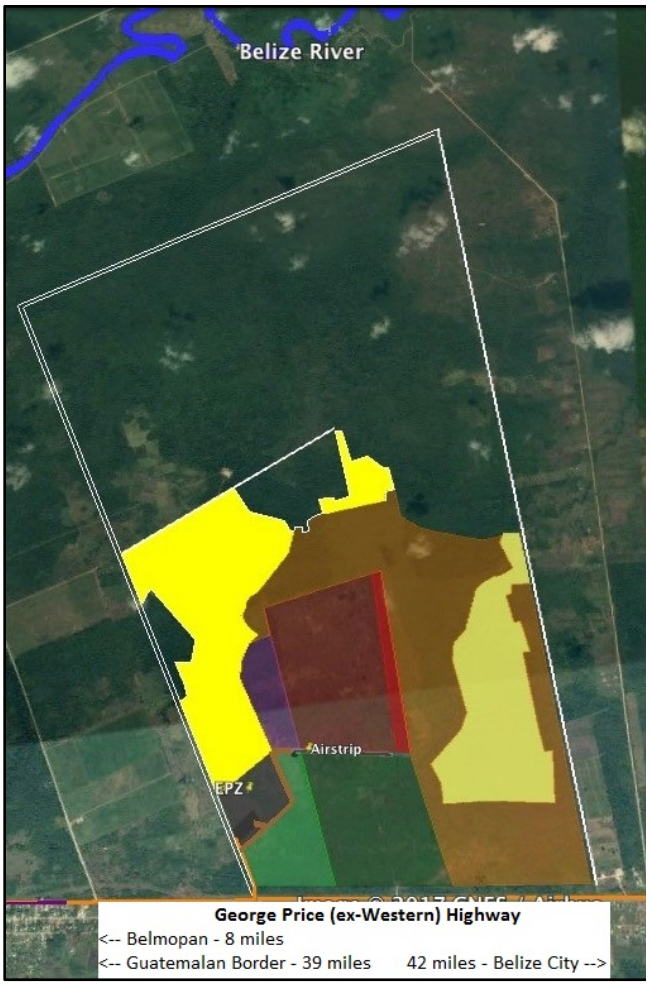
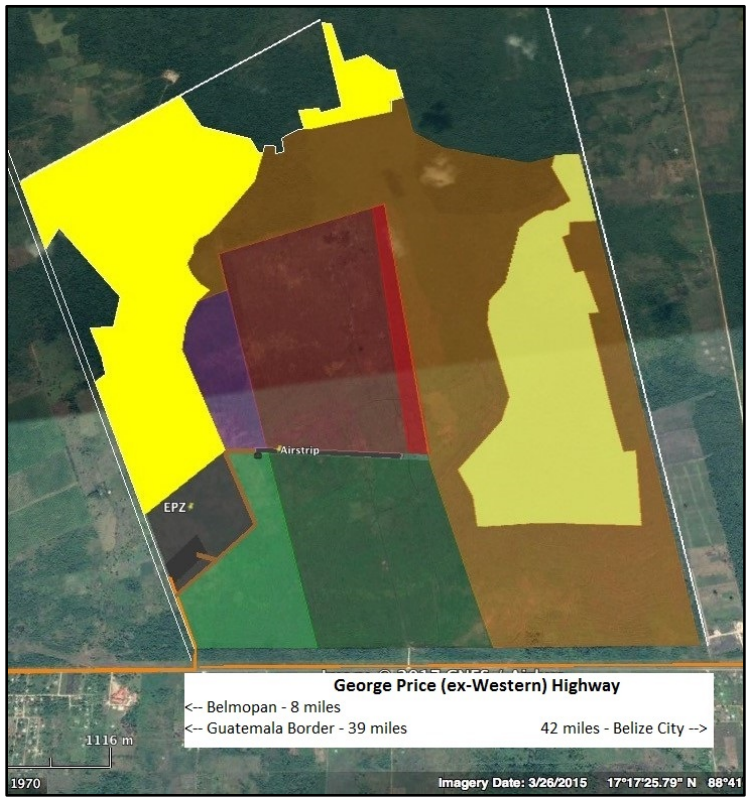
Belize Sustainable Agriculture, Ltd.
Farming Report – June 19, 2017

This is the **First** Farming Report for BSA's 2017 Summer (Wet) season. Its main objectives are to inform readers about BSA's farming activities by season and crop; to provide data on climactic conditions, agricultural pests, and market conditions; as well as detailed data on BSA's farming methodologies. It is a longer than normal report as it recaps considerable activity and key decisions undertaken over the past several months.





