



**ANNOUNCEMENTS**

Rainfall is expected to increase during May and into June in much of the Caribbean, and is likely to bring relief from the drought conditions that persisted in those parts. Farmers and other agriculture interest are recommended to continue monitoring the situation, particularly in the southern portion of the eastern chain, at least until July. Later in the year, there is the possibility for above normal rainfall, with greater potential for flooding and landslides in many parts of the region. It is also possible for above normal temperatures to continue in some places, which can affect livestock, poultry, crops and even human labour due to heat waves and stress.

**REGIONAL OVERVIEW ON WEATHER AND CLIMATE FOR APRIL 2016**

Mixed conditions were experienced in the eastern Caribbean islands. Trinidad was normal to slightly wet; Tobago and St. Lucia slightly wet; Grenada, Dominica and Antigua, normal; Barbados slight to moderately dry; and St. Vincent moderate to severely dry. Guyana was slight to moderately wet. Jamaica was predominantly normal but was slightly dry in the extreme northwest, while Belize ranged from normal in the southwest to severely dry in the northeast.

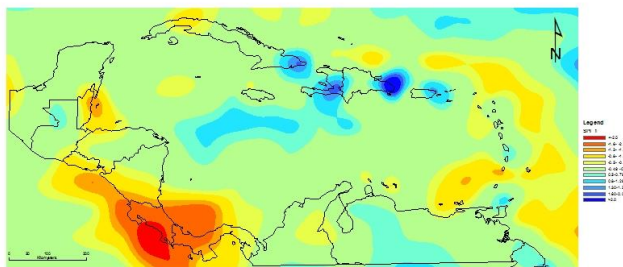


Figure 1. SPI for the Caribbean for April 2016. More information on the SPI can be viewed at <http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/>.

Most annual cropping takes place over a period of about three months. For the three month period, mixed conditions were experienced in the eastern

Caribbean islands. Trinidad was normal to slightly dry; Tobago, St. Lucia and Antigua normal; Grenada severely dry; Barbados and St. Vincent moderately dry; and Dominica slight to moderately wet. Northern Guyana was predominantly normal. Jamaica was slightly wet in the west and normal in the east, while Belize was predominantly normal apart from the extreme west that was slightly dry.

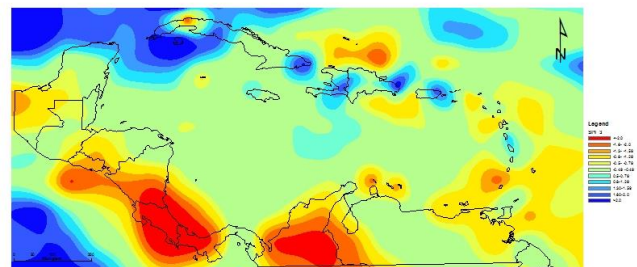


Figure 2. SPI for the Caribbean for February to April 2016. More information on the SPI can be viewed at <http://rcc.cimh.edu.bb/climate-monitoring/spi-monitor/>.

Weak unstable conditions due to trough systems, provided rains to various degrees in the region, often breaking the cycle of dryness. However the high pressure system was still a dominant feature in the region, often replacing the intervening troughs to return the region to the dry conditions. Above average temperatures often accompanied the dry days, which in some countries translated to monthly average temperatures being above average.

## NATIONAL OVERVIEWS

### Antigua and Barbuda

As with the previous six months, night-time temperatures for April were higher than usual across much of Antigua. At the V. C. Bird international Airport (VCBIA), the mean daily minimum temperature of 24.2 °C, an indicator of night-time temperature, was above average and the sixth highest on record (1969-2016) for the month. It was also the highest mean minimum for April since 2010. Consistent with the high night-time temperatures, the month had three warm nights, two more than the long-term-average at the VCBIA. However, the month finished with near-average mean daily temperature of 26.3 °C.

Near normal rainfall for April has resulted in, at least, the meteorological and agricultural droughts easing further to slight levels. Rainfall on average for the month was near-average, measuring 79.0 mm. This was the wettest April since 2013 and the fourth wettest month since December 2014. The number of wet days (days with rainfall  $\geq$  1mm) and heavy rainfall days (days with rainfall  $\geq$  10 mm) were above normal and near normal respectively.

Potable water from desalination has increased to around 93%, the rest is from aquifers. The country remains out of surface water, which normally contributes about 30% to the water mix.

