



Contract Client - Rugby Farm Pty Ltd

BioAktiv Plant & Soil Trial 2 - Sweet Corn

(December 2017 - March 2018)

Farm Owner 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 (Trial 2)

BioAktiv for Plants is a highly efficient plant and soil enhancer that has been designed to oxygenate and 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 **second 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 and applied at planting stage at the rate of 1kg to a hectare. The recommendation is for only one application at this early stage.

This second trial was also conducted on two separated, one hectare blocks side by side. Latitude -27.58 South, Longitude 152.31 East, Altitude 1 19.38 Meters / 391.68 Feet.

Both BioAktiv and Control Trial experienced high temperatures of 45 Degree heat providing stressful condition.



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

Task/Observations:

Total yields were taken from each of the harvested, one hectares plots. These provided 10 Hoppers , 144 Bins to 1151 Crates of corn from Bioaktiv treated plot, and 4 Hoppers to 61 Bins and 564 Crates from the Control plot (see Photo 2- 5). Assessments were provided by Harvest Operator (Mr Fred Klip) and Plant Packing Supervisor (Richard Crieser), Rugby Farm P/L.

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. Harvested corn in hoppers



Photo 3. Sorting to blue bins.



Photo 4. Sorting to bins.



Photo 5. Packout boxes

Results/Discussion

Our results showed that just one BioAktiv application during planting, despite high heat conditions in this second trial, still significantly increased the ability of plants to absorb nutrients from the soil and helped withstand stress as seen, based on the significantly, improved yield results. Harvested hoppers of both total plots produced 1151 Crates (packout boxes) of BioAktiv treated corn as compared to 564 Crates from the same plot area which correlates to 104% increase in yield.

The BioAktiv treated cobs achieved the average weight of 202.5 grams per cob from 100 random corn selections (from harvested crates), whereas the Control cobs (no BioAktiv application) scored the average weight of 188.2 grams per cob from the same number of 100 corn cobs selected from the field (*P7-8, Table/ Field Chart & P9 -Graph Results*). Overall, 7.6% 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 10.8% 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. (*see Photos - Page 5-6*)

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 and fungal disease in both BioAktiv treated and non- treated plots.

The obtained data showed a significant disease reduction of 44% (*P7-Table - Field Chart & P6 - Graph Results*) for BioAktiv treated plants compared to non-treated ones.

Conclusions

Our results from the conducted trial, despite enduring high levels of heat and stress, showed that BioAktiv significantly improves yields by promoting healthier plants with increased photosynthetic activity and stronger immunity. Treated plants show increase in yield, with higher weight and sugar content while also having better ability to cope with heliosis and stress (*Photo 6 & 7*).



Photo 6

BioAktiv



Photo 7

Control

BIOAKTIV



CONTROL (Humic Acid)



Four (4) selected, comparative Images of BioAtiv and Control Crops taken every 50 meters. Total of 12 Images comparative were recorded. All show visual consistency in vigor difference.

Derrel Farms, Grantham, Queensland, 24/1/18
Latitude -27.58 South, Longitude 152.31 East
Altitude 119.38 Meters/391.68 Feet

BioAktiv

Control



Visual Assessment - BioAktiv Plot displayed better soil moisture and vigour.

