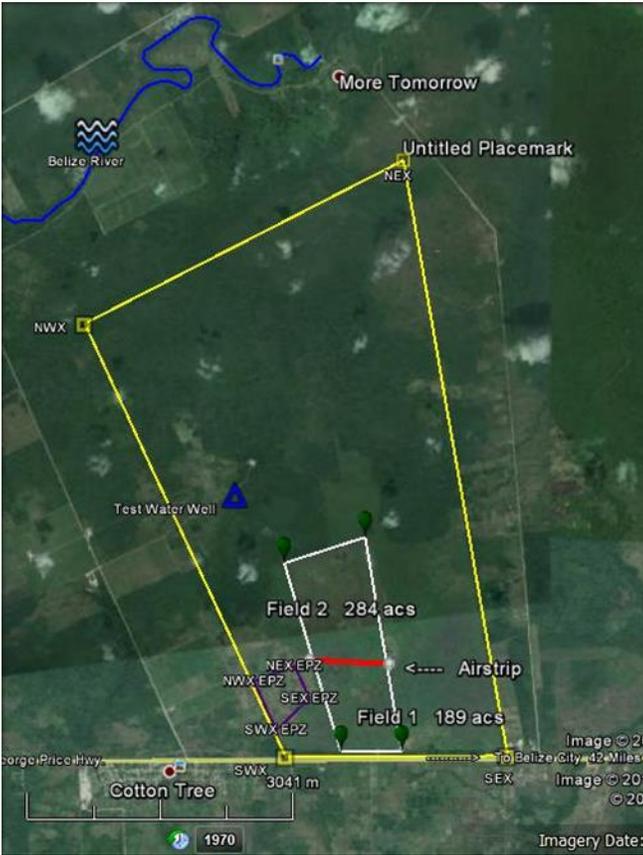


Belize Sustainable Agriculture, Ltd. Farming Report – May 4, 2016

General Comments & Weather



This is the first 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 38 miles east of the Belize-Guatemala border at Melchor.

January to April 2016 saw a continuation of the challenging weather patterns of 2015. After a dry January, which gave early hopes that the ground at Cayo One could begin to recover from the desperately wet autumn/winter of 2015, significant rains returned in February. This prevented the ground from drying out and it wasn’t until late March 2016 that the ground was dry enough to commence land preparation for the summer 2016 Season. And it is only since late April that the ground at Cayo One has become dry enough to resume land clearing operations. We are hoping for more “normal” weather patterns this season, so that Cayo One has the opportunity to demonstrate its true potential.

Belmopan Precipitation Data (mm per month)												
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2016	105	282	30	66								
2000-2015	141	51	50	30	127	261	261	228	230	269	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>

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

Farm Operations

Preparations for the 2016 farming season have begun in earnest at Cayo One. The fields only dried down sufficiently to allow tillage to begin in late March. The fields stayed wetter than normal partially due to the ruts left by the harvest of last Summer's corn (we got the corn crop out just ahead of the record crushing 44" of rain in November 2015). There were areas with 8-10" deep ruts which were compacted more than usual and therefore held water longer. This was exacerbated by a large amount of green overburden which limited both sunlight penetration and air movement.

In preparation to till, the fields were aerially sprayed on March 24th with a mixture of Roundup and Heat. Roundup is a non-selective herbicide and does a superlative job of killing most grasses and many broadleaf weeds as well. Due to the size and vigor of the weeds that were present Heat was added to assist in increasing mortality rates for the stubborn weeds. This application was a remarkable success, with virtually 100% kill rate on weeds. The pilot clearly did a superb job and dry down of the plant material was complete by the time we were able to move in with the first tillage pass. The majority of the plant matter had become crisp making tillage easier without the inherent problems of plugging and pulling along plant matter.

The first tillage pass consisted of using a Caterpillar D7 bulldozer along with a heavy Rome plow. While this is an expensive process, use of such heavy equipment was necessary due to the amount of trash and rutting. This process began on March 29th and was completed by late April, as there were two serious rain showers of sufficient volume to delay progress. Plowing such as this is a slow process but well worth the effort in getting as much trash incorporated and broken down so smaller equipment can be used to refine or remove it from being an issue. Additionally, the large discs on this type of plow provide enough soil movement to fill the majority of the ruts and trenching left from the harvest operation.

The second tillage commenced on Wednesday April 27th where a light disc and tractor were used to refine both the soil and any plant material laying on top. Other than a few minor setbacks the BSA owned equipment worked very well and did as good a job as could have been imagined with the amount of trash that was present. This process finished May 4th.

