General Overview

During the past fortnight, we have experienced a wide range of weather over Belize. The northern part of the country has remained mostly dry with occasional and very scattered showers. For example, Blue Creek area received several inches of rain during this period, which has been enough to provide the ratooned rice fields with ample water. Unfortunately the San Carlos area (only fifteen miles away), where the Thiessens and our Soybean fields are located, saw no material rainfall until Saturday August 23rd, which continued a very unusual trend of dry weather in July and early August. On August 23rd San Carlos received 1" to 1.5" of rainfall, with further rain on the 26th and 27th. The more central area where the Cayo One project is located has seen steady but not excessive rains.

This summer's weather has proven to be quite challenging due to insufficient and erratic rainfall. A clear reminder of how "average" climate and rainfall are of limited use to farmers, who cannot "farm the averages". While the summer of 2013 was a tale of excess rain and its woes, the summer of 2014 has been, for the northern part of Belize, a case of dry, dry, and dry.

Temperature wise, the majority of our weather over this last fortnight has been quite pleasant with a few high humidity days coupled with high heat. Normally the weather pattern would begin to cool off slightly with cool nights and we are beginning to see some evidence of this happening.

You can follow Belize's weather on:

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

Thiessen Family Farms – 512 acres (283 Irrigated / 229 Dry – 100% Corn)

As mentioned above, the Thiessen fields finally got some rain over this past weekend. Until then, they have been irrigating almost continuously, and as previously reported the irrigated corn has performed well compared with the non-irrigated corn. The latter has substantially withered and is unlikely to yield much of anything. With the recent rain, the need for much more irrigation on the corn is unlikely as there should now be close to enough water to allow the grain to fill adequately. We can only hope that the rain pendulum doesn't aggressively reverse and subject us to deluges over the next several weeks prior to harvest.

In San Carlos, the rain received on Saturday 8/23 came down very hard and was accompanied with strong winds. This caused a sizable amount of corn on the Thiessen portion of the irrigated trial to lodge (i.e. to fall over). It is too early to tell if this lodged corn will be recoverable during harvest or not.

Indeed, as we approach the end of the crop cycle, we are seeing some potentially disturbing plant characteristics that could impact our decision regarding which variety to grow next year. The DeKalb 7088 planted on the Thiessen portion of the irrigated trial is clearly lodging, as can be seen in the aerial photograph of the small pivot. This is may be due to unusually tall plants (7'+) but it may also be due to the plant's characteristics, which do not allow it to grow a thick enough stalk to support the cob and the rest of the plant when the plant exceeds a certain height. However, while we can't be certain of the reason for the insufficient stalk, plant nutrition plays a pivotal role in stalk development. Our inability to convince the Thiessens to continue their nutrition programs when the non-irrigated portions of their fields ap-

peared in jeopardy may have led the DeKalb 7088 to develop inadequate stalks. This development of weak stalks was not observed earlier in the plant cycle; at the time it appeared that the stalk girth was sufficient to carry through to maturity, but this was obviously not the case. So perhaps we did not press our case to the Thiessens as emphatically as we should have. Changing long established habits can at times be truly challenging. There is further evidence of lack of sufficient nutrition, which can be seen by comparing the plot with the higher population (35,000 plants per acre) that shows more lodging than the plot with a lower population of 30,000 ppa. One clear lesson learned from this is that no matter the outlook for rain the acreage under pivot must be maintained nutritionally regardless of the status of the non-irrigated areas outside of the pivots.



Small Pivot showing heavy lodging on Thiessen portion of field (east or closes to lagoon) – August 23, 2014

The Thiessen portion of the irrigated field, which was planted on May 28th, is at 90 days and should be just beginning to fire. As evidenced in the picture below, the firing process is well under way and the degree of senescence is far too advanced for a crop that has just reached 90 days. Our preliminary conclusion is that the Thiessens' portion of the corn crop will need to be harvested well before the 140 day full maturity timeframe normally allowed for this variety. Unfortunately, such an early harvest will have a negative impact on yields, above and beyond the lodging issues. We now expect a very material difference in yields between the irrigated Thiessen corn and the irrigated Marlon corn.



