

# Decadal Agromet Bulletin of Pakistan



## Highlights...

- ❖ Moderate to heavy amount of rainfall reported from Punjab. Light to moderate rainfall reported from KP and Gilgit-Baltistan and Azad Jammu & Kashmir while dry weather reported from Baluchistan and Sindh.
- ❖ Highest amount of rainfall recorded as 103.0 mm at Sialkot Air Port during the last decade.
- ❖ Highest maximum temperature recorded as 44.5 °C at Sibbi during the last decade.
- ❖ Mainly hot and humid weather is expected in most parts of the country. However, rain/wind-thunderstorm is expected at scattered places in Khyber Pakhtunkhwa, Punjab, upper & south-east Sindh, Islamabad, Gilgit-Baltistan and Kashmir during the current decade.
- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Adopt better practices for weed management of Cotton crop as it is in critical weed period. Plant protection measures for worm may be initiated. Accordingly farmers are advised to take adoptive measures especially use of PB ropes in consultancy with plant protection department.
- ❖ Cotton picking may be initiated after 10 am in the morning as there will be dew present on cotton plants during early morning.

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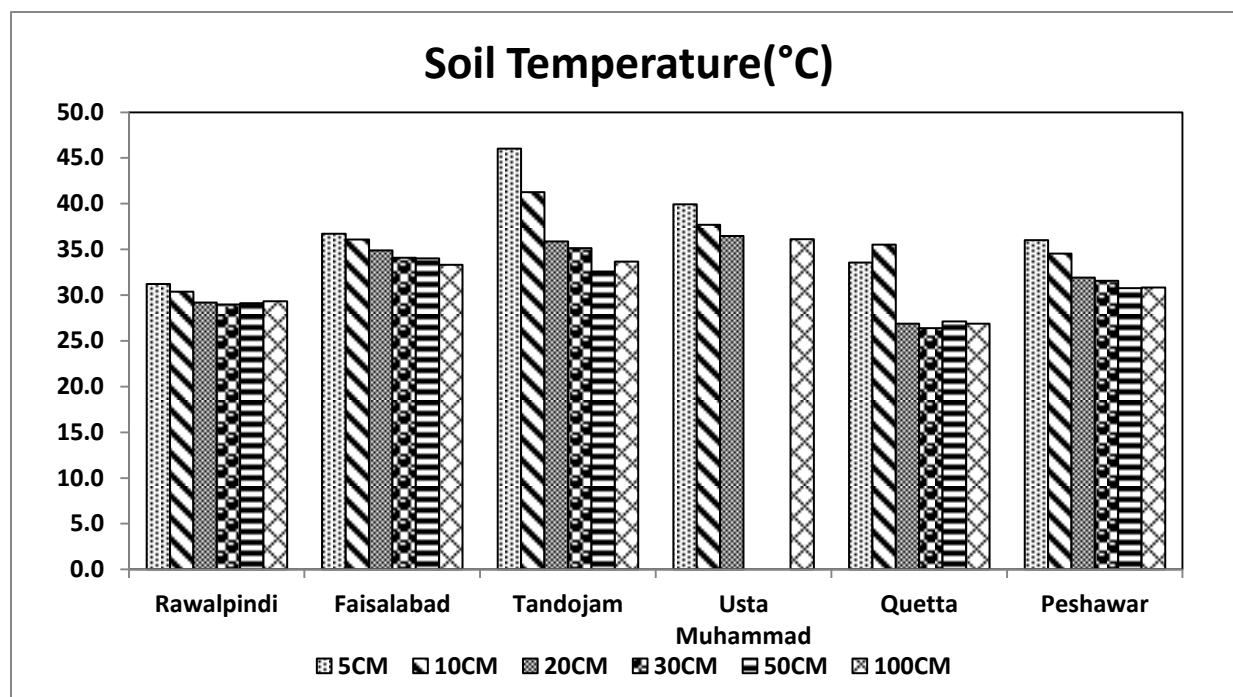
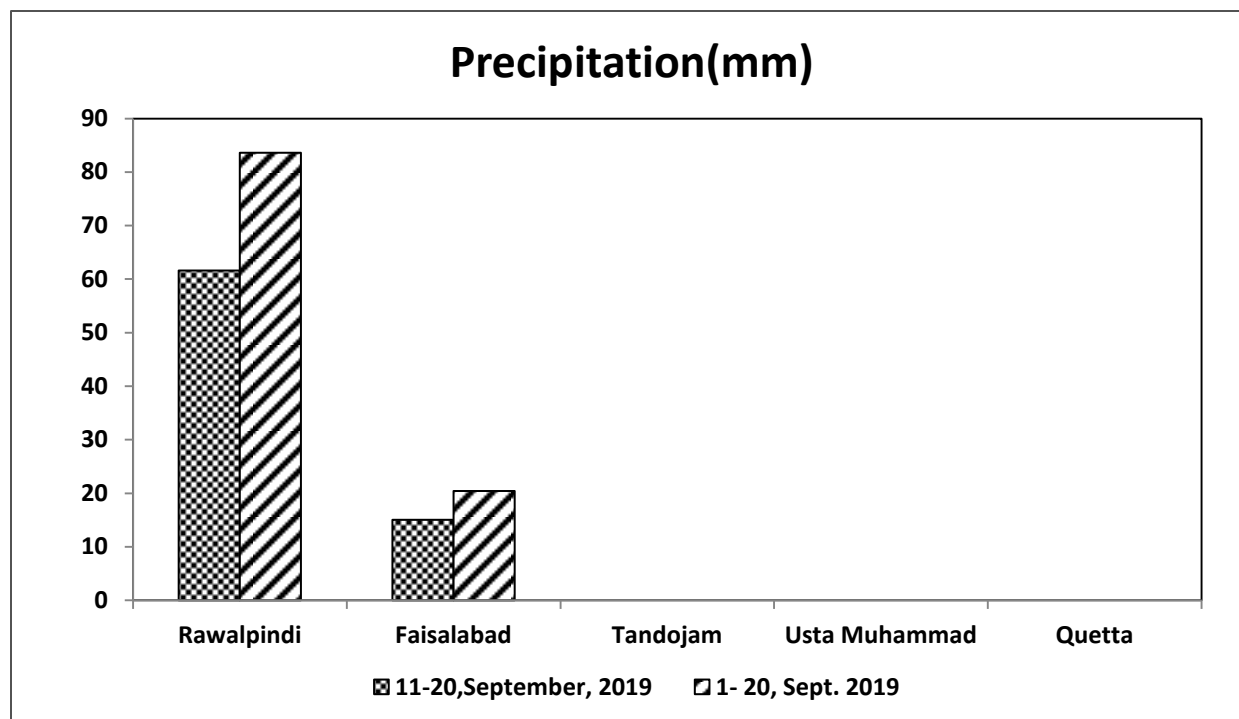
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**Meteorological Conditions during 2<sup>nd</sup> Decade of September, 2019**

