

Environoc Seed Treatment Update 2020

- Concentrated Microbial Formula
- Over 2 Dozen Strains of Versatile and Viable Microbes
- Addition of Nodulating Bacteria



Deploy. Unleash. Reclaim.

Biodyne ^{USA}

Features/**Benefits** – Environoc 401/ST Microbes:

Occur naturally in the soil

Organisms not modified or engineered in any way

Explode their populations in the soil

Change plant growth dramatically when on/near roots

Manufacture Root Growth Promoting Hormones

Make more and bigger roots improving nutrient uptake

Manufacture multiple enzymes that release fertility

Release many P forms and micros especially iron

Manufacture enzymes that harvest nitrogen from the air

Fix nitrogen in root zone and make it soil and plant available

Improve plant health and speed crop development

Raises sugar levels in the plant providing stress relief

Interact with the plant to improve growth efficiency/productivity

Removing stress at key times improves yield/quality

Iron releasing technology- siderophore production

Improve soil tilth

Microbes release compounds that aggregate soil

Larger root masses deposit higher organic matter to soil

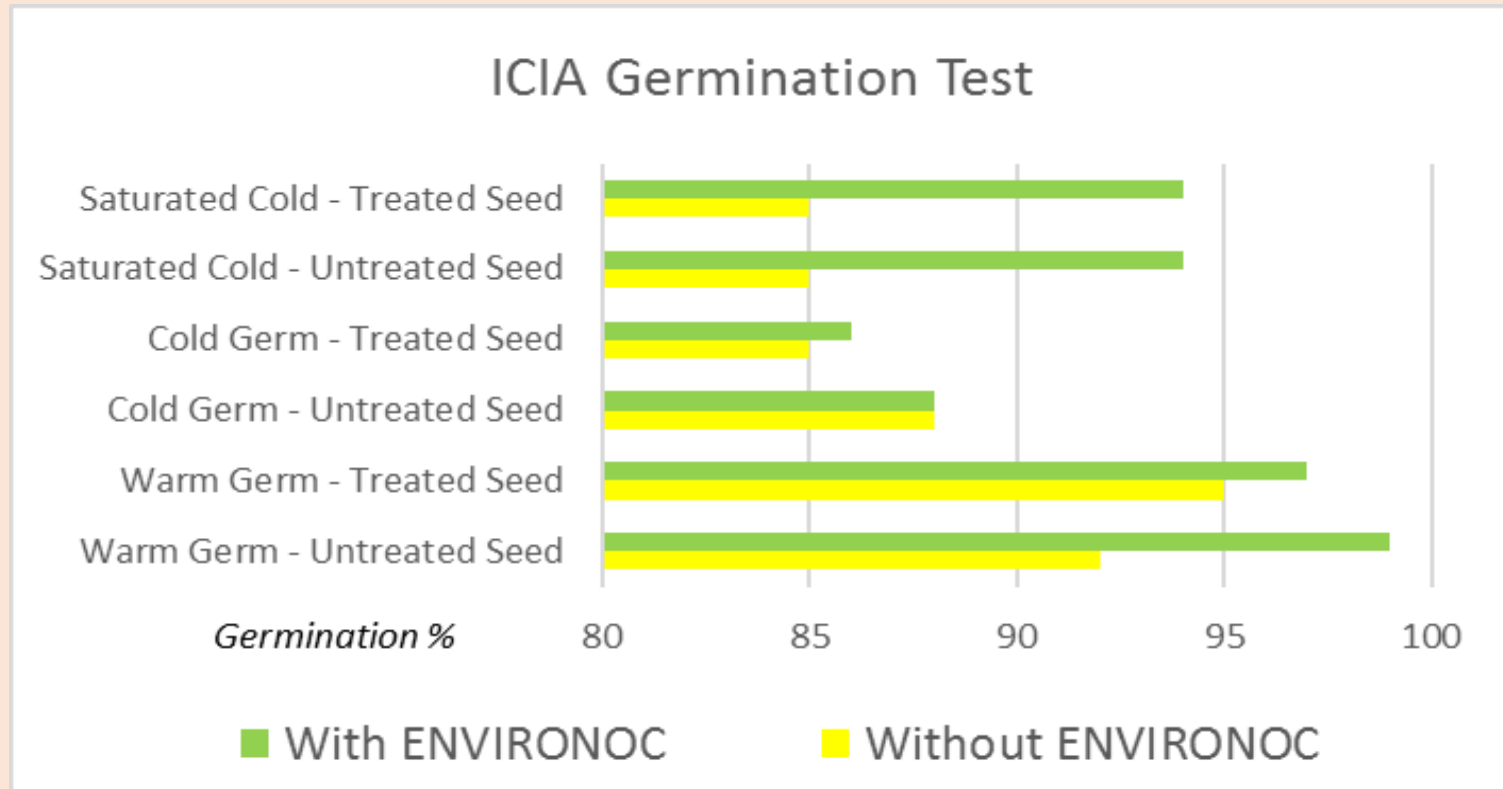
Microbes cycle soil organic carbon more efficiently