Additional passes using a rotary rake and also a rigid harrow to rake together the remaining grass and weeds will be used to windrow and burn the straw so that some land planing can take place; land planing would be impossible with the amount of trash presently on the surface. Planing is a necessary operation on new ground to provide best contour and surface drainage due to many smaller indents remaining from stump pulling and land clearing operations. This also provides additional refining of the soil and will make a great seedbed for our crop.

2016 Crop Plans

The entire 2016 summer crop at Cayo One will consist of corn, with a planting area of some 473 net acres. Four hundred acres will be planted in a DeKalb 7088 variety. This is an excellent wet season selection due to its closed ear and tendency to droop upon drying down. This is important if too much rain arrives after senescence the water gets into the cob and germination of the corn at the tip begins. This variety has a highly crystalline grain structure and is sought after by the snack food industry. It also makes an above average candidate for processing into grits and other cereal products.

Another forty acres (approximately) will be planted with Pioneer 4226 variety. This is a high yielding open ear variety which has long been a major Pioneer variety for Central America and the Caribbean and performs better than most in a range of weather conditions. It is also sought after by the lucrative snack food market. Unfortunately, its least likable attribute is its open ear, which is vulnerable to post senescence heavy rains.

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The remaining acres will be planted with R9000 variety from North American Seeds and Genetics. This is a newcomer to our market and has only been trialed twice in Belize; once with excellent results and once with terrible results. This seed was developed in Chiapas, Mexico where it has done very well and has enjoyed very strong growth in market share. This variety grows very tall, has a slender but strong stalk, and a large grain. Ideally this corn should be grown under irrigation as it is not very drought tolerant, hence the trial taking place during Belize’s wet season. BSA is interested in growing this variety as yield potential is considerably higher than other more established varieties. All of our corn is non-transgenic.

Planting will again take place with a 16 row John Deere planter equipped with liquid fertilizer. The power unit is a GPS equipped John Deere 4760 tractor. Both of these are being prepared and should be ready by May 7th.

We will shortly commence construction on the first phase of the 3,000 foot landing strip (Runways 10/28) planned for Cayo One, which is shown on the map above. The initial section of this airstrip will be ready by end of May and will allow for much more efficient and cost effective crop spraying this summer.

In our next Farm Report we will detail fertilizer plans, methods of application and target yields, which are based on a combination of factors, including fertilizer application rates, seed density, and above all, Mother Nature’s cooperation.



Cayo One Southerly View - April 28, 2016



Field 2 (Old Fields 3 + 4) – April 28, 2016



Field 1 (Old Fields 1 + 2) – April 28, 2016



NW Chained Area – Finally Dry! - April 20, 2016

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Field 3 two weeks after spraying weeds – March 31, 2016



Field 3 shortly after ploughing - April 4, 2016



Field 1 after ploughing - April 20, 2016



Field 1 after ploughing - April 25, 2016



Field 3 after discing: Starting to look clean!- April 28, 2016

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Market Conditions and Conclusion

Grain prices in Belize have remained mostly stable over the five months since our last Farm Report, with the only significant movement being in Soybeans.

Corn

Corn volumes in storage are adequate to meet needs until next crop cycle, but there was little or no excess grain and exports of whole grains, with the exception of edible beans, have been minimal. Belize's corn price of BZD 28.00-30.00/cwt (USD 308-330/mt) remains high compared to CBOT/World market prices, although total demand at these price levels is limited. An excess supply of five to ten thousand metric tons would sharply compress Belize's premium versus the region. Regional prices (e.g. Guatemala, Salvador, etc.) for the forthcoming crop are expected to settle in a Belize FOB equivalent of USD 260-280/mt. This is still a high price compared to the USD 165/mt level currently quoted by the USDA for corn FOB US Gulf Ports.

We are currently examining two options for this summer's crop: delivering it into the local Belize market or selling it to the Guatemala based customer we worked with last year. The former would be the easiest and most profitable course to follow given our still small expected production (1,100-1,400mt). The latter course, while less profitable, would allow us to further develop a solid reference client with significant long term demand potential.

