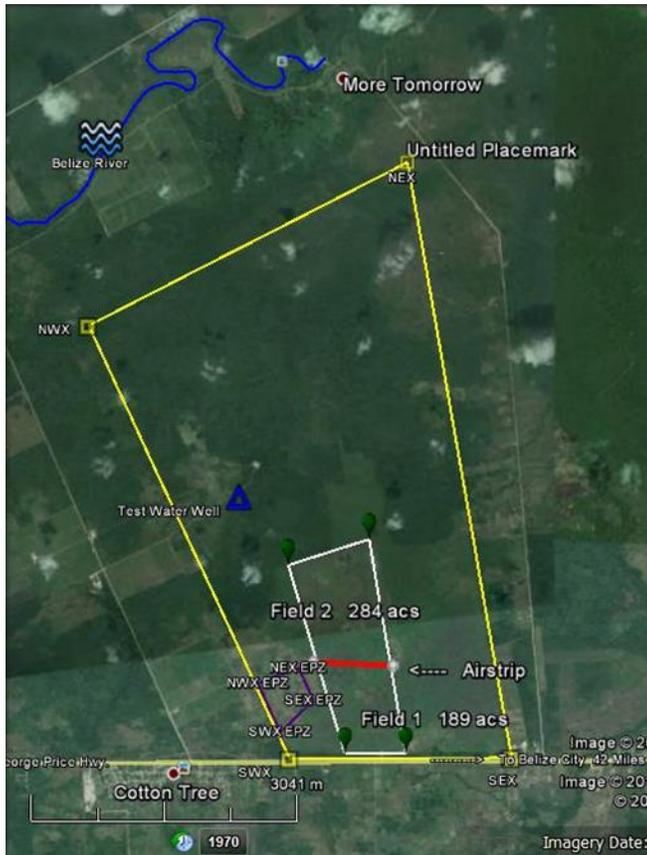


# Belize Sustainable Agriculture, Ltd. Farming Report – August 9, 2016

## General Comments & Weather



This is the eighth 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.

**August 2016** brought Hurricane Earl, the first cyclone to strike Belize since Hurricane Richard in 2010. Moreover, Earl’s landfall near Belize City in the early hours of August 4<sup>th</sup> made it the first hurricane level cyclone to hit Belize prior to September 1<sup>st</sup> since Hurricane Anne in 1961. Earl’s path went directly over Cayo One and the Cayo District’s main grain producing areas, where it caused extensive crop damage. Perhaps the only “good news” regarding Earl was that it was just a Category I hurricane at landfall, and by the time it reached Cayo One winds had abated slightly to maximum sustained levels of 67 mph. We estimate that the probability of a hurricane or tropical storm landfall prior to September 1<sup>st</sup> is about 8%, and the probability of a path close enough to materially affect Cayo One prior to September 1<sup>st</sup> is about 3%. Rainfall during the 72 hours centered on Earl’s passage was a relatively moderate 100mm, and the weather since Earl has returned to scattered clouds with episodic afternoons showers, which is allowing ground to begin to dry out.

| Belmopan Precipitation Data (mm per month) – August Data through August 8 <sup>th</sup> |     |     |     |     |     |     |     |     |     |     |     |     |
|---|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|   | Jan | Feb | Mar | Apr | May | Jun | Jul | Aug | Sep | Oct | Nov | Dec |
| <b>2016</b>   | 105 | 282 | 30  | 66  | 71  | 414 | 175 | 111 |     |     |     |     |
| <b>2000-2015</b>  | 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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Path of Hurricane Earl (August 1 – August 8 2016)



*We are delighted to report that all CSA staff and their families made it through Hurricane Earl without physical injury or major loss. One junior staff member lost part of her roof and we promptly assisted her with acquiring and installing a replacement.*

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

**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

Belize’s weather in late July/early August was quite favorable and the corn at Cayo One was benefitting from breezy sunshine with only episodic showers; indeed rainfall at Cayo One between July 25<sup>th</sup> and August 2<sup>nd</sup> was a modest 30mm.

