Issue: 54
July, 2017

Hydrometeorological Service of Guyana

Farmer's Monthly Weather Bulletin

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.

HIGHLIGHTS

- Guyana was classified as Exceedingly Wet (EeW) for the month of June, 2017 with an average of 436.6 mm of rainfall with 22 rain days.
- The highest one day rainfall was recorded at Bush Lot, Region 5 with a value of 190.5mm of rainfall on June 9, 2017.
- Regional classification for the month showed that Region 3 recorded the highest mean rainfall of 474.2mm with 23 rain days.
- Lethem, Region 9 recorded the highest daily temperature of 34.5 ^{0}C on June 4, 2017.
- Kamarang, Region 7 recorded the lowest daily temperature of 19.2^{0}C on June 1, 2017.
- Above-normal rainfall conditions predicted for July through September, 2017.
- Above-normal to Near-normal temperature conditions predicted for July through September, 2017.
- ENSO-neutral conditions are present.

Rainfall Overview for June, 2017

Guyana was classified as Exceedingly Wet (EeW) for the month of June, with a monthly average rainfall of 436.6 mm across the country with 22 rain days. The highest monthly rainfall total was recorded at Fort Island Essequibo, Region 3 with a total of 915.0mm of rainfall and 28 rain days, while lowest monthly rainfall total was recorded at Richmond Hill (Leguan), Region 3 with a total of 141.7mm of rainfall with 11 rain days. All of the stations recorded rainfall amounts above their long-term Averages (Figure 1). Bush Lot, Region 5 recorded the highest daily rainfall with a value 190.5mm on June 9, 2017.

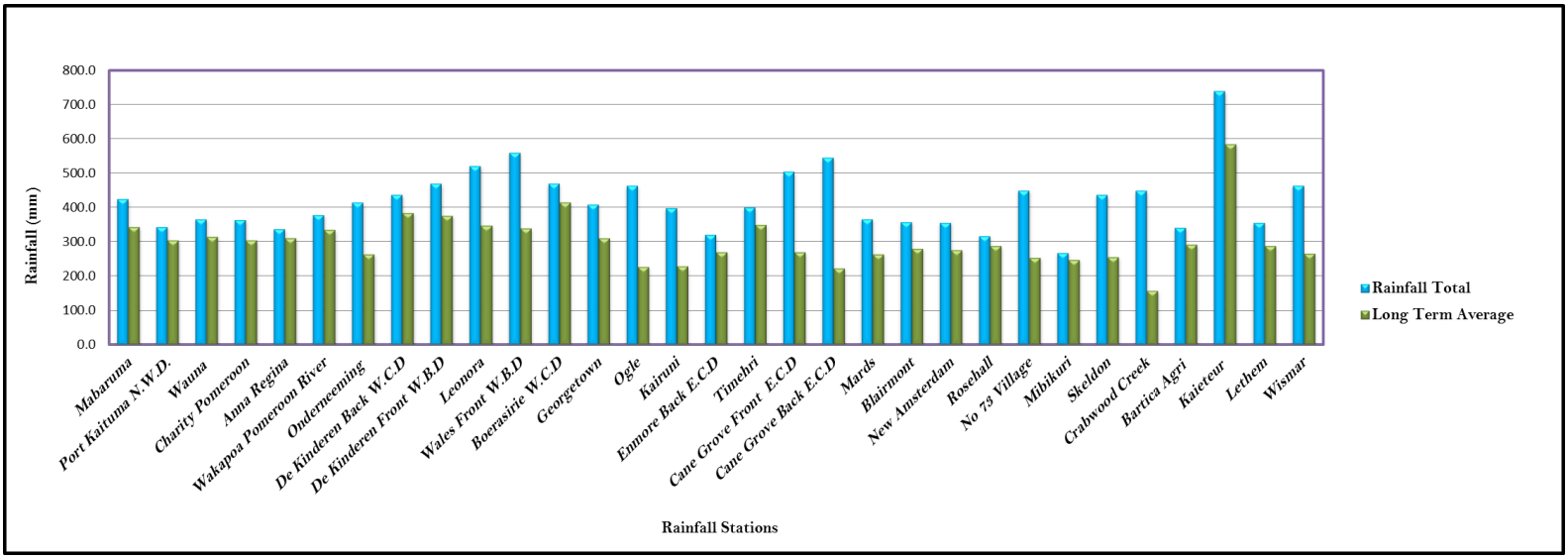

Figure1: Comparison of the accumulated rainfall and the long-term averages for selected stations for June, 2017

