Saint Lucia
Monthly Agro-Met Bulletin

Issue 5 November 2013

Monthly Theme–

Looking ahead to the dry season

The dry season in Saint Lucia is usually from December/January to May, December being considered as a transition month.

Climate change will result in impacts on water resources, including increased incidence of drought and reduced water availability. During this dry season it would be prudent to practice water conservation and in so-doing, improve water use efficiency.

Glossary

Drought - is a deficiency of moisture that results in adverse impacts on people, animals, or vegetation over a sizeable area

Meteorological drought - is usually defined based on the degree of dryness (in comparison to some "normal" or average) and the duration of the dry period.

Inside this issue:

Expectations for the upcoming dry season

The climate of Saint Lucia is characterized as a Tropical Humid Climate type in the Koppen Climate Classification System. Among the features of this climate regime are:

- Monthly average temperatures are greater than 18 degrees Celsius
- Monthly temperature variations are less than 3 degrees
- A distinct wet and dry season
- Daily high temperature variations are greater than monthly temperature variations.

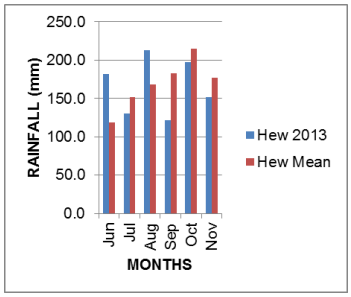
A wet and dry season is recognized in Saint Lucia, although some may argue that with climate change, no definite wet or dry season exists. Traditionally we recognize the wet season to run from June to November which coincides with the Atlantic Hurricane Season and the dry season from December to May. During the wet season, atmospheric conditions in our region favour the development of a number of rain-bearing systems that affect the islands. Among these are the migratory tropical systems (tropical waves, tropical cyclones including hurricanes), the Inter-tropical convergence zone, surface and upper level troughs. During the dry season, the atmosphere is generally more stable and fewer rain-bearing systems traverse the island.

The wet season this year was below average in terms of the rainfall and tropical cyclone activity. As shown in Figure 1a and 1b, only the months June and August produced higher rainfall than the long term means.

The months of June, August and October produced the most rainfall. This year, only one tropical cyclone threatened Saint Lucia and the Hurricane season did not severely impact the agricultural sector.

A positive effect of the low rainfall may be a reduced risk of pests and diseases.

The precipitation outlook for The March to May period has higher confidence and the expectation is for rainfall to be in the normal to above normal categories.



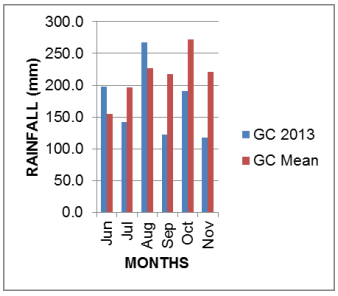


Fig. 1a & 1b Rainfall at Hewanorra and George Charles

The monitoring of precipitation and drought in Saint Lucia is done on a continuous basis using various tools e.g. the standardized precipitation index (SPI) and percentage normal precipitation (PNP). Seasonal precipitation outlooks can be used in conjunction with the precipitation and drought monitor to give guidance on the expected severity of an upcoming season.

The low rainfall totals at George Charles Met office started a drought event in that area. The precipitation outlook for the period December to February indicates equal likelihood of rainfall in the above, normal and below normal categories for Saint Lucia. With the drought already in progress in the north of the island farmers should prepare for all contingencies including the following conditions:

Water shortages may become a reality; Alternate wet and dry spells with an increase in dry spells in the months of January and February.

Farmers' tips

Now that the dry season is quickly approaching farmers would be busy establishing vegetable crops if they have not already done so. Our farmers must be reminded that diseases are high during the December to January/ February period. Also as we move to the dryer periods the proliferation of insects increases. As a result there is a need to employ Pest and Disease Management strategies which would keep the insects below the threshold mark. Especially notable during this period would be the caterpillars, whiteflies, aphids and mites.

Our root crop farmers especially yam producers are harvesting but it is also a time which signifies the start of the land clearing and or preparation phase.