And then came Hurricane Earl! As described above, this storm, packing 60-70 mph winds 50 miles inland, was powerful enough to cause enormous damage throughout the heart of Belize’s grain producing areas. We estimate that it passed more or less right over Cayo One. Residents of nearby Belmopan reported feeling the hurricane’s eye pass over as there was an extended still period between violent winds and heavy rains. Actually, we were somewhat surprised that Cayo One recorded only 100mm of rainfall in the August 3-5 period, which is relatively benign for a major cyclone.

Perhaps the only good fortune was that the storm did not strike 4 to 8 weeks later, when corn ears would have substantially filled and plants desiccated. Such heavier and weaker plants would almost certainly have entirely succumbed to Earl’s high winds.

Since Earl’s passage on August 4<sup>th</sup> the weather has been mostly sunny and breezy allowing much of Earl’s rainfall to dry out. This dry weather is expected to last for the next few days after which scattered clouds with seasonal thundershowers are expected to return.

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Temperatures have averaged a seasonal 91°F (33°C) which has not impaired pollination.

The recent Mexican visit by two of BSA's managers to evaluate suppliers for PVC pipe and corrugated drainage pipe, which are the critical components for drainage installation, was successful. We believe that good quality materials can be sourced at attractive prices from Mexico (especially when compared to imports from the US) thanks to low natural gas prices and a sharply lower Mexican Peso. As the BZD is pegged to the USD, a stronger USD/MXP rate means a stronger BZD/MXP rate. Our goal remains to be ready to begin installation as soon as crop and weather conditions allow.

### Seed Selection, Planting, and Crop Development

Planting began on Saturday May 28<sup>th</sup> and finished on June 1<sup>st</sup>. 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**

### General Plant Development

Until Hurricane Earl struck, we were very pleased with general plant development, even in the areas planted with faulty Monsanto's DK-7088 seed (see specific comments below). It is truly difficult to fathom the difference a month of good weather can make to plant development. The second nitrogen application seemed to turbo-charge our corn plants and, along with our substantial investment in base, starter, and foliar fertilizers, allowed our richly green plants to face the storm with both strong and extensive brace roots and vibrantly flexible plant structures.

When Hurricane Earl passed overhead, our fields were in the direct path of the storm and were subjected to several hours of 60-70mph winds, as recorded by our on-farm weather station. However, on the afternoon post the storm over 50% of our corn plants remained vertical with only occasional stem breakage. Of the remainder, less than 10% of our plants were flattened, with the balance leaning at 45° angles. Since the storm, most of the 45° corn has resumed a near vertical stance!

Elsewhere in the Cayo District early reports on August 4<sup>th</sup> and 5<sup>th</sup> were of widespread devastation, with large tracts of corn fields, possibly totaling over 30,000 acres, completely flattened. More recent reports indicate some plant recovery, but it is still likely that a substantial majority of the Cayo District's summer 2016 corn crop has been lost. Reports from the northern producing areas are somewhat more encouraging, but losses will still likely be heavy. Anecdotally, the large sugar plantations north of Cayo One on the other side of the Belize River have been badly affected, although more by waterlogged fields than by direct wind damage.

Our initial estimate is that ear loss at Cayo One will be somewhere in the 20%-30% range. Some of this prospective loss may be reduced by further plant recovery, which we will be better able to assess in the next few weeks.

Another encouraging sign is that preliminary samples taken of fallen corn ears indicate very healthy ear development. In our initial budgeting we assumed average ear size of 16 rows x 32 kernels, with a kernel size of 100,000/bushel. Our non-scientific sampling revealed many ears sizing at 18-20 rows x 34-40 kernels. While it is extremely unlikely that we will achieve anything near that average ear size, if we can achieve an average ear that is 17 rows x 35 kernels that would represent a 15% yield increase. We will perform our first controlled corn ear survey for the August 23<sup>rd</sup> Farming report.

