## Issue: 55 August, 2017

This bulletin is prepared by the Hydrometeorological Service of Guyana. We welcome feedback, suggestions and comments on this bulletin. Correspondences should be directed to: The Chief Hydrometeorological Officer (Ag), and the Agronomist.



# Hydrometeorological Service of Guyana

Farmer's Monthly Weather Bulletin

## HIGHLIGHTS

- Guyana was classified as Wet (W) for the month of July, 2017 with an average of 211.6 mm of rainfall with 15 rain days.
- The highest one day rainfall was recorded at Bush Lot, Region 5 with a value of 180.5mm of rainfall on July 13<sup>th</sup>, 2017.
- Regional classification for the month showed that Region 8 recorded the highest mean rainfall of 419.5 with 26 rain days.
- Timehri, Region 4 recorded the highest daily temperature of 34.4 °C on July 25, 2017.
- Kaieteur, Region 8 recorded the lowest daily temperature of 19.0°C on July 15, 2017.
- Near-normal rainfall conditions predicted for August through October, 2017.
- Above-normal to Near-normal temperature conditions predicted for August through October, 2017.
- ENSO-neutral conditions are present.



### Rainfall Overview for July, 2017

Guyana was classified as Wet (W) for the month of July, with a monthly average rainfall of 211.6 mm across the country with 15 rain days. The highest monthly rainfall total was recorded at Lethem, Region 9 with a total of 459.4mm of rainfall and 28 rain days, while lowest monthly rainfall total was recorded at Wakenaam, Region 3 with a total of 54.4mm of rainfall with 6 rain days. Most of the stations recorded rainfall amounts below their long-term Averages (Figure 1). Bush Lot, Region 5 recorded the highest daily rainfall with a value 180.5mm on July 13, 2017.



Figure1: Comparison of the accumulated rainfall and the long-term averages for selected stations for July, 2017



Figure 2: Rainfall Distribution for July, 2017

Regions	Regional Average (mm)	Average Rain days	Classification	Remarks
1	285.3	23 days	Very Wet (MW)	Mabaruma recorded 391.4 mm of rainfall with 25 rain days.
2	186.8	15 days	Moderate Wet (MW)	Paradise recorded 341.2 mm of rainfall with 11 rain days.
3	225.5	20 days	Wet (W)	Fort Island Essequibo recorded 405.8 mm of rainfall with 27 rain days.
4	247.5	20 days	Very Wet (VW)	Land of Canan recorded 366.6 mm of rainfall with 11 rain days.
5	241.2	15 days	Wet (W)	Bushlot recorded 348.1 mm of rainfall with 11 rain days.
6	243.1	16 days	Wet (W)	Crabwood Creek recorded 411.0 mm of rainfall with 26 rain days.
7	305.1	21 days	Very Wet (VW)	Dagg Point recorded 349.4 mm of rainfall with 23 rain days.
8	419.5	26 days	Exceedingly Wet (EeW)	Kaieteur recorded 449.8 mm of rainfall with 26 rain days.
9	295.5	20 days	Wet (W)	Lethem recorded 459.4 mm rainfall with 28 rain days.
10	316.0	22 days	Very Wet (VW)	58 Mile Mabura Road recorded 455.5 mm of rainfall with 24 rain days.

### Table 1: Classification of Regional Average Rainfall Data for July, 2017

### Sunshine Hours Summary for July, 2017

Georgetown, Region 4 and New Amsterdam, Region 6 recorded the highest monthly mean sunshine of 6.5 hours. The highest one day sunshine of 11.4 hours was recorded at Ogle, Region 4 on July 24, 2017. Lethem, Region 9 recorded the lowest mean sunshine of 4.7 hours. Most of the stations recorded mean sunshine hours below their long- term averages (figure 3).



Figure 3: Comparison of the mean sunshine hours and the long-term averages for selected stations for July, 2017

### **Temperature Overview for July, 2017**

For the month of July, the highest one day temperature was recorded at Timehri, Region 4 with a value of 34.4°C on July 25, 2017, along with the highest mean maximum temperature of 32.2 °C, while Georgetown, Region 4 recorded the highest mean minimum temperature of 24.1°C. Kaieteur, Region 8 recorded the lowest daily temperature of 19.0°C on July 15, 2017 (Figure 4 & 5).