According to the Ministry of Agriculture, some farmers are still preparing lands for planting, especially across the central and southern regions. Meanwhile, others have moved ahead with their planting campaign, thanks to the much-needed rains that fell during the second half of the month. However, the rainfall proved to be unwelcomed for some producers as it resulted in significant crops loss in tomatoes due to splitting. Additionally, pumpkins were left rotting in fields as the wet weather prevented farmers from harvesting their mature crops. The Plant Protection division has increased the number of infested sites for the Giant African Snail to 21 in total. Officials have also announced that there has been an increase in snail activity due to

the increased rains. The livestock division has indicated that animals are in good condition and new grass growth can be seen in most areas. However, water remains an issue, as the rains did not generate enough runoff to recharge most ponds used for watering animals.

### Belize

April 2016 was characteristically warm but much drier than normal. This is likely due to the fact that only one weak frontal boundary affected the country. The first day of April, started out mainly fair and warm. However a prefrontal trough brought an increase in moisture the following day that supported a few showers and thunderstorms. Moisture would continue relatively high during the next few days from the 3rd to the 5th as the weak front stalled just north of Belize and gradually dissipated. Its remnants drifted south during the night of the 5th and by the 6th light showers and rain were confined to the south. Moisture decreased on the 7th and conditions continued mainly fair and dry for the next few days. However, daytime temperatures were slightly lower than normal up until the 12th.

From the 13<sup>th</sup>, the warm and dry conditions developed that continued until the 17<sup>th</sup>, with little to no rainfall recorded during this period. However between the 18th and the 24<sup>th</sup>, conditions were slightly cloudier across the country. On the 19th and 20th there was a very slight increase in showers. After the 20<sup>th</sup> it was mainly rainless for the rest of the period. From the 25<sup>th</sup>, temperatures gradually increased. Conditions also became gusty on the last two days of the month.

Most stations across the country recorded below normal rainfall for April, except for Tower Hill in the north and Baldy Beacon over the Mountain Pine Ridge area.

### Dominica

Normal to slightly wet conditions in Dominica. Hazy conditions were observed during the latter half of the month.

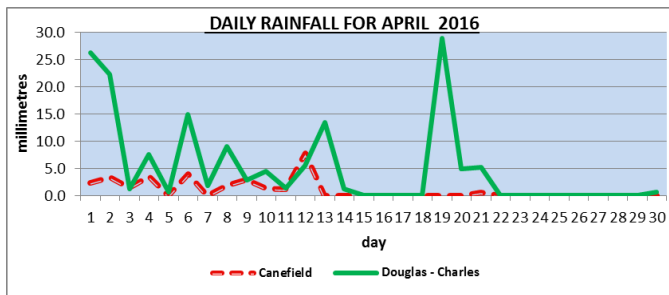


Figure 3 Daily rainfall at Canefield and Douglas-Charles Airports, Dominica during April 2016.

Normal rainfall total of 30.2mm was recorded at the Canefield Airport. The highest daily rainfall total of 7.8mm was recorded on the 12<sup>th</sup>. There were 10 rainfall days (2 days above average) during the start of the month, followed by a prolonged dry spell of 18 days. The average air temperature was 28.4°C (above average). The highest temperature recorded was 33.9°C on the 27<sup>th</sup> and the lowest 21.9°C on the 3<sup>rd</sup> and 10<sup>th</sup>. The average wind direction was south south west at 7km/h. The highest gust of 46km/h was recorded on the 1<sup>st</sup>.

Normal rainfall of 152.0mm was recorded at the Douglas-Charles Airport. The highest daily total of 28.9mm was recorded on the 19<sup>th</sup>. There were 16 rainfall days, 2 days above average. The longest dry spell, which occurred during the last dekad (ten day period) of the month was 9 days. The average air temperature was 27.5°C (slightly above average). The highest temperature recorded was 31.4°C on the 28<sup>th</sup> and the lowest was 21.2°C on the 14<sup>th</sup>. The average wind direction was east south east, blowing at 11km/h. The highest wind gust recorded was 44km/h on the 24<sup>th</sup>.

### Grenada

Drought conditions continued to impact Grenada during April. Crops such as citrus, cocoa and nutmeg trees were severely affected. Frequent fires fueled by the hot and dry conditions and enhanced by strong winds were wide spread. Low moisture within the trade wind flow produced only 1.7mm of rainfall up to the 29<sup>th</sup>. However, on the last day, a change in conditions produced 38mm, bringing the total for the month to 39.7mm. April’s average is 33.9mm.