Field 2: Subsoiled & Leveled	106 Ha	Mix Plow / Subsoil in progress	270 Ha
Field 2: Leveled / No Subsoil	13 Ha	Windrow / Work in Progress	173 Ha
Field 2N: Plowed / Some subsoil	23 Ha	Chained – No further work	109 Ha
Field 1: Leveled / No Subsoil	79 Ha	EPZ – Total Area	24 Ha
Field 1N: Plowed & Subsoiled	36 Ha	EPZ – Finished	2 Ha

BSA is only farming at the Cayo One Estate in the Summer 2017 season; it is situated some 8 miles east of Belmopan near the village of Cotton Tree in the Cayo District, and is ~39 miles east of the Belize-Guatemala border at Melchor de Mencos.

Weather Summary: The 2016/2017 Winter season continued the recent pattern of mostly above average rainfall, with some months being unusually wet. Heavy precipitation in late 2016 not only precluded the planting of a Winter 2016/17 crop, it also left ground in the Cayo District unusually water logged. The very unseasonal rainfall in April caused ground that was just drying out to reach a water saturation point that made ground work impossible for several weeks. As of June 12, 2017 the Inter Tropical Convergence Zone is indicating an unusually late start to the 2017 Wet Season.

Cayo One - Belmopan Precipitation Data (mm per month) – 2017 Season YTD Data through June 15th													
	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Total
2016/17	295	345	96	55	74	126	10	102					
2000-2016	232	129	139	65	49	32	124	271	256	236	230	260	2039

You can follow Belize's weather on: http://www.hydromet.gov.bz/observations/radar/radar-images

We also use the US NOAA Hurricane Center weather radar network which monitors the Caribbean basin, and recommend:

http://www.nhc.noaa.gov/ http://www.wunderground.com/q/zmw:00000.2.WMGMM

Cayo One: ~ TBD Hectares (100% non-irrigated)

Extensive use of photographic records has been made in this report. These mostly follow the chronological sequence of the topics covered below.

Also, a separate "ESG Report" is being circulated with this Farming Report. We believe that it highlights important aspects of BSA's commitment to its people and the broader Belizean Community, as well as to the environment and the principles of good governance. It highlights integral parts of BSA's corporate and farming philosophy.

The exact acreage to be planted during the Summer 2017 season has still not been determined; land preparation is a "Work in Progress" against the imminent arrival of seasonal rain, as discussed below. CSA's planted acreage is currently expected to be about 228 Hectares.

Weather Analysis

The weather has continued its erratic patterns since the end of the 2016 Summer harvest. As previously reported, the heavy rains in November and December 2016 not only prevented the planting of a Winter 2016/17 crop, but they left the ground so waterlogged that it wasn't until mid-March that heavy equipment was able to move on to Cayo One. After a reasonably normal and dry late February to mid-April, heavy and very unseasonal rains struck in the third week of April, again halting heavy operations until the second week in May. At this point the key question was when would seasonal summer rains likely begin?

Belize's seasonal rains are generally forecast by the formation and northerly movement of the Inter-Tropical Convergence Zone ("ITCZ").

http://www.srh.noaa.gov/jetstream/tropics/itcz.html

Once a fairly continuous band of storms form from the western coast of Africa to the northeastern coast of Brazil, and this band begins a gradual northerly move to the 5° N - 10° N latitudes, seasonal summer rains typically begin with two to three weeks, sometimes sooner.

On several occasions in the second half of May 2017 the ITCZ began to form and move northward above the equator. However, the band then dissipated so that no consistent weather pattern had emerged. As of June 13th, the ITCZ is still not fully formed, so timing for optimum planting conditions is still difficult to forecast.