The Indiana Crop Improvement Association, ICIA, performed germination tests for ENVIRONOC Seed Treatment following their long-established protocols. For over 100 years the ICIA has been a leader in seed certification, seed quality testing, genetic testing and research. ICIA, a non-profit, self-supporting agency, exists to deliver unbiased, needed services to their member customers.

-The results from the tests show enhanced germination with the use of ENVIRONOC Seed Treatment (detailed below). Tests were performed on both Treated Soybean Seeds (fungicide and inoculant) and Untreated “naked” Soybean Seeds. Not only did seeds treated with ENVIRONOC show strong germination in ideal conditions (Warm Germination Test) but particularly seeds treated with ENVIRONOC Seed Treatment showed significantly better germination in cold/wet conditions (Cold Germination and Saturated Cold Test)



Base = Metalaxyl + Fludioxonil + Imidacloprid		Soybeans 2018		
CODE	TREATMENT	IL		
		Neoga 1	2	Ave
Treatment #31	Base + Environoc 401	72.1	66.6	69.4
Treatment #8	Base (1.6 IMD rate) + BIODST Nematicide + VPH	74.0	64.3	69.2
Treatment #25	Base + Headsup + BIODST Nematicide	62.5	74.6	68.6
Treatment #24	Base + T-methyl + BIODST Nematicide	68.6	67.6	68.1
Treatment #33	Base + BDX Seed Treatment	73.4	62.6	68.0
Treatment #14	Lumisena + FST Concept	73.0	62.5	67.8
Treatment #7	Base (1.6 IMD rate) + ILeVo + BIODST Nematide + VPH	68.9	66.4	67.7
Treatment #5	Base (-Imidacloprid) + PonchoVotivo + ILeVo	64.8	70.2	67.5
Treatment #18	Base + DBT 2003	69.7	65.1	67.4
Treatment #13	Base (-Imidacloprid) + Lumisena	61.3	71.4	66.4
Treatment #30	Base + Agra-Rouse	66.4	66.2	66.3
Treatment #17	Base + Excalibre SA 18BE_04056WP	61.1	71.5	66.3
Treatment #9	Base (Duplicate)	58.7	71.6	65.2
Treatment #35	Base + AVED	66.0	63.6	64.8
Treatment #34	Base + UHC Inoculant	71.2	58.0	64.6
Treatment #27	Base + S 208	66.7	61.6	64.2
Treatment #6	Base (low rate F) + Intego Solo	65.3	62.9	64.1
Treatment #4	Base + ILeVO + VPH	61.2	66.7	64.0
Treatment #28	Base + Exp. BC9	65.1	62.7	63.9
Treatment #32	Base + N1b-10L ST	64.0	63.1	63.6
Treatment #2	Base	64.0	62.7	63.4
Treatment #3	Base + VPH	64.1	62.2	63.2
Treatment #12	Base + BASNem 1	62.0	64.1	63.1
Treatment #21	B775 + B798	59.6	65.8	62.7
Treatment #26	Base (1.6f/oz IMD rate) + BIODST Nematicide	64.4	60.7	62.6
Treatment #19	Base + DBT 2012	59.8	64.4	62.1
Treatment #16	Base + Commence	58.5	64.9	61.7
Treatment #29	Base + Exp. GX3	61.0	62.3	61.7
Treatment #15	Base + F4018	59.5	63.8	61.7
Treatment #23	Base + BIODST Nematicide	58.7	62.3	60.5
Treatment #10	Base + Vibrance	56.5	64.3	60.4
Treatment #20	B775	61.2	58.0	59.6
Treatment #22	Base + B798	57.4	60.9	59.2
Treatment #1	UTC	62.5	55.8	59.2
Treatment #38	Base + Root-Tek	57.1	60.9	59.0
Treatment #36	Base + AgRho S Boost ELX	59.4	57.6	58.5
Treatment #37	Base + Biovante XP	61.2	53.2	57.2
MEAN				63.8