The steep pressure gradient across the Southern Atlantic and the Eastern Caribbean produced strong winds. Rough seas resulted at times. Small craft

advisories for rough seas and strong winds were issued for thirteen days during the month. Strong winds and rough seas prohibited fisherfolk from venturing out of port and so restricting fish catch. However jacks, tuna and king fish were sold.

Minimum temperatures (reflective of night time temperature) increased during April as indicated in the figure below. Heat stroke warnings were issued for Grenada.

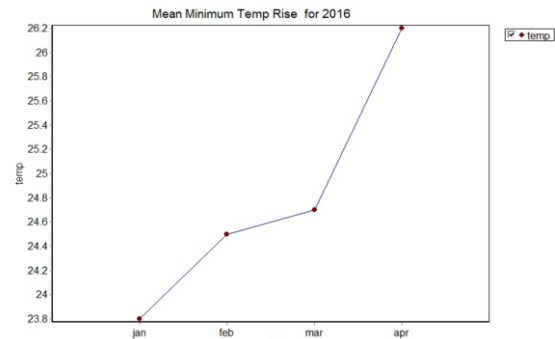


Figure 4 The mean minimum for the first four months of 2016 at Maurice Bishop International Airport, Grenada.

Mainly ground provisions and fruits were sold at market, including yams, dasheen, sweet potato and tannia. Other produce included sweet pepper, lettuce, cabbage and seasonings.

### Jamaica

Table 1 Rainfall Statistics for Manley and Sangster Airports, Jamaica, for December 2015.

Monthly Averages	Norman Manley	Sangster
Extreme Maximum Temperature	33.3 °C <b>(33.2 °C)</b>	33.2°C <b>(32.8 °C)</b>
Lowest Minimum Temperature	23.3 °C <b>(21.7 °C)</b>	23.0 °C <b>(21.1 °C)</b>
Rainfall Total	26.4 mm <b>(30 mm)</b>	18.4 mm <b>(62 mm)</b>
Rainfall days (≥1mm)	3 days <b>(4.2)</b>	4 days <b>(9.6)</b>

Values in red indicate the 1992-2011 (20-year) averages. Values in orange represent 1971-2000 (30-year) mean.

During April, Sangster in the northwest recorded 18.4mm of rainfall, while Norman Manley in the southeast recorded 26.4mm. Both Manley and Sangster recorded below normal rainfall. However, the percentage was significantly less for Sangster.

There were 4 rainfall days reported for Sangster Airport, while Manley Airport reported 3.

The highest maximum temperature recorded for Norman Manley Airport was 33.3°C (29<sup>th</sup>), while Sangster Airport reported 33.2 °C (27<sup>th</sup>). It was noted that extreme maximum temperatures exceeded the 20yr mean at both stations.

**St. Lucia**

Saint Lucia experienced below normal to normal rainfall for the month of April. At Hewanorra Airport, the rainfall amount was 81.3mm, which is near the average rainfall for this location. At George Charles Airport however, the rainfall was significantly below average with a total of 28.9 mm which is 68 % below the average for this time of year. Despite having near normal rainfall at Hewanorra, there were only 6 rainy days at both locations. Two dry spells were observed at Hewanorra, with the longer one lasting 14 days. At GFL Charles there were 3 dry spells, with the longest one lasting 15 days.

May is usually a transition month from the dry to rainy season. The climatological mean rainfall for May at Hewanorra is 74.6mm, and 132.6 mm for GFL Charles Airport. The rainfall at this time of year is mainly due to isolated moisture surges embedded in the easterly trades and on rare occasions some tropical waves especially toward the end of the month. Rainfall for the May to July 2016 period is expected to range from 273mm to 384mm at Hewanorra, and from 393mm to 556mm at George Charles. The extended outlook for the August to October period, suggest that rainfall is likely to be above normal, with the Vieux-Fort ranging from 579 mm to 1179 mm and Castries from 735 mm to 1195 mm.

The average minimum and maximum air temperatures at Hewanorra and GFL Charles Airport were above average for April

Since parts of the island have experienced below average precipitation for some months this year and the forecast is in favour of a shift to normal then above normal precipitation, farmers should take measures to reduce flooding of the fields, due to the possible reduction in the infiltration rate caused by

the severe dryness due to the extensive recent dry spell.

