

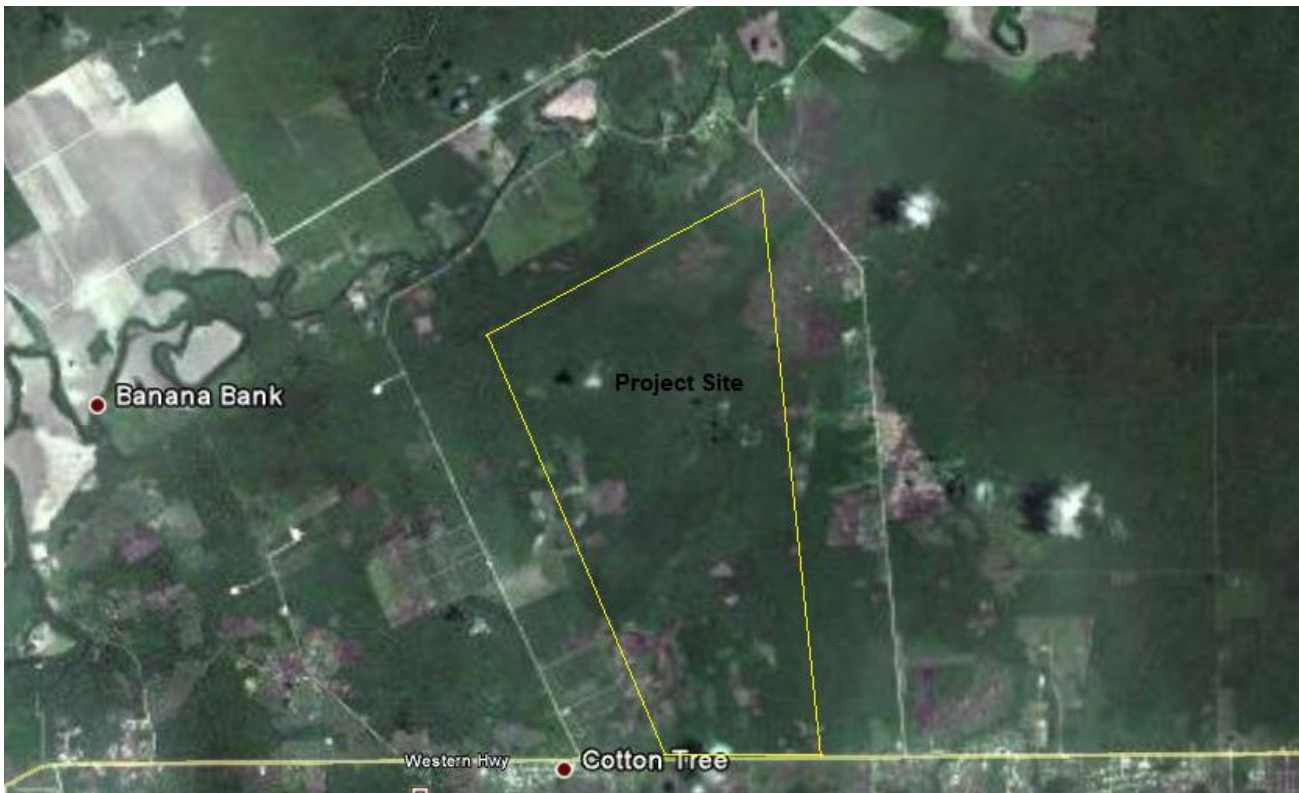
Belize Sustainable Agriculture, Ltd. Farming Report – October 6, 2015

General Comments & Weather

This is the 10^h of BSA’s fortnightly Farming Reports for the 2015 Summer (Wet) Season, whose main objectives are to:

- Inform readers as to BSA’s farming activities by season, farm, and crop
- Provide relevant data on climatic conditions and agricultural pests potentially affecting our crops.
- Inform readers on domestic and regional market conditions for BSA’s crops.

BSA is only farming in the Summer 2015 season at the Cayo One Estate, situated approximately between miles 40 and 42 of the George Price Highway in Belize, near the village of Cotton Tree in Cayo District. Cayo One is some 41 miles west of Belize City, some 9 miles east of Belmopan and 38 miles east of the Belize-Guatemala border at Melchor.