Independent Research
Soybean Seed Treatment Trial:
38 various Seed Treatments- IL
(2 reps)

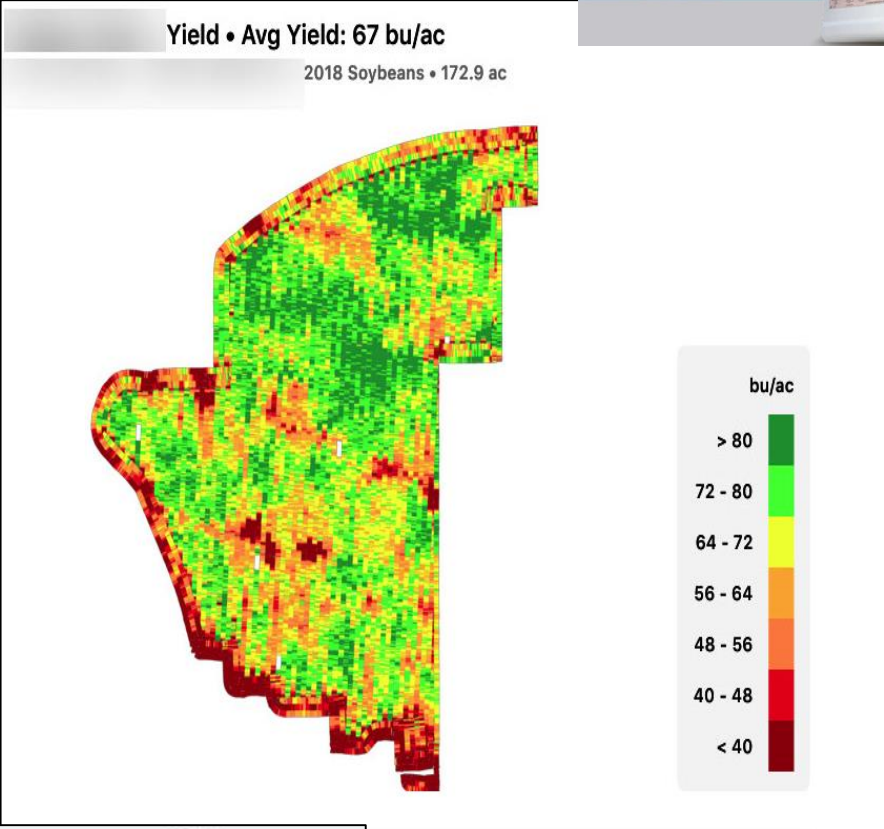
Biodyne ENVIRONOC
Seed Treat= 69.4 BPA
(#1 out of 38)

Base= 69.4 (+6 bpa)
Untreated 59.2 (+10 bpa)



NC Iowa 2018 Soybeans- 170 acres

24 rows each (blue with ST, orange without)



170.7 ac Harvested	10.1 % Moisture	67 bu/ac Average Yield
By Variety	Avg. Yield	Acre
● L2228 Bio	70	69.2 >
● L2228	65	99.8 >