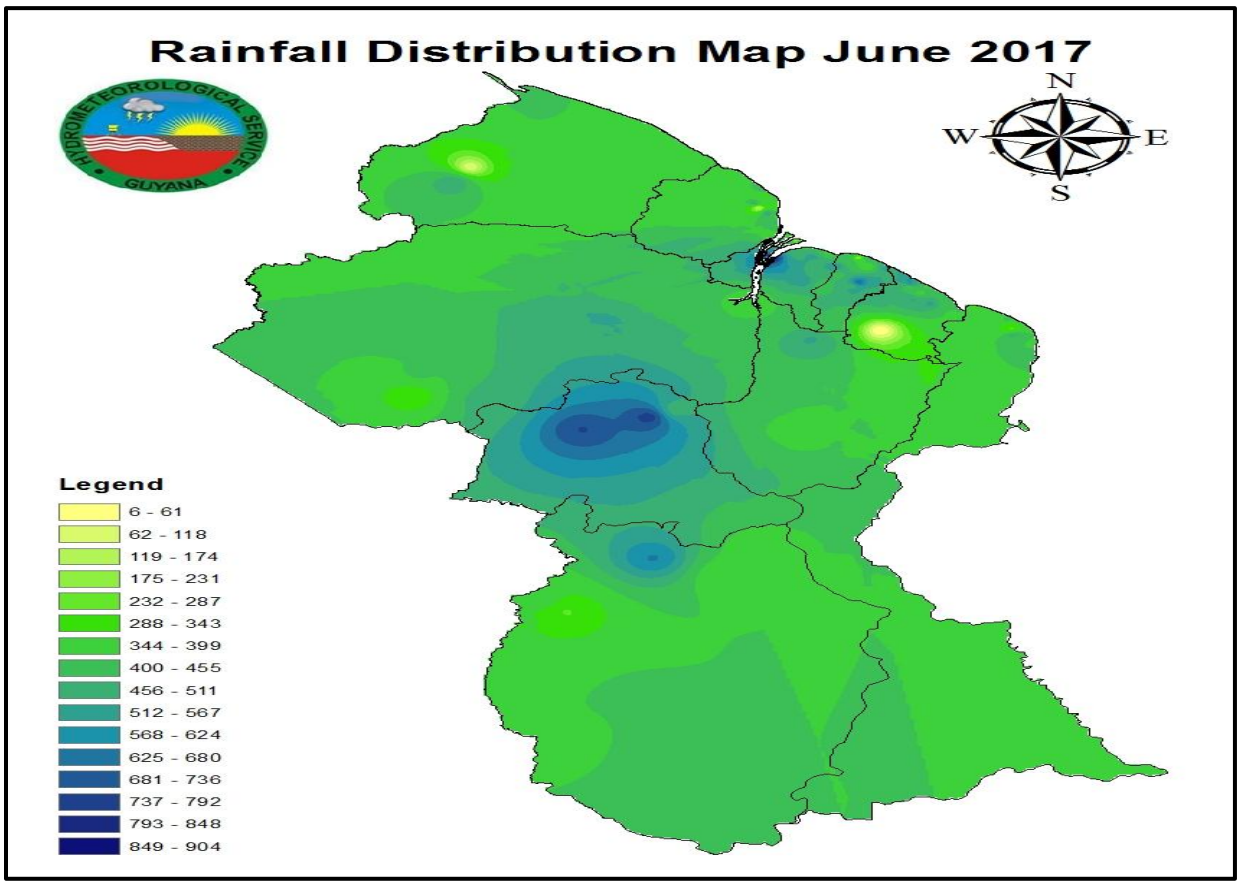

Figure 2: Rainfall Distribution for June, 2017

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

Regions	Regional Average (mm)	Average Rain days	Classification	Remarks
1	374.0	25 days	Exceeding Wet (EeW)	Kumaka recorded 426.7 mm of rainfall with 28 rain days.
2	408.0	22 days	Exceeding Wet (EeW)	Capoey Lake recorded 545.3 mm of rainfall with 27 rain days.
3	474.2	23 days	Excessively Wet (EsW)	Hog Island Essequibo River recorded 571.5 mm of rainfall with 24 rain days.
4	457.7	23 days	Excessively Wet (EsW)	Strathavon recorded 615.3 mm of rainfall with 26 rain days.
5	450.6	20 days	Exceeding Wet (EeW)	Novar Mahaicony recorded 694.1 mm of rainfall with 25 rain days.
6	388.4	18 days	Very Wet (VW)	North Yakusari recorded 563.1 mm of rainfall with 21 rain days.
7	371.8	24 days	Exceeding Wet (EeW)	Dagg Point recorded 371.8 mm of rainfall with 24 rain days.
8	749.9	27 days	Extremely Wet (EtW)	Mahdia recorded 761.1 mm of rainfall with 28 rain days.
9	406.5	20 days	Exceeding Wet (EeW)	Annai Rupununi recorded 627.8 mm rainfall with 19 rain days.
10	447.3	24 days	Exceeding Wet (EeW)	Coomacka recorded 532.5 mm of rainfall with 25 rain days.

Sunshine Hours Summary for June, 2017

Lethem, Region 9 recorded the highest monthly mean sunshine of 5.1 hours. The highest one day sunshine of 10.9 hours was recorded at Ogle, Region 4 and Lethem, Region 9, on June 02 and 04, 2017 respectively. Timehri, Region 4 recorded the lowest mean sunshine of 4.5 hours. All of the stations recorded mean sunshine hours below their long- term averages (figure 3).

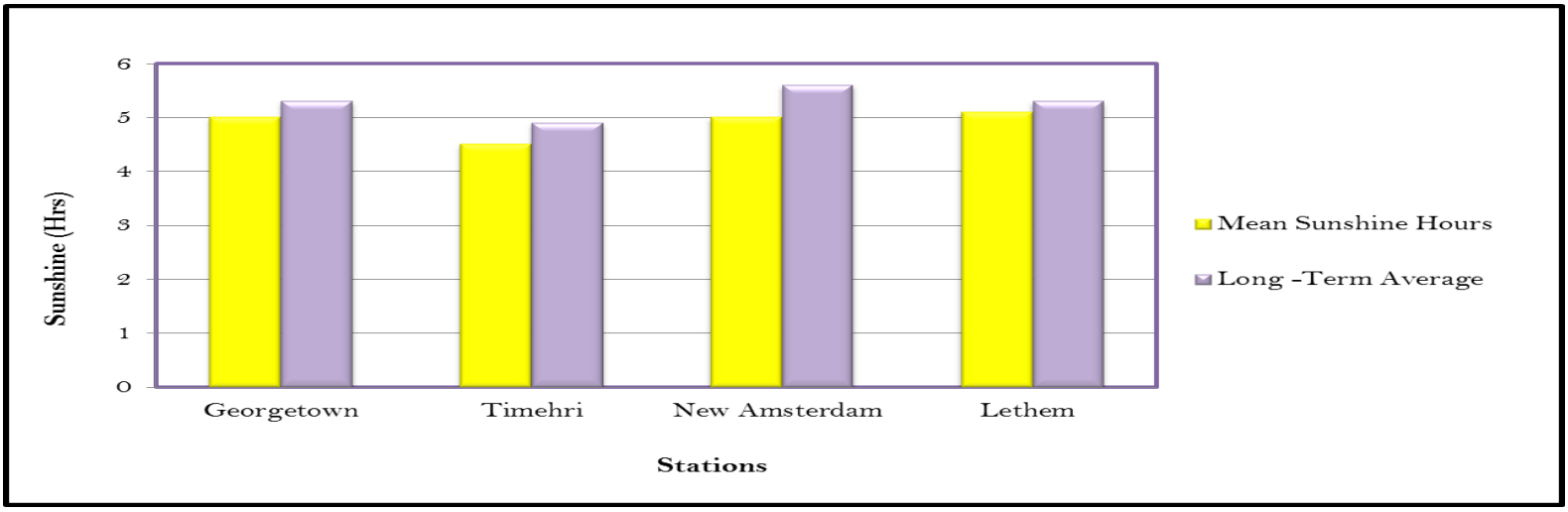

Figure 3: Comparison of the mean sunshine hours and the long-term averages for selected stations for June, 2017

Temperature Overview for June, 2017

For the month of June, the highest one day temperature was recorded at Lethem, Region 9 with a value of 34.5^{0}C on June 04, 2017 along with the highest mean maximum temperature of 31.8 ^{0}C, while New Amsterdam, Region 6 recorded the highest mean minimum temperature of 24.0^{0}C. Kamarang, Region 7 recorded the lowest daily temperature of 19.2^{0}C on June 1, 2017 (Figure 4 & 5).