What we have experienced weather-wise in the Cayo district for the past several weeks is persistent episodic thundershowers, which are brief but can be substantial. These have been interspersed with periods of dry breezy weather. As an example, in the first 15 days of June the Cayo One property has recorded 102mm of rain, whereas 9 miles away in Belmopan, our recording system has registered 161mm of rain.

Anecdotally, farmers from the Mayan communities in Belize have indicated for at least a couple of months that they do not believe that in 2017 seasonal rains will arrive until July. Perhaps their predictive abilities surpass those of world renowned scientific institutions like NOAA…

We are endeavoring to be ready to deal with whatever weather conditions ultimately prevail (but please, no hurricanes this year!) although it is clear that weather mitigation strategies (subsoiling/drainage & pivot irrigation) continue to be absolute keys to CSA developing its full potential.

Land Preparation

There are two components to CSA's Land Preparation activities in 2017: Land Development and Farmland Preparation.

Land Development

CSA's original Land Development goal for 2017 was to increase plantable acreage from ~195 Ha to ~450 Ha, assuming that all planted acreage was subsoiled and levelled. 450 Ha is the amount of acreage required for CSA to generate positive Operating Income from two crops harvested under "normal" conditions. In order to achieve this goal, Land Development activities (e.g. windrowing, plowing, subsoiling, and levelling) needed to begin by the end of January, which is historically when land development operations could begin in central Belize.

In 2017, owing to the unfavorable conditions described in the weather analysis section above, CSA was only able to begin land development operations during the week of March 20th. This meant that we were seven weeks late in starting land development work. Moreover, the 105mm of rain which fell between April 17th and 23rd meant that we were not able to resume land development until the week of May 8th. Accordingly, we have lost 10 out of 16 weeks of Dry Season. Perhaps the only saving grace is that, given the continuing unusual weather patterns, we hope to continue land development work through the week of June 19th, and possibly a week longer. This may allow us to recover two lost weeks, although the late season time cannot be used quite as effectively.

The erratic and unseasonal rains also had an impact on efficiency, as there was often not sufficient time to properly execute each land clearing step. For example, not only is it preferable to subsoil ground that has been able to dry, but once subsoiling occurs, the soil that has been brought up needs a chance to dry, which can take one to two weeks depending on sunshine and wind. In 2017, there simply wasn't this amount of time or continuously dry weather.

One particular challenge we have encountered is that where subsoiling takes place on ground that is still relatively wet, the subsoiling blade brings up very large clods of subterranean clay that are difficult to break down. This was notably the case in Field 2, which was the first area to be subsoiled (we were anxious to get a producing field subsoiled). As a result, we had to re-chain and then re-plow Field 2 to bring it back to a more manageable soil structure.

In order to offset this greatly foreshortened 2017 Dry Season, the CSA team has, wherever possible, worked on a 24/6 basis, with two teams each running 12 hours shifts. This has allowed our D-9 bulldozer to make progress with subsoiling, and our D-7E bulldozer to make considerable progress with plowing freshly windrowed land. However, it is not possible to safely windrow during nighttime. It should be noted that working these double shifts does have a somewhat negative impact on total land development costs as crews are understandably entitled to overtime for long hours and night work.

So despite numerous challenges, and thanks to a completely focused effort, the BSA team has been able to accomplish a substantial amount. As of June 13th, 2017 the following Land Development work has been performed:

- Re-Chain: 769 Ha (all new land is double chained, Field 2 was chained post subsoil)
- Windrow: 325 Ha
- Plow: 405 Ha (includes Field 2 Plowing)
- Subsoil: 171 Ha

The April rainfalls did, however, provide encouraging evidence of the impact of subsoiling on drainage. After the April 17th-23rd rains, BSA's General Manager conducted a comparative drainage analysis between two test holes, one in land that had been subsoiled, one in immediately adjacent land that had not been subsoiled. The results depicted below are quite telling: rain percolates much faster and more evenly through subsoiled land, with a significant decline in ponding. These early data greatly reinforce our commitment to ensure that all of BSA's farmland is subsoiled prior to drainage installation.

