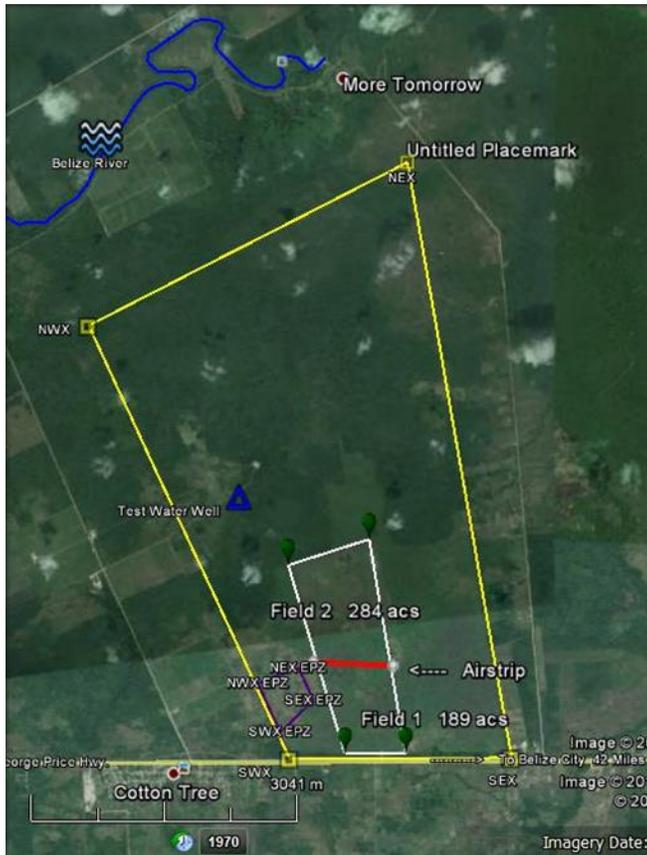


Belize Sustainable Agriculture, Ltd. Farming Report – October 24, 2016

General Comments & Weather



This is the thirteenth and penultimate fortnightly Farming Report for BSA’s 2016 Summer (Wet) Season, whose main objectives are:

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

BSA is only farming at the Cayo One Estate in the Summer 2016 season; it is 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 some 38 miles east of the Belize-Guatemala border at Melchor.

October 2016 proved to be a somewhat drier than normal month, although most of the rain came in a few days of heavy downpours. These have a tendency to be more punishing on crops. There was no further cyclone activity after Hurricane Earl, and as our crop has been harvested we have no further direct exposure to hurricane risk. More generally there continue to be no immediate threats to Belize and no early stage cyclone formations that models indicate might head towards the western Caribbean.

Belmopan Precipitation Data (mm per month) – October and YTD Data through October 21 st													
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	YTD	Nov	Dec
2016	105	282	30	66	71	414	175	349	231	114	1837		
2000-2015	141	51	50	30	127	261	261	228	230	269	1567	232	129

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>

Belize Sustainable Agriculture, Ltd.
Farming Report – October 24, 2016

Cayo One ~ 473 acres (100% non-irrigated)

This report is brief as our harvest activities are almost complete and we are beginning to compile data for a detailed final harvest report in early November.

Farm Operations

Land Preparations

These were timely completed, and a full description is provided in the Lot Records at the end of this document.

Weather Analysis

Rainfall was somewhat below average in the middle of October, which was a modest plus. However, most of the rainfall came in several days of heavy downpours, which was not good for our fully mature corn. Also, there was not enough dry, sunny weather to allow our fields to begin to dry out properly. Accordingly, we had to mount tracks on our combines so that they could make it through our fields. This is both expensive, and leaves the fields requiring additional land preparation to get them back to farmable condition. However, it is much better than not being able to harvest! We look forward to a dry start to November so that we can begin land preparation for planting our Winter 2016/17 crop!