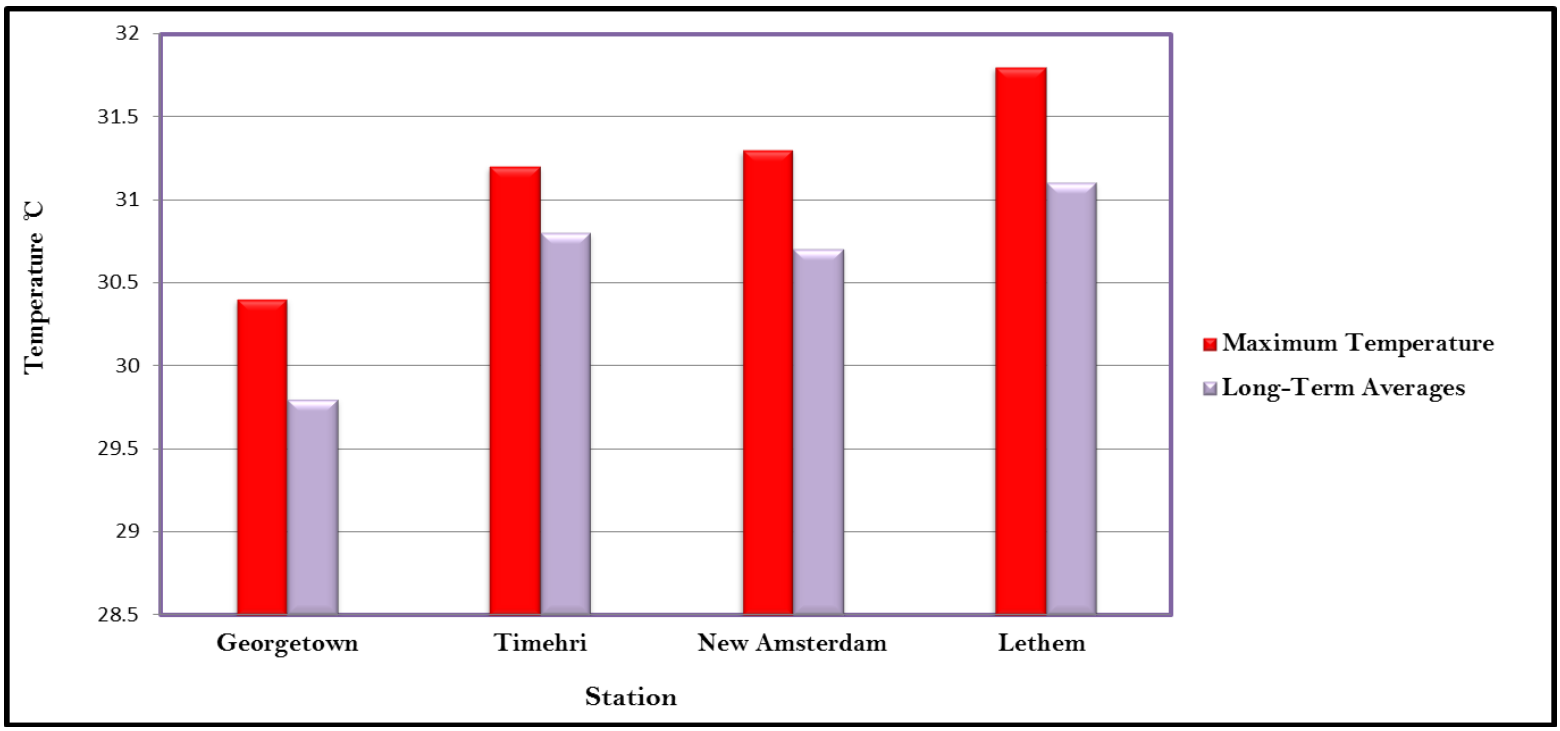

Figure 4: Comparison of the long-term averages and mean maximum temperatures for selected stations for June, 2017.