September not only saw the return of more normal rainfall, it saw how, once again, the weather pendulum consistently overshoots the averages. Nearly 11” of rain (272mm) fell in the last part of September, bringing the total for September to 425mm or about 200% of the 15 year average. What is perhaps surprising about the Summer 2015 season is that in a year when June – September rainfall of 1274mm was 133% of the 960mm 15 year average, Belize (and much of Central America) suffered severe crop losses due to drought. Perhaps the one weather consolation this year is that the hurricane season has been mild; no system has threatened the western Caribbean, which looks to continue over the next 2-3 weeks during our harvest. Data are shown both for the current year and an average for the past 15 years.

Belmopan Precipitation Data (mm per month) – October Data through October 3, 2015												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2015	195	0.1	56	18	57	491	265	93	425	0		
2000-2014	137	55	49	31	132	245	261	238	216	252	165	129

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You can (normally) follow Belize's weather on: <http://www.hydromet.gov.bz/250-km-radar-loop>

We continue to use the US NOAA Hurricane Center weather radar network which monitors the Caribbean basin, and would also suggest Weather Underground as an additional resource:

<http://www.nhc.noaa.gov/>

<http://www.wunderground.com/q/zmw:00000.2.WMGMM>

Cayo One (Corn) – 358 acres (100% non-irrigated)

BSA planted 358 acres of corn on 3 fields at Cayo One (described in the data table below) between May 28th and 30th. All of Cayo One's fields are virgin ground, with soil tests for the newly created farmland showing a consistently rich black soil with some clay, 3-4% organic matter, pH levels in a range of 6.0 – 6.9.

Pre-planting operations involved a disking, a leveling, and a harrowing of the fields, after which a granular base fertilizer was applied. Our 2015 Summer Crop is relying principally on granular based fertilizers, with a modest amount of supplemental liquid fertilizers. Specifics of the fertilizers and their applications are in the data table and Lot Records below. It is important to note that BSA has budgeted fertilizers for its corn fields based on a 150 bushel / acre (9.4 mt/Ha) yield goal. We do not expect to achieve that yield in this first year of operation, but we are fertilizing to that level in order to begin enhancing our soil quality. Our optimum outcome for this first season would be 110 bushels / acre (6.9 mt/Ha) and our financial budgets assume a yield of 81 bushels / acre (5.1 mt/Ha); based on our most recent data we are hopeful that yields will be closer to 100 bushels/acre (6.3 mt/Ha) than 80 bushels.

The corn crop harvest began on October 6th! After the late September downpours, the drying process slowed considerably, although recent sunshine allowed the crop to reach harvestable moisture levels in the low-mid 20% range. Due to the current very wet conditions we will be harvesting using tracked vehicles, both for the combine and the tractor/grain cart supporting the harvest. Pictures of this equipment are included in the report.

We should have preliminary yield data at the time of the next report. Barring completely freakish weather patterns, there are no major risks left to the crop, and we still expect to harvest a reasonable crop within our financial budget.

As we have been commenting, the Summer 2015 corn crop will have been doubly challenged by the newness of the ground and highly unseasonal weather patterns. The former can readily be addressed through additional land preparation and cultivation; the latter is also substantially manageable, subject to the implementation of our drainage and irrigation plans.

Cayo One (Rice) – 125 acres (100% non-irrigated)

BSA planted 125 acres of rice on June 25, 2015 on field #4, which runs east to west across the northernmost section of the prepared farmland. Field #4 received one disking, two passes with a harrow and one leveling during preparation. It has essentially the same soil composition and chemistry as the corn fields.

The rice got off to a good start, as rice doesn't mind heavy rains, and then continued to develop normally into late July, although with plants staying smaller than ideal due to low rainfall. The water shortage over the late July to late August period gradually withered the crop, and the unfortunate decision to abandon the rice crop was taken on September 4th.

As with the corn crop, drainage and irrigation are the keys to being able to master what are very controllable challenges, especially when it comes to lack of water.

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Easterly View of newly chained land: Oct. 3, 2015

Very wet indeed!



John Deere Combine with tracks: October 2, 2015



Northerly view of Fields 1, 2, 3: Oct. 3, 2015



John Deere tractor with tracks: September 28, 2015



Easterly view of fields 1+2 shows more water: Oct 3 '15



Brent Grain Cart with tracks: September 28, 2015

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Market Conditions and Conclusion

There are few recent developments in terms of local Market conditions, which continue to reflect both Belizean shortages as well as shortfalls throughout Central America for Summer 2015 crops.