Thiessen Trial – DeKalb corn showing early senescence Aug 23, 2014



Marlon Trial - DeKalb Corn looking healthy Aug 23, 2014

This past fortnight we also learned that the relationship between the Thiessen family members involved in the JV has begun to disintegrate. While we had been aware of occasional friction, this is not unusual in family working relationships, and we were not unduly concerned. With these taciturn farmers, it is difficult to determine what are the causes of this disintegration, or whether anything can be done to remedy the issues. If the break-up is confirmed, we would likely seek to hire one or more of the Thiessens as farming employees, and either to support a remaining family member as a JV partner or to lease the land and farm it ourselves. For the moment we can do nothing further than to continue with the current JV, strengthening our oversight role, and patiently await developments. We realize this is quite a change from the last JV Report where we reported that the Thiessens were excited about expansion of their irrigated land and also that their fields appeared to be on the cusp of yielding some record breaking yields. It is however the reality of farming in Belize, and such behavior and such challenges may help to explain why there haven't been more successful farmers in this community.

Recent field surveys continue to indicate promising results in the irrigated fields which are part of the "Marlon Trial". We are also seeing a clear data separation between the Thiessen Trial and the Marlon Trial in terms of plant health, with very limited lodging so far in the Marlon Trial. Both trials are showing ear counts in the 26,000-32,000 range (versus 30,000 and 35,000 seed populations), which would normally be supportive of 150-200 bushel /acre (9.5 mt – 12.5 mt / Ha) yields. However, lodging issues in the Thiessen fields are likely to materially reduce those yields, while some portions of the Marlon trial are still indicating possible record breaking yields.

The 12 acre plot which was to highlight the merits of Black Worm Castings as an alternative fertilizer was "bush hogged" due to lack of rain on this field. Since the majority of the Black Worm Castings nutritional values castings will not have been "used up" it is hoped we can make use of its presence in the soil for light red kidney beans during the winter crop. This area held out a little bit longer and proved that the use of black castings does help with drought resistance. In a year this dry however, it was not enough. It has been well understood for many years that increased organic material in the soil helps the soil retain more water.

Also confirming previous reports, much of the corn planted in the Indian Creek/San Carlos area has been chopped down for animal feed. The actual numbers are quite dramatic, with less than 20% of the original expected acreage still expected to be harvested. We are indeed fortunate that our irrigated corn still looks so good compared with this dismal outcome, which will create real hardships in the Indian Creek farming community.

The worst of the corn crop's exposure to pests and diseases is past; as the corn matures the worms have less chance of damaging the developing cobs and the worms have mostly been eliminated through the use of chemicals. We have noted some, albeit limited damage from ear worm, with losses likely reduced from last year; however, there are still improvements to be made in this key area, and having direct control of farming operations should allow us to make further progress. Moreover, this year's dry weather aggravated pest issues and required heavier intervention. Thankfully, irrigation helps to mitigate this issue, but nothing replaces regular rainfall and disciplined field management.

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

Rice

Jacob Neufeld's 2013/14 Rice crop is over, although it will be a considerable time before we have final results. Despite our requests, Jacob Neufeld did not weigh his rice crop as it came off the fields and went into storage. This rice is now in the Blue Creek "Quota System" and will gradually be milled and sold by Circle R, Blue Creek's rice merchant (Distinct from Abram Wall to whom we sold the Marlon JV Rice), who will provide a monthly report of sales. We will be able to report the final cost to farm the JSN 236 rice acres for the next JV farming report, which will allow us to determine a cost per lb. Sales proceeds will be collected over the next six months, which has an obviously negative impact on cash flow, although the current price being realized by Circle R for milled rice equates to an equivalent price for paddy rice of over BZD 0.45/lb.

Black-Eyed Beans

We are awaiting final numbers on quantity of BEBs produced and net price realized from Circle R, through whom Jacob Neufeld also disposed of the BEBs. The amount was quite small, about 50,000 lbs., although we were disappointed that Jacob did not obtain our agreement to dispose of the beans via Circle R.

As the farming team reviewed Jacob's performance, his unwillingness to take direction, and the very disappointing way he handled the harvest and disposal of the rice and BEB crops, we have determined not to continue working with him on a JV basis. We have kept the door open to continue working with him through equipment rentals and custom land work, but we no longer consider that he would make a viable long term farming partner for BSA.