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We have no empirical data to explain our relative outperformance in terms of storm damage, as no other farmers we know have on-farm weather stations to compare wind velocities or precipitation. However, we believe that what has allowed us to come through this dramatic weather event was CSA's commitment to extensive land preparation and a rigorous nutrition program geared to optimizing plant development.

The third and final major nitrogen application was scheduled for August 2<sup>nd</sup> but with Earl forming south of Jamaica we chose to defer the application. On Monday August 8<sup>th</sup> we applied 110 lbs. of 46-0-0 to all 473 acres. We expect that this application, on damp (but not waterlogged!) soil, should give our plants another boost heading into the home stretch of ear development and kernel fill.

*Note: I would like to pay particular tribute to John Peters and Abram Dyck of our management team. Their vision and diligent execution of our farming program are the likely reasons for our remarkable survival of a direct hurricane strike. Geoffrey de Sibert, CSA Chairman & CEO.*

### *DeKalb DK-7088 Comments*

We are encouraged to note that the DK-7088 plants that emerged properly are growing well. While our average DK 7088 plant count is 15% below where it should be, the plants have grown into tall lush and well developed corn. They survived Earl's winds well and we will watch with keen interest the results of our first corn ear survey. Following the issues described in previous recent farming reports, we are waiting for Monsanto's proposals to farmers (like CSA) outlining how Monsanto will mitigate any losses they sustain from faulty seed.

### *Dow DAS-3383 Comments*

The Dow DAS3383 continues to perform very well in terms of plant growth, development, and color. It too weathered Earl well compared to the other varieties. Again, we will watch with keen interest the results of our first corn ear survey to see if the DAS 3383 plants have ears that are as promising as their plants' color and structure.

### *ASG RY-9000 Comments*

After struggling under June's very wet conditions, and despite two generous nitrogen applications (at the same level as other varieties), the ASG RY9000 underperformed in July despite much better weather conditions. It remains paler than the DK-7088 and DAS-3383. Moreover, its ears appear some 20-30 days behind the other varieties in terms of development. Here again we will watch with keen interest the results of our first corn ear survey to see if the RY-9000 ears are at least promising development potential in line with the DK and DAS. Lastly, the seed manufacturer has still not sent a representative to meet with us.

### Fertilizer Program

We feel it is worth repeating BSA's fertilizer strategy for Cayo One, which is based on multiple goals:

1. Test the impact of higher fertilization rates on yields
2. Ensure that fertilization is at least 110% of theoretical "maintenance rates"
3. Test one plot for higher Nitrogen Applications
4. Initiate long term trial of organic worm based soil enrichment

For a detailed discussion of BSA's fertilizer strategy, see the May 31<sup>st</sup> report and the field matrices later in this report.

The second nitrogen application at Day 34 continued to boost plant physiology all the way into the beginning of August. With the exception of the RY-9000 our corn plants grew to impressive final heights (7'-8') and mostly completed their

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pollination prior to Earl's arrival. There were no general signs of nutrient deficiency or stress ahead of the final fertilizer application on August 8<sup>th</sup>, which is exactly where we would like our plants to be. The August 8<sup>th</sup> application should allow the plants to finish well and the kernels to achieve high fill rates.

We will carefully monitor our plants' progress to assess whether foliage loss due to Earl's winds will require any last minute additional plant nutrition.

Pests, weeds, and funguses

We presume that Earl must have blown most of the pests away, because we continue to see very limited evidence of pest activity or damage. If the coming weeks prove to be unusually dry we may be exposed to certain aphids and spider mites, but the current conditions are far from being there. However we will continue to monitor for pests on a daily basis.

Weeds and grasses still provide us with a challenge, as evidenced on some of the photos below. We will continue to look for ways to optimize field cleanliness, and stress that an important element of this going forward will be maintaining much stricter field control during fallow periods.

