

**Belize Sustainable Agriculture, Ltd.**  
**Joint Venture Farming Report – May 5, 2014**

**General Overview**

Weather conditions have been favourable for most farming activities, with very warm weather conditions over the course of the last two weeks. Daytime highs have been in low 30°C and cool nights. This has been favourable for most farm activities. An early morning rain blanketed the whole region but amounts vary vastly (from 0.1" to 3.5"! ) These rains are very much welcome as soils are very dry. After the rain the sun came out and we should see no, or very little, negative effects. As a reminder, for those so inclined, you can follow Belize's weather on:

<http://www.hydromet.gov.bz/250-km-radar-loop>

**Thiessen Family Farms – 512 acres (254 Irrigated / 258 Dry – 100% Corn)**

We are continuing to report the results of the Thiessens' Winter 2014 Red Kidney Bean crop as we still have not received a final count on the total "dried, cleaned, and sorted crop" which was sold. A third container was collected for shipment to Jamaica on April 23<sup>rd</sup>, but we are still waiting for a report of the small additional quantity of beans belonging to us, which will ship on a "joint basis" with other Indian Creek LRKs. The 215 acres (143 Irrigated / 72 Dry) of Red Kidney Beans ("LRK") were planted December 9<sup>th</sup>, 17<sup>th</sup>, and 21<sup>st</sup>, with seed was imported from the USA. Seed count at planting was 40,000 seeds/acre with an average of 34,000 plants/acre. We did plant-counts in numerous areas and at some acres we got as high as 38,000 plants /acre. We are expecting the total average yield to be around 1,500 lbs/acre, which represents a 50%+ increase versus historic yields achieved by the Thiessens. The (almost) final crop results were a crop cost of BZD 1,050/acre and a crop yield of BZD 2,575/acre for a superb net farming margin of BZD 1,525/acre.

The Thiessens have now begun work on the Summer 2014 crop. They have been able to increase their farmable land to 512 acres of red soil, mainly by renting additional land from Henry Fehr; this was all they were able to secure. The 512 acres have two pivots, covering about 254 acres, so that the acreage is about 50% irrigated.

We had a long meeting with the Thiessens on April 19<sup>th</sup>, followed by a further extended meeting on May 2<sup>nd</sup> where we discussed the forthcoming Summer Crop and prospects for a longer term relationship. We explained that BSA's long term goal is to reach yields/acre on irrigated ground of 10,000/12,000lbs (~180-200 bushels) for corn; 3,000-3,500lbs (50-55 bushels) for soybeans; and 2,000-2,500lbs for edible beans. We stated that our expectation is that it will take 3-5 years to achieve these goals. We believe that the Thiessens are now fully on board, and ready to enter into a long term arrangement with CSA. They also indicated they wanted to be ready at first chance to plant to get the early corn. They are excited to do a trial with BSA doing 50% of a circle and different seeding rates as well as different plant populations. We have made allocations where trials are concerned and have plans for the whole acreage. This family continues to impress us with their willingness to listen and learn (it doesn't hurt that we have also been able to help them with some other things like tractor repairs and parts procurement which they find very difficult).

The Thiessens have enjoyed great weather overall with just a small rain this morning over all of their acreage. They have completed the first round of field preparation consisting mainly of discing, some stone and branch removal and have begun with the second round of land work with approximately 15% being complete. We are waiting for the results of soil test analysis to make a final determination as to what types of fertilizers need to be applied. This will be cultivated into the soil and if time allows a pass with a land plane will be made. This is a large piece of equipment designed to fill divots and smaller holes in the field. It also refines the soil substantially and leaves the seedbed in excellent condition. Since

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this land was big bush only a few years ago, the holes from the tree stumps are still there and this piece of equipment serves to fill these holes very nicely.



Thiessen Farms (May 2<sup>nd</sup>, 2014)



Thiessen Farms (May 2<sup>nd</sup>, 2014)

Both these photos are taken from the same field and show the difference in color from one side to other. The photo below shows field after second pass with disc.



**Neufeld Family Farms** – 336 acres total (100 acres black eyed beans - 0 % Irrigated / 236 acres Rice – 100 % irrigated)

Jacob planted 70 acres BEB on February 18<sup>th</sup> and 30 acres on February 21<sup>st</sup> for a total of 100 acres, of which 70 acres should produce very good yields. The beans have recovered nicely from the fungus after the last rain. On Tuesday April 29<sup>th</sup> the beans were sprayed in order to cause any and all green tissue to senesce. This application was very effective and

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the plants are drying off very nicely. However, a two inch rain on early Friday morning (May 2<sup>nd</sup>) has not enhanced the drying down process. The sun did come out on Friday afternoon and the plants did not appear to have suffered from this deluge. Let's hope the rain can stay away another week and some bright sunshine will prevail until we can get these beans harvested and into the bin.