Marlon Dyck – 410 acres (Rice 100 % irrigated)

We now have final yield and revenue data for Marlon's 2013/14 Rice Crop, which provides very interesting and encouraging indicators. Final production cost information should be available for the next report.

Of the 410 acres which were farmed, we harvested some 2,477,000 lbs of paddy rice at a 20% humidity equivalent, of which ~2,350,000 lbs were delivered to Abram Wall and ~127,000 lbs were kept for processing at Circle R under Marlon's supervision (this included the "Black Worm castings" acreage which was reserved for processing at Circle R.) Given that our rice combine currently does not have a yield meter, we can only estimate yields, unless a particular field was harvested in full and that field's crop subsequently weighed on an individual basis. The approximate breakdown of the 410 acres of rice fields is as follows:

210 Series Fields: 90 acres

220 Series Fields: 168 acres

230 Series Fields: 152 acres

The 210 series fields were planted on March 10 and had a significant issue with bad seed, as originally reported in March. As these were "the least bad" fields of those originally planted with faulty seed the decision was made not to replant (as explained below, the 220s were sprayed down and replanted). With hindsight, we should also have replanted the 210s, but due to a lack of sufficient certified quality seed at the time, a decision was made not to replant them (hindsight is such a wonderful thing). Also, we had real issues with water levels on the 210 series fields which caused algae problems that negatively impacted yields. While this second issue should be resolvable through land-planing work in the early dry season, and the first issue is simply resolved through advanced procurement, all in all the 210 series fields were very challenging in 2013/14. We are preparing a game plan to ensure that 2014/15 becomes a clear success on this series.

The final yield from the 210 fields was approximately 300,000 lbs, or a mere 3,300 lbs/acre. While this is clearly a disappointing number, gross revenues are slightly above \$600/acre versus an expected production cost of slightly below \$800/acre; so the 210 fields should cover most of their costs, and we have learned a number of valuable lessons. Moreover, in working the ground this season, the land is in better condition for next season's crop, positioning us for a positive 2014/15. But the motto for 2014/15 is: "8,000 lbs or bust!"

The 220 series fields were originally planted on March 15 and, when the seed quality issues became apparent, the fields were sprayed on March 26 and replanted on March 29. We had a much better stand from the replanted seed than the original seed, although with hindsight we should have waited another ten days before planting. It appears as if residual chemicals from the spraying affected both plant vigor and ultimate yield, and further investigation indicates that a longer waiting period might have mitigated these issues. The 220 series took longer to emerge and grow than normal (and in comparison with the later planted 230 series) and while the fields always "looked good" they were never quite as impressive in terms of stand quality or grain fill as the 230 series.

The final yield from the 220 fields was approximately 1,025,000 lbs. or approximately 6,100 lbs /acre. This is still well below what we believe the potential for these fields should be (although higher than any other rice farmer in Blue Creek), as seen from the 230 series below. Nonetheless, gross revenues from these fields are around \$1,130/acre, which will allow a comfortable margin versus our expected production cost of slightly below \$800/acre

The 230 series fields were planted on March 29 with good quality seed and from the beginning showed vigorous emergence and an excellent early stand. Throughout the development period there were no material issues and pest control was also well managed. There was a modest amount of "wild rice" in the field, which we had hand-pulled to improve prospects for the 2014/15 season. We also had some "duck issues" as vast flocks of ducks chose to nest on the edge of the 230 and 220 series fields. The ducks walk around and crush rice plants to make their nests, the damage from which is not an issue if it's a few ducks, but when multiplying the damage by 500 or 1,000 and the problem becomes material. Next season we will be organizing regular shooting days, to which our friends and associates who happen to be in Belize are cordially invited. As a reminder of how beautiful the 230 series rice fields were, we have inserted a picture of field 234 shortly before harvest, as well as a picture showing clouds of ducks flying off these fields.

The final yield from the 230 fields was approximately 1,152,000 lbs or approximately 7,630 lbs/acre. This was a very encouraging result for the first year these fields have been in production since 2011 and bodes well for future rice production opportunities. Gross revenues from these fields are around \$1,410/acre, which will allow an impressive margin versus our expected cost of slightly below \$800/acre.