We believe that fungus risk was addressed by the July 15<sup>th</sup> application of Amistar. However, given the recent humidity we will need monitor field conditions closely as a lack of sunshine could create risk later in August. We have various options for addressing late stage fungus. It should be noted that there is a risk that certain fungus varieties could develop in our corn plants that were on a 45° angle. If this were the case, the corn could still be used for animal feed purposes (likely to be where most Belize corn will go in 2016) but it would no longer be "food grade" corn.

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Cayo District Farmer: fields flattened! – August 5, 2016



Orange Walk Farmer: fields flattened! – August 4, 2016



Cayo District Farmer: Access underwater! – Aug 5, 2016



Drainage swale north of Cayo One: No flooding! 8/6/16

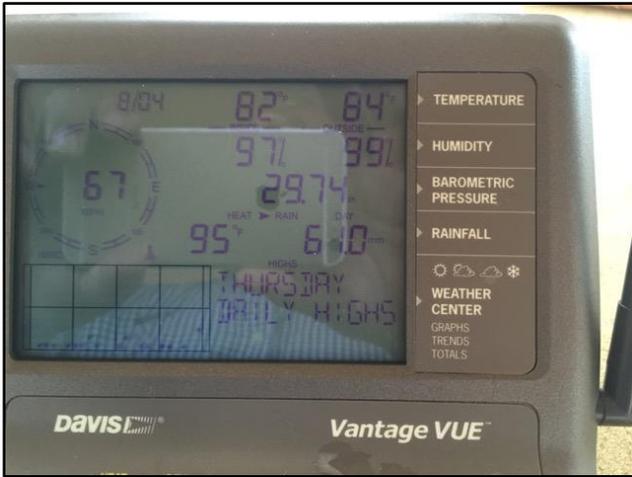


Cayo One – Healthy corn ears – August 5, 2016



Cayo One – Eastward view: drying out! – Aug 9, 2016

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Cayo One: Weather Station August 8<sup>th</sup>, 2016



Cayo One: Brace Roots – Heroes of the day! August 4<sup>th</sup> '16



Cayo One: Resilient Corn! August 4<sup>th</sup> 2016



Cayo One: Corn at 45°angle August 4<sup>th</sup> 2016



Cayo One: Small flattened area (now upright!) Aug 4 '16



Cayo One: 45° Corn recovers! August 9<sup>th</sup> 2016

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### Market Conditions and Conclusion

Grain prices in Belize were broadly unchanged prior to Earl, notwithstanding the continued decline in US / International prices. However, Earl could be a game changer as if the severe early loss forecasts are confirmed (which may not be the case) then Belize would need to import corn for the first time in many, many years.

#### Corn

Corn prices were quiet prior to Earl's arrival and were quoted within the same BZD 28.00-30.00/cwt range (BZD 29.00/cwt; USD 8.12/Bu; USD 320/mt). There is a great deal of uncertainty at the moment as rumors about farmers' loss levels change day to day; as reality becomes more discernible Belize's domestic corn price is likely to fluctuate anywhere from unchanged to materially higher...

CSA has yet to conclude its multi-year corn supply agreement with a US Fortune 100 company but this may happen prior to the next Farming Report. The corn would be exported to nearby Guatemala. If mutually satisfactory terms can be agreed, which would have to reflect the substantial local price premium, the agreement would lock in most of CSA's corn production for the next 3 years. Otherwise CSA can benefit from the excellent local prices for its 2016 corn crop.

#### Soybeans

Soybeans have been quietly steady, as there are few plantings that might have been affected by Earl. #1 Grade Soybeans are bid at 50.00/cwt (USD 550/mt), but lower grade #2 soybeans are steeply discounted, with bids difficult to secure even below \$40.00/cwt. (USD 440/mt).

#### Edible Beans

Edible beans are inactive as they are sold out in Belize with the exception of black eyed beans. There has been no recent price talk but we continue to believe beans would trade in the USD 40-\$50/cwt.