**+5 BPA
Environoc Seed
Treatment**

TREATMENT	CA			CO			GA			KS			MO			NE			ND			SD			Renlie Averag	Std Dev
	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3		
Base + Seed Treat #10	81.8	85.3	81.2	88.7	88.4	82.6	84.8	84.3	79.8	71.3	73.9	74.8	77.1	78.4	79.8	88.8	88.8	81.4	88.8	88.1	82.8	82.6	82.8	88.8	88.8	88.8
Base + Seed Treat #8	81.3	84.3	84.4	87.2	84.3	81.8	87.8	81.3	79.8	73.6	71.8	73.7	77.1	74.7	78.1	73.8	88.2	74.8	88.8	82.4	82.8	88.7	82.8	81.1	82.8	82.8
Base + Biodyne ST #17	81.8	83.3	87.7	88.3	87.4	82.8	84.7	81.7	82.1	73.3	77.3	77.1	88.2	84.8	71.3	82.3	73.6	83.1	79.8	98.2	98.3	88.2	88.2	88.8	88.8	88.8
Base+ Seed Treat #15	88.8	84.3	81.8	88.8	88.8	84.8	87.8	89.3	82.4	74.8	76.8	76.8	77.1	78.8	78.3	74.8	82.8	74.3	84.3	81.8	98.8	98.8	88.2	82.8	82.8	82.8
Base + Seed Treat #14	82.8	82.8	82.8	82.1	87.3	81.8	87.8	89.4	74.4	74.8	76.8	76.8	77.1	78.8	78.3	75.1	88.1	88.8	81.8	82.3	92.8	98.8	88.8	88.8	88.8	88.8
Base + Seed Treat #4	88.8	88.8	88.4	88.7	81.7	88.8	87.4	88.8	79.8	79.8	79.8	78.7	77.1	78.1	73.8	76.8	82.8	87.8	88.2	82.8	98.8	97.1	88.8	84.8	88.8	88.8
Base + Seed Treat #12	82.8	82.8	81.1	88.2	88.8	88.4	82.8	88.7	82.3	73.8	74.8	79.8	79.8	81.1	73.3	78.8	88.8	88.2	88.2	88.8	98.8	88.2	88.8	88.8	88.8	88.8
Base + Seed Treat #22	88.8	88.4	82.3	88.8	82.3	88.4	82.8	81.3	71.8	78.8	74.3	73.7	77.1	78.8	88.3	82.1	88.8	88.8	88.8	88.2	88.1	88.1	82.8	82.8	82.8	82.8
Base + Seed Treat #11	88.8	87.7	88.8	88.8	88.4	82.3	88.8	82.8	82.1	78.8	78.8	78.8	77.1	71.7	78.8	73.1	82.3	74.8	88.8	82.3	81.1	88.4	82.8	82.8	82.8	82.8
Base	88.2	88.7	81.8	82.8	81.3	84.7	82.8	73.3	74.8	78.8	74.4	77.1	82.3	73.8	78.8	81.4	73.4	78.8	77.8	98.8	98.8	88.2	81.3	88.8	81.3	88.8
Base + Seed Treat #16	84.8	82.8	81.8	88.1	88.1	81.8	81.8	82.8	88.8	73.3	73.8	78.8	78.8	82.8	84.1	73.7	81.4	77.8	82.1	88.2	81.3	82.7	88.2	82.8	82.8	82.8
Base + Seed Treat #23	87.7	88.8	88.8	88.1	88.8	88.8	88.3	73.8	71.8	87.4	78.8	77.1	77.1	73.3	78.1	74.8	82.3	83.8	83.8	82.4	88.7	88.8	88.8	88.8	88.8	88.8
Base + Treatment #26	88.8	84.1	81.8	88.2	88.8	88.7	88.8	88.8	78.1	73.7	73.3	74.8	77.1	73.8	88.1	73.3	88.1	81.1	88.2	82.3	92.8	98.7	88.8	88.8	88.8	88.8