Corn

Belize's domestic corn market remains very firm. Local prices for spot delivery have ticked up to BZD 30.00-31.00/cwt level (~\$8.54/bushel - \$336/mt), with only a few minor transactions reported.

Current talk in Belize is that after the local crops are harvested, shortages will remain and that Belize may have to import feed grade corn in early 2016 to meet domestic requirements.

CSA has committed its Summer 2015 corn to the Central American subsidiary of a US Fortune 100 Food Consumer Products group, although any residual corn which has been screened to meet their sizing/quality requirements will be available for sale into the local Belizean market.

Soybeans

There is no news to report in the local Soybean market; due to Belizean farmers' difficulty in securing good quality soybean seed plantings in the Winter 2015/16 season will be accordingly reduced. Domestic prices remain high at around BZD 58-60/cwt (~\$ 17.40-18.00/Bu – \$ 639-661/mt).

Edible Beans

We continue to receive limited reports on edible beans, except that there is continued solid demand from Central American buyers. We do not expect to plant any Edible Beans in the Winter 2015/16 season.

Rice

Belize's domestic Rice market remains well underpinned due to modest domestic harvests. Local wholesale prices for rough rice ("Paddy rice") continue to be reported at USD around 22.50/cwt or USD 496 /mt.

The Summer 2015 weather conditions have been quite challenging throughout the entire season, although thankfully the sun is shining as we begin to harvest. Despite the challenges, we remain very encouraged by our crops' relatively good performance and our confidence in Cayo 1's potential continues to grow!

Thanks! - Abram Dyck, John Peters, and the Farming Report Editorial Team

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Grower	Location	Field #	Acres	Irr ?	Soil Type	Crop	Seed Variety (count/acre)	Plant Date	Stand Date	Fertilizer Program <i>(For full details of applications, refer to Lot Records)</i>	Comments
BSA	Cayo One	1A	36	N	Black	Corn	DK 7088 27,000/acre	05/28	06/03	<p><u>Base</u> 330 lbs/acre 13+30+13+Micros</p> <p><u>Starter 1</u> 1 ltr/acre Algaenzyme</p> <p><u>Starter 2</u> 3.5 ltr/acre K - Focus</p> <p><u>Post-Plant</u> 46-0-0 110 lbs (1st) Jun 12 Foliar Jun 18 46-0-0 110 lbs (2nd) Jun 27 Foliar/Micro Jul 8 39-0-0-7S 42 lbs (3rd) Jul 18</p>	<p>Western strip that received a “Deep Soil Rip”</p> <p>Full Base: 13.31-30.3-13.2+1.77S +0.12B+0.04Cu+0.22Mn+1Zn+0.22Fe</p> <p>Planted just in time ☺</p> <p>235mm of rain days 4-15</p> <p>V4+ at Day 17</p> <p>240m of rain days 15-28!</p> <p>V7 at Day 31</p> <p>V12 at Day 44</p> <p>VT at Day 52</p> <p>R2 at Day 67</p> <p>R3-4 at Day 81</p> <p>R5-6 at Day 95</p> <p>R5-6 at day 109</p> <p>Harvest expected to start at day 130-138</p>

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BSA	Cayo One	1B	89	N	Black	Corn	DK 7088 27,000/acre	05/28	06/03	<u>Base</u> 330 lbs/acre 13+30+13+Micros <u>Starter 1</u> 1 ltr/acre Algaenzyme <u>Starter 2</u> 3.5 ltr/acre K - Focus <u>Post-Plant</u> 46-0-0 110 lbs (1 st) Jun 12 Foliar Jun 18 46-0-0 110 lbs (2 nd) Jun 27 Foliar/Micro Jul 8 39-0-0-7S 42 lbs (3 rd) Jul 18	Full Base: 13.31-30.3-13.2+1.77S +0.12B+0.04Cu+0.22Mn+1Zn+0.22Fe Planted just in time ☺ 235mm of rain days 4-15 V4+ at Day 17 240m of rain days 15-28! V7 at Day 31 V12 at Day 44 VT at Day 52 R2 at Day 67 R3-4 at Day 81 R5-6 at Day 95 R5-6 at day 109 Harvest expected to start at day 132-138
BSA	Cayo One	2	100	N	Black	Corn	DK 7088 27,000/acre	05/29	06/03	<u>Base</u> 330 lbs/acre 13+30+13+Micros <u>Starter 1</u> 1 ltr/acre Algaenzyme <u>Starter 2</u> 3.5 ltr/acre K - Focus <u>Post-Plant</u>	Full Base: 13.31-30.3-13.2+1.77S +0.12B+0.04Cu+0.22Mn+1Zn+0.22Fe Planted just in time ☺ 235mm of rain days 3-15 V4+ at Day 17 240m of rain days 15-28! V7 at Day 30

