

**Belize Sustainable Agriculture, Ltd.**  
**Joint Venture Farming Report – March 24, 2014**

**General Overview**

Weather conditions are windy and hot, which is typical of the Dry Season. Soil conditions on our JV rice fields in Blue Creek are wet. In San Carlos the soil is becoming very dry due to the red soil type.

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 – 215 acres (143 Irrigated / 72 Dry – 100% Red Kidney Beans)**

The beans were planted December 9<sup>th</sup>, 17<sup>th</sup>, and 21<sup>st</sup>. The beans looked very good throughout the season; the 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.

Famers surrounding our farm have planted seeds from the USA and locally collected seed. The imported seed definitely performed better. The lack of the latest planting equipment might also play a role in the lower than desired germination rate.

Harvesting of the 215 acres of red kidneys is complete. We are waiting on the final yield report from the Thiessens which should be available after the cleaning is done; they are expecting the total average to be around 1,500 lbs/acre, which represents a 50%+ increase versus historic yields achieved by the Thiessens.

A first container of RK beans was shipped on March 13<sup>th</sup> and a second container is scheduled to ship on March 25<sup>th</sup>; the remaining beans representing about 1 ¼ containers should ship during the first week of April.



Thiessen RK Beans: Bulk arrival off field (March 6, 2014)



Thiessen RK Beans: Cleaned & Bagged (March 21, 2014)

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RK Beans at Indian Creek ready for shipping (March 18, 2014)

**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. The beans are 34 days into their growing stage; their stand is irregular. About two thirds of the acreage is showing a dense and vigorous stand that is encouraging. A smaller part of the field is showing less vigorous and more irregular growth, which we attribute to significant presence of calcium rich stones in the subsoil. As this is a recently cleared field, there is limited history of its soil qualities so there is an element of “trial and error” in its farming. We expect these soil conditions will reduce the field’s overall yield, although it should remain profitable. We will be considering various remedial actions through foliar and other fertilizers to mitigate this issue.



JSN Black Eye (March 21, 2014)



JSN Black Eye: Vigorous Stand (March 21, 2014)

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Jacob has planted all 236 acres of his rice fields and weather conditions are currently quite favorable. We have noted some early issues with these fields, the most significant being moderate algae presence due to the method and timing of fertilizer application. We believe that with proper water management this issue will be controllable and should not materially impact yields. However, this issue reinforces the need for better crop planning and execution, and most importantly leveraging the internal expertise within our JV team across all partners. In this instance, better use of Marlon Dyck's rice expertise might have avoided these issues. We also noted that the last field planted, representing some 30 acres, seems to have a problem with germination/vigor. We believe that this is due to a large lot of faulty seed delivered by a local supplier, which is discussed below. We are currently evaluating whether the field will be replanted.



JSN Rice Fields (March 21, 2014)



JSN Rice Fields (March 21, 2014)

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

Marlon has planted all of the “210” and “220” series fields, which consists of 6 fields totaling some 230 acres. Marlon's fields were the most heavily affected by this year's exceptionally heavy and persistent rains, and were therefore the last to be prepared and planted. Most of the planted fields have experienced major germination and vigor issues, which we concluded was due to bad seed. The supplier was brought to the field and concurred with our view, declaring the fields to be “a write-off”. It was unfortunately also confirmed that the supplier had failed to perform germination tests on a container load of seed which arrived from the United States after an exceptionally long and tortuous trip during which it is likely that the seed “baked”. What was even more unfortunate was that our own team had also failed to perform germination tests on these seeds. Hence we planted over 170 acres of fields with “dead seed”.

Fortunately, we expect to be able to replant all of the affected fields and the impact on the crop should be limited to a modest increase in crop costs. We are of course discussing with our local supplier and other relevant parties their contribution to the cost of this snafu. Most importantly, this incident has caused us to begin a review of all crop Standard Operating Procedures so that this and other similar issues can be avoided in the future, especially as we

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substantially increase farmed acreages in the coming seasons. We definitely view this as an important “Learning Moment” for the entire team on the importance of enhanced Planning and Quality Assurance processes.

Marlon’s remaining 180 acres are scheduled to be planted this week with seed from an alternate source that is currently being tested.

We will provide a detailed update on progress with Marlon Dyck’s rice fields in the next fortnightly report.



Marlon Dyck Rice Fields (March 8, 2014)



Marlon Dyck Rice Fields (March 21, 2014)

**Summary and Conclusion**

The Thiessen Red Kidney crop can be considered a resounding success. The 215 acres which we were able to plant, despite very adverse weather conditions (leaving 60 non-irrigated acres unplanted due to the heavy rains), produced yields that were over 50% higher than what local farmers (including the Thiessens) had historically achieved, with the promise of further yield gains in future years. The beans have all been harvested and are now in storage and, at the date of writing, about two thirds of them have been shipped and partially paid for at excellent prices (most of the remaining funds will be received next week). The balance will be shipped next week with funds due in the following week. So we have achieved a second major success with the Thiessens following an excellent Summer 2013 corn crop. Going forward, we are meeting with them shortly to discuss the Summer 2014 crop, where we will consider increasing our jointly farmed acreage to over 700 acres, including three irrigation pivots covering some 450 acres. While there remain clear areas for improvement in this JV relationship, the Thiessens have proven to be hard-working, dedicated farmers and we look forward to working with them over the long term and helping them to achieve outstanding farming results.

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We are also looking forward to the current rice crop with keen anticipation. Despite a few teething problems getting part of the crop underway, we believe that this JV activity has strong potential this year. We will be 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 are high and likely to remain that way as the country has gone from a surplus to a material deficit in rice production these past three years. Assuming that this crop produces favorable results, we will consider incorporating rice into our overall crop strategy both for crop diversification purposes and to help ensure that Belize is truly self-sufficient in this key primary foodstuff.

The BZD 1.75 /lb. achieved for the bulk of our Red Kidney crop was very encouraging and has added a nice finishing touch to this very successful crop. However, corn prices were unchanged from last week, with small sales taking place at BZD 0.25/lb. and an ongoing tug of war between local co-ops and grain dealers.

Thanks!

Ruben Froese

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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 planted Significant Issues due to bad seed
<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
<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, one field suffering from poor seed.