JSN - Beans after burn-down spray (May 3, 2014)



JSN - Beans after burn-down spray (May 3, 2014)

**Rice**

Jacob's rice continues to impress despite our earlier reservations. His tillering continues to amaze us with numerous plants counted having up to 40 tillers per plant. The grass issues appear to have been brought under control with an application of a new selective herbicide. It remains to be seen if this will actually bring control or simply delay the maturing of the grass and return with a vengeance. It does appear promising and it would be nice to have another herbicide in our arsenal especially one that can be used so late in the plant. This new chemical has the added benefit of not requiring the water to be drained from the field thus making its application much less burdensome.



JSN – Rice Field with Yellowing spots which show grass kill from herbicide application (May 3, 2014)

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The majority of his rice is in panicle initiation stage or beyond. By the next report we should begin to see panicles emerging! This is always an exciting stage of development; the aroma associated with growing rice is becoming more frequently noticeable and welcome.

All of Jacob's fields had an application of foliar fertilizer applied as well as granular fertilizer. He understands better the need for timely applications of nitrogen and also good water management. He is now embracing our advice and is seeing the benefits of such. He will be making several smaller applications of nitrogen in the next two weeks before "heading" to ensure maximum plant vigor for maximum grain fill. Jacob will need to be very vigilant in his scouting for stink bugs and spiny mites. Both of these can be drastic yield reducers if allowed to get out of hand. Both types of pest control are in stock if the need for spraying presents itself!

In all, Jacob's rice yield potential continues to be good/excellent. We are delighted at his recent more co-operative attitude; if this continues we believe that with further mentoring and supervision his prospects will materially improve as a potential long term JV partner.

**Marlon Dyck – 420 acres (Rice 100 % irrigated)**

The initial 90 acres of rice that was planted (210 Series Fields) is finally showing some vigor. Marlon's strong belief in foliar fertilizers and proactive water management has improved these fields immensely. Even though the yield potential has been somewhat compromised the amount of growth and vigor seen is quite amazing. The development is somewhat delayed but the plants are now exhibiting potential for good/excellent yields. These fields appear to be great candidates for ratooning. Overall we are seeing a huge improvement from two weeks earlier. As an example, root development is now very healthy as witnessed in the photo below.



Marlon Dyck – 210 Series Rice Fields at 46 Days (April 28, 2014)

These fields should continue to tiller due to plenty of available nutrients available, and panicle initiation has just begun in this 46 day old field. In fact, these fields have improved sufficiently that the neighbors are asking what we have done!

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The remaining 320 acres continue to look very promising. Plants are starting to tiller at a very early stage. Strict water management has helped minimize algae growth and plants are now sufficiently grown to withstand any algae growth. We did have an isolated case of worm attack on one field, where they did manage to graze the small plants. A quick application of a selective insecticide took care of the issue and the plants are continuing to grow with little or no long term damage. The use of biological indicators (in this case egrets!) and frequent inspections averted a potential loss of a 30 acre field.



Marlon 1<sup>st</sup> Field (210s) @ 45 days (April 22, 2014)



Marlon's last Fields (230s) @ 32 days (May 2, 2014)

We continue to be very encouraged by the prospects for Marlon's rice fields. And while we still do not expect to return to HAC's record rice yields in this first season, we now believe that average rice yields of over 7,000 lbs/acre can be achieved. Once again, the more we work with Marlon, the more our confidence in his farming expertise and personal drive are strengthened.

**Other Prospects**

We are in various negotiations with other prospective partners for the Summer 2014 Season:

- **HAC** - rent ~600 acres of non-irrigated red soil in the San Carlos/Hillbank area. This ground would not be part of a JV program, but rather would be farmed by BSA personnel (MD, JP, and helpers.). We continue to make progress towards a satisfactory agreement.
- **HAC** – rent ~280 acres of non-irrigated sandy black soil in the Blue Creek area, almost adjacent to our current rice crops.
- **David Neufeld** (brother of Jacob Neufeld) – JV farm ~300 acres (with one pivot) of red soil in the San Carlos/Hillbank area if he can rent this land from Henry Fehr. David has chosen to work with others for this crop.
- **John Bergen** - JV farm (with option to purchase) ~440 acres of red soil (with two pivots) in the San Carlos/Hillbank area as a prelude to acquiring the land if purchase terms can be agreed. While the purchase opportunity now seems unlikely, John has approached us to JV the farm with him this season.

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**Summary and Conclusion**

The Thiessen Red Kidney was a resounding success. The beans have all been harvested and all but a fraction of a container have been sold and paid for. Farming profit/acre averaged an outstanding BZD 1,525!