Seed Selection, Planting, and Crop Development

Planting began on Saturday May 28th and finished on June 1st. Final acreages planted were:

- DeKalb 7088 - 425 acres (Part of Field 1 and all of Field 2) @ 27,656 seeds/acre
- Dow 3383 - 24 acres (Part of Field 1) @ 27,656 seeds/acre
- American Seed & Genetics R9000 - 24 acres (Part of Field 1) @ 27,656 seeds/acre

DeKalb DK-7088 Comments

We continue to be quite impressed with how well the DK-7088 survived a combination of challenging early season weather and Hurricane Earl. We expect to plant most of our available land in the Summer 2017 with this variety. We will remain in close contact with Monsanto to ensure that we are not exposed to the same seed quality issues in 2017 as in 2016. Once again, we were pleased with the constructive solution they offered to address their 2016 quality issues.

Dow DAS-3383 Comments

Preliminary harvest data confirm that the Dow DAS-3383 has been a disappointment. We expect that detailed data will confirm that we will not be planting the DAS-3383 going forward.

ASG RY-9000 Comments

Preliminary harvest data confirm that the ASG RY9000 has been a disappointment. We expect that detailed data will confirm that we will not be planting the ASG RY9000 going forward.

Fertilizer Program

The BSA fertilizer program was completed on August 8th. For a detailed discussion of BSA's fertilizer strategy, please see the May 31, 2016 Farming Report.

Belize Sustainable Agriculture, Ltd.

Farming Report – October 24, 2016

General Plant Development

Plants were fully desiccated by the Heat/Glyphosate application immediately prior to harvest.

Insects

We are now outside of the “risk zone” when significant crop damage can occur due to insect activity.

Funguses and Bacteria

Fungus proved not to be an issue with our crop, despite widespread Eyespot Fungus in the fields. We found no visible evidence of aflatoxin during the drying process. For a detailed discussion of BSA’s fungus situation, please see the September 19, 2016 Farming Report.

Weeds

Weeds were an issue throughout the crop and we will be aggressively managing weeds before and during the Winter 2016/2017 crop. We remain very disappointed by the quasi failure of our initial application of the Bayer Prowl product and are actively considering alternative products.

Harvest

BSA began harvesting on October 7th and completed the harvest on October 22nd. Because of continuing crop damage from ongoing rain, a second combine was brought in from Hillbank Agricultural Company to assist with the harvest.

Our corn was transported to Blue Creek where it was dried by Hillbank Agricultural Company and then delivered to the Northern Grain Co-op in Blue Creek. Crop quality was reported as good to very good with no evidence of aflatoxin or other diseases. This was very different from other Cayo District corn which has extensive disease issues.

We will shortly be tabulating harvest yields by variety, field, and sub-section and comparing these to our earlier field surveys. We expect to provide a detailed harvest analysis in our next (and final for the Summer 2016 season) farming report. Preliminary indications are that crop losses are in the 50% range, somewhat higher than we had expected. We will be looking to better understand to what extent losses can be attributed to seed quality issues or Hurricane Earl.

Winter 2016/17 Season

BSA will begin land preparation on Field 2 (approximately 284 acres) as soon as the ground is sufficiently dry. This will likely take several weeks of fair weather with only limited rain.

We have secured a commitment for the required quantity of 3296 soybean seeds (~10,000lbs) from a local grower who expects to have them ready by the middle of November. So far we have been unsuccessful in our search for Cardi-1088 from a reliable source but will continue to look for a small quantity to grow a future seed supply.

We are also considering planting several small trial crops of edible beans, based on feedback we have requested from prospective Central American buyers.

The BSA team is highly focused on installing drain tile on the entire southern portion of Cayo One, which includes Field 1. To that end we are evaluating multiple proposals to acquire the necessary extrusions machinery from Asian suppliers, which would allow us to manufacture drainage pipe at a highly attractive cost.