Table 2 April 2016 monthly averages at Hewanorra Airport, St. Lucia.

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	Rainfall Mean (mm)	Rainfall Total (mm)
5	100	14	27.9	78.2	81.3
RH (%)	Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)
76	30.8	26.0	9.4	8.4	27.9

Table 3 April 2016 monthly averages at George Charles Airport, St. Lucia.

Cloud Cover (oktas)	Wind Dir (° from N)	Wind Speed (kt)	Air Temp. (°C)	Rainfall Mean (mm)	Rainfall Total (mm)
5	110	8	28.4	91.7	28.9
RH (%)	Max Temp (°C)	Min Temp (°C)	Daily Sunshine (Hrs)	Daily Evap (mm)	Soil 20 (°C)
72	31.3	24.9			

**St. Vincent and the Grenadines**

Dry conditions persisted throughout Saint Vincent and the Grenadines during April. Bush fires were reported in the Quetelles area. Mainly fair conditions with only brief scattered showers were experienced over the islands. Total rainfall at the E. T Joshua was 31.4mm, 64.5mm lower than the average (based on 1981-2010 rainfall). A funnel cloud was seen SSE of the E. T. Joshua on the 10<sup>th</sup>. On the 19<sup>th</sup> of April, due to the presence of a low level system to the north of the region, above normal northerly sea swells were reported. An advisory was issued. Maximum gusts in the Arnos Vale area were recorded on the 1<sup>st</sup> as 50km/h.

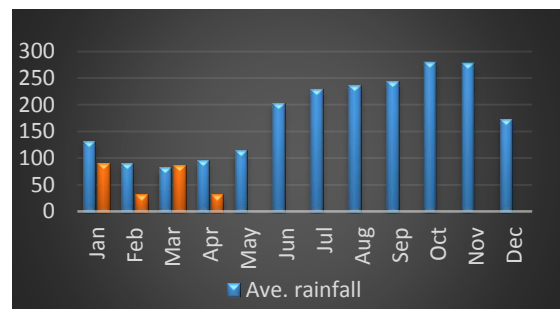


Figure 5 Average monthly rainfall, along with the 2016 January to April rainfall totals at E. T. Joshua Airport St. Vincent and the Grenadines.

The highest 24-hour rainfall was on the 30th with 4.3mm. Rainfall distribution showed the first dekad (ten-day period) recorded 54.1% of total rainfall, the second 19.4%, and the third 26.4%. There were an 11-day dry spell and 8 consecutive days with < 1mm of rainfall. Maximum temperature recorded at E. T Joshua was 31.9°C

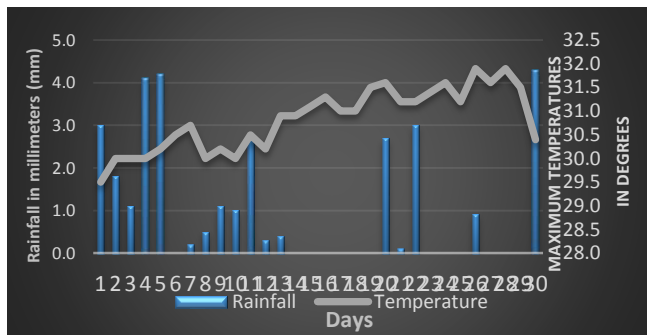


Figure 6 Daily rainfall and minimum temperature for April 2016 at E. T, Joshua St. Vincent.

The average maximum temperature recorded at this station was 30.0°C, while the average minimum temperature was 25.4°C. Mean relative humidity was 75.5 %, 0.9% higher than the (1981 – 2010) average.

### Trinidad and Tobago

Rainfall total for April 2016 at Piarco in Trinidad was 75.7mm or 128.7% of the 1981-2010 average, while at Crown Point in Tobago, it was 58.9mm or 159.2% of the average.

Beneficial rainfall for agriculture fell on the 1<sup>st</sup> and 6<sup>th</sup> Trinidad and on 1<sup>st</sup> and 2<sup>nd</sup> in Tobago. Between 5.0 and 15.0mm of rain fell in most areas, temporarily easing persistent dryness. However, moderate to strong winds accompanied by low relative humidity values during daylight hours, on some days, reduced the beneficial impact. Meanwhile, eight of the ten days had maximum temperatures above 34.0°C in Trinidad and five above 30.8°C in Tobago.

