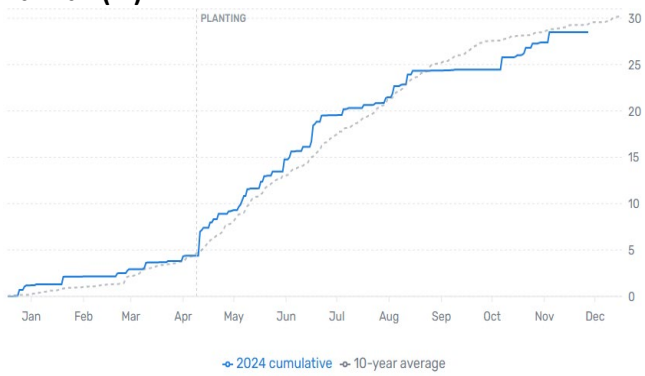
Compost Extract Seed Treatment

Study ID: 0916185202401
County: York
Soil Type: Hastings silt loam 0-1%, 1-3%, 3-7% slopes; Hastings silty clay loam 3-7% slopes
Planting Date: 4/23/2024
Harvest Date: 9/27/2024
Population: 32,000
Row Spacing (in): 36”
Hybrid: Roeschley™ RX 12-70
Reps: 6
Previous Crop: Soybean
Tillage: Ridge-Till
Post: 1.5 pt/ac Surestart II® + 1qt/ac atrazine + 16 oz crop oil on 5/8/24
Seed Treatment: Shieldcoat® (fungicide + insecticide)
Foliar Insecticides & Insecticides: None

Fertilizer: 3000 gal of fall applied hog manure slurry, injected. 15.5 gal 32% + 8% Thiosol (50 lb N) applied through fertigation 7/11/24
Irrigation: Pivot, Total: 8”
Rainfall (in):



Introduction: Some growers are interested in using biological seed treatments in addition to, or in place of, insecticide/fungicide seed treatments. The desire with a biological seed treatment is to build the microbial association with the root rhyzosheath quicker. The treatments in this study were:

Check: Company Seed Treatment Shieldcoat®

Compost Extract Seed Treatment: Shieldcoat® + Compost Extract Seed Treatment at 2-4 oz/50 lb of seed

To make the seed treatment, the grower used 1.5-2 lb of home-made compost/gal of water, then agitated the mixture for 1 hour. This resulted in a very thick slurry. The compost extract was then applied to the seed at a rate of 2-4 oz/50 lb of seed (3-4 gal/50 unit tote box). The grower allowed the seed to set and absorb for at least 30 minutes after treatment. Then seed was moved to the final box. The grower noted the corn did get sticky and did not flow well out of the boxes. One change in the future would be to consider dumping sooner than 30 minutes after application to see if that helps with the stickiness in the future.

This field had 7% greensnap in early July. Harvest stand count and stalk rot data were taken on September 30, 2024. This field had a decent amount of stalk rot at harvest due to fusarium crown rot.

Indicator Complete Soil Test (6/21/24):

pH	OM LOI %	Nitrate–N Total lb	Bray–P ppm P	Sulfate–S ppm S	K ppm	Ca ppm	Mg ppm	Na ppm	CEC me/100g
7.2	5.2	27.7	69.6	6.9	433	2501	310	38	16.4

Results:

	Stand Counts (plants/acre)	Stalk Rot (%)	Moisture (%)	Yield (bu/ac)†	Marginal Net Return‡ ($/ac)
Check	30,000 A*	45 A	20.6 A	20 B	898 B
Compost Extract Seed Treatment	29,000 A	35 A	20.5 A	215 A	931 A
P-Value	0.43	0.35	0.74	0.005	0.006

*Values with the same letter are not significantly different at a 90% confidence level.
†Bushels per acre corrected to 15.5% moisture.
‡Marginal net return based on $4.35/bu corn, $1/ac biological seed treatment

Summary:

- There were no significant differences in stand counts, stalk rot, or moisture between treatments.
- A significant difference in yield was found between the addition of the compost extract seed treatment (214.7 bu/ac) and the check (206.4 bu/ac).
- This difference was found again in the marginal net return, with the biological seed treatment having a higher return ($931/ac) against the untreated check ($898).