Farmland Preparation

Our original goal was that all farmland to be planted in 2017 would be subsoiled and levelled prior to multiple disking and harrowing. Not only are we very optimistic about the prospective benefits of subsoiling, but our friends at Hillbank Agricultural Company (to whom we subcontracted our levelling work) recently acquired precision GPS/laser guided levelling technology, which allows their John Deere 8430 track driven tractor to do a scientifically precise levelling job. We are convinced that the combination of subsoiling and levelling (to be followed next year by the installation of a subterranean drainage pipe grid) will significantly mitigate the impact of excess rain and improve crop health and yields.

The abnormally high and erratic rainfall this season meant, however, that we had to be more flexible in our Farmland preparation compared with our goals.

Field 1 was double disked in early April in preparation for subsoiling and levelling. At the same time, Field 2 had a first disking to clean weeds, and then an initial phase of levelling the most visible low spots ahead of subsoiling. Major operations were then halted by the April 17th-23rd rainfall. When Farmland Preparation resumed late during the week of May 8th, a decision was made to focus precision levelling operations on Field 1 and then to get it ready to plant should seasonal rains arrive early. Field 2 would be subsoiled and then precision leveled. Time allowing, additional subsoiling would be carried out in the new SW quadrant of Field 1 (Field 1N) and in the new W section of Field 2 (Field 2N).

As of June 13th, the status of BSA's fields is:

Field 1 (79 Ha) is ready to plant as of June 13th
Field 1 N (34 Ha) will be ready to plant by June 22nd if weather holds
Field 2 (119 Ha) will be ready to plant by June 17th
Field 2 N (23 Ha) could be ready to plant by June 29th if weather holds

Our target is to do everything possible to plant Field 1N as well as 1, 2, and, for a total of 232 Ha.

We will have an interesting ability to compare the impact of subsoiling, as a small section of Field 2 (13 Ha) was not subsoiled, and Field 1 will not be subsoiled whereas Field 1N has been subsoiled.

Seed Selection, Planting, and Crop Development

Planting is expected to begin during the week of June 19th, but is very much subject to the arrival of delayed seasonal rains, and the impact of intermittent showers.

Acreages expected to be planted are:

- Syngenta Impacto – 228 Ha / XXX acres (Fields 1, 1N, 2) @ 68,000 seeds/Ha – 27,530 seeds/acre
- Pioneer 4226 – 4 Ha / 10 acres (Part of Field 2) @ 68,000 seeds/Ha – 27,530 seeds/acre

Syngenta Impacto Comments

Impacto is a regional non-GMO hybrid that has been successfully planted in Central America. BSA is planting Impacto as part of its long-term corn supply agreement with the Guatemalan subsidiary of a US Fortune 100 Food Group ("US FoodCo"). Impacto delivers superior results when processed for snack foods thanks to its consistent kernel size, crystalline qualities, and other characteristics. It was the subject of extensive testing by US FoodCo's quality control teams. Impacto is ideally suited to irrigated ground, although the typically high precipitation in Belize should make it less prone to issues.

Germination tests for Impacto were very encouraging. The *in vitro* test delivered a 100% germination rate at 36 hours, and the *in terra* test showed a 96% vigorous emergence at 7 days.

Pioneer 4226 Comments

P 4226 is another regional non-GMO hybrid that has been successfully planted in Central America. It is also on US FoodCo's "approved list", although not its preferred variety. BSA had planted other Pioneer hybrids in 2013, but there had been concern of their exposure to disease when exposed to heavy rains (a high risk when growing food grade corn). Discussions with other local farmers have confirmed that the P4226 hybrid appears to have addressed this issue as the corn ears no longer remain upright throughout the growth cycle. These local farmers also report consistently superior yields from this new hybrid, which encouraged us to undertake a trial.

Germination tests for P4226 are also very encouraging so far. The *in vitro* test delivered a 100% germination rate at 36 hours, and the *in terra* test is in progress.