Figure 5: Comparison of the long-term averages and mean minimum temperatures for selected stations for July, 2017.

#### Comparison of Evapotranspiration (ETo) Totals for selected stations July, 2017

Lethem, Region 9 recorded the highest average daily evapotranspiration of 6.8 mm along with the highest one day evapotranspiration of 10.2 mm on July 27, 2017. Timehri, Region 4 recorded the lowest daily average evapotranspiration of 3.3 mm and the lowest one day evapotranspiration with a value of 1.9 mm on July 20, 2017. A comparison can be seen in figure 6.



Figure 6: Comparison of the Reference Evapotranspiration of selected stations for July, 2017.

Note: The calculated reference evapotranspiration method of Penman - Monteith, which assumes an unlimited water supply, depends on temperature, relative humidity, wind, and generally provides a better representation of crop-water losses and requirements. Reference evapotranspiration is defined as the rate at which readily available soil water is vaporized from specified vegetated surfaces. Evapotranspiration is commonly used to describe two processes of water loss from land surface to atmosphere, evaporation and transpiration. Evaporation is the process where liquid water is converted to water vapor (vaporization) and removed from sources such as the soil surface, wet vegetation, pavement, water bodies, etc. Transpiration consists of the vaporization of liquid water within a plant and subsequent loss of water as vapor through leaf stomata.

### **The Standardized Precipitation Index**

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Table 2. The Standardized Precipitation index for selected stations along with classification						
Station Name	3 Months SPI Value (May, June, July)	6 Months Value	9 Months Value	12 Months Value	SPI Values	Drought Class
Georgetown	5.25	4.56	3.42	3.10	0 to -0.4	Near Normal
Uitvlugt	4.62	3.61	3.09	2.69	-0.5 to -0.7	Abnormally Dry
Wales	5.11	4.24	3.67	3.46	-0.8 to -1.2	Moderately Dry
Enmore	5.08	4.49	3.72	3.44	-1.3 to -1.5	Severely Dry
Timehri	5.22	4.28	3.70	3.46	-1.6 to -1.9	Extremely Dry
Rose Hall	4.88	4.38	3.63	3.22	-2.0 or less	Exceptionally Dry
Albion	4.82	4.15	3.66	3.41	0 to 0.4	Near Normal
Skeldon	5.49	4.79	3.90	3.84	0.5 to 0.7	Abnormally Wet
Blairmont	4.81	4.22	3.40	3.03	0.8 to 1.2	Moderately Wet
					1.3 to 1.5	Severely Wet
					1.6 to 1.9	Extremely Wet
					2.0 or more	Exceptionally Wet



Figure 7: The Standardized Precipitation Index for selected stations for May through July, 2017.

**Note:** The Standardized Precipitation Index (SPI) is based only on precipitation. One unique feature is that the SPI can be used to monitor conditions on a variety of time scales namely 1- month, 3-month, 6-month, 9-month and 12-month periods. This temporal flexibility allows the SPI to be useful in both short-term agricultural and long-term hydrological applications. Tables 2 and 3 above show the 3-month generated SPI values and categories for stations along the Coastal Plain of Guyana. An interpolated map of these SPI values can be seen in Fig.7 .The SPI is based entirely on monthly precipitation accumulations and its values can be compared across different climatic and geographic regions. A drought event is defined when the SPI is continuously negative and reaches a value of -1.0 or less, and continues until the SPI becomes positive.

### Seasonal Outlook for Guyana and the Caribbean for August-October, 2017

Climatologically Coastal Guyana has transition out of its Primary Wet season (the long wet season) of 2017 into its Primary Dry season of 2017 (the long dry season). Latest forecast based on statistical models indicates that not much can be said at this time, but the chance for extremely wet or dry conditions is very low and lower than usual, with a confidence of 66%. With this, Coastal Guyana will experience generally dry conditions up until ending of October, 2017. There are still indications that some heavy downpours will be observed, with a real potential for flash floods and flooding. Heat wise, initially it will still feel hot, with mostly above-normal to near-normal temperatures, but those temperatures may cool down to more comfortable values



**Figure 8:** Precipitation forecast map for August-October, 2017 showing the probalities of above Normal (A), Normal (N) and Below Normal (B) rainfall for Guyana within the context of the Caribbean.



