



Contract Client - Rugby Farm Pty Ltd

Sweet Corn  
Variety - Garrison

## BioAktiv Plant & Soil Trial 1

January 2018

Contract Grower:  
Derrel Farms  
Grantham, Queensland

Latitude -27.58 South  
Longitude 152.31 East  
Altitude 119.38 Meters/391.68 Feet

Trial Supervisor - Dr Svetlana Ukolova

## BioAktiv Trial on Corn

BioAktiv for Plants is a highly efficient plant and soil enhancer that has been designed to stimulate the diversity of aerobic microorganisms which in turn aid plant growth. As beneficial soil bacteria increase, the associated rise of aerobic bacterial activity promotes the humus formation. This results in stronger root growth, better resistance to fungal and other infestations and shown to provide consistent higher yields.

To test the efficiency of the BioAktiv for Plants Blend, we performed a trial on sweet corn grown and sold through Rugby Farm Pty Ltd, based in Gatton, Queensland Australia.

Variety - Garrison

Contract Grower - Derek Schultz

Farm - Derrel Farms, Grantham

## Application/Condition of the trial

The BioAktiv plant & soil product which is a high quality Magnesium Sulphate ( $MgSO_4$ ) inorganic salt, was diluted in water (1kg to 330 litre) and applied at planting stage at the rate of 1kg to a hectare. The recommendation is for only one application at this early stage.

Trial was conducted on two separated, one hectare blocks side by side. Latitude -27.58 South, Longitude 152.31 East, Altitude 119.38 Meters / 391.68 Feet.



Photo1. Aerial view of Derrel Farm, Grantham, Queensland.

### Task/Observations:

From a number of random corn cobs picked from the trial plots, individual weight and Brix index were measured and averaged.

Yields were taken from one hopper each of the harvested, one hectares plots (Photo 3). These provided 18 containers of corn from Bioaktiv treated and control plots. Both were assessed for the volume of packed boxes (30 corn per box) by plant packing supervisor of Rugby Farm P/L. (Photo 4)

Statistical analysis was performed to validate the obtained data of starch and sugar percentage, weight, yield, and plant health (resistance to infestation). Other observations such as vigour, weed density and the number of heliosis that affected the crops were also noted.

These areas of impact are to determine the commercial advantages of using BioAktiv.



Photo 2. Noticeable vigour and colour between BioAktiv and control trial plots.



Photo 3. Harvested corn loaded to hoppers



Photo 4. Crates sorted to be packed in boxes.

## Results/Discussion

Our results showed that just one BioAktiv application at planting stage of sweet corn significantly increased the ability of plants to absorb nutrients from the soil as seen based on the improved yield results. Harvested hopper produced 246 boxes (7380 cobs) of BioAktiv treated corn as compared to 226 boxes (6780 cobs) from the same plot area which correlates to 8.85% increase in yield.

The BioAktiv treated cobs have also achieved the average weight of 226.07 grams per cob from 67 random corn selections, whereas the Control cobs (no BioAktiv application) only scored the average weight of 202.6 grams per cob from the same number of corn cobs (Table1 Field Chart & Graph1 Results). Overall, 11.6% weight gain was obtained after just one BioAktiv application.

Consistent with our improved yields and weight results, the sugar content test has also shown increased Brix reading for BioAktiv treated cobs. BioAktiv plants achieved 9.8% higher Brix reading as compared to control plants (no BioAktiv application). This data is consistent with our understanding that Bioaktiv facilitates the significant increase in photosynthetic activity of treated sweet corn which produces more vigorous and stronger plants as a result.

Further analysis of the selected harvested corn cobs has additionally showed improved vitality and stronger immunity of BioAktiv treated sweet corn as was observed by counting the number of cobs affected by heliosis disease in both BioAktiv treated and non- treated plots.

The obtained data showed a significant disease reduction of 34.8% (Photo 5) for BioAktiv treated plants compared to non-treated ones.

## Conclusions

Our results from the conducted trial have showed that BioAktiv significantly improves yields by promoting healthier plants with increased photosynthetic activity and stronger immunity. Treated plants show up to 8.8% yield increase with higher weight and sugar content while also having better ability to cope with heliosis.

