Nebraska On-Farm Research Network

Years:	2013
Title:	Biostimulant
Crop:	Soybeans
County:	Hamilton
Study ID:	049081201301
Objective:	To determine & document the effect of biostimulant on the profitability of soybean production.
Treatments:	BG-AG LegUp 10-0-4 CALFA CP-44 Generate GS-48 Soil X-Cyto Terra One XiteBio SoyRhizo

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Information: 2013 Soybeans Fontanelle 64R20
Fontanelle 64R20 @ 180k seeded, 171-179k in season

BG-Ag LegUp 10-0-4	2 gal
CALFA	16 oz
CP-44	6 oz
Generate	32 oz
GS-48 (4 oz.)	4 oz
GS-48 (8 oz.)	8 oz
Soil X-Cyto	27.5 oz
Terra One	16 oz
XiteBio SoyRhizo	17 oz
Planted June 3, Irrigated	

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Information: 2013 Soybeans

BG-Ag LegUp 10-0-4	(BioGreen USA). In addition to fertilizer listed above, product contains 10% humic acid and 2% North American kelp (Ascophyllum nodosum). The latter product is a source of cytokinin, and cytokinin is expected to increase root growth.
CALFA	(Plant BioTech, Inc.). CALFA (short for Carboxylic Acid Liquid Fertilizer Additive) is a 40% natural carboxylic acid solution. Some carboxylic acids have been shown to increase plant growth.
CP-44	Proprietory product from Emerald BioAg. It is a growth enhancement product.
Generate	(Agnition, Marshall, MN) labeling states that the product is a proven microbial and nutrient catalyst to optimize crop growth and yields. It consists of 0.52% cobalt, 0.14% copper,0.28% Iron, 0.11% manganese, 0.001% molybdenum, 0.11% sodium and 0.11% zinc. Cobalt helps plants to alleviate stress by reducing ethylene production, and is also needed by nodulating bacteria.
GS-48 (4 oz.)	**GreenSol 48** (FRIT Industries) contains the plant hormones kinetin and gibberellic acid in an 8-20-20 water-soluble fertilizer base (from which the number 48 is arrived). This product is designed to promote plant vigor, early maturity, higher yields and improved crop quality. Product usage is also marketed via faster transition from the vegetative to reproductive stage of plant development resulting in heavy bloom and fruit set for some crops
GS-48 (8 oz.)	
Soil X-Cyto	(Conklin Company). Active ingredient = 0.004% cytokinin (as kinetin). In addition to the cytokinin, product literature states tht it is a nematode suppressant which interferes with infection of plant roots by parasitic nematodes.
Terra One	Contains mycorrhizae and beneficial bacteria to stimulate root growth, mass and length.
XiteBio SoyRhizo	SoyRhizo is a new liquid inoculant for soybean that not only introduces optimum numbers of Bradyrhizobium japonicum into the soil, but also invigorates the natural soil microflora, including the native rhizobia, and creates synergy between them. It features Advanced Growth Promoting Technology (AGPT) with a low volume versatile liquid formulation that can be applied on seed or in-furrow. SoyRhizo encourages greater root nodulation and boosts higher nitrogen fixation, resulting in healthier plants and better yield.

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Results: 2013 Soybean

	Yield	Protein %	Oil %	Stand Count	Cost/A
BG-Ag LegUp 10-0-4	79.8 A	34.4 A	19.6 A	123.6 B	$24.00
CALFA	80.2 A	34.6 A	19.5 A	146.6 A	*
CP-44	80.2 A	34.8 A	19.6 A	144.0 A	$7.50
Generate	80.7 A	34.7 A	19.7 A	143.3 A	$12.00
GS-48 (4 oz.)	80.4 A	34.7 A	19.3 A	144.2 A	$3.75
GS-48 (8 oz.)	79.8 A*	34.7 A	19.5 A	143.5 A	$7.50
Soil X-Cyto	78.3 A	34.6 A	19.7 A	145.9 A	$39.00
Terra One	80.6 A	34.7 A	19.6 A	145.2 A	*
XiteBio SoyRhizo	79.7 A	34.8 A	19.7 A	140.2 A	*
Check	81.1 A	34.6 A	19.5 A	144.5 A	--
Prob>/T/	ns	ns	ns		
P Value	0.78	0.69	0.21		

Means in sub-columns followed by the same letter are not statistically different at the P<0.05 level (Tukeys HSD test, JMP 10.0.0)
* One outlier for this variety removed, was several bushels different than anything else noted, and made it the top yielding treatment if included.

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Summary: Soybeans

(2013) No treatment applied in-furrow at planting resulted in positive economic return. This is in agreement with previous UNL in-furrow experimentation that also noted highest average yields from untreated soybeans. The biological reason for these results is unknown.

The application of BG-Ag LegUp 10-0-4 was observed to reduce final plant population.

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