**Figure 9:** Mean temperature forecast map for August-October, 2017 showing the probabilities of Above-Normal (A), Near-Normal (N) and Below-Normal (B) temperature for Guyana within the context of the Caribbean.

## **Table 4: Historical Average rainfall for selected rainfall stations**

Regions	Station Names	August	September	October	Regions	Station Names	August	September	October
1	MABARUMA *	210.4	137.8	****	5	BLAIRMONT	162.2	80.1	54.8
	WAUNA	237.6	185.8			MARDS	159.2	73.6	
				207.0					24.8
	PORT KAITUMA	189.7	173.5		6	ALBION	162.1	74.7	
				160.7					67.4
2	ANNA REGINA*	123.6	86.7	110.7		SKELDON	139.9	105	83.8
	CHARITY	158.0	102.2			CRABWOOD	97.3	46.2	
				101.3		CREEK*			53.3
	Mc NABB	157.6	98.3	123.9		ROSE HALL	176.4	80.2	57.4
	WAKAPOW	199.1	136.9	120.7		NIGG 58	149.6	74.6	75.7
	ONDERNEEMING	111.4	80.0	85.0		ALBION 33	157.4	60.2	51.2
3	BOERSARIE	198.4	121.5	139.9		<b>#73 VILLAGE</b>	155.7	58.5	78.9
	DeKENDEREN B	183.4	110.0	132.3		# 54 VILLAGE*	125.5	45.8	40.2
	DeKENDEREN F	188.9	93.2	127.1		ANKERVILLE	147.5	57.7	65.6
	LEONORA F	198.5	90.0	117.9		MIBIKURI	151.9	73.3	26.5
	LEONORA B	199.2	112.7			MARA LAND	212.9	85.6	
						DEV.			
				125		SCHEME*			59.3
	WALES	185.4	125.2			NEW	157.1	86.9	
		100.0	100.0	125.3	_	AMSTERDAM		104.0	59.6
	UITVLUGT B	188.6	102.3	113.6	7	APAIKWA	225.8	124.3	118.1
	La BAGATELLE	120.8	62.1			MAZARUNI	170	147.9	
	LEGUAN*			88.3					147.7
4	BOTANIC	179.6	89.9	00.0		BARTICA	194.4	174.3	11111
-	GARDENS					DEM.			
						STATION*			
				89.4					182.2
	TIMEHRI	225.7	152.5	132.6		JAWALLA	209	106.6	<b>10-</b> 0
	CANE CROVE R	101.0	<b>F</b> O 0				007.0	107 0	107.8
	CANE GROVE B	121.9	52.8	CO C	ð	KAIETEUR	267.6	127.6	100.0
	CANE CROVE E	150.7	59.9	65.2	0	TALLS" I FTUFM	145 7	86.9	54.6
	L B I FRONT	199.7	04.0 69.1	73.8	9	KARASABAI	86.0	26.3	04.0 91.6
	OGLE FRONT	125.0 125.0	56.8	64.6		DADANAWA	187.1	83.5	45.5
	ENMORE FRONT	183.7	72.8	78	10	GREAT FALLS	225.1	126.9	110.0
		150.0	100.2	Q 4 4			100 5	107.5	110.3
	NAINUNI"	130.2	109.3	ð4.4		WISIVIAL.	109.9	107.0	97.0

NOTE: The historical averages for various stations were calculated by the use of rainfall data from the year 1981- 2010 (climatological normals) except where less than 30 years of observations are available (stations denoted with \*).