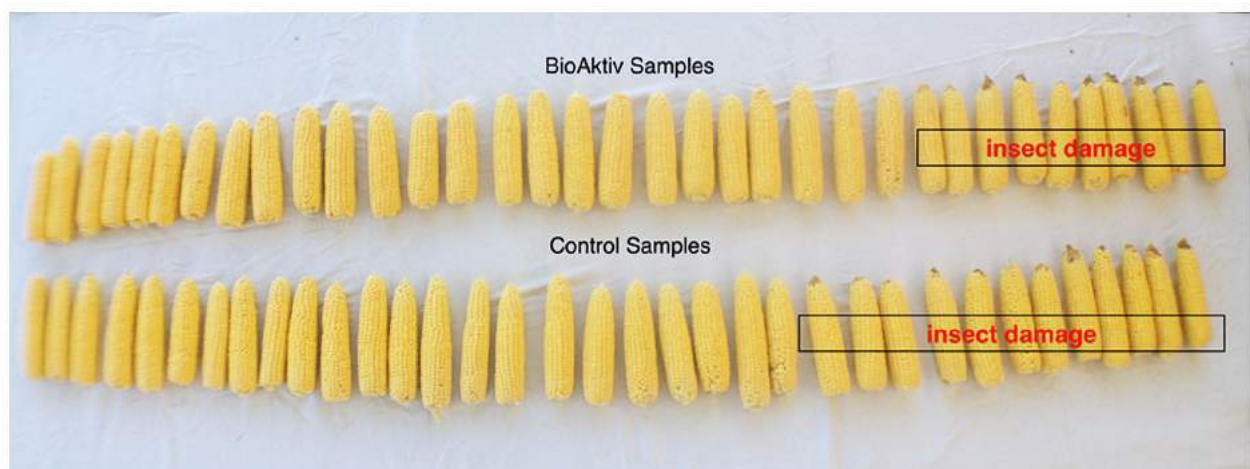


Photo 5. Sample of selected corn cobs which were observed for insect damage

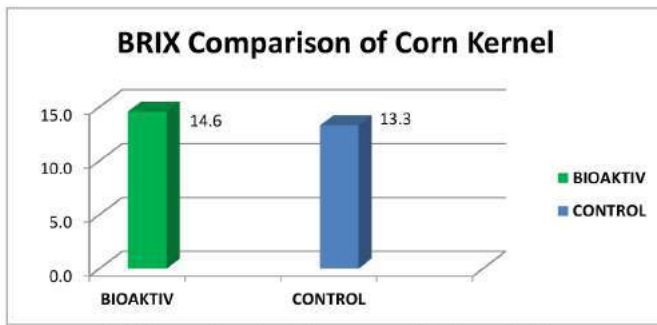
# Brix Reading Chart

## Field Chart

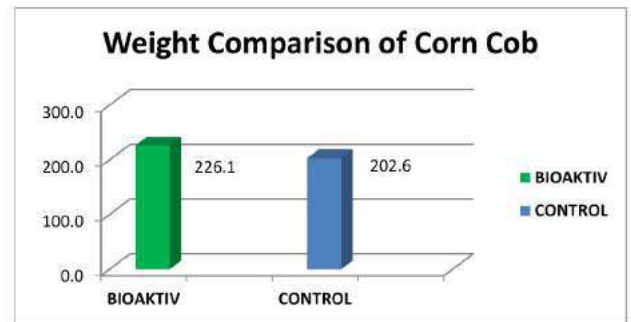
## Crop: SWEET CORN (variety : Garrison)