Belize Sustainable Agriculture, Ltd.
Farming Report – October 24, 2016



Cayo One Aerial view Field 2 – Oct 18, 2016
Combine is harvesting in wet fields – see turnaround points



Cayo One Aerial view Field 2 – Oct 18, 2016
Combine is progressing well despite wet fields



Field 2 Yield Monitor shows 153 Bu/Acre - Oct 10, 2016
Small area w/naturally drained ground – High Yield Potential!



Field 1 Northwestern corner – Bare Patches Oct 18 '16
Poor drainage and bad seed = low yields!



Full Combine coming off Field 2 – Oct 18, 2016
Tracks make all the difference!



Ears from Dow & ASG varieties – Oct 17, 2016
Both ears had medium/small kernel counts: Dow kernels large

Belize Sustainable Agriculture, Ltd. Farming Report – October 24, 2016

Market Conditions and Conclusion

Corn

All of the reports we have received out of Cayo District, which typically produces about 75% of Belize's corn, confirm that the 2016 Harvest was dismal, with yields below 1mt/acre (30-40 Bu/acre).

Reports from Belize's northern corn growing communities, which represent about 25% of the country's corn growing capacity, are mixed. Some farmers report poor yields (<1mt/acre) but other farmers who planted late are reporting 1.5+mt/acre. We should again point out that the northern communities do not undertake any type of scientific field/yield analyses.

The market for corn in Belize remains steady in the BZD 26.5-28.0/cwt range (\$7.56/Bu - \$298/mt). We, albeit with little trade. However, we fully expect this softness to be short lived as the reality of the country's major corn crop losses in the key Cayo District becomes evident.

We delivered our crop to a Belize co-operative where it should achieve an excellent price, likely at or above \$7.70/Bu - \$300/mt and are receiving an immediate 75% advance payment.

Belize and the region's prices continue to compare VERY favorably to the current bids at US grain elevators of \$3.00-\$3.20/Bu (~\$125/mt), which is what US farmers will be paid (before US Gov't price support payments).

Soybeans

Soybeans remain unchanged and continue to be very quiet with limited reported trades. Activity should pick up in the coming weeks as the limited soybeans planted this season in the north of Belize are harvested and delivered. #1 Grade Soybeans continue to be bid at BZD 50.00/cwt (\$550/mt).

Edible Beans

Edible beans continue to be inactive as they are mostly sold out in Belize, except for blackeyed beans which are reasonably plentiful but not in local demand. However, we have received inquiries from regional buyers looking to acquire whatever Belize still has for sale. It will be interesting to see whether any transactions materialize. Given the improvement in global bean prices, we continue to believe that new crop beans (Spring 2017) would trade in the \$40-\$50/cwt.

While we are disappointed by this years' harvest, we are pleased to have at least a partial crop unlike most of the country. We much look forward to the next Dry Season where we will substantially increase our farmed acreage and install our first drainage systems!

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

Belize Sustainable Agriculture, Ltd. Farming Report – October 24, 2016

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	14	N	Black	Corn (Yellow)	DeKalb 7088 27,656	June 1	June 7	<p>Base 13.3-30.3-13.2-1.8S <u>330lbs/acre</u></p> <p>Liquid Aporte-M <u>2L/Acre</u> TRIAL</p> <p>Vermiplex <u>4L/Acre</u> 46-0-0 <u>100 lbs./acre</u></p> <p>38.5-0-0-7.2S <u>136lbs/acre</u> 46-0-0 <u>110 lbs./acre</u></p>	<p>Land Preparation underway May 1, 2016; continues May 17, 2016 under good conditions; finished May 23. Planting June 1. Vigorous emergence June 5-10. Above average June 25 plant count for DK-7088 at 24,000/acre. Clear signs of water stress after very wet June; starting to dry out / July 11. Major improvement by late July; Early tasseling. Very healthy plants, mostly pollinated. moderate hurricane damage, still a promising crop / Aug 9. Encouraging field survey that shows large quantity of ears that will be smaller than average / Aug 23. Additional rain damage; crop approaching maturity / Sep 5. Almost ready for early harvest humidity @ 29% / Sep 19 Rains pushed back Harvest start date by 2 weeks / Oct 4 Harvest completed Oct 22 - awaiting final data / Oct 24</p>