***2016 has certainly been a challenging year weather wise! From a soaking month of June to a direct Hurricane hit, the fates have made things challenging. Yet despite these difficulties we are greatly encouraged by the size and quality of our corn plants despite the exceedingly challenging conditions.***

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<br><i>(For full details of applications, refer to Lot Records)</i>  | Comments   |
|--------|----------|---------|-------|-------|-----------|---------------|---------------------------|------------|------------|--|--|
| BSA    | Cayo One | 1a      | 14    | N     | Black     | Corn (Yellow) | DeKalb 7088<br>27,656     | June 1     | June 7     | Base<br>13.3-30.3-13.2-1.8S<br><u>330lbs/acre</u><br>Liquid<br>Aporte-M<br><u>2L/Acre</u><br>TRIAL<br>Vermiplex<br><u>4L/Acre</u><br>46-0-0<br><u>100 lbs./acre</u><br>38.5-0-0-7.2S<br><u>136lbs/acre</u><br>46-0-0<br><u>110 lbs./acre</u> | 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. |
| BSA    | Cayo One | 1b      | 24    | N     | Black     | Corn (Yellow) | Dow 3383<br>27,656        | May 31     | June 7     | Base<br>13.3-30.3-13.2-1.8S<br><u>330lbs/acre</u><br>Liquid<br>Aporte-M<br><u>2L/Acre</u><br>46-0-0<br><u>100 lbs./acre</u><br>38.5-0-0-7.2S<br><u>136lbs/acre</u><br>46-0-0<br><u>110 lbs./acre</u>   | 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   |

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|     |          |    |     |   |       |               |                    |           |        |   |  |
|-----|----------|----|-----|---|-------|---------------|--------------------|-----------|--------|---|--|
|     |          |    |     |   |       |               |                    |           |        |   | plants, mostly pollinated. moderate hurricane damage, still a promising crop.  |
| BSA | Cayo One | 1c | 24  | N | Black | Corn (Yellow) | ASG R9000 27,656   | May 31    | June 7 | <p>Base<br/>13.3-30.3-13.2-1.8S<br/><u>330lbs/acre</u></p> <p>Liquid<br/>Aporte-M<br/><u>2L/Acre</u><br/>46-0-0<br/><u>100 lbs./acre</u><br/>38.5-0-0-7.2S<br/><u>136lbs/acre</u><br/>46-0-0<br/><u>110 lbs./acre</u></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. |
| BSA | Cayo One | 2  | 284 | N | Black | Corn (Yellow) | Dekalb 7088 27,656 | May 28-31 | June 7 | <p>Base<br/>13.3-30.3-13.2-1.8S<br/><u>330lbs/acre</u></p> <p>Liquid<br/>Aporte-M<br/><u>2L/Acre</u><br/>46-0-0<br/><u>100 lbs./acre</u><br/>38.5-0-0-7.2S<br/><u>136lbs/acre</u><br/>46-0-0<br/><u>110 lbs./acre</u></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             |



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## Lot Records for Fields 1 & 2

|  |  |  |  |  |  |  |  |  |  |
|--|--|--|--|--|--|--|--|--|--|
| 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- | 27,656    | Dry & Hot |  |  |
| 5/16/2016        | 23-May-16 | 5/9/2016               | 4-May-16 |       |             | M See       |             |           |           |  |  |
| 5/20/2016        |           |                        |          |       |             | Below       |             |           |           |  |  |