Date	Time of Day	Weather	Grower name	Field No.	BioAktiv (BA)	BRIX		Weight per Cob (gms)	Insect damage	Control ©	BRIX		Weight per Cob (gms)	Insect damage
						Leaf	Grain				Leaf	Grain		
16/01/18	1:00pm	sunny/fine	Derrel Farms, Grantham		BA		14.8	219		C		15.0	195	
					BA		14.0	233		C		14.2	205	1
					BA	14.2	14.8	181	1	C	10.2	13.2	188	1
					BA		14.4	232	1	C		16.2	204	
					BA		13.8	217		C		16.4	226	
					BA		14.0	216		C		14.2	180	
					BA		13.2	216		C		12.0	204	
					BA		13.8	218		C		13.8	215	
					BA		14.4	251		C		10.4	190	
					BA		14.4	233	1	C		16.0	200	
					BA		14.4	228		C		13.0	184	1
					BA		14.4	228	1	C		12.4	231	
					BA		15.2	241		C		10.6	197	1
					BA		15.0	251		C		11.2	214	1
					BA		16.0	219		C		12.8	194	1
					BA		15.8	208		C		13.0	228	
					BA		15.6	230		C		14.4	226	
					BA		15.0	233		C		12.8	220	
					BA		15.2	220		C		14.2	227	1
					16/01/18	3:00am	cool	Derrel Farms, Grantham		BA		15.4	210	
BA		14.8	224							C		15.0	233	
BA		14.0	243							C		14.2	178	
BA		14.8	220							C		13.2	207	
BA	13.4	14.4	189							C	12.2	16.2	242	
BA		13.8	195							C		16.4	220	
BA		14.0	206							C		14.2	195	
BA		13.2	203							C		12.0	163	
BA		13.8	228							C		13.8	202	
BA		14.4	231							C		10.4	157	
BA		14.4	223							C		16.0	203	
BA		14.4	244							C		13.0	198	
BA		14.4	223							C		12.4	217	
BA		15.2	215							C		10.6	189	
BA		15.0	221							C		11.2	205	
BA		16.0	211							C		12.8	162	
BA		15.8	228							C		13.0	185	
BA		15.6	242							C		14.4	207	
BA		15.0	252							C		12.8	195	
BA		15.2	238							C		14.2	211	
BA		15.4	242		C		12.0	188						
BA		14.6	209		C		14.2	222						
BA		15.2	236		C		14.6	226						
BA	12.2	14.8	257		C	9.8	12.2	175						
BA		16.4	235		C		13.4	208	1					
BA		15.8	196		C		13.2	207	1					
BA		14.8	190	1	C		12.6	206	1					
BA		15.4	202	1	C		13.2	178	1					
BA		14.6	227	1	C		14.6	225	1					
BA		14.2	221	1	C		14.4	207	1					
BA		15.2	221	1	C		13.8	193	1					
BA		13.2	223	1	C		13.6	197	1					
BA		13.8	241	1	C		14.4	215	1					
BA		13.8	235	1	C		12.8	192	1					
BA		13.0	196	1	C		12.4	214	1					
BA		13.4	224	1	C		13.2	201	1					
BA		15.2	239		C		10.6	178						
BA		15.4	239		C		11.2	169						
BA		14.6	258		C		12.8	224						
BA		15.2	251	1	C		13.0	212	1					
BA		14.8	248		C		14.4	189						
BA		14.4	275		C		12.8	242						
BA		13.8	214		C		14.2	173	1					
BA		14.8	244		C		12.0	225						
BA		14.2	256		C		14.2	213	1					
BA		14.6	245		C		14.6	215						
BA		14.2	198		C		12.2	237						
BA		14.6	205		C		13.4	176	1					
<b>TOTALS</b>						39.8	981.2	15,147	15		32.2	893.6	13,576	23

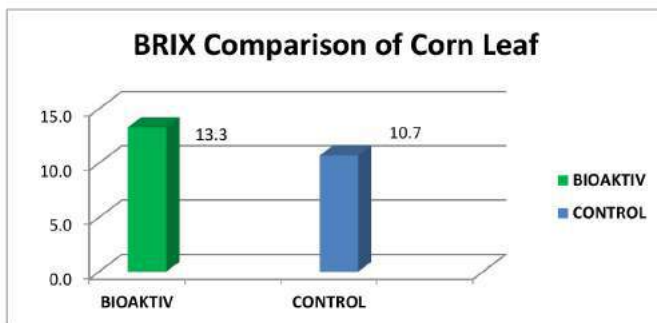
# Graph 1 Results



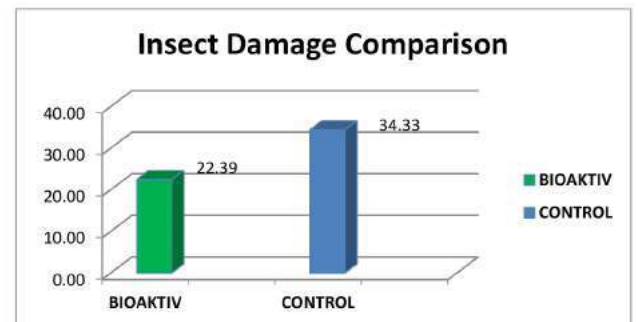
BRIX - corn kernel reading average (starch content)  
Percentage difference (+/-) 9.8 %



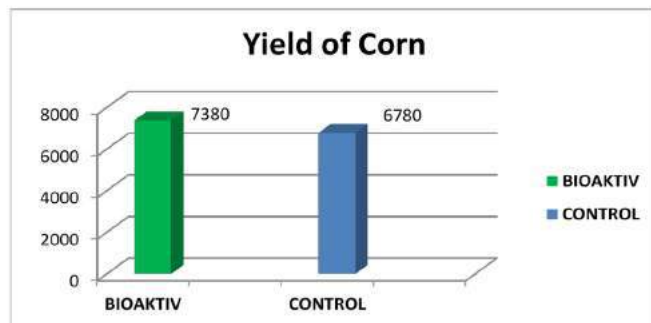
Average weight per corn cob (grams)  
Percentage difference (+/-) 11.6 %



BRIX - leaf reading average (starch content)  
Percentage difference (+/-) 24.3 %



Insect damage (percentage)  
Percentage difference (+/-) -34.8 %



Yield - Count per truck load (no. of corn)  
Percentage difference (+/-) 8.9 %