Fertilizer Program

BSA has set a business goal of a weighted average yield of 7 mt/Ha (112 bushels/acre) for its Summer 2017 corn crop.

However, CSA has planned to fertilize for a 9.4 mt/Ha (150 bushel/acre) yield, assuming a minimum fertilization rate of 110% of maintenance levels (the level at which the crop neither adds nor depletes to the soil's fertility).

In light of the possibility of subsoiling having an initial disruptive impact on soil chemistry, CSA has also chosen to apply an abundance of caution and substantially "over fertilize" phosphorous (P) and potash (K) levels at the Base Fertilizer application stage. In the event this proves unnecessary, these elements will remain in the soil and be available to plants in subsequent years. Nitrogen (N) is less likely to be at risk and can be more readily adjusted as the corn crop evolves.

The table below provides an overview of the relevant data:

Fertilizer Application (lbs./acre)	N	P	K
Base	44	110	78
Liquid (fast uptake)	11	7	3
Urea	152	0	0
Foliar	0	0	0
Total	**207**	**117**	**81**
150 Bushels/Acre Maintenance (lbs./acre):	*188*	*66*	*42*
Fertilizer Build / Draw (lbs./acre):	**19**	**51**	**39**
110% Fertilization requirement surplus:	**0**	**44**	**34**

The fertilization program assumes the following applications:

Base: 385lbs/acre (432Kg/Ha) of 11.1-28.6-20.2+Micros was applied in late May / early June by ground

Liquid: 10.0 litres/acre (25 litres/Ha) at planting by ground application

Urea: 330 lbs./acre (370Kg/Ha) of 46% N divided into 3 aerial applications at days 20, 35, and 55 after planting

Foliar: As required to adjust any observed deficiencies.

Insects

We will again remain extremely vigilant for insect activity. One major advantage in 2017 is that thanks to the expansion of the airstrip at Cayo One, our local crop dusting contractor has agreed to use Cayo One as a base throughout the 2017 summer season, with an aircraft permanently stationed there. This "win-win" situation will ensure that we have immediate access to crop dusting capacity should any issues be detected, and our application costs will be reduced due to the absence of "ferry time" costs from the contractor's base airstrip to our fields.

Reports from Belizean farmers who planted early indicate strong worm activity this year, as well as resistance to the better known insecticides. We are addressing this issue through an enhanced seed treatment prior to planting and we are requesting a "special use" permit from Belize's Pesticide Control Board for a DuPont insecticide (not currently approved in Belize) that has proved very effective in the region.

Funguses and Bacteria

Our experience in 2016 and our commitment to our main customer's high quality standards has caused us to schedule an initial fungicide application at day 60 and to budget for an additional application at day 90. While this represents a substantial expense, our crop's ability to avoid the widespread aflatoxin prevalent in Belize's 2016 corn crop reinforce our view of the need for proactive disease management.

Weeds

We have proactively managed weeds at Cayo One throughout the winter 2016/17 period through a combination of herbicide applications and land cultivation and we believe that our fields are in a better position to experience lower weed impact than in the past. However, after last year's disappointing results with the BASF Prowl product, we are considering two possible substitutes for pre-emergent weed management and will discuss our final selection in the next report.

Harvest

The delay in planting due to weather issues will delay harvest. Based on past experience, we expect the 2017 harvest to begin some 130-135 days after planting.

Key Conclusions and resulting Action Items from the 2016 Season

- Cayo One has strong potential to deliver high yields if the land is well drained and planted with good seed: We have taken proactive steps on seed quality and our drainage program is underway and should deliver results in 2017. The subsurface drainage program is a Work in Progress.

- Additional Land Improvement is also needed: We were proactive in having our existing fields improved through filling of low spots and levelling during the (brief!) 2017 dry season. This remains a Work in Progress going forward.

- Regular Crop Monitoring and prompt remedial action pay big dividends: We continue our commitment to this key function and believe our enhanced crop dusting capabilities are a concrete improvement.

- Worker Safety is an important part of CSA's long term success: We continue our strong commitment to worker safety and welfare. Our team members are now known throughout the area for their "Safety Orange" uniforms!