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Rainfall and temperature comparison 2012 and 2013

Source: www.malff.com/

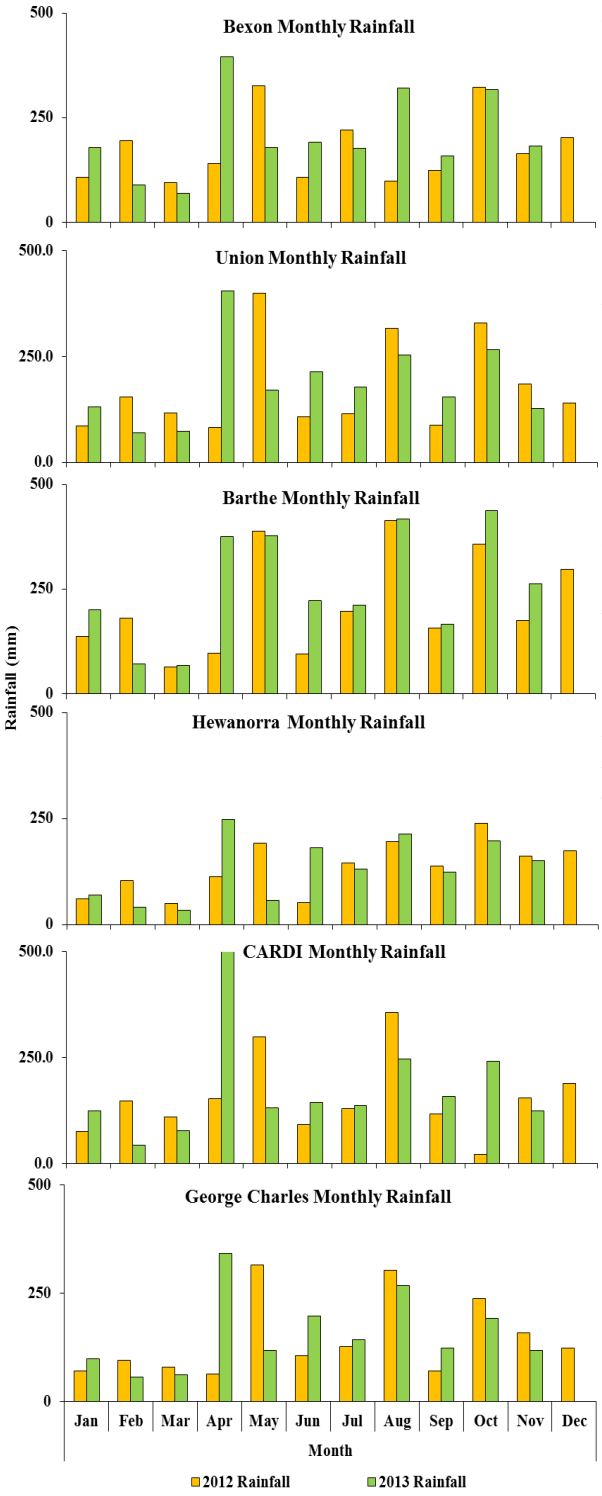

Fig 2. Comparison of 2012 and 2013 rainfall

Fig. 2 summarizes 2012 and 2013 monthly rainfall. The rainfall for both years, up to October followed a similar trend, with a dry season from January to May, followed by the rainy season.

The 2012 total dry season rainfall from January to May ranged between 519 and 865 mm or between 32% and 43% of the totals for the six stations. The 2012 totals from January to November ranged from 1450 to 2256 mm.

The 2013 dry season (January to May) and the rainfall totals from January to November ranged from 450 to 1092 mm and 1446 to 2810 mm, respectively.

The trend of below average rainfall continues in Saint Lucia particularly at George F.L. Charles Met. Office in the north of the island. Total rainfall collected for November at that station was only about 53% of the long term mean. At Hewanorra Met. Office, however, the rainfall collected was about 86% of the long term mean.

Fig. 3 provides graphical representation of the 2013 monthly rainfall for an additional 4 rainfall stations in the south and central of the island. The 3 rainfall stations in the south of the island all continue to indicate lower rainfall values than Deglos, which is generally a very high rainfall area. Further, of the 4 stations, Deglos recorded the highest rainfall in nine of the ten months in 2013. The only exception is June in which Soufriere received 20% more rainfall than Deglos. No data was available for Soufriere in October.

