

Crop Growth Promoting Products on Soys/Corn/Wheat

Middlesex SCIA Major Grant Project

Purpose:

MSCIA initiated a project in 2009 to evaluate the effects of the carbon based crop growth promoting products that are now available from several companies. These products are described as active carbon compounds found in nature and modified for use on many different crops as additives to be mixed with fertilizers or pesticides. The product claims include increased uptake and mobility of nutrients in the plant and the stimulation of root growth. These products have also been referred to as biostimulants or bio-technology for fertilizer.

Methods:

In 2009, the project took a preliminary look at various applications and products in field corn, soybeans and kidney beans. The rates and applications of the products used were the recommendations made by the distributors of the products. Farm cooperators used their own planting or spraying equipment and were asked to apply their standard fertilizer or herbicide program and to add one of the carbon-based products to the treatment at the recommended rate. Yields were determined either by weighing strips of the treated and untreated crop or by recording the yield monitor results from the two treatments. Field combines were used for all yields.

Results:

Table 1:

Cooperator	Check Yield (bu/acre)	Treatment Yield (bu/acre)	Difference (bu/acre)	# of Reps
Cornelis Farms	147	141.9	(5.1)	3
Aerts – 1	178.8	180.2	1.4	1
Aerts – 2	165.2	164	(1.2)	1
Average Response			(1.6)	
Crop: Corn, Carbon Power product from Floratine BioSciences, Inc. Applied at 200 ml per acre with liquid starter fertilizer directly on the seed.				

Summary:

The preliminary results of these products in corn and soybeans in 2009 showed varied response. Humika™ provided a 3.9 bu/acre increase in corn yield on 3 sites. The one site with dark red kidneys showed a significant response (37% increase in yield) with the Humic Carbon + Agri-Gro treatment. No visual crop response in-season was noted by the cooperators.

Next Steps:

The project will repeat the treatments with three products in 2010 to create a second year of yield information. The soil test information for all sites will be gathered and

Table 2:

Cooperator	Check Yield (bu/acre)	Treatment Yield (bu/acre)	Difference (bu/acre)	# of Reps
Aerts – 3	167.0	168.6	1.6	1
Aerts – 4	181.0	189.8	8.8	1
Aerts – 5	178.2	179.5	1.3	1
Average Response			3.9	
Crop: Corn, Humika™ from Alpha Agri-Products, Inc., Applied at 600 ml per acre with liquid starter fertilizer directly on the seed.				

Table 3:

Cooperator	Check Yield (bu/acre)	Treatment Yield (bu/acre)	Difference (bu/acre)	# of Reps
Foster Farms	51.0	50.2	(0.8)	4
Spruytte Farms	47.0	47.0	0	1
Average Response			(0.4)	
Crop: Soybeans, Humic Carbon + AgriGro from MTS Farm Supplies Inc., Rates: 4 litres/acre + 0.5 litre/acre applied with preplant burndown herbicides.				

Table 4:

Cooperator	Check Yield (cwt/acre)	Treatment Yield (cwt/acre)	Difference (cwt/acre)	# of Reps
Twilight Acre Farms	15.6	21.4	5.8	2
Crop: Dark Red Kidney Beans, Humic Carbon + Agri-Gro from MTS Farm Supplies Inc., Rates: 4 litres/acre + 0.5 litre/acre applied with preplant or preemergent herbicides.				

analyzed to document the soil pH, organic matter, phosphorus and potassium levels. An effort will be made to conduct more trials on kidney and other edible bean types to evaluate whether the response of the carbon based products is greater on crops with smaller root systems. In addition, funding will be used to collect early season tissue tests in order to evaluate nutrient uptake by the corn, soybeans and edible beans.

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Project Contacts:

Steve Redmond, MSCIA member / OMAFRA Environmental Specialist,
Stephen.Redmond2@ontario.ca

Location of Project Final Report:

OMAFRA Office in London