### Table 5: Average rain days for the months July-August, 2017 for selected stations

Station Name	August	September	October
Georgetown Botanical Gardens	14 days	07 days	08 days
Timehri Meteorological Station	17 days	12 days	11 days
Ogle	12 days	06 days	06 days
Lethem	14 days	08 days	05 days
Anna Regina	09 days	06 days	06 days
New Amsterdam	13 days	06 days	06 days

## Table 6: HIGH TIDE\* TABLE FOR AUGUST, 2017

	HIGH TIDE $\geq 2.74(m)$					
Dates	Time	Height(m)				
2017/08/05	02:30	2.74				
2017/08/06	03:07	2.83				
2017/08/07	03:44	2.91				
	16:10	2.77				
2017/08/08	04:21	2.97				
	16:43	2.86				
2017/08/09	04:58	3.01				
	17:15	2.93				
2017/08/10	05:36	3.01				
	17:48	2.95				
2017/08/11	06:15	2.96				
	18:24	2.94				
2017/08/12	06:57	2.86				
2017/08/13	19:02	2.88				
2011/00/10	19:46	2.79				
2017/08/18	00:26	2.77				
2017/07/19	01:28	2.91				
	14:40	2.83				
2017/08/20	02:22	3.05				
	15:27	2.98				
2017/08/21	03:12	3.14				
	16:10	3.09				
2017/08/22	03:57	3.19				
	16:51	3.13				
2017/08/23	04:41	3.18				
	17:29	3.11				
2017/08/24	05:21	3.12				
2017/08/25	18:06	3.04				
	06:00	3.00				
2017/08/26	18:41	2.91				
	06:38	2.84				

\*The term high tide refers to when tides are above or equal to 2.74 (m) above sea level

### Spring Tides Tables are provided by the Maritime Administration Department



29<sup>th</sup> First quarter





Lunar calendar for August, 2017

## Agricultural Review for July, 2017

Regionally, Wet (W) conditions were experienced for the month of July. There were no reports of significant effects caused by the weather on Agricultural production.

## Farmer's Note for August, 2017

Climatologically Coastal Guyana has transition out of its Primary Wet season (the long wet season) of 2017 into its Primary Dry season of 2017 (the long dry season). Latest forecast based on statistical models indicates that not much can be said at this time, but the chance for extremely wet or dry conditions is very low and lower than usual. With this, Coastal Guyana will experience generally dry conditions over most parts of the country up until ending of July, 2017. In addition, above-normal to near-normal temperatures are forecast for most parts of the country. Hence farmers are encouraged to take heed of the advisories from their regional agriculturists or extension officers, and to be vigilant and follow the Hydromet's daily and three day forecasts via the radio on 56.0 AM and on our website at <u>www.hydromet.gov.gy</u>.

Farmers are also advised to:

- Use drip irrigation systems to irrigate crops while conserving water.
- Change timing of farm operations- adjust sowing and harvesting period to avoid negative effects of very dry periods.
- Water Storage- work along with groups such as your local agriculture extension officers, the NDIA, the NDC and the Water User's Association to designate a suitable area for the construction of farm ponds for water storage. This is important for dry periods.
- Cultivate new, resistant varieties crops- plant new crop varieties that can grow well in the dry conditions and that are not easily affected by pests and diseases.
- Cultivate shrubs and trees around the fields as part of a crop farming system- this practice assists with the restoring of soil fertility and at the same time creates a micro-climate to reduce high temperatures in dry periods.
- Develop an efficient, protective and curative spraying programme for crops. This helps prevents the spread of fungi and their spores during the wet periods.
- Avoid Applications of chemicals and fertilizer during wet days. This helps prevent contamination of the water table and leaching of nutrients.
- Construct water troughs- where possible to provide water for livestock during dry periods
- Set aside a separate area or land to grow fodder- for animals in dry periods.
- Monitor livestock for pests and diseases- this is an early intervention practice since climate change can increase the incidence of uncertain types of pest and diseases that affect livestock.
- Work closely with fisheries officers- and report any issues, decline in fish stock or irregular behavior in the fish population.

## Crop Of The Month: Corilla

### Common Name: Corilla Scientific Name: Momordica charantia

*Temperature: 24-32°C* 

Soil pH: 5.8 - 6.4.

#### Introduction

Momordica charantia, known as corilla, bitter melon, bitter gourd, bitter squash, or balsam-pear, is a tropical and subtropical vine the of family Cucurbitaceae, widely grown in Asia, Africa, and the Caribbean for its edible varieties differ fruit. Its many substantially in the shape and bitterness of the fruit.