For the second dekad, at Piarco, total rainfall was zero but there were one or two brief showers observed in a few hilly areas. In Tobago, apart from 11<sup>th</sup> when 1.7mm of rain fell at Crown Point, dry weather prevailed over the rest of the period. Crops and livestock had to endure excessive heat, as temperatures climbed to and exceeded 35.0°C on 8 consecutive days. The highest temperature of 36.3°C

occurred on the 16th. Tobago was relatively cooler with maximum temperatures reaching 32.1°C.

In Trinidad, weather conditions improved for agriculture during the last ten days of April as average daily sunshine hours decreased, while average daytime relative humidity increased. Ten-day rainfall totalled 16.9 mm, and was the largest 10-day amount since the first dekad of February. Moderate showers on the 21<sup>st</sup>, 22<sup>nd</sup>, 26<sup>th</sup>, 27<sup>th</sup> and 29<sup>th</sup> accounted for the rainfall. Tobago was also particularly wet with the ten-day rainfall totalling 39.4mm, but with most occurring on the 22<sup>nd</sup>, when 32.5mm fell. Even though there were episodes of beneficial rainfall during the period, temperatures in Trinidad still soared above 33.0°C on each day, except the 22<sup>nd</sup>, and peaked at 35.1°C on the 21<sup>st</sup>. Tobago temperatures were in excess of 30.5 °C on each day except the 22<sup>nd</sup>.

Soil and water temperatures were very high on some days, which would have resulted in greater occurrences of heat and water stress. Conditions during the last dekad brought short-term relief from the dry conditions and were beneficial to agriculture in general but were also favourable for agriculture pest and diseases to thrive. These conditions were also beneficial to crops in critical stages of development and the rainfall would have boosted top soil water content and water storage levels, even though slightly.

### REGIONAL OVERVIEW ON SEASONAL CLIMATE FORECASTS

A now **weak to moderate El Niño** exists that continues to weaken. Sea-Surface Temperatures (SSTs) are 1.0 °C above average in equatorial eastern Pacific. The El Niño should change to neutral conditions by June, with a good chance of converting to La Niña later in the year. As the El Niño weakens, a shift to normal to above normal rainfall is likely over the islands of the eastern Caribbean and the Guianas during the May to July period. For the longer term, any shift to a La Niña later in the year is likely to enhance rainfall activity, probably into the 2017 dry season.

**Caribbean Sea Surface Temperatures (SST)** are currently about 0-1°C above-average north of the Caribbean island chain and normal elsewhere. **Trade winds** speeds are stronger than average. SST anomalies are expected to increase towards the east. However, there are likely to be cooler waters around the western coast of Africa, limiting the number and/or strength of migrating systems that eventually affect Caribbean rainfall. The higher than average SSTs in the Caribbean are, however, likely to increase convection, resulting in showers.

**May to October 2016**

With El Niño weakened and tending toward neutral, rainfall is likely to increase during the May to July period, finally bringing relief from the extended dry conditions to the majority of the Caribbean. The rainfall should at least increase enough during the period to begin to support cropping and pasturelands. Exceptions to this may include Belize in particular, along with the ABC islands and Puerto Rico that are likely to have below normal rainfall. The Guianas and the northwest Caribbean should be normal to above normal with highest probability for above normal, but there is greater uncertainty over the eastern Caribbean islands and Jamaica. Across the region there is also the likelihood for more frequent wet and very wet spells.

to below normal rainfall, the islands of the Caribbean are likely to be normal to above normal. For this period, there is uncertainty regarding the rainfall over the Guianas.

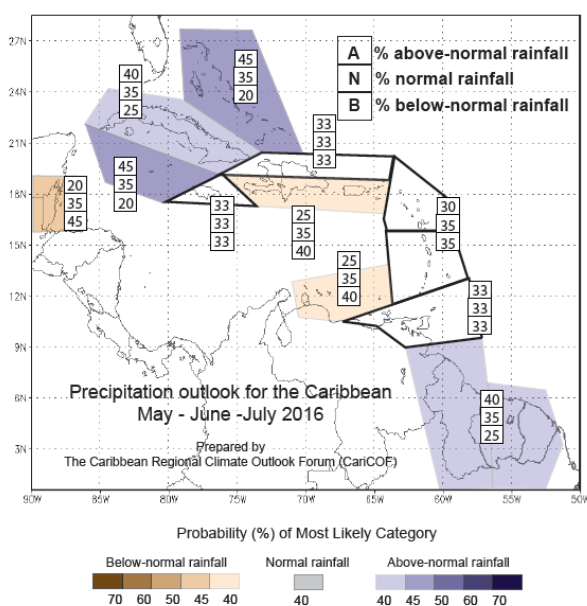


Figure 7 The May to July 2016 rainfall forecast

For the August to October period, apart from Trinidad and Tobago that are likely to have normal