Belize Sustainable Agriculture, Ltd. Farming Report – October 24, 2016

BSA	Cayo One	1b	24	N	Black	Corn (Yellow)	Dow 3383 27,656	May 31	June 7	<p>Base 13.3-30.3-13.2-1.8S <u>330lbs/acre</u></p> <p>Liquid Aporte-M <u>2L/Acre</u> 46-0-0 <u>100 lbs./acre</u></p> <p>38.5-0-0-7.2S <u>136lbs/acre</u> 46-0-0 <u>110 lbs./acre</u></p>	<p>Land Preparation underway May 1, 2016; continues May 17, 2016 under good conditions; finished May 23. Planting June 1. Vigorous emergence June 5-10. Above average June 25 plant count for DK-7088 at 24,000/acre. Clear signs of water stress after very wet June; starting to dry out / July 11. Major improvement by late July; Early tasseling. Very healthy plants, mostly pollinated. moderate hurricane damage, still a promising crop / Aug 9. Disappointing field survey shows insufficient ears that will be small / Aug 23. Additional rain damage; crop approaching maturity / Sep 5. Almost ready for early harvest humidity @ 29% / Sep 19 Rains pushed back Harvest start date by 2 weeks / Oct 4 Harvest completed Oct 22 - awaiting final data / Oct 24</p>
BSA	Cayo One	1c	24	N	Black	Corn (Yellow)	ASG R9000 27,656	May 31	June 7	<p>Base 13.3-30.3-13.2-1.8S <u>330lbs/acre</u></p> <p>Liquid Aporte-M <u>2L/Acre</u> 46-0-0 <u>100 lbs./acre</u></p>	<p>Land Preparation underway May 1, 2016; continues May 17, 2016 under good conditions; finished May 23. Planting June 1. Vigorous emergence June 5-10. Above average June 25 plant count for DK-7088 at 24,000/acre. Clear signs of water stress</p>

Belize Sustainable Agriculture, Ltd. Farming Report – October 24, 2016

										<p>38.5-0-0-7.2S <u>136lbs/acre</u> 46-0-0 <u>110 lbs./acre</u></p>	<p>after very wet June; starting to dry out / July 11. Major improvement by late July; Early tasseling. Very healthy plants, mostly pollinated. moderate hurricane damage, still a promising crop / Aug 9. Disappointing field survey shows insufficient ears that will be small / Aug 23. Almost ready for early harvest humidity @ 29% / Sep 19 Additional rain damage; crop still ~ 6 weeks from maturity / Sep 5. Rains pushed back Harvest start date by 2 weeks / Oct 4 Harvest completed Oct 22 - awaiting final data / Oct 24</p>
BSA	Cayo One	2	284	N	Black	Corn (Yellow)	Dekalb 7088 27,656	May 28-31	June 7	<p>Base 13.3-30.3-13.2-1.8S <u>330lbs/acre</u> Liquid Aporte-M <u>2L/Acre</u> 46-0-0 <u>100 lbs./acre</u> 38.5-0-0-7.2S <u>136lbs/acre</u> 46-0-0 <u>110 lbs./acre</u></p>	<p>Land Preparation underway May 4, 2016; continues May 17, 2016 under good conditions; finished May 27. Planted May 28-31. Vigorous germination but irregular emergence June 5-10 followed by disappointing June 25 plant count at 22,500/acre. After June's heavy rainfalls Field 2 also showed the highest amount of ponding as of July 11. Major improvement by late July; Early tasseling, even in areas with bad seed. Mostly healthy plants, mostly</p>

Belize Sustainable Agriculture, Ltd. Farming Report – October 24, 2016

Lot Records for Field 1 (Zoom in to see details)