| 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   | Vermiplex (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         | 136     |        | 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                | 110     |        | 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      |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/3/2016    | 0.2      |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/4/2016    | 0.07     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/6/2016    | 0.2      |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/9/2016    | 0.1      |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/10/2016   | 0.25     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/6/2016    | 0.2      |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/9/2016    | 0.1      |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/10/2016   | 0.25     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/12/2016   | 0.46     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/13/2016   | 0.4      |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/14/2016   | 0.08     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/15/2016   | 0.08     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/16/2016   | 0.02     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/17/2016   | 0.08     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/18/2016   | 0.18     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/19/2016   | 0.9      |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/20/2016   | 0.38     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/23/2016   | 0.11     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/24/2016   | 1.02     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/27/2016   | 0.03     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/28/2016   | 0.06     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/29/2016   | 0.68     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 7/30/2016   | 0.07     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 8/1/2016    | 0.42     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 8/3/2016    | 1.54     |            |                          |         |        |     |   |
|             |                       |         |        |     |    | 8/4/2016    | 2.4      |            |                          |         |        |     |   |

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|  |  |                                   |  |
|--|--|-----------------------------------|--|
| GROWER: <u>BSA</u>                       |  | Date Planted: <u>5/28-31/2016</u> |  |
| FARM LOCATION: <u>Cayo One Estates I</u> |  | SECTION #: <u>2</u>               |  |
|  |  | BLOCK #: _____                    |  |
|  |  | SOIL TYPE: <u>Black Loam</u>      |  |
| CROP: <u>Corn</u>                        |  | VARIETY: <u>DeKalb 7088</u>       |  |
|  |  | # OF ACRES: <u>284</u>            |  |

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

| FERTILIZERS |                     |         |        |     |    | Rain Inches |          | PESTICIDES |                         |         |        |     |   |
|-------------|---------------------|---------|--------|-----|----|-------------|----------|------------|-------------------------|---------|--------|-----|---|
| Date        | Analysis            | Rate/Ac | Ground | Air | #  | Date        | Quantity | Date       | Description             | Rate/Ac | Ground | Air | # |
| 20-May-16   | 13.3-30.3-13.2-1.8S | 330lb   | X      |     | 1  | 6/3/2016    | 0.6      | 2-Jun-16   | Atrazine                | 1lb     | x      |     | 3 |
| 28-May-16   | Aporté Pre-M        | 2L      | X      |     | 2  | 6/5/2016    | 1.5      | 2-Jun-16   | Prowl                   | 1lb     | x      |     | 3 |
| 22-Jun-16   | 46-0-0              | 100lb   |        | x   | 6  | 6/8/2016    | 0.5      | 13-Jun-16  | ertero (perimeter only) | 161 cc  |        | x   | 4 |
| 8-Jul-16    | 38.5-0-0-7.2S       | 136     |        | x   | 8  | 6/9/2016    | 0.8      | 13-Jun-16  | Aporté Pre-M            | 250 cc  |        | x   | 4 |
| 15-Jul-16   | Aporté Pre-M        | 630 cc  |        | x   | 9  | 6/12/2016   | 0.7      | 13-Jun-16  | Damoil                  | 250 cc  |        | x   | 4 |
| 8-Aug-16    | 46-0-0              | 110     |        | x   | 10 | 6/17/2016   | 1.9      | 18-Jun-16  | Primero                 | 18 cc   |        | x   | 5 |
|             |                     |         |        |     |    | 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      |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/3/2016    | 0.2      |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/4/2016    | 0.07     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/6/2016    | 0.2      |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/9/2016    | 0.1      |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/10/2016   | 0.25     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/12/2016   | 0.46     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/13/2016   | 0.4      |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/14/2016   | 0.08     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/15/2016   | 0.08     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/16/2016   | 0.02     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/17/2016   | 0.08     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/18/2016   | 0.18     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/19/2016   | 0.9      |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/20/2016   | 0.38     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/23/2016   | 0.11     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/24/2016   | 1.02     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/27/2016   | 0.03     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/28/2016   | 0.06     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/29/2016   | 0.68     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 7/30/2016   | 0.07     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 8/1/2016    | 0.42     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 8/3/2016    | 1.54     |            |                         |         |        |     |   |
|             |                     |         |        |     |    | 8/4/2016    | 2.4      |            |                         |         |        |     |   |