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										46-0-0 110 lbs (1 st) Jun 12 Foliar Jun 18 46-0-0 110 lbs (2 nd) Jun 27 Foliar/Micro Jul 8 39-0-0-7S 42 lbs (3 rd) Jul 18	V12 at Day 43 VT at Day 52 R2 at Day 67 R3-4 at Day 81 R5 at Day 95 R5-6 at day 109 Harvest expected to start at day 132-138
BSA	Cayo One	3	133	N	Black	Corn	DK 7088 27,000/acre	05/30	06/03	<u>Base</u> 330 lbs/acre 13+30+13+Micros <u>Starter 1</u> 1 ltr/acre Algaenzyme <u>Starter 2</u> 3.5 ltr/acre K - Focus <u>Post-Plant</u> 46-0-0 110 lbs (1 st) Jun 12 Foliar Jun 18 46-0-0 110 lbs (2 nd) Jun 27 Foliar/Micro Jul 8 39-0-0-7S	Full Base: 13.31-30.3-13.2+1.77S +0.12B+0.04Cu+0.22Mn+1Zn+0.22Fe Planted just in time ☺ 235mm of rain days 2-15 V4+ at Day 17 240m of rain days 15-28! V7 at Day 31 V7 at Day 29 V12 at Day 42 VT at Day 52 R2 at Day 67 R3-4 at Day 81

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										42 lbs (3 rd) Jul 18	R5 at Day 95 R5-6 at day 109 Harvest started at day 127!!
BSA	Cayo One	4	125	N	Black	Rice	Cheniere 110 lbs/acre	6/25	6/29	<u>Base</u> 250 lbs/acre 12+26+23+Micros <u>Starter</u> NPK (pH adjust) Post-Plant 46-0-0 40 lbs (1 st) 39-0-0-7S 42 lbs (2 nd) Jul 18 46-0-0 108 lbs (3 rd) Jul 31	Full Base spread 6/13 50%: 13.31-30.3- 13.2+1.77S+0.12B+0.04Cu+0.22Mn+ 1Zn+0.22Fe 50%: 11-22-13.33+ 5S +0.1B+ 0.04Cu+0.22Mn+1Zn+0.22Fe 235mm of rain 6/1-14 240m of rain days 15-28! < 50mm of rain days 29-39 <36mm of rain days 40-53! Crop Abandoned Sept 4, 2015

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Lot Records for Fields 1, 2, 3, & 4

