- Store in a cool dry place.
- Use before expiration date.

AZO VS NO AZO (DRYLAND CORN)

	Hybrid	Pop	Acres	Bushels	Yield	Diff	%
Rep 1 Azo	68B8	24,000	2.33	452.86	194.36	0.31	0.16%
Rep 1 No Azo	68B8	24,000	2.33	452.14	194.05		
Rep 2 Azo	68B8	24,000	2.1	413.57	196.93	4.25	2.2%
Rep 2 No Azo	68B8	24,000	2.1	404.64	192.68		

All yield checks were individually weighed across the elevator scales....

CONCLUSION AND OBSERVATIONS

No significant difference between AZO treatment and no AZO however some yield gain was shown in the one comparison. Over the 2 trials, the gain (although not statistically significant) was more than enough to pay for the cost of treatment

With a relatively low cost per acre (\$4.80) and the extreme ease of application (dumping jug into starter fertilizer), we will be adding the AZO to more acres next year as well as running more tests.

CONCLUSION AND OBSERVATIONS

For 2012, we would like to again test the Micro AZ-IF against a check strip of no added AZO. In addition we would also like to test Torque LCO Promoter Technology (from Novozymes) for corn. We would do four replicated strips of:

- 1. No treatments
- 2. Micro AZ-IF AZO bacteria
- 3. Torque LCO Promoter for corn
- 4. Both Micro AZ and Torque LCO