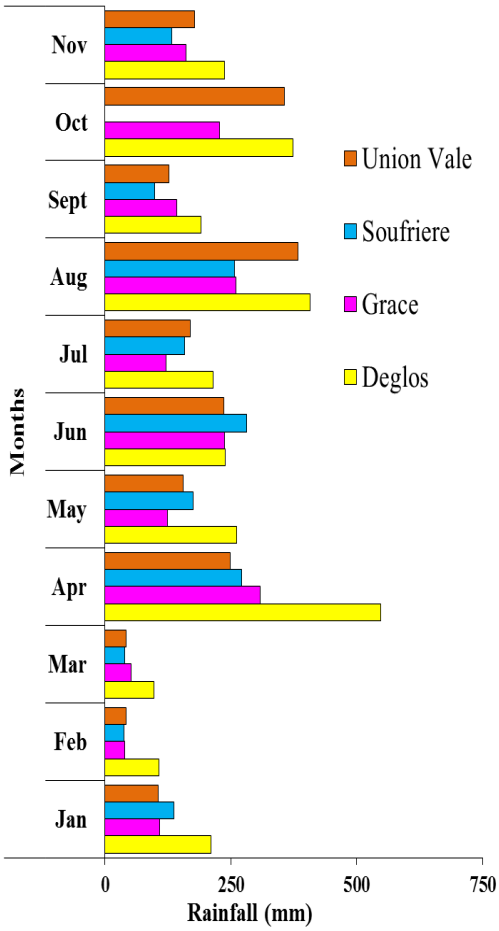

Fig 3. 2013 Monthly rainfall

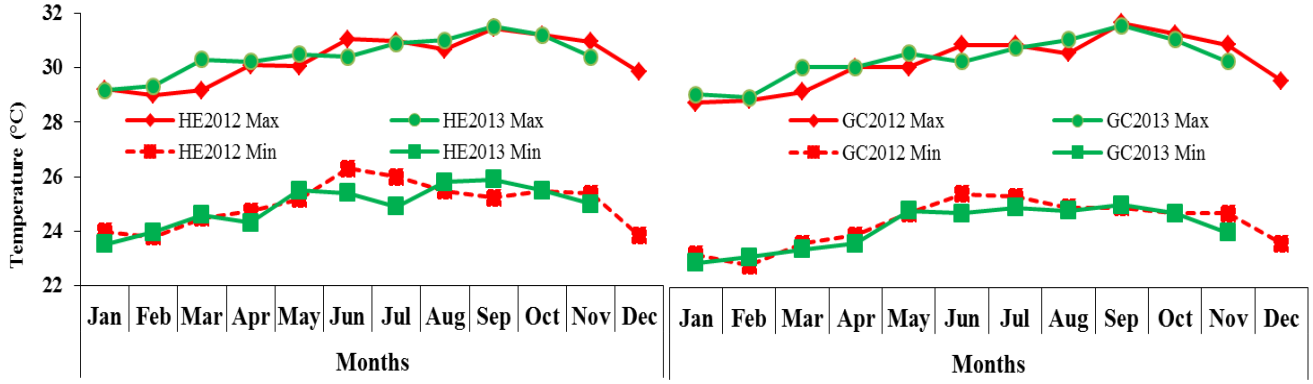

Fig.4 2012 and 2013 Mean monthly min and max temperatures for Hewanorra (HE) and George Charles (GC)

Fig. 3 depicts the mean monthly max. and min. temperatures for 2012 and 2013 for HE and GC. The 2012 mean monthly minimum and maximum temperatures for HE were 25.0 and 30.3°C while for 2013 (up to November) the values were 24.9 and 30.4° C, respectively. For GC the values were very similar, 24.3 and 30.2°C in 2012 and 24.2 and 30.3°C in 2013, respectively. In 2012 the monthly maximum temperature gradually increased from 29.2°C in January to 31.4°C and subsequently decreased to 29.8°C in December. The 2012 monthly minimum followed a similar trend, increasing from January to June but began decreasing from June to December. In 2013 the mean monthly maximum temperature continued to rise up to September. For the month of November, both the maximum and mean temperatures were slightly higher than the long term means.