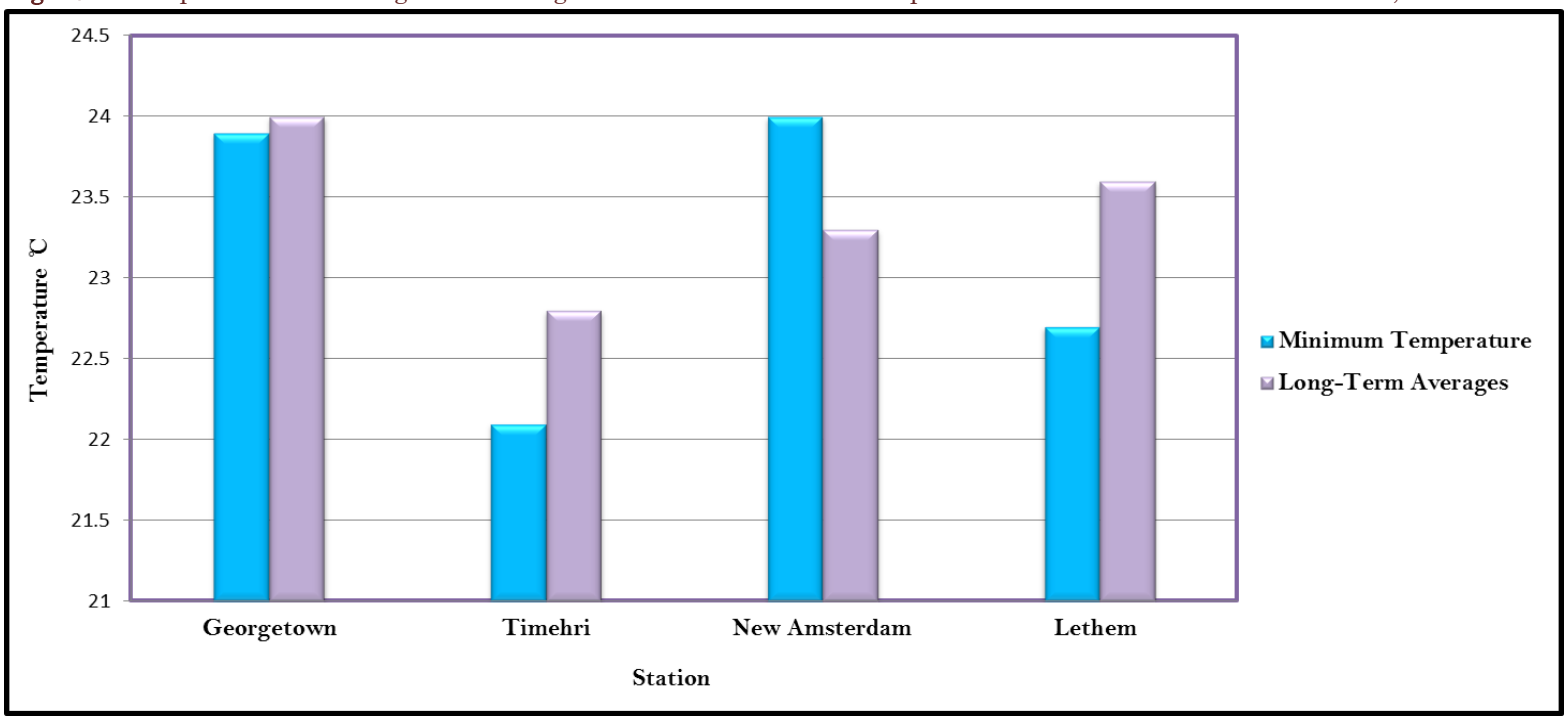

Figure 5: Comparison of the long-term averages and mean minimum temperatures for selected stations for June, 2017.

Comparison of Evapotranspiration (ET_O) Totals for selected stations June, 2017

Lethem, Region 9 recorded the highest average daily evapotranspiration of 6.8 mm along with the highest one day evapotranspiration of 12.4 mm on June 04, 2017. Timehri, Region 4 recorded the lowest daily average evapotranspiration of 4.0 mm and the lowest one day evapotranspiration with a value of 0.9 mm on June 19, 2017. A comparison can be seen in figure 6.

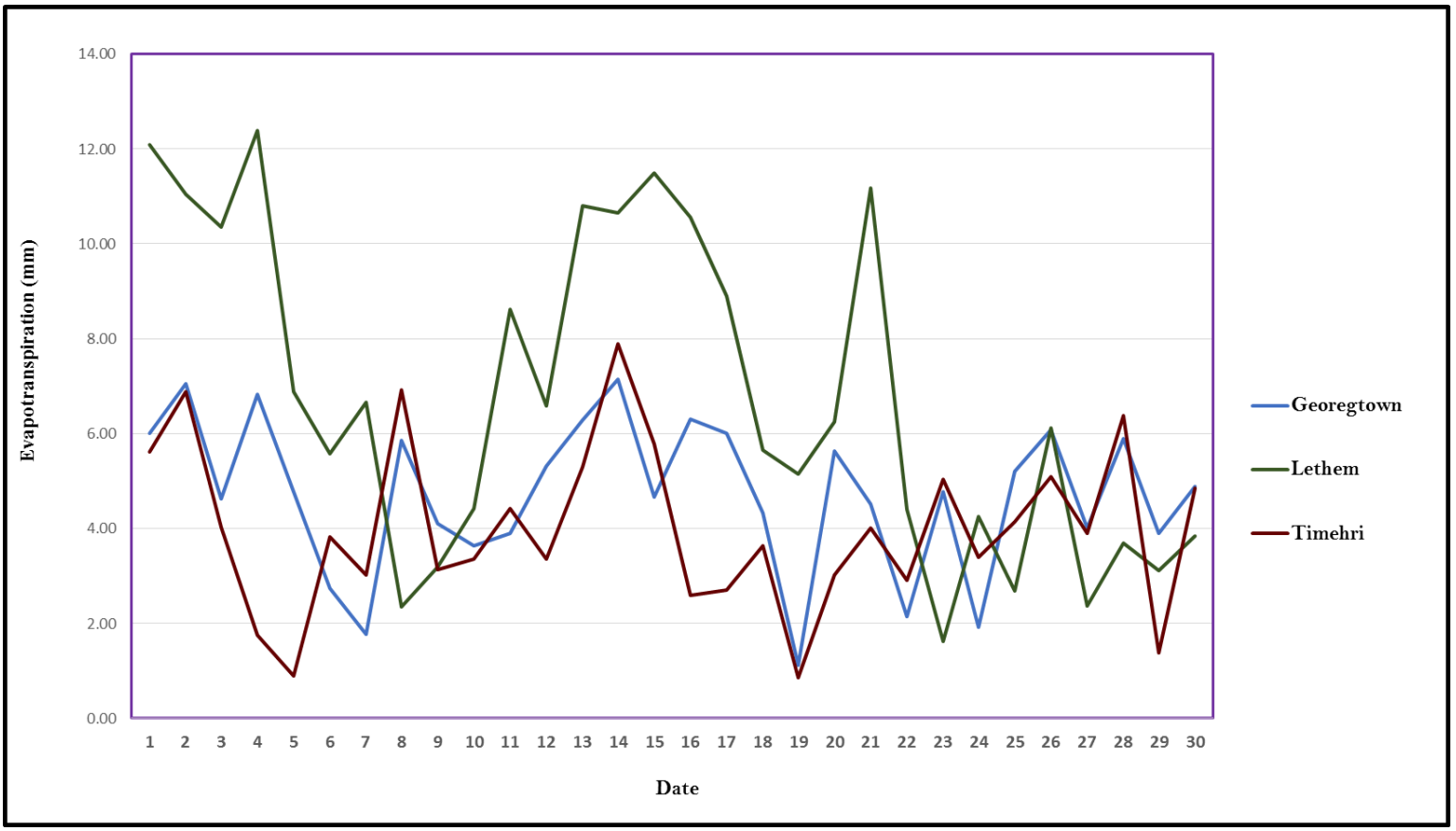

Figure 6: Comparison of the Reference Evapotranspiration of selected stations for June, 2017.