GROWER: <u>BSA</u>					Date Planted: <u>May 28, 2015</u>									
FARM LOCATION: <u>Cayo One Estates I</u>					SECTION #: <u>1</u>		BLOCK #: _____							
CROP: <u>Corn</u>					VARIETY: <u>DeKalb 7088</u>					# OF ACRES: <u>125</u>				
LAND PREPARATION					FERTILIZERS					PLANTING				
Discing	Harrowing	Leveling or Land Plane	Cultivating	Other	PREPLANT		AT PLANTING			Seed-Rate		Condition		
2	2	2			See Below	Liquid	See Below			Projected 27,000		Soil dry to moist		
					Dry									
FERTILIZERS					Rain			PESTICIDES						
Date	Analysis	Rate/Ac	Ground	Air	#	Date	Quantity	Date	Description	Rate/Ac	Ground	Air	#	
25-May-15	13.31-30.3-13.2+1.77S	330lb	Preplant		1	5/18-5/31	38 mm	27-May-15	Cruiser	seed	X		1	
27-May-15	AlgaEnzims	1 Litre	At planting		2	6/01-6/14	236 mm	29-May-15	Atrazine	1.25lb	X		2	
27-May-15	K-Focus	3.5 Litre	At planting		2	6/15-6/26	128 mm	29-May-15	Prowl	1 Litre	X		2	
9-Jun-15	Frutal (PH adjust)	13.8CC		X	3	6/27-7/11	224mm	9-Jun-15	Nomax 15 EC	125CC		X	3	
12-Jun-15	Frutal (PH adjust)	13.8CC		X	4	7/12-7/26	25mm	12-Jun-15	Cipermethrin	150CC		X	4	
12-Jun-15	46-0-0	110lb		X	5	7/27-8/6	52mm	18-Jun-15	Chlorfluba	400CC		X	6	
18-Jun-15	NPK (PH adjust)	27.6CC		X	6	8/7-8-22	36mm	29-Jun-15	Tordon	220CC		X	8	
18-Jun-15	Sagaquel Combi	500CC		X	6	8/23-9/6	44mm	29-Jun-15	Chlorfluba	400CC		X	8	
27-Jun-15	46-0-0	110lb		X	7	9/7-9/21	130mm	16-Jul-15	Certero	161CC		X	9	
8-Jul-15	NewFol Mg	150mg		X	9	9/21-10/04	272mm	29-Jul-15	Curym	100CC		X	11	
8-Jul-15	Nachurs Micro+Folia	1L		X	9			29-Jul-15	Abamectin	72CC		X	11	
18-Jul-15	38.7N + 7.2S	42.4lb		X	10									

GROWER: <u>BSA</u>					Date Planted: <u>May 29, 2015</u>									
FARM LOCATION: <u>Cayo One Estates I</u>					SECTION #: <u>2</u>		BLOCK #: _____							
CROP: <u>Corn</u>					VARIETY: <u>DeKalb 7088</u>					# OF ACRES: <u>100</u>				
LAND PREPARATION					FERTILIZERS					PLANTING				
Discing	Harrowing	Leveling or Land Plane	Cultivating	Other	PREPLANT		AT PLANTING			Seed-Rate		Condition		
2	2	2			See Below	Liquid	See Below			Projected 27,000		Soil dry to moist		
					Dry									
FERTILIZERS					Rain			PESTICIDES						
Date	Analysis	Rate/Ac	Ground	Air	#	Date	Quantity	Date	Description	Rate/Ac	Ground	Air	#	
25-May-15	13.31-30.3-13.2+1.77S	330lb	Preplant		1	5/18-5/31	38 mm	28-May-15	Cruiser	seed	X		1	
28-May-15	AlgaEnzims	1 Litre	At planting		2	6/01-6/14	236 mm	30-May-15	Atrazine	1.25lb	X		2	
28-May-15	K-Focus	3.5 Litre	At planting		2	6/15-6/26	128 mm	30-May-15	Prowl	1 Litre	X		2	
9-Jun-15	Frutal (PH adjust)	13.8CC		X	3	6/27-7/11	224mm	9-Jun-15	Nomax 15 EC	125CC		X	3	
12-Jun-15	Frutal (PH adjust)	13.8CC		X	4	7/12-7/26	25mm	12-Jun-15	Cipermethrin	150CC		X	4	
12-Jun-15	46-0-0	110lb		X	5	7/27-8/6	52mm	18-Jun-15	Chlorfluba	400CC		X	6	
18-Jun-15	NPK (PH adjust)	27.6CC		X	6	8/7-8-22	36mm	29-Jun-15	Tordon	220CC		X	8	
18-Jun-15	Sagaquel Combi	500CC		X	6	8/23-9/6	44mm	29-Jun-15	Chlorfluba	400CC		X	8	
27-Jun-15	46-0-0	110lb		X	7	9/7-9/21	130mm	16-Jun-15	Certero	161CC		X	9	
8-Jul-15	NewFol Mg	150mg		X	9	9/21-10/04	272mm	29-Jul-15	Curym	100CC		X	11	
8-Jul-15	Nachurs Micro+Folia	1L		X	9			29-Jul-15	Abamectin	72CC		X	11	
18-Jul-15	38.7N + 7.2S	42.4lb		X	10									

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GROWER: <u>BSA</u>					Date Planted: <u>May 30, 2015</u>	
FARM LOCATION: <u>Cayo One Estates I</u>					SECTION #: <u>3</u>	
CROP: <u>Corn</u>					BLOCK #: _____	
VARIETY: <u>DeKalb 7088</u>					SOIL TYPE: <u>Black Loam</u>	
# OF ACRES: <u>133</u>						