Base + Seed Treatment #6	82.8	87.1	84.8	88.8	78.8	82.7	88.4	88.2	73.3	74.7	79.7	79.7	77.1	74.1	78.8	88.2	78.8	88.4	88.1	78.8	88.8	88.8	88.8	88.8	88.8	88.8
Base + Seed Treatment #9	82.4	81.8	88.8	82.8	87.8	88.8	88.2	84.1	78.8	78.8	78.8	78.8	77.1	73.7	78.1	74.1	88.8	81.8	82.4	81.8	88.8	88.2	88.7	88.2	82.8	82.8
Base + Seed Treatment #25	88.2	87.3	87.8	81.8	84.3	87.4	82.4	88.7	74.2	84.8	74.7	73.8	77.1	78.1	78.8	78.1	82.8	88.8	84.8	84.2	81.1	82.4	88.2	88.8	88.8	88.8
Base + Seed Treatment #13	88.8	88.3	82.3	88.8	87.3	82.3	82.3	81.8	81.8	78.4	78.3	78.1	77.1	78.1	78.8	88.8	88.8	78.1	82.3	78.1	98.7	98.8	88.8	88.8	88.8	88.8
Base + Seed Treatment #5	84.1	88.1	82.7	84.2	84.3	88.2	88.8	87.3	74.2	87.8	74.2	73.8	77.1	74.8	78.8	88.8	88.8	88.1	82.8	82.7	88.2	98.2	98.2	88.8	88.8	88.8
Escalate	87.8	81.7	82.7	81.8	88.4	84.8	88.8	81.7	78.1	78.1	71.8	74.2	77.1	82.8	82.8	78.4	76.8	81.7	88.1	88.8	82.8	82.8	82.8	88.8	88.8	88.8
Base + Seed Treatment #21	88.8	88.8	88.1	88.8	84.8	88.2	88.8	88.7	78.2	78.2	73.8	77.1	77.1	88.8	77.1	74.1	82.8	77.8	78.2	92.8	92.8	88.8	88.8	88.8	88.8	88.8
Base + Seed Treatment #7	82.8	88.8	87.8	88.4	88.8	88.4	88.3	74.4	74.8	78.1	78.8	78.8	77.1	73.8	73.7	82.8	82.8	84.2	73.8	78.8	92.8	92.8	88.8	88.8	88.8	88.8
Base + Seed Treatment #18	82.1	88.2	82.1	82.8	88.2	82.3	88.8	88.8	78.4	72.4	76.3	77.1	77.1	78.8	78.8	88.2	74.8	73.8	78.8	81.2	82.3	88.2	88.8	88.8	88.8	88.8
Base + Seed Treatment #20	88.8	82.7	84.8	88.2	82.1	88.8	82.3	82.8	78.8	78.8	77.7	77.1	77.1	71.8	73.7	73.2	88.8	78.2	74.7	81.1	88.8	88.8	88.8	88.8	88.8	88.8
Base + Seed Treatment #19	87.8	82.3	82.7	84.8	88.1	88.8	88.1	88.7	74.8	71.8	73.8	73.8	77.1	73.1	78.8	78.8	88.8	82.8	82.3	82.3	92.8	98.7	88.8	88.8	88.8	88.8
Untreated	82.7	88.2	82.8	84.7	78.2	82.8	87.2	88.1	73.7	74.2	78.8	74.2	77.1	88.8	88.8	78.1	71.3	81.8	83.1	78.2	98.8	98.8	88.8	88.8	88.8	88.8
Base + Seed Treatment #24	87.8	88.8	81.8	82.8	88.8	88.8	88.8	78.4	88.1	78.8	71.3	77.1	77.1	71.8	74.8	73.2	84.8	78.2	82.8	88.8	98.8	98.8	88.8	88.8	88.8	88.8
	88.8			81.7				78.1									88.2			84.8						87.3
	88.8			88.8				88.4									88.2			88.8						88.2
	88.8			88.7				88.2									88.8			88.8						88.2

