

Fungicide Studies, Soybean or Corn

Southern Illinois University

Nutrapathic Product Evaluation in Corn - ARC.

Trial ID: 09-ARC-5-M50

Location: Agronomy Res. Center

Investigator: Bryan Young, Professor, Southern Illinois University, bgyoung@siu.edu
City State Zip Country: Carbondale IL 62901 USA
Trial Status: FINAL **Initiation Date:** 06-01-09

Objectives: Determine the efficacy of Nutrapathic products for enhanced corn growth and yield.

Crop 1: ZEAMD Dent corn	Variety: P33K44	Description: RR/LL
Planting Method: SEEDD	Planting Date: 06-01-09	
Rate, Unit: 28000 S/A	Depth, Unit: 1.5 IN	
Row Spacing, Unit: 30 IN		

Plot Width, Unit: 10 FT	Site Type: FIELD
Plot Length, Unit: 30 FT	Tillage Type: REDUCED-TILL
Replications: 4	Study Design: Randomized Complete Block

Prior Crops, Year
1. GLXMA 2008

Field Prep./Maintenance: N 150 LB/A, P205 138 LB/A, K20 0 LB/A

% OM: 1.8	Texture: SILT LOAM
pH: 6.5	Soil Name: ST0Y
CEC: 8.2	Fert. Level: P1: 61 LB/A, K: 282 LB/A

Application Description

Application Date:	06-05-09
Time of Day:	18:45
Application Method:	Spray
Application Timing:	PRE
Application Placement:	BROS0I
Applied By:	NVH
Air Temperature, Unit:	77 F
% Relative Humidity:	43
Wind Velocity, Unit:	3 MPH
Wind Direction:	N
Dew Presence (Y/N):	N
Soil Temperature, Unit:	78 F
Soil Moisture:	NORMAL
% Cloud Cover:	0

Crop stage at application: 06-05-09
NA

Pest Stage At Each Application

Application Date:	06-05-09
Weed Code:	NA

Application Equipment

Appl. Equipment:	CO2 sprayer
Operating Pressure:	30 PSI
Nozzle Type:	Flat fan
Nozzle Size:	XR 8002
Boom Length, Unit:	10 FT
Spray Volume, Unit:	20 GPA

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Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Other Rate	Other Rate Unit	Growth Stage	Appl Code					
1	NONTREATED								16.1 a	54.5 a	172 a	26.8 b	7.8 a 45.5 a 49.8 a
2	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a	2 fl oz/a		PRE	A	15.9 a	55.0 a	183 a	27.4 b	8.0 a 48.4 a 51.8 a
3	SOIL RESTORE	100	SL	2 fl oz/a	2 fl oz/a		PRE	A	16.2 a	54.5 a	170 a	28.8 a	7.8 a 49.7 a 54.8 a
4	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a	2 fl oz/a		PRE	A	16.2 a	54.5 a	168 a	27.5 ab	8.0 a 46.3 a 50.0 a
4	SOIL RESTORE	100	SL	2 fl oz/a	2 fl oz/a		PRE	A					
LSD (P=.05)									0.42	1.11	17.5	1.28	0.46 6.30 6.54
Replicate F									0.735	0.100	4.227	1.260	3.000 3.457 1.508
Replicate Prob(F)									0.5569	0.9581	0.0402	0.3450	0.0877 0.0646 0.2778
Treatment F									0.816	0.501	1.514	4.382	1.000 0.944 1.269
Treatment Prob(F)									0.5167	0.6907	0.2764	0.0367	0.4363 0.4592 0.3423

Means followed by same letter do not significantly differ (P=.05, LSD)

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Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Other Rate	Other Rate Unit	Growth Stage	Appl Code			
1	NONTREATED								59.9 a	11.27 a	8.06 a 6.1 a 6.8 a
2	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a	2 fl oz/a		PRE	A	61.2 a	10.90 a	8.52 a 6.1 a 6.8 a
3	SOIL RESTORE	100	SL	2 fl oz/a	2 fl oz/a		PRE	A	62.0 a	11.20 a	8.05 a 6.2 a 6.9 a
4	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a	2 fl oz/a		PRE	A	60.6 a	10.92 a	8.25 a 6.3 a 6.8 a
4	SOIL RESTORE	100	SL	2 fl oz/a	2 fl oz/a		PRE	A			
LSD (P=.05)									2.79	0.556	1.036 0.23 0.16
Replicate F									0.476	3.089	0.663 15.967 19.138
Replicate Prob(F)									0.7067	0.0825	0.5951 0.0006 0.0003
Treatment F									1.046	1.189	0.462 1.352 1.394
Treatment Prob(F)									0.4183	0.3678	0.7155 0.3180 0.3066

