Microbial Energy, Inc and True Green Organics, Microbial use in Field Corn Production

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Introduction

Microbes to increase production in crops is gaining acceptance as an agronomic practice. The idea is to use less fertilizer (nitrogen) and let the microbes work with the soil to increase yields.

Objectives

- To determine if microbes will indeed increase or hold production yields without the full rate of nitrogen applied to field corn.

Materials and methods

In 2010, a field experiment was conducted at Farmington, New Mexico to evaluate the response of field corn (Pioneer PO751HR) and microbes using less nitrogen applied for holding or increasing yields. Soils were a Doak silt loam with a pH of 7.4 and an organic matter content of less than 0.5 percent. All plots were fertilized with a starter fertilizer consisting of 100 lb/A 11-52-0 in combination with 100 lb/A of 0-0-60 on May 1. Starter fertilizer was then disk into the soil at a depth of approximately 4 inches. The remaining ammonium nitrate solution (32-0-0) was applied at increments of 30 lb N/A (90 lb N/A) until June 15. This made an application of approximately 100 lb N/A applied for the growing season instead of 200 lb N/A which is normally used on these soils and in this area. Individual plots were 4, 30 inch rows 30 feet long. The experimental design was a randomized complete block with three replications. Treatments were applied with a compressed air backpack sprayer calibrated to deliver 30 gal/A at 35 psi. Field corn was planted with flexi-planters equipped with disk openers on May 10. Preemergence treatments were applied on May 17 and immediately incorporated with 0.75 inch of sprinkler applied water. Approximately 35 inches of sprinkler water were applied during the growing season. Soil temperature maximum and minimum during application was 69 and 56 degrees F. Postemergence treatments were applied on June 8. Air temperature maximum and minimum during postemergence applications was 94 and 60 degrees F. Bicep Lite II max was applied preemergence on May 12 at 55 oz/A followed by a postemergence treatment of status and prowl H_2O applied at 3 plus 32 oz/A on June 8. Field corn was harvested on November 22, by combining the center two rows of each plot using a John Deere 3300 combine equipped with a load cell. Results obtained were subjected to analysis of variance at P=0.05.

Results and discussion

Crop Yields: Yields are given in (Table 6). There were no significant treatments for yield (Table 6). Research should continue in the microbial realm for maximum crop production using microbes in combination with reduced fertilizer nitrogen for maximum crop production.

Table 6. **Yield of field corn from microbes applied either preemergence of preemergence followed by a sequential postemergence treatment, on November 22, 2010; NMSU Agricultural Science Center at Farmington, NM. 2010.**

Treatments[a]	Rate oz/A	Crop Yield bu/A
Microbial energy	256	221
Microbial energy	512	230
Microbial energy	768	239
Microbial energy	1024	234
Microbial energy/microbial energy	128/128	200
Microbial energy/microbial energy	256/256	221
Microbial energy/microbial energy	384/384	217
Microbial energy/microbial energy	512/512	225
Quantum VS+inoculaid light	16+16	194
Quantum VS+inoculaid light	32+32	227
Quantum VS+inoculaid light	128+32	225
Quantum VS+inoculaid light/quantum VS+inoculaid light	8+8/8+8	220
Quantum VS+inoculaid light/quantum VS+inoculaid light	16+16/16+16	234
Quantum VS+inoculaid light/quantum VS+inoculaid light	64+64/64+16	226
Quantum VS+inoculaid light/quantum VS+inoculaid light	64+8/64+8	224
Untreated check		233
LSD 0.05		ns

[a] First treatment applied preemergence then a slash followed by a postemergence treatment.

Similar yields using Quantum Growth with half the fertilizer rate as the untreated check. This is a significant reduction in input costs and a higher Return On Investment (ROI).