Sr. No.	Station	Precipitation (mm)			Air Temperature (°C)			Soil Temperatures (°C)						R.H (%)	Sunshine Duration(hours)	Wind Speed (km/hr)	ETo (mm/day)
		Normal	Actual	Dep	Tmx Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	3.4	61.6	58.2	0.3	2.5	28.8	31.2	30.4	29.2	29.0	29.1	29.3	67	72.8	0.6	5.7
2	Faisalabad	1.2	15.0	13.8	2.3	3.5	32.4	36.7	36.1	34.9	34.1	34.0	33.3	60	78.8	3.6	7.8
3	Jhelum	1.3	44.7	43.4	0.0	1.5	30.2	32.7	31.8	31.0	30.7	31.2	***	71	62.4	3.1	5.1
4	Lahore	1.4	0.0	-1.4	2.1	2.1	31.7	34.1	33.6	32.4	31.5	***	30.6	68	65.1	2.3	5.7
5	Sargodha	2.0	9.5	7.5	1.2	2.8	32.2	37.8	36.0	32.0	32.9	***	31.0	70	66.4	4.3	5.8
6	Multan	0.8	0.0	-0.8	2.8	3.4	33.9	***	***	***	***	***	***	53	94.5	5.4	10.0
7	Khanpur	0.0	0.0	0.0	2.5	1.7	33.0	***	37.5	37.2	37.3	37.5	36.3	61	94.2	2.8	8.7
8	Tandojam	0.0	0.0	0.0	2.3	0.6	31.4	46.0	41.3	35.9	35.1	32.6	33.7	66	82.7	10.4	7.6
9	Sakrand ☆	0.0	0.0	0.0	2.7	2.0	32.6	44.9	***	***	***	***	35.6	50	104.3	7.8	11.3
11	Rohri ☆	0.1	0.0	-0.1	2.6	***	40.7	***	***	***	***	***	***	51	102.6	3.0	10.0
12	D.I Khan	2.3	0.0	-2.3	3.6	3.1	33.1	***	35.3	***	34.2	23.2	***	60	79.4	9.8	8.5
13	Peshawar	1.1	0.0	-1.1	2.1	1.2	30.9	36.0	34.5	31.9	31.6	30.8	30.8	66	73.5	2.7	6.5
14	Usta M.	0.0	0.0	0.0	0.4	2.9	33.6	39.9	37.7	36.5	***	***	36.1	63	***	2.9	4.5
15	Quetta	0.0	0.0	0.0	0.7	2.8	23.9	33.6	35.5	26.9	26.4	27.1	26.9	17	117.2	4.4	13.8
16	Skardu	0.2	0.2	0.0	1.6	0.3	19.6	***	***	***	***	***	***	39	39.7	1.3	5.7
17	Gilgit	0.1	0.0	-0.1	3.1	3.7	24.2	***	***	***	***	***	***	38	100.4	1.8	11.0

**Table-1:** Meteorological parameters for selected station of Pakistan. “**Dep**” in the table stands for difference from climatic normal, i.e. actual value minus normal. And “**% Dep**” is calculated by the formula; **Dep divided by Normal multiplied by 100**. Tmin & Tmax stands for minimum and maximum temperatures respectively. **ETo** stands for reference crop evapotranspiration. \*\*\* stands for no data and ( ☆ ) indicates the station with five year’s climatic (normal) data for computing departures.

## Graph at RAMCs during September, 2019



**Past Weather (11<sup>th</sup> to 20<sup>th</sup> September, 2019)**

Moderate to heavy amount of rainfall reported from Punjab. Light to moderate rainfall reported from KP and Gilgit-Baltistan and Azad Jammu & Kashmir while dry weather reported from Baluchistan, Sindh.

**1.1 Punjab**

Moderate to heavy amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Sialkot Air Port, Mangla, & Chaklala Airbase. Decadal maximum & minimum both raised above the normal by 1.6°C & 2.5°C respectively in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 64%, 76.3 hrs, 3.2 km/hr and 7.0 mm/day respectively.

**1.2 Sindh**

Dry weather reported from most of the agricultural plains of the province. Decadal maximum & minimum both raised above the normal by 2.5°C & 1.2°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 56%, 96.5 hrs, 7.1 km/hr 9.6 mm/day respectively.

