



# Rice with Vitazyme application—A Synergism Study with Bio Seed

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**Location:** Memphis, Tennessee **Variety:** CL 152 **Planting date:** May 27, 2019

**Planting depth:** 1.0 inch **Row spacing:** 7.5 inches **Row per plot:** 9

**Soil type:** Falaya silt loam, pH = 6.5, organic matter = 1.8%, cation exchange capacity = 7.8 meq/100 g of soil, fertility level = good, drainage = good **Planting rate:** 1.5 million seeds/acre

**Experimental design:** A small-plot dry-seeded paddy rice trial was conducted on the Mississippi River flood plain, using a randomized complete block design with four replications. Each plot was 6 x 30 feet (180 ft<sup>2</sup>), using five treatments with Bio Seed and Vitazyme to determine the ability of these products to improve rice yield.

Treatment	Bio Seed on seeds	Vitazyme		
		On seeds	Foliar 1 <sup>a</sup>	Foliar 2 <sup>b</sup>
1. Control	0	0	0	0
2. Vitazyme	0	101 ml/acre	0	0
3. Vitazyme + Bio Seed	136 g/cwt	101 ml/acre	0	0
4. Vitazyme + Bio Seed	136 g/cwt	101 ml/acre	13 oz/acre	0
5. Vitazyme + Bio Seed	136 g/cwt	101 ml/acre	13 oz/acre	13 oz/acre

<sup>a</sup>13 oz/acre = 1 liter/ha; applied foliar pre-flood.  
<sup>b</sup>13 oz/acre = 1 liter/ha; applied at the flag leaf stage.



This rice trial in Tennessee showed visually improved plant size and grain development for the Vitazyme and Bio Seed treatment on the left.

**Fertilization:** unknown

**Vitazyme application:** See the table above. Seed treatments were applied using a seed treater on May 27, at planting. Foliar treatments were applied with a sprayer at 28 days after planting (Foliar 1) on June 24, before flooding, and at 58 days after planting (Foliar 2) on July 24.

**Bio Seed application:** See the table above. Seed treatments were applied using a seed treater on May 27, at planting. Bio Seed is a mixture of bacteria and fungi that are beneficial to seed germination and plant development.

**Harvest date:** September 11, 2019, using an Almaco plot combine that harvested a 5 x 30 foot (150 ft<sup>2</sup>) portion of each plot.

**Test weight results:** Test weights for the five treatments varied from 43.4 to 44.5 lb/bu and did not vary significantly.

**Grain moisture results:** Grain moisture for the five treatments varied from 19.0 to 19.9 %, and did not vary significantly.

**Yield results:**

Treatment	Grain yield	Yield change
	bu/acre	bu/acre
1. Control	72.9	—
2. Vitazyme (seeds)	85.8	12.9 (+18%)
3. Vitazyme (seeds)+ Bio Seed (seeds)	87.0	14.1*(+19%)
4. Vitazyme (seeds)+ Bio Seed (seeds)+ Vitazyme (foliar early)	82.6	9.7 (+ 13%)
5. Vitazyme (seeds)+ Bio Seed (seeds)+ Vitazyme (foliar early)+ Vitazyme (foliar late)	87.4	14.5*(+20%)
LSD (P=0.05)	13.5	

\*Significantly greater than the control at P = 0.18.

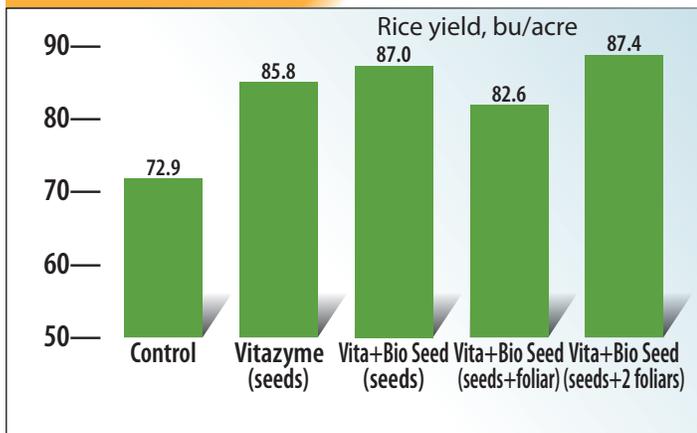


Notice the heavier grain on the Vitazyme and Bio Seed treated plot to the left. This treatment yielded 20% more than the control plot on the right.

Rice yield increase

<i>Vitazyme on seeds</i> .....	+18%
<i>Vitazyme + Bio Seed on seeds</i> .....	+19%
<i>Vitazyme + Bio Seed on seeds</i> + <i>Vitazyme foliar pre-flood</i> .....	+13%
<i>Vitazyme + Bio Seed on seeds</i> + <i>Vitazyme foliar pre-flood</i> + <i>Vitazyme foliar flag leaf</i> .....	+20%

## Rice Yield



**Income results:** A comparison of income from Treatments 1, 4, and 5 is given below.

Treatment	Extra income	Extra costs	Net increase
	-----U.S. \$/acre-----		
1. Control	—	—	—
4. Vitazyme (seeds) + Bio Seed (seeds) + Vitazyme (foliar early)	116.40	23.41	92.99
5. Vitazyme (seeds) + Bio Seed (seeds) + Vitazyme (foliar early) + Vitazyme (foliar late)	174.00	32.04	141.96

**Conclusion:** This flooded paddy rice small-plot trial in Tennessee revealed large yield increases, from 13 to 20%, to Vitazyme alone or Vitazyme + Bio Seed on the seeds, and also this combined seed application + Vitazyme applied foliar pre-flood, or at pre-flood + at the flag leaf stage. These results, though significant at  $P=0.17$ , reveal the ability of both products to stimulate rice production in the Mississippi Delta region, and increase income by up to \$141.96/acre.