7 States- 39 Replications

Independent Research

26 different Biostimulants- Comparison WHEAT Seed Treatment Trial-

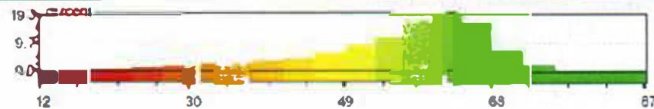
7 States, 39 Replications

Biodyne ENVIRONOC Seed Treat= 79.6 BPA +3bpa (3/26)

Mean= 76.7, Untreated 77.2



Yield by Management Zones Field Level Management Zone Detail Crop: Soybeans 2019



Zone No.	Mgmt Zone Name	Range	Zone Name	Data	Avg Moisture%	Avg Yield	Total Yield	HarvestAcres	Area
1	Seed Treatment Min - Max Test		BioDyne	None	13.12	60.28 bu/ac	683 bu	11.33	11.37
2	Seed Treatment Min - Max Test		Normal	None	12.09	56.07 bu/ac	1138 bu	20.30	20.30



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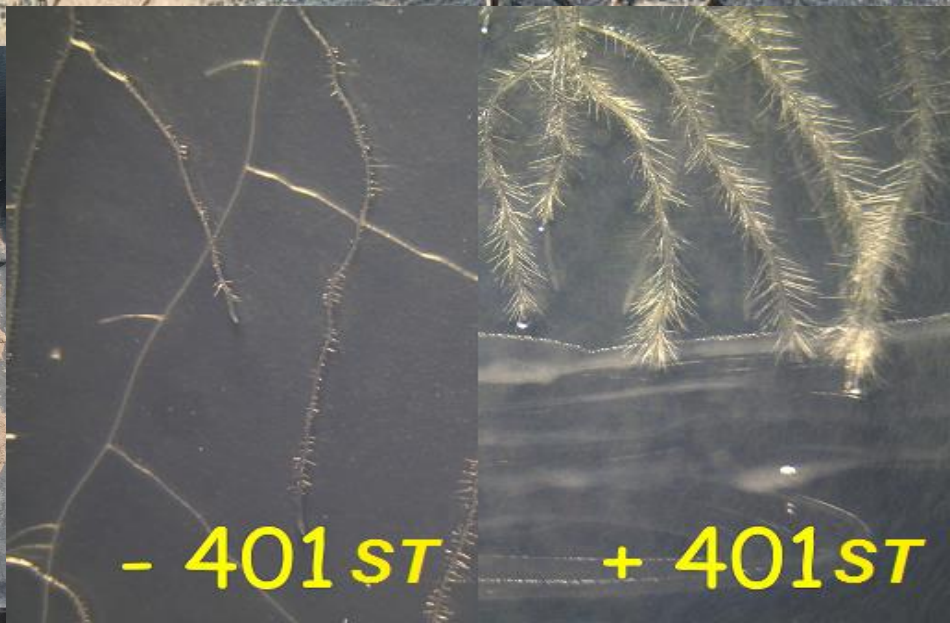
401 Seed Treatment



ENVIRONMENTAL
SEED
TREATMENT



ENVIRONMENTAL
SEED
TREATMENT



- 401st

+ 401st



Product Attributes Checklist	Environoc Seed Treatment
Improves Germination	X
Improves early growth and vigor	X
Application window of 90+ days	X
Compatible with other products	X
Contains strains that work in varying O2 conditions	X
Contains nodulating N-fixing inoculant	X
Contains other beneficial microbes	X
Provides food sources for microbes in blend	X
Contains phosphate releasing technology	X
No special replant restrictions	X
Produces multiple enzymes around root	X
Contains food sources that chelate micronutrients	X
Contains dozens of strains of microbes	X
Contains iron releasing technologies	X
Built specifically to work in high pH calcareous soils	X
No special mixing or agitation required	X
No special bag tagging required	X
Live entire season in conjunction with plant roots	X
Produces enzymes that fix atmospheric N to soil	X
Produce enzymes that degrade cellulose into food	X
Produce enzymes that degrade chemicals into food	X
Contains both bacterial and fungal strains	X
Contains multiple strains producing chitinase	X
Contains strains that work in a wide temp range	X

“Treat your seed with Environoc Seed Treatment and have confidence in knowing you have given it the power of life to maximize yield and productivity. Environoc Seed Treatment lives on well into the season with the roots and continues to provide health benefits to plants long after crop protection chemicals have been chemically or microbially degraded”