#### **Description**

This herbaceous, tendril-bearing vine grows up to 5 m (16 ft) in length. It bears simple, alternate leaves 4-12 cm (1.6-4.7 in) across, with three to seven deeply separated lobes. Each plant bears separate yellow male and female flowers. The fruit has a distinct warty exterior and an oblong shape. It is hollow in crosssection, with a relatively thin layer of flesh surrounding a central seed cavity filled with large, flat seeds and pith.

#### <u>Climate</u>

Irrigation should be carried out at a 4-5 days interval during the initial stage plant vine growth. It is crucial to irrigate alternate days at the time of flowering and fruiting stage. Irrigate vines on need base, it does not require any irrigation during rainy days or when there is sufficient moisture in the soil. In the case of the of water limited areas, drip irrigation would be the best choice to utilize the water effectively.

#### Insect Pests and Diseases

- Fruit Fly
- Vine Borer
- Powdery Mildew
- Downy Mildew
- Mosaic

#### <u>Planting</u>

Select a warm, sunny planting location. Remove the red coating covering on the seeds partially or fully before sowing. Make holes about half inch deep and spaced 12 inch apart in the soil. .Put two seeds in each hole, and cover the holes with soil and water well. The soil should be allowed to dry out slightly between watering to prevent rot. The seeds will germinate in 8-10 days; however, high temperature and soil dampness are the key factors for germination. Put a trellis or other support structure about 6-8 ft high beside your corilla vines. The vines will climb on and be supported by a trellis.



#### Health Benefits of Corilla

- Wards off diabetes
- Helps with weight control
- Boosts immune system
- Aids in the normalization of blood pressure.
- Helpful in reducing and destroying leukemia causing cells.

#### **Recommended Varieties**

- Indian variety
- Chinese variety

#### <u>Fun Facts About Corilla</u>

- Indians use these gourds in the soups and dishes.
- Corilla is the most sought after vegetable in south India since the people living in this zone use it during "No moon day".
- When pregnant, it is important not to eat corilla or its supplements; it can cause an unwanted abortion.

#### Harvesting/Storage

August,

Harvest corolla about 12 to 16 weeks after planting and 8 to 10 days after blossom drop when the fruits are 4 to 6 inches (10-15 cm) long. The fruits will be a bit pear shaped, with light green skin and a few streaks of yellow. The corilla has a thin layer of flesh that turns orange to bright red when ripe. The flesh surrounds a hollow interior cavity with spongy, white pulp peppered with seeds. The fruit will be watery and crunchy much like a cucumber. Once it starts to ripen, pick fruits regularly every two to three days. The more you pick, the more fruits will form. The skin is tender and edible. Seeds and pith appear white in unripe fruits; they are not intensely bitter and can be removed before cooking.



#### Fertilizer Recommendation

A soil test should be done to determine the nutrient status of the soil. In the absence of a soil test, the following recommendations could be used as a guide; Corilla requires a balance of nutrients from organic and chemical fertilizers. Fertilizer application rates depend on soil type, fertility level and soil organic matter. In sandy soils, fertilizer application consists of a basal application followed by four side dressings, providing a total of 184 kg N, 112 kg P2O5 and 124 kg K2O per ha. In clay or heavy texture soils, the entire amount of P and one third of N and K is applied before planting wither by broadcasting and tilling or by banding a few cm deep and to the side of the plant row in the bed. The balance of N and K is applied in two or more side dressings. No matter the soil type, the first side dressing is applied when plants have four to six true leaves. Subsequent side dressings are applied at two week intervals. Compost or manure can be used to satisfy the basal application of organic fertilizer.

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# El Niño and La Niña Update

### ENSO Alert System Status: Not Active

- ENSO-Neutral conditions are present.\*
- Equatorial sea surface temperatures (SSTs) are near-average across most of the Pacific Ocean.
- ENSO-Neutral is favored (50 to ~55% chance) into the Northern Hemisphere winter 2017-18.\*

# Mid-Jul IRI/CPC Model-Based Probabilistic ENSO Forecast



Figure 12: CPC/IRI Early-Month Consensus ENSO Forecast Probabilities