LAND PREPARATION					FERTILIZERS			PLANTING	
Discing	Harrowing	Leveling or Land Plane	Cultivating	Other	PREPLANT	AT PLANTING		Seed-Rate	Condition
2	2	2			See Below	Liquid	See Below	Projected 27,000	Soil dry to moist
						Dry			

FERTILIZERS						Rain		PESTICIDES					
Date	Analysis	Rate/Ac	Ground	Air	#	Date	Quantity	Date	Description	Rate/Ac	Ground	Air	#
27-May-15	13.31-30.3-13.2+1.77	330lb	Preplant		1	5/18-5/31	38 mm	30-May-15	Cruiser seed		X		1
30-May-15	AlgaEnzims	1 Litre	At planting		2	6/01-6/14	236 mm	30-May-15	Atrazine	1.25lb	X		2
30-May-15	K-Focus	3.5 Litre	At planting		2	6/15-6/26	128 mm	30-May-15	Prowl	1 Litre	X		2
9-Jun-15	Frutal (PH adjust)	13.8CC		X	3	6/27-7/11	224mm	9-Jun-15	Nomax 15 EC	125cc		X	3
12-Jun-15	Frutal (PH adjust)	13.8CC		X	4	7/12-7/26	25mm	12-Jun-15	Cipermethrin	150cc		X	4
12-Jun-15	46-0-0	110lb		X	5	7/27-8/6	52mm	18-Jun-15	Chlorfluba	400CC		X	6
18-Jun-15	NPK (PH adjust)	27.6CC		X	6	8/7-8-22	36mm	29-Jun-15	Tordon	220CC		X	8
18-Jun-15	Sagaquel Combi	500CC		X	6	8/23-9/6	44mm	29-Jun-15	Chlorfluba	400CC		X	8
27-Jun-15	46-0-0	110lb		X	7	9/7-9/21	130mm	16-Jun-15	Certero	161CC		X	9
8-Jul-15	NewFol Mg	150mg		X	9	9/21-10/04	272mm	29-Jul-15	Curyom	100CC		X	11
8-Jul-15	Nachurs Micro+Folia	1L		X	9			29-Jul-15	Abamectin	72CC		X	11
18-Jul-15	38.7N + 7.2S	42.4lb		X	10								

GROWER: <u>BSA</u>					Date Planted: <u>June 25, 2015</u>	
FARM LOCATION: <u>Cayo One Estates I</u>					SECTION #: <u>4</u>	
CROP: <u>Rice</u>					BLOCK #: _____	
VARIETY: <u>Cheniére</u>					SOIL TYPE: <u>Black Loam</u>	
# OF ACRES: <u>125</u>						

LAND PREPARATION					FERTILIZERS			PLANTING	
Discing	Harrowing	Leveling or Land Plane	Cultivating	Other	PREPLANT	AT PLANTING		Seed-Rate	Condition
1	2	1			See Below	Liquid		110lbs	Wet
						Dry			

FERTILIZERS						Rain		PESTICIDES					
Date	Analysis	Rate/Ac	Ground	Air	#	Date	Quantity	Date	Description	Rate/Ac	Ground	Air	#
12-Jun-15	13.31-30.3-13.2+1.77	124.4lb	Pre-plant	X	1	5/18-5/31	38 mm	18-Jun-15	Touchdown	600CC		X	3
12-Jun-15	11-22-13.33+55+0.18	124.4lb	Pre-plant	X	2	6/01-6/14	236 mm	11-Jul-15	Karate	100CC		X	4
18-Jun-15	NPK (PH adjust)	27.6CC	Pre-plant	X	3	6/15-6/26	128 mm	5-Aug-15	Tordon	164CC		X	8
11-Jul-15	46-0-0	40lb		X	5	6/27-7/11	224mm						
18-Jul-15	38.7N + 7.2S	42.4lb		X	6	7/12-7/26	25mm						
31-Jul-15	46-0-0	108		X	7	7/27-8/6	52mm						
						8/7-8/22	36mm						
						8/23-9/6	44mm						
						9/7-9/21	130mm						
						9/21-10/04	272mm						