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

Table 2: The Standardized Precipitation Index for selected stations along with classification

Station Name	3 Months SPI Value (April, May, June)	6 Months Value	9 Months value	12 Months Value	SPI Values	Drought Class
Georgetown	4.81	4.81	4.32	3.05	0 to -0.4	Near Normal
Uitvlugt	4.00	4.00	3.49	2.80	-0.5 to -0.7	Abnormally Dry
Wales	4.39	4.39	4.11	3.54	-0.8 to -1.2	Moderately Dry
Enmore	4.77	4.77	4.36	3.46	-1.3 to -1.5	Severely Dry
Timehri	4.52	4.52	4.02	3.37	-1.6 to -1.9	Extremely Dry
Rose Hall	5.04	5.04	4.51	3.48	-2.0 or less	Exceptionally Dry
Albion	4.52	4.52	4.06	3.41	0 to 0.4	Near Normal
Skeldon	5.43	5.43	4.31	3.76	0.5 to 0.7	Abnormally Wet
Blairmont	4.99	4.99	4.00	3.14	0.8 to 1.2	Moderately Wet
Cane Grove	0.66	1.14	1.2	1.22	1.3 to 1.5	Severely Wet
Leonora	0.06	0.85	1.07	0.82	1.6 to 1.9	Extremely Wet
Uitvlugt	4.00	3.49	2.80	2.67	2.0 or more	Exceptionally Wet

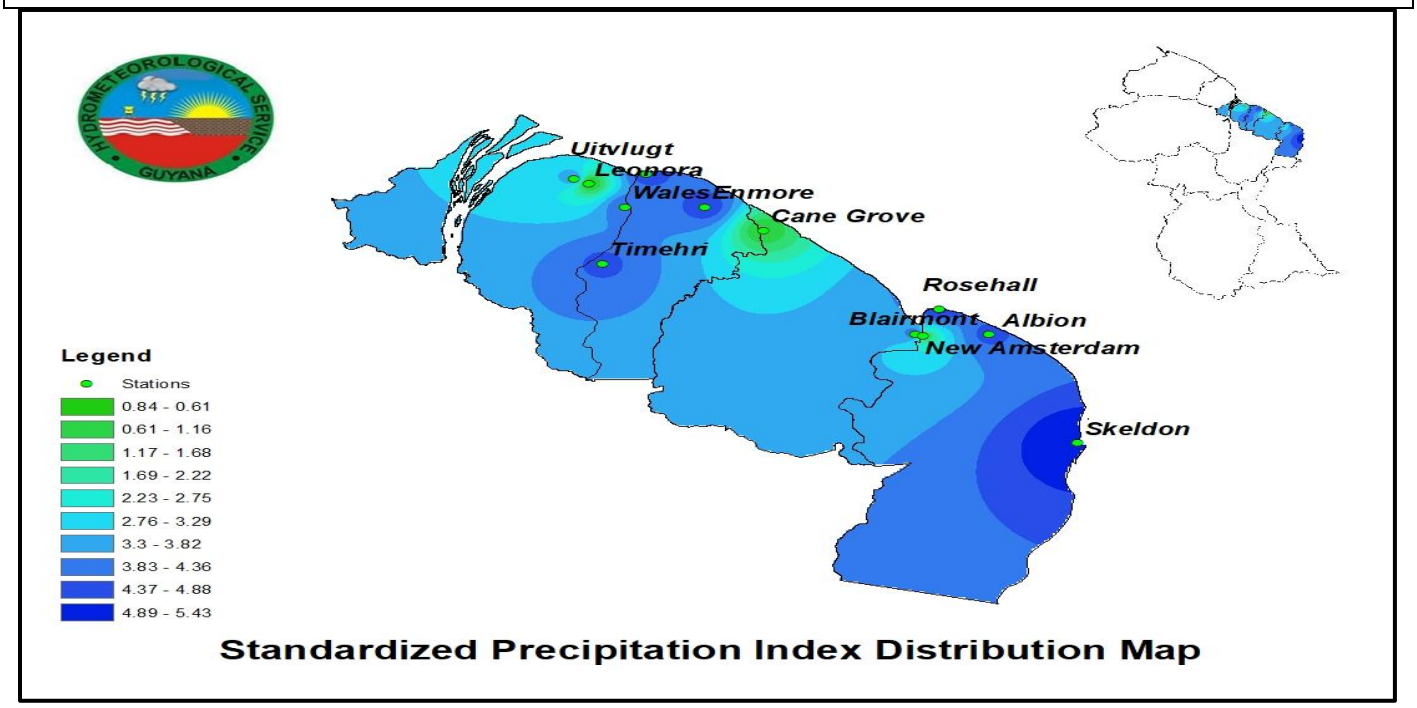

Figure 7: The Standardized Precipitation Index for selected stations for March through June, 2017.

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 July-September, 2017

Climatologically Coastal Guyana has transition out of its Secondary Dry season (the short dry season) of 2017 into its Primary Wet season of 2017 (the long wet season). Latest forecast based on statistical models indicates wetter than to pretty much like usual rainfall for this period, with a confidence of 75%, along with moderate chance for extremely wet conditions.With this, Coastal Guyana will experience generally wet conditions over most parts of the country up until ending of July, 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.