GROWER: <u>BSA</u>					Date Planted: <u>5/31/2016 - 6/01/2016</u>	
FARM LOCATION: <u>Cayo One Estates I</u>					SECTION #: <u>1a, 1b, 1c</u>	
CROP: <u>Corn</u>					BLOCK #: <u>DK 7088;</u>	
					SOIL TYPE: <u>Black Loam</u>	
					VARIETY: <u>Dow 3383; ASG R9000</u>	
					# OF ACRES: <u>141+24+24</u>	

LAND PREPARATION					FERTILIZERS			PLANTING	
Discing	Harrowing	Leveling or Land Plane	Raking	Other	PREPLANT	AT PLANTING		Seed-Rate	Condition
5/1/2016					See Below		Aporte Pre-M	27,656	Dry & Hot
5/16/2016	23-May-16	5/9/2016	4-May-16				See Below		
5/20/2016									

FERTILIZERS						Rain inches		PESTICIDES					
Date	Analysis	Rate/Ac	Ground	Air	#	Date	Quantity	Date	Description	Rate/Ac	Ground	Air	#
26-May-16	13.3-30.3-13.2-1.8S	330lb	X		1	6/3/2016	0.6	3-Jun-16	Atrazine	1lb	X		3
31-May-16	Aporté Pre-M	2L	X		2	6/5/2016	1.5	3-Jun-16	Prowl	1L	x		3
31-May-16	ermiplex (111 acres)	4L	X		2	6/8/2016	0.5	13-Jun-16	Certero (perimeter only)	161 cc		x	4
22-Jun-16	46-0-0	100lb		x	6	6/9/2016	0.8	13-Jun-16	Aporté Pre-M	250 cc		x	4
8-Jul-16	38.5-0-0-7.2S	136lb		x	8	6/12/2016	0.7	13-Jun-16	Damoil	250 cc		x	4
15-Jul-16	Aporté Pre-M	630 cc		x	9	6/17/2016	1.9	18-Jun-16	Primero	18 cc		x	5
8-Aug-16	46-0-0	110lb		x	10	6/18/2016	1.3	18-Jun-16	Tordon	150 cc		x	5
						6/19/2016	3.8	18-Jun-16	Aporté Pre-M	122 cc		x	5
						6/22/2016	1.0	18-Jun-16	Surf-Ac	3 cc		x	5
						6/23/2016	0.8	26-Jun-16	Certero	161 cc		x	7
						6/24/2016	0.7	26-Jun-16	Surf-Ac	2 cc		x	7
						6/25/2016	0.7	26-Jun-16	Aporté Pre-M	80 cc		x	7
						6/26/2016	0.8	15-Jul-16	Amistar Top	200 cc		x	9
						6/27/2016	1.9	6-Oct-16	RoundUp	1.25L		x	11
						7/3/2016	0.2	6-Oct-16	Aporté Pre-M	121cc		x	11
						9/17/2016	0.2						
						9/20/2016	0.7						
						9/21/2016	0.5						
						9/22/2016	0.3						
						9/23/2016	0.9						
						9/24/2016	0.9						
						9/25/2016	0.9						
						9/26/2016	0.4						
						9/27/2016	0.2						
						9/29/2016	0.1						
						9/30/2016	0.6						
						10/1/2016	0.2						
						10/3/2016	0.3						
						10/10/2016	0.1						
						10/11/2016	0.3						
						10/13/2016	0.5						
						10/14/2016	0.3						
						10/15/2016	0.2						
						10/16/2016	0.3						
						10/17/2016	0.2						
Season Total:						48.8							

Belize Sustainable Agriculture, Ltd. Farming Report – October 24, 2016

Lot Records for Field 2 (Zoom in to see details)

GROWER: <u>BSA</u>					Date Planted: <u>5/28-31/2016</u>	
FARM LOCATION: <u>Cayo One Estates I</u>					SECTION #: <u>2, 2a, 2b</u>	
					BLOCK #: _____	
					SOIL TYPE: <u>Black Loam</u>	
CROP: <u>Corn</u>					VARIETY: <u>DeKalb 7088</u>	
					# OF ACRES: <u>253.16+15.1+15.74</u>	