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Pest Code	Crop Code	Rating Date	Rating Data Type	Rating Unit	Rating Timing	Trt-Eval Interval	SOIL 06-02-09 OM Percent	SOIL 11-16-09 OM Percent	SOIL 06-02-09 Est N Relea lb N/A	SOIL 11-16-09 Est N Relea lb N/A	SOIL 06-02-09 S* mg/kg	SOIL 11-16-09 S* mg/kg
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code			
1	NONTREATED									3.06 a	2.05 a	80.5 a
2	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	3.08 a	2.17 a	80.5 a
3	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	3.11 a	1.93 a	81.0 a
4	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	3.15 a	2.05 a	81.3 a
4	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	61.0 a	7.5 a	9.0 a
LSD (P=.05)							0.136	0.260	1.56	5.19	0.84	0.88
Replicate F							5.691	0.430	5.672	0.515	1.200	0.818
Replicate Prob(F)							0.0183	0.7366	0.0184	0.6824	0.3641	0.5157
Treatment F							0.749	1.366	0.591	1.290	0.600	2.455
Treatment Prob(F)							0.5498	0.3144	0.6361	0.3359	0.6310	0.1298

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Pest Code	Crop Code	Rating Date	Rating Data Type	Rating Unit	Rating Timing	Trt-Eval Interval	SOIL 06-02-09 P* mg/kg	SOIL 11-16-09 P* mg/kg	SOIL 06-02-09 Bray II P mg/kg	SOIL 11-16-09 Bray II P mg/kg	SOIL 06-02-09 Ca mg/kg	SOIL 11-16-09 Ca mg/kg
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code			
1	NONTREATED									33.8 a	27.5 a	116 a
2	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	30.8 a	29.0 a	117 a
3	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	36.8 a	29.8 a	116 a
4	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	35.5 a	30.5 a	130 a
4	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	105 a	1595 a	1356 a
LSD (P=.05)							7.24	5.07	18.0	17.6	135.9	156.6
Replicate F							5.473	10.342	10.332	7.560	6.827	1.058
Replicate Prob(F)							0.0204	0.0028	0.0028	0.0079	0.0107	0.4138
Treatment F							1.320	0.652	1.403	0.606	0.419	0.655
Treatment Prob(F)							0.3273	0.6014	0.3043	0.6275	0.7436	0.5998

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Pest Code	Crop Code	Rating Date	Rating Data Type	Rating Unit	Rating Timing	Trt-Eval Interval	SOIL 06-02-09 Na\$ Percent	SOIL 11-16-09 Na\$ Percent	SOIL 06-02-09 OtherBases\$ Percent	SOIL 11-16-09 OtherBases\$ Percent	SOIL 06-02-09 H\$ Percent	SOIL 11-16-09 H\$ Percent	
Trt	Treatment	Form	Form	Rate	Other	Other	Growth	Appl					
No.	Name	Conc	Type	Rate	Unit	Rate	Rate	Unit	Stage	Code			
1	NONTREATED										0.70 a	0.89 a	
2	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a	PRE	A			5.33 a	4.65 a	
3	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a	PRE	A			14.25 a	4.13 a	
4	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a	PRE	A			3.00 a	0.81 a	
4	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a	PRE	A			0.91 a	0.93 a	
											5.30 a	5.23 a	
											4.60 a	4.53 a	
											12.38 a	2.63 a	
											0.76 a	0.93 a	
											5.10 a	4.65 a	
											10.88 a	3.75 a	
LSD (P=.05)											0.147	0.203	
												0.246	0.161
												3.918	2.262
Replicate F												0.527	0.407
Replicate Prob(F)												20.650	19.090
Treatment F												0.0002	0.0003
Treatment Prob(F)												0.0004	0.0006
												1.153	0.770
												1.384	1.438
												0.938	0.938
												0.3798	0.5390
												0.2302	0.3093
												0.2952	0.4620

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							B*	B*	Fe*	Fe*	Mn*	Mn*
							mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
							-3 DA-A	164 DA-A	-3 DA-A	164 DA-A	-3 DA-A	164 DA-A
Trt No.	Treatment Name	Form Conc	Form Type	Rate	Rate Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code			
1	NONTREATED									0.38 a	0.28 a	209 a
2	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	0.42 a	0.31 a	204 a
3	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	0.36 a	0.29 a	215 a
4	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	0.41 a	0.32 a	225 a
4	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A			195 a
LSD (P=.05)										0.063	0.051	29.3
Replicate F										7.195	5.413	0.880
Replicate Prob(F)										0.0092	0.0210	0.4870
Treatment F										2.168	1.382	1.009
Treatment Prob(F)										0.1617	0.3098	0.4327
												0.3978
												0.9517
												0.4493

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Pest Code
Crop Code
Rating Date
Rating Data Type
Rating Unit
Rating Timing
Trt-Eval Interval

SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
06-02-09	11-16-09	06-02-09	11-16-09	06-02-09	11-16-09
Cu*	Cu*	Zn*	Zn*	Al*	Al*
mg/kg	mg/kg	mg/kg	mg/kg	mg/kg	mg/kg
-3 DA-A	164 DA-A	-3 DA-A	164 DA-A	-3 DA-A	164 DA-A

Trt No.	Treatment Name	Form Conc	Form Type	Rate Rate	Unit	Other Rate	Other Rate Unit	Growth Stage	Appl Code						
1	NONTREATED									1.37 a	1.19 a	1.03 a	1.02 a	612 a	607 a
2	LIQUID BACTERIA CONCENTRATE	100	SL		2 fl oz/a		2 fl oz/a	PRE	A	1.42 a	1.27 a	1.00 a	1.05 a	618 a	626 a
3	SOIL RESTORE	100	SL		2 fl oz/a		2 fl oz/a	PRE	A	1.41 a	3.26 a	1.03 a	1.00 a	622 a	622 a
4	LIQUID BACTERIA CONCENTRATE	100	SL		2 fl oz/a		2 fl oz/a	PRE	A	1.53 a	1.18 a	1.03 a	0.99 a	615 a	598 a
4	SOIL RESTORE	100	SL		2 fl oz/a		2 fl oz/a	PRE	A						
LSD (P=.05)										0.211	3.235	0.132	0.130	34.8	38.5
Replicate F										0.809	1.084	7.747	3.420	27.799	10.684
Replicate Prob(F)										0.5199	0.4041	0.0073	0.0662	0.0001	0.0025
Treatment F										1.131	1.022	0.157	0.496	0.153	1.130
Treatment Prob(F)										0.3873	0.4275	0.9222	0.6938	0.9250	0.3877

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Pest Code											SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
Crop Code											06-02-09	11-16-09	06-02-09	11-16-09	06-02-09	11-16-09
Rating Date											Nitrogen	Nitrogen	NO3-N	NO3-N	NH4-N	NH4-N
Rating Data Type											Percent	Percent	ppm	ppm	ppm	ppm
Rating Unit																
Rating Timing																
Trt-Eval Interval											-3 DA-A	164 DA-A	-3 DA-A	164 DA-A	-3 DA-A	164 DA-A
Trt	Treatment	Form	Form	Rate	Other	Other	Growth	Appl								
No.	Name	Conc	Type	Rate	Unit	Rate	Unit	Stage	Code							
1	NONTREATED									0.140 a	0.140 a	63.15 a	4.45 a	6.00 a	2.53 a	
2	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	0.143 a	0.138 a	63.58 a	4.13 a	5.58 a	2.18 a	
3	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	0.148 a	0.130 a	56.15 a	3.58 a	4.90 a	2.23 a	
4	LIQUID BACTERIA CONCENTRATE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A	0.143 a	0.135 a	55.70 a	3.70 a	5.25 a	2.15 a	
4	SOIL RESTORE	100	SL	2 fl oz/a		2 fl oz/a		PRE	A							
LSD (P=.05)										0.0137	0.0193	27.769	2.570	2.555	0.553	
Replicate F										1.686	0.158	0.569	0.329	2.984	0.605	
Replicate Prob(F)										0.2389	0.9220	0.6491	0.8048	0.0887	0.6282	
Treatment F										0.543	0.502	0.246	0.249	0.345	1.009	
Treatment Prob(F)										0.6649	0.6901	0.8625	0.8597	0.7940	0.4326	

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Trial Comments

1. Protocol: Nutrapathic.
2. Ratings: Corn stand counts 7-14 DAP, corn vigor 14-21 DAP, corn height 21 DAP, leaf greenness at tasseling (VT growth stage) - measure ear leaf with SPAD meter (10 per plot).
3. Yield, moisture, and test weight.
4. Blanket PRE application of Lumax (2.5 qt/A) plus Aatrex 90 (1 qt/A) to entire area on 6-2-09.
5. Take soil samples in each plot prior to application and again at harvest (minimum 60 g or 1 cup).
Soil samples must be stored dry (air dry) or frozen, prefer to be dried right away.
Submit soil samples to Brookside Labs for S001 (standard soil test), S110 (available N [NH4-N+NO3-N]) and S112 (total N).
6. Corn height; 5 Plants is average height of 5 random plants per plot, Overall is looking across the top of the plants.
Corn vigor scale is 0-9, 0 = dead, 9 = very vigorous. Plants 000/A = Thousands per acre. At VT = At corn tasseling stage.
SPAD = Minolta chlorophyll meter (model SPAD 502) reading on on the V12 leaf.
7. Soil test data; * Mehlich III extractable elements.
§ This value represents the percent of a given element found on the soils total exchange capacity.
Values should add to 100 for a given sample.
Note: For a listing of methods and references please refer to the website for Brookside Laboratories Inc (www.blinc.com).
8. Harvested 11-9-09, (2) 30 inch rows by 27 ft.