Conversely, the local price for black eyed beans continues to be weak, trading well below the US price. Although we expect to have only a limited amount of these beans, unless we can secure more attractive export markets, we will need to evaluate whether continuing to grow these beans fits into our program's financial metrics.

We continue to look forward to the current rice crop with keen anticipation and continue to believe that this JV activity has strong potential this year and into the future. We are farming on ground that has a strong historic track record of producing excellent yields, and we are working with Marlon Dyck, one of Belize's foremost rice growers. Moreover, local prices for rice remain high and are likely to remain that way as the country has gone from a surplus to a material deficit in rice production these past three years. We are looking to lock in over half of our crop at current prices in "paddy" form (i.e. Rough Rice on the CBOT) that would be collected and paid for at harvest by a local merchant. We have had an offer for our rice crop at BZD 0.37/lb, and if we can negotiate a satisfactory written agreement (not the custom in Belize!) and a reasonable guarantee deposit, we are likely to commit a substantial portion of our rice crop to this buyer. We estimate our cost of production of the paddy rice to be about BZD 0.22/lb. At these price and cost levels, and assuming a yield of 7,000lbs/acre, the farming margin from rice would be an impressive BZD 1,050/acre.

As we have previously commented, we are also very much looking forward to the Summer 2014 Season and we believe that the experience acquired working with our JV partners, and the strengthening of our team with Marlon Dyck and John Peters arrival will put us in an excellent position. The current price for corn is stuck in a BZD 0.25-0.26/lb range (\$7.00-\$7.25/Bushel) although we believe that a reopening of export channels to Guatemala will see the price rise by a few pennies/lb (to a \$8.00/Bushel equivalent).

**Our immediate and major challenge will be to secure the necessary working capital to be able to make commitments to our JV partners by next week. Most of them will want to start planting by May 15<sup>th</sup> (subject to weather of course!) and they need to know that we will be able to support them. As most of our working capital is tied up in our rice crop (which will not begin converting to cash until late July), without confirmed sources of alternate funding, we will not be able to give our JV partner the necessary assurances and proceed with a summer program.**

Thanks!

John Peters

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<b>Grower</b>	<b>Location</b>	<b>Field #</b>	<b>Acres</b>	<b>Irr?</b>	<b>Soil Type</b>	<b>Crop</b>	<b>Seed Variety</b>	<b>Plant Date</b>	<b>Stand - Date</b>	<b>Fertilizer Program</b>	<b>Comments</b>
<b>Thiessen Brothers</b>	SC	T1	24 16 <hr/> 40	Y	Sandy loam (Red)	RK Beans	Red Kidney (40,000 seeds/acre) Pink panther/ Clau Sue	Dec 9/2013	Harvested	14-36-12 35.8lbs/acre 18-46-0 79.3 lbs/acre	Harvested! – March 8-21 A successful end to the season, waiting for final yield data.
<b>Thiessen Brothers</b>	SC	T2	47 <hr/> 47	Y N	Sandy loam (Red)	RK Beans	Red Kidney (40,000 seeds/acre) Pink panther/ Clau Sue	Dec 17/13	Harvested	14-36-12 35.8lbs/acre 18-46-0 79.3 lbs/acre	Harvested! – March 8-21 A successful end to the season, waiting for final yield data
<b>Thiessen Brothers</b>	SC	T3	108 20 128	Y N	Sandy loam (Red)	RK Beans	Red Kidney (40,000 seeds/acre) Pink panther/ Clau Sue	Dec 21/13	Harvested	14-36-12 35.8lbs/acre 18-46-0 79.3 lbs/acre	Harvested! – March 8-21 A successful end to the season, waiting for final yield data
<b>Marlon Dyck</b>	San Felipe		80	N	Sandy loam	Milo	(seeds/acre)				Not planted due to weather
<b>Marlon Dyck</b>	Rio Bravo	210-212 220-225 231-236	420	Y	Heavy Black	Rice			Vigor issues		210-220-230 planted Significant Issues due to bad seed 210 Series now much improved 220-230 Very Promising
<b>Jacob S Neufeld</b>	San Felipe		209	N	Sandy Black	Black-eyed Beans	seed/acre				100 acres planted Feb 18-21 Looking mostly good, with about 30% suffering due to poor soil Harvest expected week of 5/5
<b>Jacob S Neufeld</b>	Rio Bravo	110-113 121-122	230	Y	Heavy Black	Rice	CHENIERE	5-6-7/3/14		15-15-15 75 lbs/acre 12-24-12 75lbs/acre	236 acres planted Some algae in 110s, one field, 122, suffered from poor seed, replanted. 121-122 now looking very good