LAND PREPARATION					FERTILIZERS				PLANTING			
Discing	Harrowing	Leveling or Land Plane	Raking	Other	PREPLANT		AT PLANTING		Seed-Rate		Condition	
5/5/2016					See Below		Aporte Pre-M See Below		27,656		Dry & Hot	
5/10/2016	23-May-16	5/12/2016	6-May-16									
5/16/2016		5/17/2016										

FERTILIZERS						Rain Inches		PESTICIDES					
Date	Analysis	Rate/Ac	Ground	Air	#	Date	Quantity	Date	Description	Rate/Ac	Ground	Air	#
Section 2						6/3/2016	0.6	2-Jun-16	Atrazine	1lb	x		3
20-May-16	13.3-30.3-13.2-1.85	330lb	X		1	6/5/2016	1.5	2-Jun-16	Prowl	1lb	x		3
28-May-16	Aporté Pre-M	2L	X		2	6/8/2016	0.5	13-Jun-16	Certero (perimeter only)	161 cc		x	4
22-Jun-16	46-0-0	102lb		x	6	6/9/2016	0.8	13-Jun-16	Aporté Pre-M	250 cc		x	4
8-Jul-16	38.5-0-0-7.2S	142.9lb		x	8	6/12/2016	0.7	13-Jun-16	Damoil	250 cc		x	4
15-Jul-16	Aporté Pre-M	630 cc		x	9	6/17/2016	1.9	18-Jun-16	Primero	18 cc		x	5
8-Aug-16	46-0-0	112.3lb		x	10	6/18/2016	1.3	18-Jun-16	Tordon	150 cc		x	5
						6/19/2016	3.8	18-Jun-16	Aporté Pre-M	122 cc		x	5
						6/22/2016	1.0	18-Jun-16	Surf-Ac	3 cc		x	5
Section 2a,2b						6/23/2016	0.8	26-Jun-16	Certero	161 cc		x	7
20-May-16	13.3-30.3-13.2-1.85	330lb	X		1	6/24/2016	0.7	26-Jun-16	Surf-Ac	2 cc		x	7
28-May-16	Aporté Pre-M	2L	X		2	6/25/2016	0.7	26-Jun-16	Aporté Pre-M	80 cc		x	7
22-Jun-16	46-0-0	157lb		x	6	6/26/2016	0.8	15-Jul-16	Amistar Top	200 cc		x	9
8-Jul-16	38.5-0-0-7.2S	150lb		x	8	6/27/2016	1.9	23-Sep-16	RoundUp	1.25L		x	11
15-Jul-16	Aporté Pre-M	630 cc		x	9	7/3/2016	0.2	23-Sep-16	Aporté Pre-M	121cc		x	11
8-Aug-16	46-0-0	167lb		x	10	7/4/2016	0.1	23-Sep-16	Heat	19gr		x	11
						7/6/2016	0.2	6-Oct-16	RoundUp	1.25L		x	12
						7/9/2016	0.1	6-Oct-16	Aporté Pre-M	121cc		x	12
						9/17/2016	0.2						
						9/20/2016	0.7						
						9/21/2016	0.5						
						9/22/2016	0.3						
						9/23/2016	0.9						
						9/24/2016	0.9						
						9/25/2016	0.9						
						9/26/2016	0.4						
						9/27/2016	0.2						
						9/29/2016	0.1						
						9/30/2016	0.6						
						10/1/2016	0.2						
						10/3/2016	0.3						
						10/10/2016	0.1						
						10/11/2016	0.3						
						10/13/2016	0.5						
						10/14/2016	0.3						
						10/15/2016	0.2						
						10/16/2016	0.3						
						10/17/2016	0.2						
						Season Total	48.3						