Field 221 - Black Worm Castings Trial

A 30 acre trial was made on field 221 to replace conventional fertilizers with Black Worm Castings. Unfortunately, this field was in the 220 series which we had to replant, and which did not thrive as well as the 230 series. Also, due to our not having yield monitors on our rice combine we did not get a specific yield number off this field. However, we do have a small bin of this rice which was segregated at harvest and which is being separately milled. Assuming a favorable milling yield, we will attempt another trial next year which will be monitored in a more scientific fashion.



Field 234 Just before Harvest – July 17, 2014

(Zoom in for a look at "Amber Waves of Grain")



Clouds of ducks over 230 Fields after harvest – July 2014

(Zoom in for a better look at many hundreds of ducks)

Rice Trial Summary

Field Series	Acres	Yield lbs/acre	Revenues per acre	Production Cost / Acre	Profit per acre	Total BSA Profit (50% share of JV)
210	90	3,300	\$ 610	~ \$ 800	(\$ 200)	(\$ 9,000)
220	168	6,100	\$ 1,130	~ \$ 800	\$ 330	\$ 27,000
230	151	7,630	\$ 1,410	~ \$ 800	\$ 610	\$ 46,000
Total						\$ 64,000

While the absolute dollar numbers are small, the per acre profitability of rice farming in Belize has clearly been established. Using this year's experience, and assuming the necessary land preparation/improvement is completed, we would model the 2014/15 rice season using an 8,000 lbs./acre yield target, a slightly higher "paddy" price of BZD 0.40/lb., and a production cost of \$800/acre. In fact, due to the high quality rice we produced both local millers indicated an eagerness to secure our rice, and one has already asked about a supply contract for next season which could be set at a price materially above BZD 0.40/lb. The 2014/15 model would produce a profit per acre of \$800, which multiplied by 1,000 or 2,000 acres begins to be quite a material number.

Lastly, we are experimenting with a second or "ratoon" crop. After an unsuccessful attempt on fields 234-237 (102 acres), we are experimenting on field 221 (30 acres) which was the field fertilized with Black Worm Castings. The trial began in early August and so far is progressing well. We would expect this to be a 60-70 day crop so that it would be harvested in the first half of October. Our goal would be to obtain an additional 3,000+ lbs/acre (\$600/acre in revenues) versus a production cost of no more than \$250/acre. If this attempt is successful and we can reproduce it consistently over time, the impact on rice profitability would be considerable, raising annual profits/acre to over \$1,000.

Hillbank/San Carlos Farm (515 acres Soybeans - 152 Acres Sorghum Milo / 0% Irrigated)

The first "solo operated" farming venture by BSA has begun on some 667 acres of land leased from the Hillbank Agricultural Company ("HAC") in the Hillbank/San Carlos area of Orange Walk. The Pros and Cons of this venture are:

Pros

- BSA has complete control of farming decisions
- Rich Red Soil with excellent drainage
- HAC Landing Strip for easy air access & Buildings on site
- Near Indian Creek Community skilled labor
- Large enough for some economies of scale

Cons

- BSA carries 100% of the farming risk
- Non-Irrigated: vulnerable to Drought Conditions
- Poorly maintained all weather road to Blue Creek

We are very excited to be farming our first crop on a 100% BSA managed basis. The excellent experience we just had with the Marlon Dyck/John Peters rice JV makes it clear that when BSA is in control, we obtain superior farming results. The preferred Summer 2014 crop was deemed to be soybeans, as they are in strong demand in Belize and should grow well in the HAC red soil. We planted 515 acres of soybeans (Fields 1, 2, 4, 5, and 6) and 152 acres of sorghum milo (Field 3). We expect to pre-sell all/most of our soybean crop around the BZD 0.60/lb. basis (equivalent of USD 18.00/bushel), to a local chicken producer and a local grain merchant. Considering that the November CBOT contract trades around USD 10.50/bushel, this is highly attractive pricing. We may also pre-sell our milo crop to a local merchant.

As noted in an earlier JV Report, we are planting the local variety "3296" for the majority of these acres (Fields 1, 2, 4, 6) as this was the only acceptable seed variety that had germination rates consistently above 90%. The remainder (Field 5) will be planted with a locally developed variety called 1088, which was developed by the Caribbean Agricultural Research Development Institute ("CARDI"). This variety (CARDI-1088) has a long history in Belize and is considered one of the best performing varieties for our area. The only CARDI 1088 seed we were able to get was well below acceptable germination rates of 70%, which was unacceptable for our commercial crop. However, after the very challenging attempts and many failures in trying to get good soybean seed for this crop, we decided to plant a field (#5) to be used for future seed purposes. Even assuming a relatively low yield of 1,500 lbs/acre, we would obtain sufficient high quality seed to plant ~1,300 acres in the future, with a seed value of USD 40,000 (or USD 830/acre).

