



Corn with Vitazyme application—A Study With Bio Seed Crop Inoculant



Corn Tennessee 2021. Note the far superior root development, more aggressive brace roots, and greater stalk width for the Vitazyme treated corn plants on the left

Corn Tennessee 2021. The corn plants treated with Vitazyme show considerably better root development, which has led to greater nutrient uptake and superior ear development.

Researcher: Bruce Kirksey PhD.

Research organization: Agricenter International, Memphis, Tennessee **Location:** Memphis Tennessee

Variety: DK64-89 **Planting date:** May 18, 2021 **Planting depth:** 1.5 inches

Row spacing: 30 inches **Tillage:** conventional

Soil type: Falaya and Waverly silt loam, 1.8% organic matter, pH 6.5, cation exchange capacity 7.8 meq/100g of soil, excellent fertility, good drainage

Experimental design: A small-plot research trial was designed in a randomized complete block design, using four replications with five treatments, on plots that were 10 x 30 feet (four rows per plot). The objective of the trial was to evaluate the effects of Vitazyme and Bio Seed, alone and in combination, on the yield of corn.

Treatment	Vitazyme ¹		Bio Seed,
	In-furrow oz/acre	Foliar oz/acre	In-furrow grams/acre
1. Control	0	0	0
2. Vitazyme	13	0	0
3. Bio Seed	0	0	50
4. Vitazyme + Bio Seed	13	0	50
5. Vitazyme + Bio Seed	0	13	50

¹13 oz/acre = 1 liter/ha. The foliar Vitazyme application was made on June 21.

Fertilization: unknown, uniform over the entire area

Vitazyme application: 13 oz/acre in-furrow at planting for Treatments 2 and 4, and foliar by sprayer on June 21 at 34 days after emergence for Treatment 5

Bio Seed application: 50 grams/acre as an in-furrow treatment for Treatments 3, 4, and 5. Bio Seed is a mixture of bacteria and fungi that are beneficial to seed germination and plant development.

Growing season weather: favorable

Harvest date: October 12, 2021

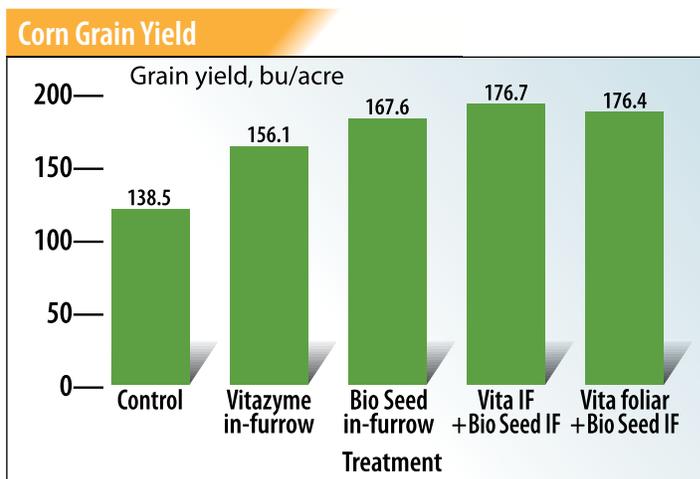
Grain moisture results: There were no significant grain moisture differences among the five treatments, which ranged from 16.4 to 16.6%.

Grain test weight results: Test weight (density) varied nonsignificantly from 54.1 to 56.1 lb/bu among the five treatments.

Yield results: an area of 5 x 25 feet was harvested by an Almaco plot combine for each plot.

Treatment	Yield ¹ bu/acre	Yield change bu/acre
1. Control	138.5 c	—
2. Vitazyme in-furrow	156.1 b	17.6 (+13%)
3. Bio Seed in-furrow	167.6 ab	29.1 (+21%)
4. Vita in furrow + Bio Seed in-furrow	176.7 a	38.2 (+28%)
5. Vita - foliar + Bio Seed in-furrow	176.4 a	37.9 (27%)
LSD (P=0.05)	12.0	
CV	4.77	
Replicate F	0.408	
Treatment F	0.0001	

¹Means followed by the same letter are not significantly different at P=0.05.



Increase in Grain Yield	
Vitazyme alone.....	+13%
Bio Seed alone	+21%
Vitazyme in-furrow + Bio Seed in-furrow	+28%
Vitazyme foliar + Bio Seed in-furrow	+27%

Conclusions: A small plot replicated study on corn in western Tennessee, using Vitazyme and Bio Seed alone and in combination, revealed that all treatment yields significantly exceeded the control treatment yield by from 13 to 27%. Vitazyme and Bio Seed alone were statistically equal and a bit less in yield than the combined products. It is clear that the combined Vitazyme + Bio Seed treatments, whether Vitazyme was applied in-furrow or foliar, greatly surpassed the product applied alone. The 27 and 28% yield increases with the products applied together show the great potential for this combination to enhance corn yields in the mid-Mississippi River Valley. There were no significant effects on gain moisture at harvest or grain test-weight.