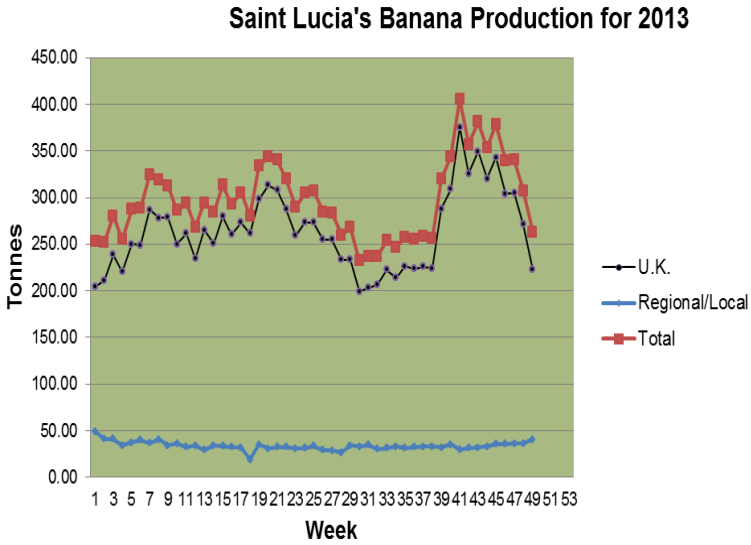

Fig 5 Banana production at week 49 or the end of November was 263 tonnes, The total production for November 2013 was 1251 tonnes, greater than November 2012's production of 978 tonnes.

Banana Leaf Spot Disease

Leaf spot disease, including Black Sigatoka, has been affecting Saint Lucia's banana tree crops and is being monitored through the Black Sigatoka Management Project. Regions 2, 3, 4, 5, 7 and 8 were assessed for the disease. The information/ data gathered in the November period indicate a general improvement in the phyto-sanitary condition of commercial banana cultivation in the country.

Results on the development of the disease show that of the six regions assessed, five recorded decreases in disease levels and one recorded an increase (Region 8).

The improvement in disease levels is mainly attributed to the number of areas that have been treated over the last few weeks. Of the seventy three (73) assessment sites/areas distributed throughout the commercial banana production areas, only six of these require treatment to date. There are no areas overdue for treatment for more than two weeks.

Climatological conditions remain conducive to black sigatoka disease development; however the conditions in region 2 and 4 are highly favourable and continue to worsen. Regions 5, 7 and 8 recorded improvement in climatic conditions; however conditions are still favourable for disease development.

Weather and Climatic outlook

In Saint Lucia, December is considered the transition month between the wet and dry seasons. The month can be either wet or dry depending on the onset of the dry season but is generally is much drier than November. Statistically, rainfall figures for November range from 31.6 mm to 270.5 mm at Hewanorra and from 36.1 mm to 271.2 mm at George F.L. Charles.

This year the seasonal precipitation outlook for the December, January and February period indicate equal chances for rainfall to be in the above normal, normal or below category or to range from 106.5 mm to 400.2 mm in Vieux-Fort and from 109.6 mm to 592.7 mm in Castries.

Most of the rains are produced by migratory tropical systems (tropical waves, tropical cyclones, etc.) and upper level weather systems. However, the seasonal precipitation outlook for the March, April and May period also indicate the likelihood for rainfall to be in the below normal category or to range from 47 mm to 121 mm in Vieux-Fort and from 38 mm to 174 mm in Castries

Since the north of the island is already experiencing drought conditions, farmers in that region should closely monitor the daily rainfall amounts and make careful decisions with respect to the selection of varieties and the crops that they grow in the dry season. They should also take measures to conservation water during the dry season.

ST. LUCIA METEOROLOGICAL SERVICES

MINISTRY OF AGRICULTURE

AND

THE WATER RESOURCE MANAGEMENT AGENCY

Waterfront
Castries
Saint Lucia

Phone: 758-468-5615
758-468-4314
758-468-5664
Fax: 758-450-2281
E-mails: sluagrobulletin@gmail.com
felix.jaria@govt.lc
yusuf.farzana@gmail.com
vdescartes@gosl.gov.lc

Saint Lucia Pitons

We are on the web
http://www.maff.egov.lc/

The Standard Precipitation Index (SPI) is a simple index which uses only precipitation amounts as input to monitor the likelihood of a drought. Positive and negative SPI values indicate greater than or less than median (average) precipitation, respectively. A drought event occurs when the SPI becomes negative and *less than -1 and ends when the SPI value becomes positive*.