The early challenge has been lack of rain. Indeed, we had set a latest date to plant of August 31st (so that our fields are available for planting the highly profitable edible bean crop in late December), and we only received sufficient rainfall to plant most of our crop (Fields 1, 2, 3, 4, 5) between August 23rd and August 28th. Unusually, Field 6 was planted on August 11th after a freak rain shower had provided enough moisture on just that field for planting. The data for the various fields and seed types are in the attached table.

Early indications are that Fields 1, 2, & 4 (355 acres) are off to a promising start, Field 6 (112 acres) is well under way after an irregular start, and Field 5 is off to a slow start, which is not unexpected given the storage issues described above.

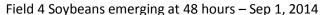


Field 2 Emerging Soybeans; Day 7 - Sep 1, 2014



Field 1 Emerging Soybeans; Day 5 - Sep 1, 2014







Field 3 Sorghum Milo emerging at 48 hours: Sep 1, 2014

Other Farming Prospects - Blue Creek 280 Acres

No further work was been undertaken on the 280 acres of sandy black soil near Blue Creek. It was determined that given BSA's limited availability of equipment, people, and working capital, as well as the challenging weather conditions this season, it was prudent to defer further work until the Winter 2014/15 season.

Summary and Conclusion

We continue to be encouraged by our farming operations, even when Mother Nature doesn't co-operate. The data we have accumulated strongly support the profitability of farming in Belize of Edible Beans, Rice and Corn. We are excited to have an opportunity to trial Soybeans, for which there is substantial and growing demand both in Belize and the immediate region. And once again, while "absolute dollar" profits have so far been modest, some of our "profit per acre" results have been very impressive. What is also becoming clear is that the greater degree of control we have on farming activities, the better our results. This may dispose us to look at adding additional leased land rather than seeking new JV farming partners going forward.

We are continuing to expand our efforts on Marketing & Sales, and have just received the recently ordered market study from the London based Caribbean Council. We will comment in greater depth in the next JV report.

In Guatemala, we have not yet seen an order for corn materialize from Julio Ruiz's contacts, although discussions are ongoing. We also had an encouraging follow up with a major industrial buyer of Grade 1 corn who is looking forward to our delivery of initial trial shipments of corn this autumn. If we can meet the buyer's quality and reliability criteria, this Guatemala based subsidiary of a US Food Sector giant has indicated a willingness to enter into a substantial long term contract for our corn at a substantial premium to the CBOT price. This buyer would also be an excellent reference for other leading regional buyers for our products.

We continue to gather anecdotal evidence regarding continuing depletion of corn reserves throughout the country. Moreover regional neighbors are suffering their worst drought in over 30 years, with Honduras having lost 70% of its corn crop, Guatemala 25% and El Salvador 10%. So the dry weather which has so severely impacted the Indian Creek community is part of a wider regional issue, which is ascribed to looming El Niño conditions. However, local prices re-

main stable around BZD 0.22-BZD 0.23/lb. (USD 6.16-USD6.44/Bu), which by world standards it is still a very attractive price considering the Chicago contract closed around USD 3.48/bushel on August 25.

On the <u>Edible Bean</u> sales front, we have been in communication with three prospective buyers of LRKs in Jamaica, and await their reaction to our recent proposals. These LRKs would be sold for the account of the co-ops at Indian Creek and Little Belize (two traditional Mennonite communities), who still have several million pounds of LRKs left. Our primary goals in these transactions would be to establish relationships directly with end buyers, as well as to assist local partners to generate desperately needed cash by disposing of their remaining crops.

Our 2013/14 Rice crop was an encouraging success. We have a clear vision as to how to expand the breadth and profitability of this crop next season and will be working on specific plans in the next two to three months. We look forward to reporting crop production costs next report.

