The Effect of T-22 Biological Fungicide Seed Treatment on Corn Yield

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Objectives

To evaluate the effects of T-22 biological fungicide on corn yield.

Background

Cooperator:	Farm Focus, Inc.	Herbicide:	
County:	Van Wert	PREPLANT (April 17)	3.5 pt/A Guardsman Max + 1.75 oz/A Balance Pro
Soil Type:	Hoytville clay, Hoytville silty clay loam	Insecticide:	None applied
Drainage:	Non-systematic Tile	Variety:	Corn Belt Hybrids C599
Previous Crop:	Wheat	Row Width:	30 inches
Tillage:	Fall disk/ripper; Spring field cultivate(2x)	Planting Rate:	29,120 seeds/A
Soil Test(2002):	pH 6.1, P 45 ppm, K 161 ppm	Planting Date:	April 17, 2004
Fertilizer:	235 lb/A 8-24-24 2x2 banded at planting; 180 lb/A nitrogen sidedressed as 28% UAN (May 29)	Harvest Date:	October 11, 2004

Methods

This study was set up with two treatments replicated 17 times in a split-planter design. The treatments consisted of T-22 biological fungicide and an untreated check. During planting, one treatment was assigned to the right three planter boxes and the other treatment assigned to the left three planter boxes of a John Deere 7000 Maxemerge six row planter. Seed was pretreatd by the seed company with Captan, Lorsban, and Allegiance. Seed for the T-22 treatment was hand-mixed with T-22 in the planter boxes. The amount of T-22 used was 0.5 ounces per 50 pounds of seed. The study was planted the same day that the corn seed was treated with T-22.

Plot size was 15 feet wide by 1085 feet long. Harvest populations (October 6) were estimated by counting the number of plants in two 17.5- foot-long rows at three different locations in six randomly selected plots (three plots of the untreated check and three plots of the T-22). The average of the number of plants counted per 17.5 feet was converted to plants per acre. Each plot was harvested in one combine pass (6 rows), and recorded as a replicate. Grain weight and moisture was collected using a John Deere 6620 combine equipped with a calibrated AgLeader PF3000 yield monitor. All yields were adjusted to a 15% moisture standard.

Results

Table 1. Corn harvest population, moisture, and yield means[1].

Treatment	Harvest Population	Moisture	Yield
	(plants/A)	(%)	(bu/A)
T-22 Biological Fungicide	29,100	15.3	175.8
Untreated check	28,200	15.2	175.9
Expected t	4.303	2.120	2.120
Observed t	1.970	0.362	0.178

[1]Observed t values larger than Expected t values indicate a statistically significant difference between treatments.

Table 2. Yield means by year

Treatment	2003	2004
T-22 Biological Fungicide	114.2	175.8
Untreated Check	118.8	175.9

Summary

The results from this year's study indicate there was no statistical difference between the T-22 biological fungicide and the untreated check for yield, moisture, or harvest population. Because the plots were not randomized, an unpaired t-test was utilized for statistical analysis. Results from this study are consistent with a similar trial conducted at Farm Focus in 2003 that also showed no yield improvement for using T-22 (see Table 2). According to the manufacturer, T-22 works best on a racehorse hybrid. The hybrid used in this year's trial, C599, is considered by Corn Belt Hybrids to be a racehorse hybrid.

The fungal Trichoderma strain used in T-22 is a living biological inoculant that becomes active and colonizes plant roots as they develop. Applied as a dry powder to seeds in the planter box, T-22 is promoted as a protectant from Pythium, Rhizoctonia and Fusarium. In addition to acting as a root protectant, T-22 also purportedly improves nutrient use efficiency leading to overall healthier roots than those not treated with T-22.

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