Fig. 6a shows that a drought event on a time scale of 1 and 3 months occurred between September 2012 and March 2013 at George Charles (GC) . Figures 6a and 6b show that on a one month time scale, the SPI has alternated between positive and negative from April to October 2013 for both Hewanorra and George Charles. Figure 6a indicated the commencement of a drought event at George Charles in the month of September because the SPI has dipped below –1.0 (-1.05). October indicated a rise in the SPI from -1.05 to –0.53.

The low rainfall total in November for George Charles has initiated a meteorological drought event for that location. SPI values of 1 month and 3 month time scales for Hewanorra and George Charles Met. Offices are shown in figures 6a and 6b below. The SPI values for George Charles for November are -1.18 and -1.49 on the 1 month and 3 month scales respectively. Continued monitoring of rainfall is necessary as we enter December, however, precautions should be taken to reduce/ eliminate water wastage in order to use water more efficiently.

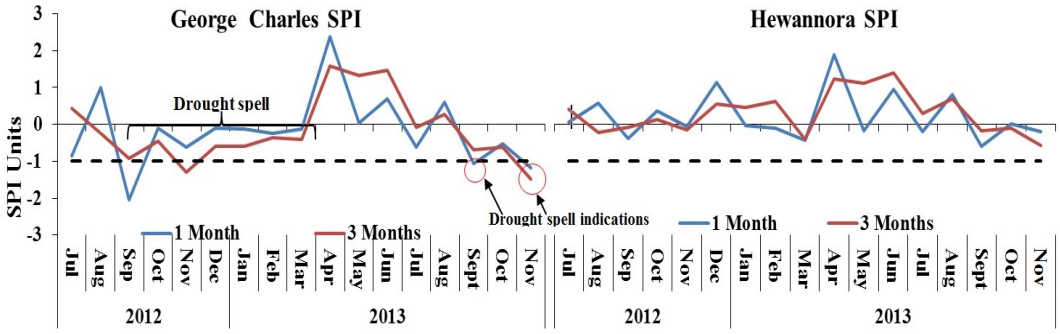

Fig. 6a & 6b—SPI for George Charles and Hewannora over July 2012 to November 2013

Table 1 SPI intensity index

SPI ≥2	Extremely wet	-1.0 to -1.49	Moderatel dry
1.5 to 1.99	Very Wet	-1.5 to -1.99	Severely dry
1.0 to 1.49	Moderately wet	SPI≤ -2	Extremely dry
-0.99 to 0.99	Near Normal		

Farmers' tips continued…

This period is very important because poor farming practices now can influence the occurrence of landslides during the rainy season in the next few months. Farmers must be mindful of the fact that where, how and what is cleared in the land preparation stage affects the extent of landslides and erosion we experience during the rainy season. Although we may be far from the rainy season of 2014, planning ahead helps to reduce our island's vulnerability to disasters.

Now as we approach the dry season let's not forget that we generally experience soil moisture deficiency in our crops and reduced water availability for livestock. As a result attention must be paid to soil moisture conservation and water harvesting if we are to reap the maximum benefits from our labor in a sustainable manner. We must at all costs seek to protect the environment upon which our very existence depends.

Notices

1. The Agricultural Engineering Service Division (AESD) provides free technical assistance to the agrarian community in Irrigation, Drainage, Soil conservation and pond construction. Persons requiring assistance can contact the AESD Office at Union or call 758-468-5618.

2. The propagation units of the Ministry of Agriculture presently has on sale a wide range of plants. For further information contact the Union and Barthe offices at 758-450-3212, 457474, respectively.

3. If water is being abstracted from any river, spring or groundwater well for agricultural purposes, please contact that Water Resource Management Agency in order to apply for an abstraction licence as this is required by law. Contact numbers are 758-468-5664 and 450-3540.