Field Chart Part 1 - Sweet Corn Crop Trial 2

Field Chart

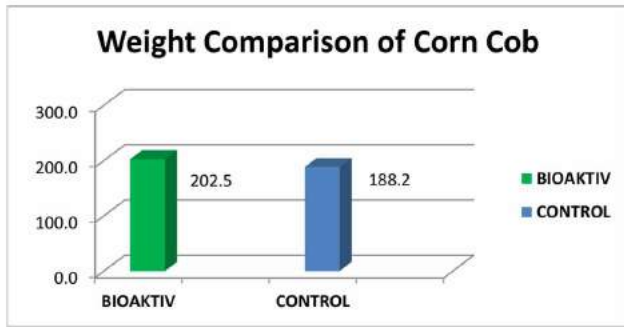
Crop SWEET CORN

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		
5/03/18	9:30am	Overcast	Derrel Farms, Grantham	98	BA		10.4	251		C		12.2	147	1
					BA		12.2	221		C		11.8	237	
					BA		13.4	207		C		10.8	227	
					BA		12.8	217		C		12.4	150	1
					BA		12.2	213		C		11.2	166	
					BA		11.6	191		C		11.0	166	1
					BA		10.2	222		C		10.6	260	
					BA		11.4	204		C		11.2	147	1
					BA		13.2	240		C		11.4	198	1
					BA		11.2	202		C		10.0	214	1
					BA		11.6	185		C		10.4	207	
					BA		10.8	209	1	C		10.2	152	1
					BA		10.6	219		C		12.0	198	
					BA		11.8	194		C		11.3	165	
					BA		12.8	205		C		10.4	236	1
					BA		12.0	185		C		11.2	231	1
					BA		11.2	293	1	C		10.2	240	
					BA		12.6	238		C		10.2	165	1
					BA		12.2	210		C		12.8	244	
					BA		13.0	177		C		9.8	179	
					BA	7.2	12.6	173		C	5.8	10.4	204	
					BA		11.8	205		C		11.2	168	1
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		
				98	BA		13.2	187		C		10.6	192	
					BA		11.8	205		C		11.4	198	1
					BA		12.6	180		C		12.4	238	1
					BA		12.2	188		C		11.0	234	
					BA		11.4	177		C		12.0	256	
					BA		11.6	170		C		11.2	217	
					BA		12.0	186		C		10.8	233	
					BA		12.4	156	1	C		12.6	184	
					BA		10.8	166		C		11.0	192	
					BA		11.4	221		C		12.0	226	
					BA		13.4	146		C		10.2	211	
					BA		13.4	180		C		11.0	201	
					BA		13.2	196	1	C		10.4	208	
					BA		12.6	157		C		10.0	244	
					BA		12.8	160		C		10.2	239	
					BA		13.4	180		C		12.4	263	
					BA		12.6	182	1	C		11.8	244	
					BA		13.8	184		C		11.2	227	
					BA		11.2	227		C		10.4	154	1
					BA		11.6	212		C		11.2	167	1
					BA	7.2	12.8	190	1	C	5.2	11.6	217	
					BA		12.0	178	1	C		12.0	145	1
					BA		11.4	176		C		12.2	172	
					BA		11.8	229		C		12.5	218	
					BA		12.6	187		C		10.0	159	1
					BA		12.4	171		C		10.6	213	

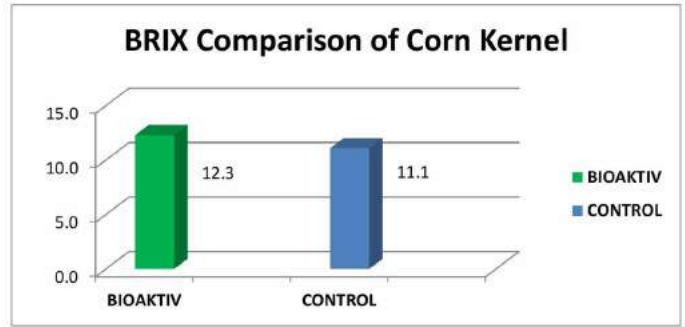
Field Chart Part 2

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			
				98	BA		12.2	198	1	C		10.2	188		
					BA		12.8	196		C		11.2	223		
					BA		13.4	201		C		10.2	201	1	
					BA		13.2	214		C		11.2	220		
					BA		13.6	219		C		11.0	210	1	
					BA		12.0	242		C		12.0	229		
					BA		11.8	216		C		11.2	233		
					BA		11.4	195		C		12.4	212		
					BA		12.4	186		C		10.2	184	1	
					BA		12.0	210		C		10.6	196		
					BA		12.6	224		C		10.2	189		
					BA		12.6	171	1	C		10.8	187		
					BA		12.4	212		C		9.8	166		
					BA		12.8	182	1	C		10.0	169		
					BA		13.8	219		C		11.2	239		
					BA		13.2	221		C		11.0	210		
					BA	6.4	13.4	233		C	6.0	12.0	205		
					BA		13.0	219		C		11.2	193		
					BA		11.0	193		C		11.4	239		
					BA		12.8	231		C		12.0	151		
					BA		11.4	182		C		10.4	192		
					BA		12.0	208		C		10.8	143		
					BA		12.4	209		C		11.6	180		
					BA		12.2	190	1	C		10.4	190		
					BA		12.6	214		C		9.8	179		
					BA		12.8	235		C		12.2	159	1	
					BA		11.8	200		C		11.4	153		
					BA		13.0	194	1	C		12.6	162	1	
					BA		11.0	193		C		11.6	170		
					BA		13.6	234		C		10.0	170		
					BA		12.0	222		C		10.2	179		
					BA		13.4	238		C		11.0	162		
					BA		13.2	212		C		11.6	171		
					BA		12.2	183		C		12.2	187		
					BA		12.0	200		C		12.0	142		
					BA		10.6	194	1	C		10.4	153		
					BA		13.4	234		C		10.0	132	1	
					BA		12.2	204		C		9.8	118	1	
					BA	6.2	11.0	185	1	C	5.0	11.4	129		
					BA		12.8	201		C		11.0	155		
					BA		12.0	193		C		10.8	167		
					BA		13.6	256		C		11.6	153		
					BA		12.4	222		C		11.2	184		
					BA		12.6	205		C		10.6	195		
					BA		13.2	215		C		11.8	152		
					BA		11.8	172		C		12.0	161		
					BA		12.4	219		C		10.2	138		
					BA		13.0	187		C		10.0	122		
					BA		11.8	174		C		11.0	118	1	
					BA		13.2	221		C		11.6	142		
					BA		11.8	219		C		10.0	128		
					BA		13.2	200		C		11.2	136		
TOTALS							6.8	12.3	202	14		5.5	11.1	188	25