We are excited to have 515 acres of <u>Soybeans</u> planted, and we look forward to a successful trial. We are looking to expand the scope of our supply contract with the local Chicken producer, which has slightly delayed the execution of a contract. However, there is strong interest in our prospective supply and we believe an expanded contract should be signed within the next few days (my visit to the US for a major agricultural equipment show this past week also helped slow down negotiations). Local soybean prices remain firm around BZD 0.60/lb (USD 18.00/bushel).

Thanks!

John Peters

Grower	Location	Field #	Acres	Irr?	Soil Type	Crop	Seed Variety (count/acre)	Plant Date	Stand Date	Fertilizer Program	Comments
BSA / Marlon & Team	Hillbank	1	105	N	Red	Soy- bean	3296 105,000/acre	8/26		ТВА	Vigorous early emergence
BSA / Marlon & Team	Hillbank	2	122	N	Red	Soy- bean	3296 105,000/acre	8/25		ТВА	Vigorous early emergence
BSA / Marlon & Team	Hillbank	3	152	N	Red	Milo	Marathon 85,000/acre	8/30		ТВА	Vigorous early emergence
BSA / Marlon & Team	Hillbank	4	23	N	Red	Soy- bean	3296 120,000/acre 140,000/acre	8/29		ТВА	Vigorous early emergence
BSA / Marlon & Team	Hillbank	5	48	N	Red	Soy- bean	Cardi 1088 100,000/acre	8/28		ТВА	Slow early emergence
BSA / Marlon & Team	Hillbank	6	112	N	Red	Soy Beans	3296 120,000/acre	8/11	8/17	ТВА	Erratic early emergence; Stand stabilized after 2 weeks
Thiessen Brothers	SC	T1	131	80 Y 51 N	Black-red loam	Corn	Dekalb 7088 131 acres (30,000)	June 6-7	June 9-10	14-36-12 150lb 18-46-0 50lb	Reviewing germination 91% germ Irrigated – heavy Lodging Non-irrigated – ready to abandon
Thiessen Brothers	SC	T2	139	80 Y 59 N	Black-red loam	Corn	Pioneer 4226 139 acres (30,000)	May 29	June 1	14-36-12 150lb 18-46-0 50lb	Reviewing germination ??% germ Irrigated – heavy Lodging Non-irrigated – ready to abandon

Thiessen Brothers	SC	Trial TB-1	51	36 Y 15 N	Red	Corn	Syngenta Impacto 26 acres (30,000) 25 acres (35,000)	May 28	May 31	14-36-12 150lb 18-46-0 50lb	Reviewing Germination results Germination good Vigor good 93% germ Irrigated – heavy Lodging Non-irrigated – ready to abandon
Thiessen Brothers	SC	Trial TB-2	52	36 Y 16 N	Red	Corn	Dekalb 7088 26 acres (30,000) 26 acres (35,000)	May 28	May 31	14-36-12 150lb 18-46-0 50lb	Reviewing Germination results Germination good Vigor good 94% germ Irrigated – heavy Lodging Non-irrigated – ready to abandon
Thiessen Brothers / Marlon Dyck Trial	SC	Trial MD- 1	131	71 Y 60 N	Red	Corn	Syngenta Impacto 30.5 acres (30,000) 30.5 acres (35,000) Dekalb 7088 35 acres (30,000) 35 acres (35,000)	June 7-8	June 10-11	14-36-12 150lb + liquid AlgaEnzims 1L/ac AlZinc .5L/ac Complex NPK 10L/ac Complex NS+P 10L/ac SinerFos 6L/ac SinerPotasio 8L/ac SinerPlus 1L/ac	Trial Plot managed by Marlon Dyck Reviewing Germination results- Thiessen; Impacto 93% Dekalb 94% Impacto 99% germ Dekalb 99% germ
Thiessen Brothers	SC	Trial Black Worm Cast- ings	8	N	Red	Corn	Syngenta Impacto (35,000)	June 6	June 8	14-36-12 150lb + liquid AlgaEnzims 1L/ac AlZinc .5L/ac Complex NPK 10L/ac Complex NS+P 10L/ac SinerFos 6L/ac SinerPotasio 8L/ac SinerPlus 1L/ac	Black Casting Trial Plot managed by Marlon Dyck Reviewing Germination Germination Good Vigor Good 99% germination ABANDONED DUE TO LACK OF RAIN