Subsoiling Trial

On April 28th, after the heavy unseasonal rains, BSA's General Manager carried out an experiment, which consisted of digging two 2' deep holes; one in the newly subsoiled area and one in the area beside it which had not been subsoiled. A location was selected which was similar in surface dryness and elevation. The objective was to help determine if the area which we had subsoiled prior to the rain would prove to be wetter or drier than the non-subsoiled area. The results were very encouraging.

In traditional farming the outcome of deep tillage followed by heavy rain is often disadvantageous and possibly even disastrous. The reason being that the entire "loose tilled" volume of soil becomes so water laden that it takes a long time to dry out. This is partially due to surface drainage usually being non-existent as the surface texture becomes very rough. However, improved natural percolation (subsoiling) and underground drainage pipes can contribute dramatically to improved drainage.

After seeing the April 24th aerial photos we expected the subsoiled area to be drier but were unable to tell how deep the dryness would reach. Interestingly, the non-subsoiled area was dry on top and was not sticky at all. The subsoiled area was dug first to a depth of 2 feet. After digging 4" or so the soil was wet. It would easily ball up and stick to the shovel; moisture in the soil did not seem to increase as we increased depth.

Surface of the Subsoiled Area

Surface of the Non-Subsoiled Area: appears Dry!

Subsoil area hole at 2' deep: Remarkably Dry!

Non-Subsoiled Hole at 2': A little water in bottom

1 minute later
Water seeping into Non-Subsoiled hole

24 hours later
Non-Subsoiled hole has 5.5 inches of water!

24 hours later: Subsoiled Hole is dry and the ground is breaking up very nicely

This ground is nearly ready to work despite having received 100mm of rain within the past week

Encouraging evidence of how subsoiling can have a positive impact on percolation and drainage!

Cayo One still Very Wet – Jan 19, 2017
Winter Crop not planted – 600 mm of rain in past 60 days

Cayo One finally drying out – Feb 24, 2017
Water saturated soil needs 3 more weeks before work can start

Cayo One – Work has begun – Mar 25, 2017
The ground is dry enough for heavy equipment – but still below

Cayo One – EPZ – Mar 25, 2017
Expanded road from Price Hwy leads to EPZ under development

Cayo One at beginning of unseasonal rains – Apr 18, 2017
Parcel 3: 250 Ha have been chained - windrowing about to start

One week later after 100+mm of rain - Apr 24, 2017
Note the darker strip on left which was subsoiled: No ponding!

Subsoiling blade being trialed – Apr 13, 2017
Custom made blade is pulled by 500Hp D-9 bulldozer

Subsoiling Trials – Apr 13, 2017
Blade is pulled 2 to 3 feet underground: every HP is needed!

Field 2 after Subsoiling – May 11, 2017
Ground is wet after April rains: large clods are hard to break up!

Field 1N after Subsoiling – June 7, 2017
Groud has had a chance to dry: clods much more manageable.

Cayo One: Parcel 3 on right – Jun 5, 2017
Considerable progress but won't be ready to plant in 2017

Cayo One: Field 1N (left) subsoiling complete – Jun 5, 2017
Stick-picking started; should be planted in 2017 if weather holds

Syngenta Impacto *In Vitro* germination test May 22, '17
100% germination within 36 hours – excellent results!

Syngenta Impacto *In Terra* vigor test May 29, 2017
96% strong emergence within 7 days – very good results!

Cayo One Field 2: Precision Levelling – Apr 13, 2017
Removal of low spots should increase Field 2 yields

Cayo One Field 1N "Stick Picking"– June 1, 2017
Subsoiling brings up large amounts of branches and stumps

CSA's #1 Tractor Operator – Jun 04, 2017
Margie R. has disked & dragged thousands of acres in 2017

Newly promoted CSA Skill 1 Team member – Jun 04, '17
Jesus E. is now managing stick picking teams

Market Conditions and Conclusion

Corn

The impact of Hurricane Earl on Belize's corn supply was less severe than we expected, and prices did not spike as we had feared. Domestic prices went from a $280 to $300/mt range in late 2016 and gradually declined to the current $260 to $280 range as the corn planted in the northern part of Belize during the winter 2016/17 became available. It should be noted that farmers who had diseased corn in 2016 expereinced significant difficulties disposing of their crop.