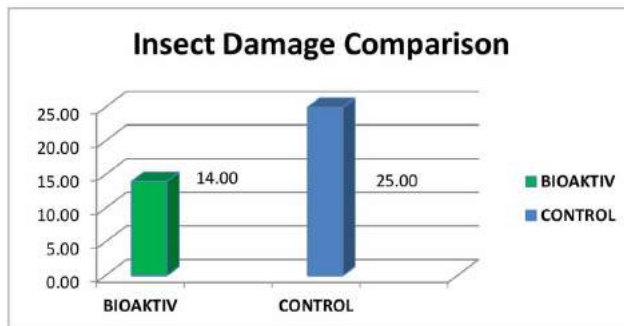
Graph Results



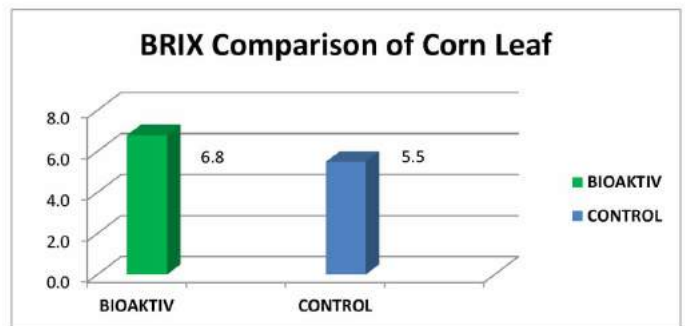
Average weight per corn cob (grams)
Percentage difference (+/-) 7.6 %



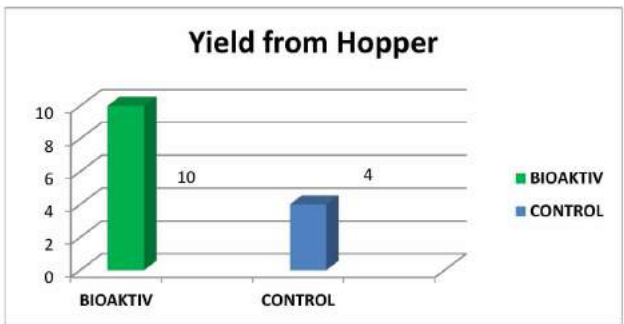
BRIX - corn kernel reading average (starch content)
Percentage difference (+/-) 10.8 %



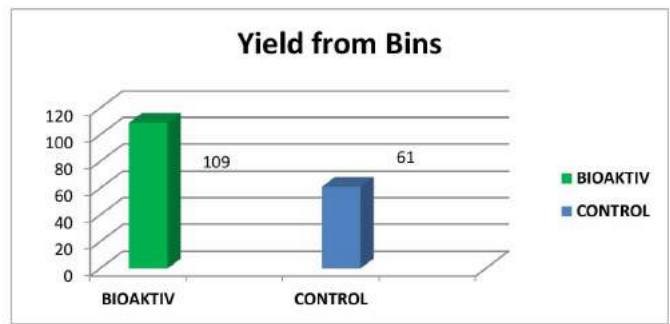
Insect damage (percentage)
Percentage difference (+/-) - 44 %



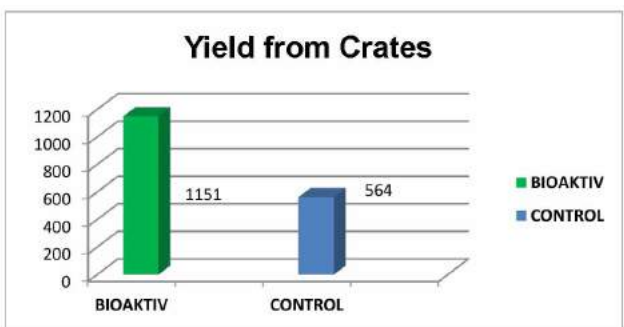
BRIX - leaf reading average (starch content)
Percentage difference (+/-) 23.6 %



Yield - Per Hopper load (no. of Hoppers)
Percentage difference (+/-) 150.0 %



Yield - Per Bins (no. of Bins)
Percentage difference (+/-) 78.7 %



Yield - Per Crates (no. of Crates/packout boxes)
Percentage difference (+/-) 104.0 %

Shelf Life Observaton

Observation at room temperature of approximately 25 degrees.
BioAktiv retained moisture, 3-4 days longer.