Soybeans

Soybeans in Belize have seen a significant decrease in price from last fall and are now selling in the range of BZD 45.00-50.00/cwt (USD 500-550/mt), compared with last fall's BZD 55.00-60.00/cwt (USD 605-655/mt). There are now plenty of soybeans available in Belize, which has justified the lower local price, although it is still at a substantial premium to global markets. Indeed, there is a movement among local growers to seek a higher local price given the recent uptrend in soybean prices on the CBOT. Although there is no direct correlation to CBOT in pricing of local soybeans the market is still sensitive to any world market pricing because a certain percentage of the soybeans consumed by local feed mills is imported and mixed with locally grown and processed soybean meal. This is done so that a portion of the extracted oil can be consumed by mixing it with the imported "dry" soybean meal. Currently there is an excess of soybean oil and plans are underway to process this for the bio-diesel market. This would negate the need for importing meal and hopefully help to stabilize the price. Additionally, domestic demand is expected to increase due to higher activity levels in the poultry, cattle, and pork sectors.

Rice

Rice remains a very good option for Belize farmers who have fields that are properly designed and irrigated. Prices for rough/paddy rice remain stable at BZD 45.00/cwt (USD 495/mt), which continues to be a high premium relative to global market prices (USD 275/mt). However, total demand for rough/paddy rice within Belize is estimated not to exceed 12,000-15,000 mt, or the output of 3,000-4,000 acres.

Edible Beans

Edible beans enjoyed a better than average yield and quality in the spring 2016 harvest, with local variations due to rain. Sales of the 2016 crop have been very slow as remaining 2014 and 2015 inventories first had to be cleansed. These older inventories were sold to brokers at a much reduced price and moved mostly into the Caribbean market. Most bean varieties are creeping back to the USD 45.00-50.00/cwt level FOB Belize, which is an improvement over 2015 but materially lower than 2014 levels. Global inventories appear to be low according to various websites with limited

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offerings in the USA and Argentina at present. Moreover, Argentinian yields are expected to be low and of substandard quality as a result of heavy rainfall during their growing season. This should help Belize's crop see better demand and pricing in the months ahead.

Other

Sorghum has seen somewhat of a resurgence over 2015 with many edible bean farmers choosing this as an alternative winter 2015/16 crop. Demand is relatively high compared to corn but this does not seem to have translated into better relative prices. There are limited quantities available at BZD 22.00/cwt (USD 220/mt). Belize sorghum yields are typically modest compared with corn (60-80 bushels/acre) and this year were lower than expected due to an aphid infestation; farmers who were not vigilant in scouting their fields were sorely disappointed at harvest.

We look forward to a successful Summer 2016 season with weather conditions that we hope will be more favorable than in 2015!

Regional market conditions remain favorable, especially when compared with the current low level of agricultural commodity prices on global markets.

We retain all of our optimism for Belize's remarkable farming potential, provided the right investments are made in drainage, irrigation, equipment, and especially people!

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	1	189	N	Black	None	DeKalb 7088 27,000	May 30?	?	TBA	Land Preparation underway May 4, 2016
BSA	Cayo One	2	284 211 40 33	N	Black	None	Dekalb 7088 27,000 Pioneer 4226 27,000 NASG R9000 27,000	May 30?	?	TBA	Land Preparation underway May 4, 2016

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Lot Records for Fields 1 & 2

GROWER: <u>BSA</u>		Date Planted: <u>May 31, 2016</u>	
FARM LOCATION: <u>Cayo One Estates I</u>		SECTION #: <u>1</u>	BLOCK #: _____
CROP: _____		SOIL TYPE: <u>Black Loam</u>	
VARIETY: _____		# OF ACRES: <u>189</u>	

LAND PREPARATION					FERTILIZERS			PLANTING	
Discing	Harrowing	Leveling or Land Plane	Cultivating	Other	PREPLANT	AT PLANTING		Seed-Rate	Condition
					See Below				

FERTILIZERS						Rain		PESTICIDES					
Date	Analysis	Rate/Ac	Ground	Air	#	Date	Quantity	Date	Description	Rate/Ac	Ground	Air	#

GROWER: <u>BSA</u>		Date Planted: <u>May 31, 2016</u>	
FARM LOCATION: <u>Cayo One Estates I</u>		SECTION #: <u>2</u>	BLOCK #: _____
CROP: _____		SOIL TYPE: <u>Black Loam</u>	
VARIETY: _____		# OF ACRES: <u>284</u>	

LAND PREPARATION					FERTILIZERS			PLANTING	
Discing	Harrowing	Leveling or Land Plane	Cultivating	Other	PREPLANT	AT PLANTING		Seed-Rate	Condition
					See Below				

FERTILIZERS						Rain		PESTICIDES					
Date	Analysis	Rate/Ac	Ground	Air	#	Date	Quantity	Date	Description	Rate/Ac	Ground	Air	#