CSA has entered into a long term corn supply agreement with the Guatemalan subsidiary of a US Fortune 100 Consumer Food group ("US FoodCo"). We have been working with them since 2015 and are pleased to have cemented a long term relationship with this Blue Chip customer. US FoodCo's Quality Standards are the most exacting in the industry, as they in turn are committed to consistently supplying a superior product to their customers. We expect US FoodCo to absorb some 50% of our production capacity intially (1,000mt), although this will decline to some 35% by 2020 (7,000mt) as our production levels increase. The terms of this agreement represent what we believe is a "win-win" for both parties as we commit to deliver a premium product in the corn variety US FoodCo prefers, and in exchange we receive premium pricing for our efforts.

We are exploring other export opportunities within Central America and have already had discussions with a number of other leading regional buyers of Food Grade corn. We plan to explore export opportunities in the Caribbean, notably Jamaica and Guyana, later this year as we have samples of our crop (and small initial shipment quantities) to provide to prospective buyers.

Soybeans

Soybean have remained quiet so far in 2017, with Grade 1 Soybeans trading in the $530-550/mt range and Soymeal trading in the $560-$580/mt range. Two end user groups in Belize have installed crushers to create soymeal, especially as there are now opportunities to use the resultant soyoil as biodiesel. Belize imports some 30,000mt of Soymeal annually, so this represents a potential market for import substitution. However, as discussed in the edible bean section below, CSA considers the most promising use of dry season opportunity is in edible beans.

Edible Beans

Belize's edible bean crop was smaller than expected and was promptly sold to existing regional buyers. Prices improved to reflect global and regional conditions, with beans selling between $900 and $1,100 / mt FOB. The challenging weather conditions in the Cayo district precluded CSA planting a 2016/17 bean crop, so we had no opportunity to participate in this market in 2017.

Recent marketing work confirms strong interest in neighboring Guatemala for a consistent supply of edible beans where quality standards can be assured. This "Field to Shelf" opportunity would allow a grower who can also deliver a clean, packaged product directly into the Guatemalan retail distribution system to capture a substantial and attractive additional margin. We are beginnig exploratory work in this area, and we hope to be ready for trials by the end of the 2017/18 season. We will report on progress during the course of this year.

While 2017's weather has not been particularly helpful so far, we are excited by the prospects of planting high quality seed in our improved fields. We are also pleased to be in a long term partnership with one of the world's most highly regarded companies. We will be reporting progress fortnightly and look forward to a successful 2017!

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

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Grower	Location	Field #	Ha/ Acres	Irr ?	Soil Type	Crop	Seed Variety (count/Ha) (count/acre)	Plant Date	Stand Date	Fertilizer Program *(For full details of applications, refer to Lot Records)*	Comments
BSA	Cayo One	1	79/ 195	N	Black	Corn (Yellow)	Syngenta Impacto 68,000 27,530	TBD	TBD	Base 12-24-12 330lbs/acre 0-46-0 85lbs/acre 0-0-60 68lbs/acre	
BSA	Cayo One	1N	34/ 83	N	Black	Corn (Yellow)	Syngenta Impacto 68,000 27,530	TBD	TBD	Base 11.1-28.6-20.2 385lbs/acre	
BSA	Cayo One	2	115/ 289	N	Black	Corn (Yellow)	Syngenta Impacto 68,000 27,530	TBD	TBD	Base 11.1-28.6-20.2 385lbs/acre	
BSA	Cayo One	2a	4/ 10	N	Black	Corn (Yellow)	Pioneer 4226 68,000 27,530ASG R9000 27,656	TBD	TBD	Base 11.1-28.6-20.2 385lbs/acre	

Lot Records for Fields 1 and 2 (Zoom in to see details)

A new Lot Record is in development and will be provided in following reports