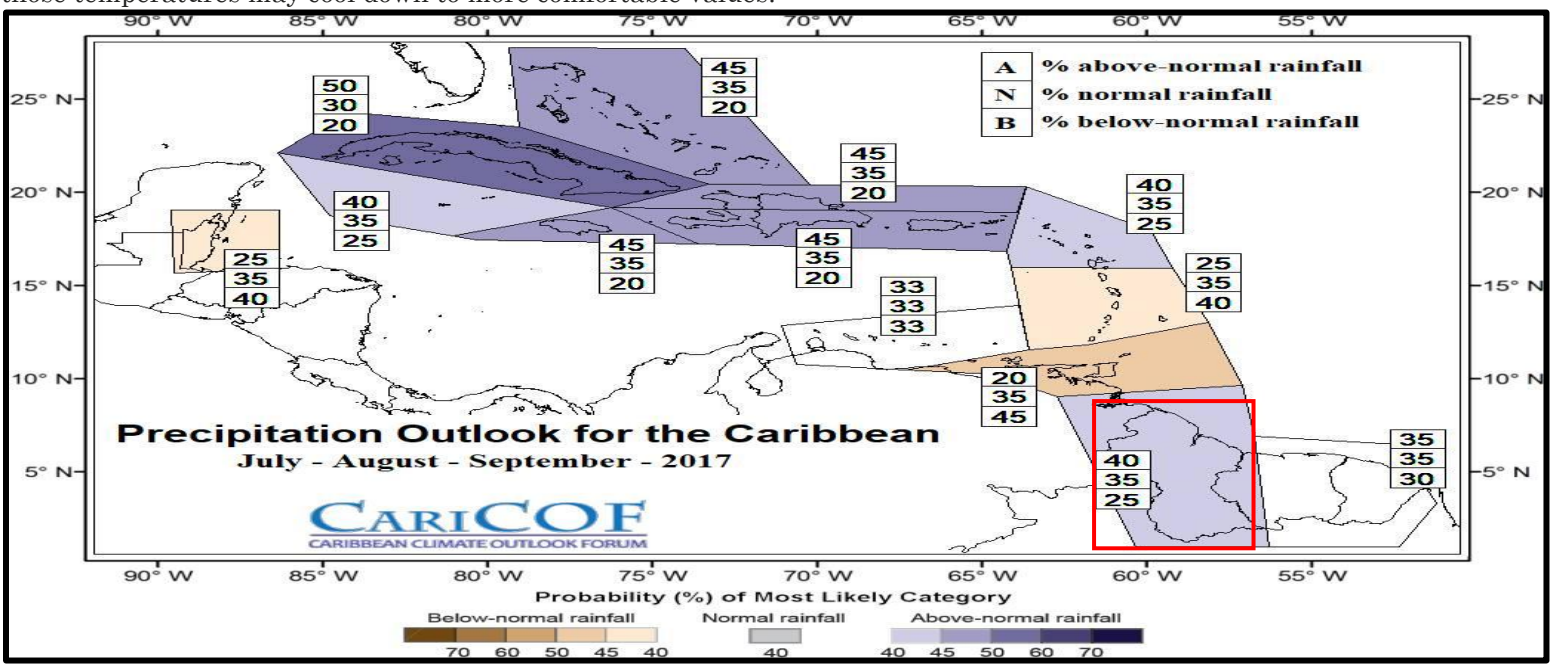

Figure 8: Precipitation forecast map for July-September, 2017 showing the probalities of above Normal (A), Normal (N) and Below Normal (B) rainfall for Guyana within the context of the Caribbean.

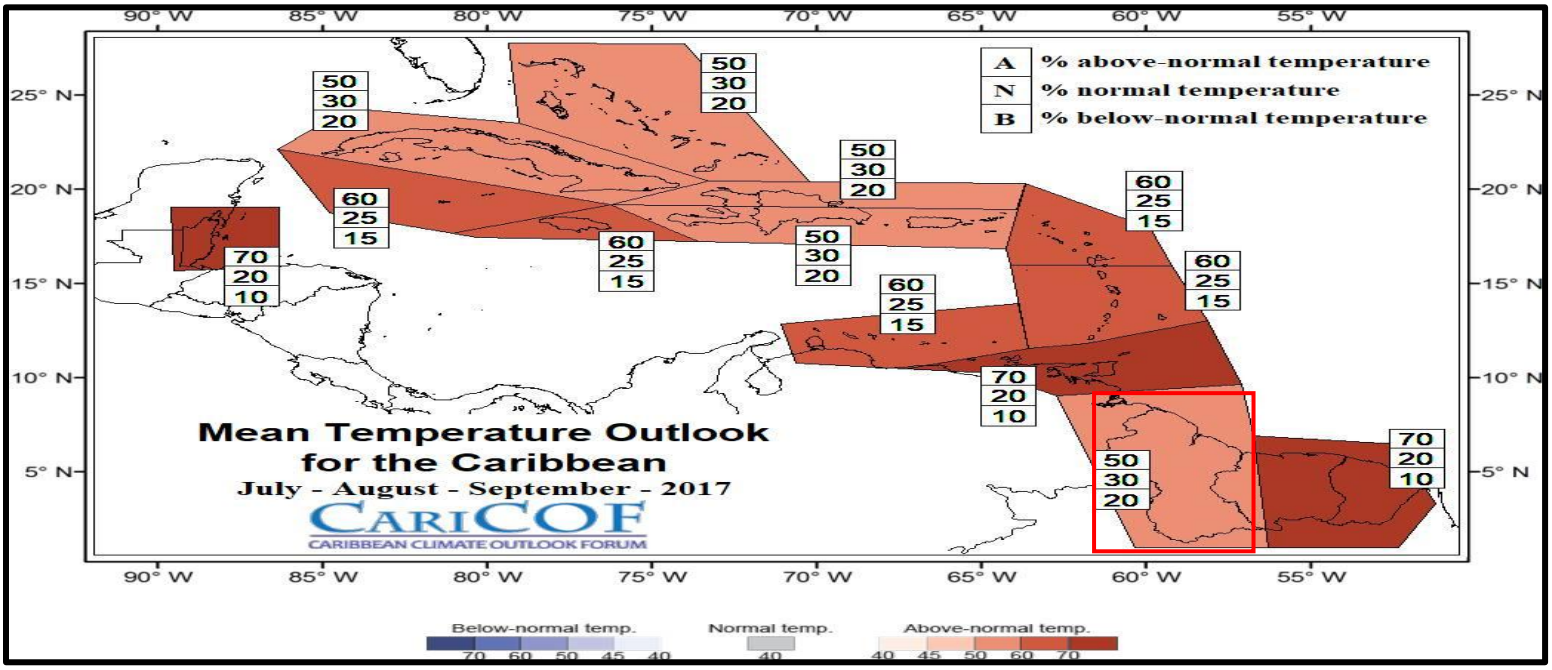

Figure 9: Mean temperature forecast map for July-September, 2017 showing the probabilities of Above-Normal (A), Near-Normal (N) and Below-Normal (B) temperature for Guyana within the context of the Caribbean.

Table 4: Historical Average rainfall for selected rainfall stations

Regions	Station Names	July	August	September	Regions	Station Names	July	August	September
1	MABARUMA *	232.4	210.4	137.8	5	BLAIRMONT	241.6	162.2	80.1
	WAUNA	288.6	237.6	185.8		MARDS	251.6	159.2	73.6
	PORT KAITUMA	261.1	189.7	173.5	6	ALBION	212.1	162.1	74.7
2	ANNA REGINA*	249.0	123.6	86.7		SKELDON	256.0	139.9	105
	CHARITY	251.7	158.0	102.2		CRABWOOD CREEK*	146.4	97.3	46.2
	Mc NABB	255.1	157.6	98.3		ROSE HALL	218.3	176.4	80.2
	WAKAPOW	320.4	199.1	136.9		NIGG 58	208.8	149.6	74.6
	ONDERNEEMING	177.7	111.4	80.0		ALBION 33	109.5	157.4	60.2
3	BOERSARIE	357.5	198.4	121.5		#73 VILLAGE	191.7	155.7	58.5
	DeKENDEREN B	315.4	183.4	110.0		# 54 VILLAGE*	156.1	125.5	45.8
	DeKENDEREN F	304.1	188.9	93.2		ANKERVILLE	218.5	147.5	57.7
	LEONORA F	296.4	198.5	90.0		MIBIKURI	214.3	151.9	73.3
	LEONORA B	318.5	199.2	112.7		MARA LAND DEV. SCHEME*	206.2	212.9	85.6
	WALES	315.7	185.4	125.2		NEW AMSTERDAM	231.2	157.1	86.9
	UITVLUGT B	307.2	188.6	102.3	7	APAIKWA	266.2	225.8	124.3
	La BAGATELLE LEGUAN*	190.5	120.8	62.1		MAZARUNI	310.1	170	147.9
4	BOTANIC GARDENS	266.2	179.6	89.9		BARTICA DEM. STATION*	224.2	194.4	174.3
	TIMEHRI	298.0	225.7	152.5		JAWALLA	268.6	209	106.6
	CANE GROVE B	197.1	121.9	52.8	8	KAIETEUR FALLS *	473.1	267.6	127.6
	CANE GROVE F	214.8	159.7	52.3	9	LETHEM	256.7	145.7	86.3
	L.B.I FRONT	225.4	123.8	62.1		KARASABAI	168.7	86.9	26.3
	OGLE FRONT	216.0	125.0	56.8		DADANAWA	296.5	187.1	83.5
	ENMORE FRONT	256.6	183.7	72.8	10	GREAT FALLS	339.5	225.1	126.9
	KAIRUNI*	240.9	156.2	109.3		WISMAR*	245.6	168.5	107.5