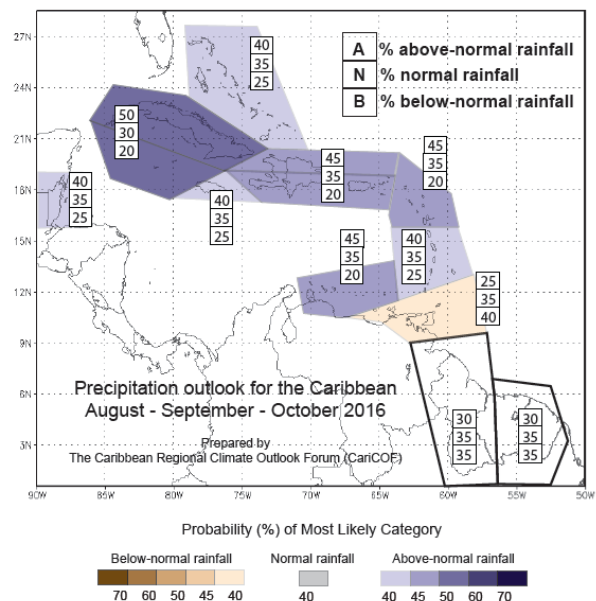


Figure 8 The August to October 2016 rainfall forecast

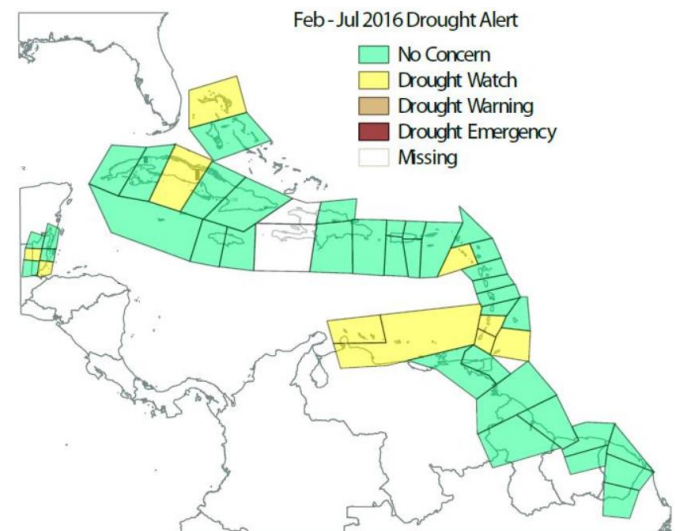


Figure 9 Drought Alert map (based on the SPI forecast) for the end of July 2016, based on actual and forecasted rainfall for the period February to July 2016.

**Forecast Implications for Agriculture**

Though there are some parts of the Caribbean where the conditions regarding drought should still be monitored, such as the south and southeastern islands and parts of Belize, the increase in Caribbean rainfall expected would be good for cropping and pasturelands, unlike recent months. There are expected to be more wet periods than normal during

May to July, increasing the chance of occasional flooding during this period. With La Niña possible later in the year, the chance of excessive rains with flooding increases. Where fields are not properly drained, there can be damage to crops, particularly later in the year.

More specifically, northern Guyana would have already been relieved of the drought conditions it faced and would be experiencing suitable rainfall quantities for crops and livestock. By the end of July, if not before, drought conditions in the eastern Caribbean related to agriculture should be non-existent, as rains increase during the period. It should be similar across the Greater Antilles. Though planting has already or can commence shortly, the agriculture community should continue to monitor the soil and other water resources levels, and focus still on using water efficiently, particularly until the country or local area is totally out of the drought concern.

The agriculture community should also note that, after experiencing above normal temperatures for significant times during the year so far, this is likely to continue a bit longer in parts of the Caribbean, potentially affecting livestock and poultry, and flowering in some plant species.

***Prepared by***

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