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	July	August	September
Georgetown Botanical Gardens	20 days	14 days	07 days
Timehri Meteorological Station	23 days	17 days	12 days
Ogle	19 days	12 days	06 days
Lethem	20 days	14 days	08 days
Anna Regina	14 days	09 days	06 days
New Amsterdam	18 days	13 days	06 days

Table 6: HIGH TIDE* TABLE FOR JULY, 2017

Dates	HIGH TIDE ≥ 2.74(m)	
	Time	Height(m)
2017/07/06	02:20	2.74
2017/07/07	02:56	2.79
2017/07/08	03:30	2.83
2017/07/09	04:06	2.86
2017/07/10	04:41	2.88
	17:08	2.74
2017/07/11	05:17	2.88
	17:40	2.76
2017/07/12	05:54	2.86
2017/07/13	18:14	2.77
	06:33	2.81
	18:50	2.75
2017/07/20	00:42	2.86
2017/07/21	01:40	3.00
	14:52	2.82
2017/07/22	02:33	3.12
	15:42	2.95
2017/07/23	03:24	3.20
	16:30	3.05
2017/07/24	04:13	3.23
	17:15	3.09
2017/07/25	05:00	3.21
	17:57	3.08
2017/07/26	05:44	3.13
2017/07/27	18:40	3.00
	06:27	3.00
	19:22	2.87
2017/07/28	07:10	2.82

*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

 23rd New moon  30th First quarter  09th Full moon  16th Last Quarter

Lunar calendar for July, 2017

Agricultural Review for June, 2017

Regionally, Exceedingly Wet (EeW) conditions were experienced for the month of June.
However, due to the inclement weather patterns there were reports of significant effects on agricultural production particularly in Region 3, 5 and 9 where residents and farmers from numerous villages had experienced flooding. Communities affected most included Canal No 1 and 2, Branch Road Mahaicony, Mahaicony Creek and Tabatinga. It was reported also that farm lands in Kabanawau and Ireng, Region 9 were under flood water due to the overtopping of several creeks and rivers. Flood relief assistance also was rendered to at least 50 flood-affected villages in the Rupununi.



Images showing effects of flooding in Regions 3,5 and 9

***Aurticle taken from*:** Guyana Chronicle and Guyana Times News Papers.

Farmer's Note for July, 2017

Latest forecast based on statistical models indicates wetter than to pretty much like usual rainfall for this period, with a confidence of 75%, along with moderate chance for extremely wet conditions.With this, Coastal Guyana will experience generally wet 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 of 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 www.hydromet.gov.gy.

Farmers are also advised to:

- Maintain drains around crop beds. This helps water to drain off the land easily thereby reducing the effects of floods.
- Cultivate seedlings by transplanting indoor or under a shaded area- seedlings can be cultivated separately to facilitate easy transplant after a flood or event after the flood water recedes.
- Change timing of farm operations- adjust sowing and harvesting period to avoid negative effects of very wet periods.
- Maintain embankments around fields to protect crops against flooding. Empoulder low lying areas and creeks. Plant grass/crops on damns to reduce soil lost
- Cultivate new, resistant varieties crops- plant new crop varieties that can grow well in the wet conditions and that are not easily affected by pests and diseases.
- Plant crops on raised beds. This helps to reduce the effects of floods on plants
- House animals on high ground and on raised pens during the wet season.
- Store fertilizers on shelves, in an enclosed, dry area away from moisture and water sources.
- Develop an efficient, protective and curative spraying programme for crops. This helps prevents the spread of fungi 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.

Crop Of The Month: Hot Pepper | July, 2017

Common Name: Hot pepper

Scientific Name: Capsicum annuum

Temperature: 25-30°C

Soil pH: 5-6

Introduction

Hot Peppers are tender and warm-season vegetable. There are two types of peppers, Sweet peppers and Hot peppers. Sweet peppers are large-fruited, mild-flavored and bell types. The sweet peppers include Bell, Banana, Pimiento and Sweet Cherry. The hot peppers include Cayenne, Celestial, Large Cherry, Serrano, Tabasco, and Jalapeno. Hot peppers are usually allowed to ripen fully and change colors and are smaller, longer, thinner and more tapering fruits than sweet peppers.

Description

The pepper plant is an evergreen perennial. It attaches itself to trees or trellises by means of aerial roots and is not a parasitic plant. The leaves are oblong, pointed at the tip and arranged alternately. Pepper plants have a shallow root system. There are usually a few major lateral roots that can penetrate the soil to a depth of 2m.The white flowers are minute and mainly hermaphroditic (both sexes in one flower). The flowers converge in oblong spikes which later form clusters.

Climate

Pepper plants need about 2 000 mm rain annually. The soil should have a good structure and water-holding capacity. Drainage must be good to prevent root rot. Grows in hot humid areas with a high rainfall. High humus content is advantageous.

Insect Pests and Diseases

- Damping off
- Bacterial spot
- White fly
- Thrips

Planting

Prepare the garden, adding plenty of compost, manure, and a general fertilizer. Transplant young seedlings using a spacing of 18-24 inches apart, in rows 24 to 36 inches apart. This spacing will vary somewhat, depending upon the variety of hot pepper you are growing.

Hot Pepper plants prefer moist soil. Add plenty of water during hot, dry days. Add mulch around the peppers to keep down weeds, and to retain soil moisture. As the peppers develop, switch over to a fertilizer higher in Phosphorous and Potassium.

Health Benefits of Hot Pepper

- Clears blocked nose and congested lungs.
- Helps prevent clotting and hardening of arteries
- Hot pepper helps you lose weight by increasing your metabolism.
- They are high in vitamins, a good source of beta carotene, calcium, and potassium, and may help reduce cholesterol.

Recommended Varieties

- Wiri Wiri
- Bird Pepper
- Tiger Teeth
- Ball O'Fire

Fun Facts About Hot Pepper

- Pepper draws heat from the sun.
- The Scoville scale for measuring the heat of peppers was devised by Wilbur L Scoville in 1912.
- One of the most common reactions to swallowing hot food is to sweat which is referred to as gustatory perspiration.

Harvesting/Storage

Time to harvest may vary and depends on the cultivar being grown and conditions, but most of the varieties take 2-4 months. One can identify this when they are ready from their size. The longer you leave chilies on the plant, the hotter if flavor they become, but at the same time leaving them on the plant after it's ready for harvest will decline in further fruiting. The peppers can also be preserved by canning them, but they're low-acid fruits and thus require canning under pressure. It's easier to pickle peppers as you would cucumbers in a crock filled with a simple brine of four cups of water, four cups of vinegar, and 1/2 cup of pickling salt. Add a clove or two of garlic and some fresh herbs for added flavor.

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; Soil needs to be moist, fertile, rich, and well-draining. Before transplanting the seedlings, apply 30g (1 oz) of 11-22-22 fertilizer in the bottom of the hole and cover with 5 cm (2 inches) of soil. Fill the hole with soil mixed 250g (10 ozs) of well-rotted organic manure. When transplanting give 30g per hole of 11-12-12.

At 6 weeks give 50 g per plant of 11-12-12. At 10 weeks give 50 g per plant of Ammonium Sulphate. At 14 weeks give 50 g per plant of 11-22-22. At 18 weeks give 50 g per plant of 11-22-22. At 22 weeks give 50 g per plant of Ammonium Sulphate..

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www.hydromet.gov.gy

El Niño and La Niña Update

ENSO Alert System Status: Not Active

- ENSO-neutral conditions are present.
- Equatorial sea surface temperatures (SSTs) are near to above average across most of the Pacific Ocean.
- ENSO-Neutral is favored (50 to ~55% chance) through the Northern Hemisphere (September-December) fall 2017.

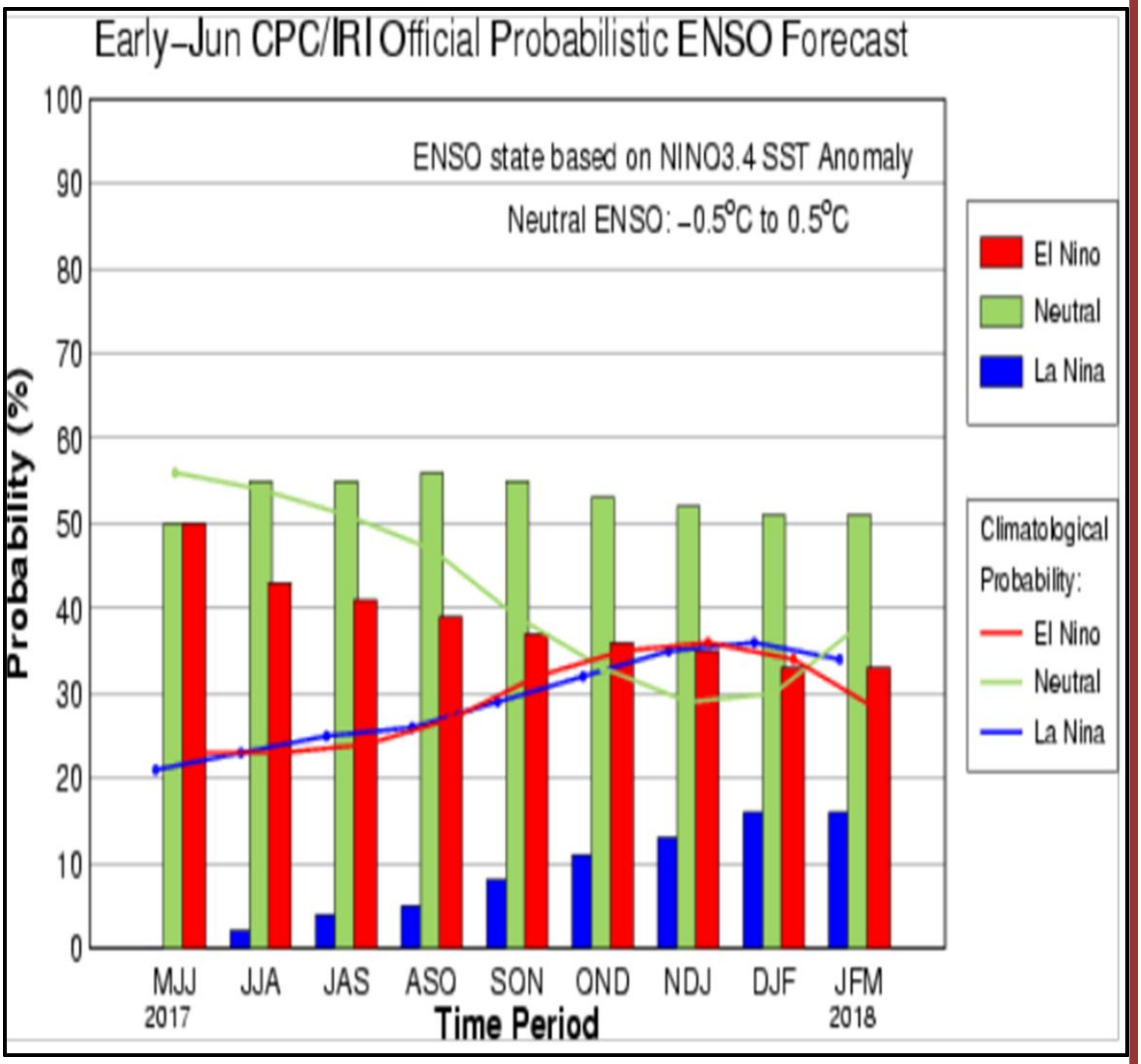

Figure 12: CPC/IRI Early-Month Consensus ENSO Forecast Probabilities