**1.3 Khyber Pakhtunkhwa**

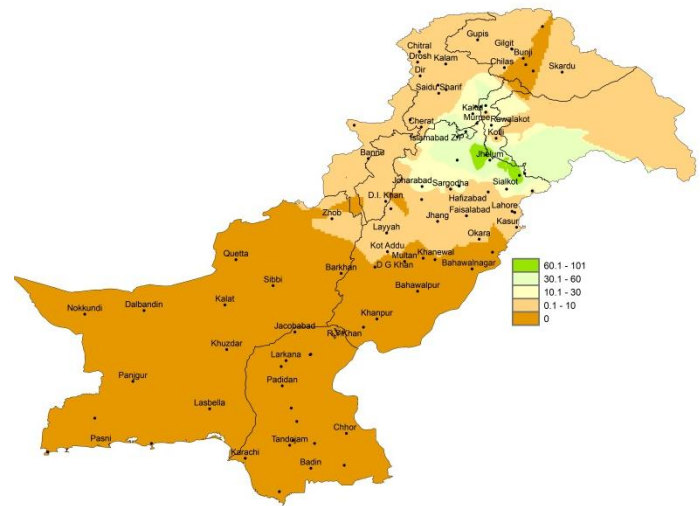
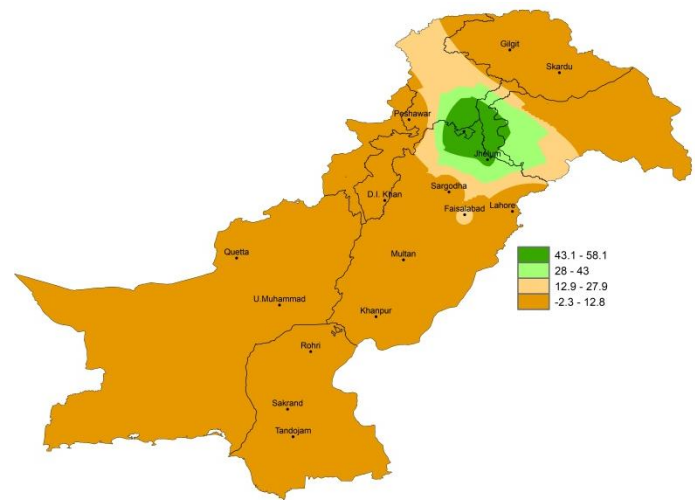
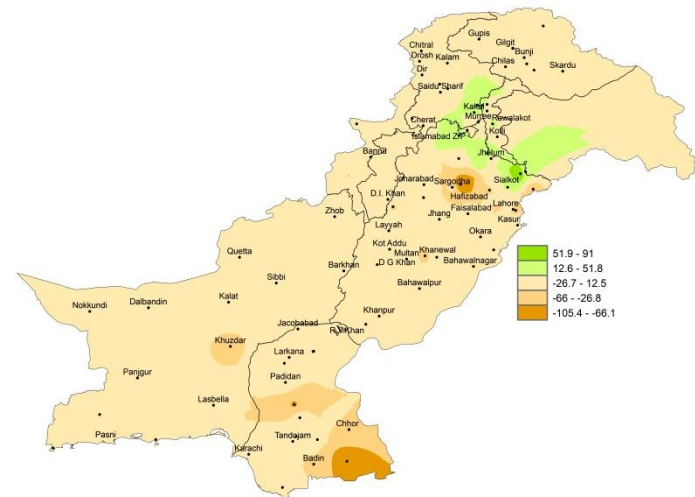
Light to moderate amount of rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Pattan, Kakul & Balakot. Decadal maximum & minimum both raised above the normal by 2.9°C & 2.2°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 63%, 76.5 hrs, 6.3 km/hr and 7.5 mm/day respectively.

**1.4 Baluchistan**

Dry weather reported from most of the agricultural plains of the province. Decadal maximum & minimum both raised above the normal by 0.5°C & 2.9°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 40%, 117.2 hrs 3.7 km/hr and 9.2 mm/day respectively.

**1.5 Gilgit-Baltistan and Azad Jammu & Kashmir**

Light rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Kotli, Muzaffarabad Air Port & Rawalakot. Decadal maximum & minimum both raised above the normal by 2.4°C & 2.0°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 39%, 70.1 hrs, 1.6 km/hr and 8.4 mm/day respective.

**I. Actual rainfall****II. Departure of rainfall from Normal****III. Departure of rainfall from Previous Decade****Figure.1: Rainfall distribution during previous decade (mm)**

## 2(a) **Past Weather for Major Agricultural Plains** **(11<sup>th</sup> to 20<sup>th</sup> September, 2019)**

### 2.1 **RAMC, Rawalpindi (Potohar region)**

Rainfall reported as 61.6 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 67%. Mean day temperature was 33.7°C while night temperature recorded as 23.9°C with 72.8 hours bright sunshine duration. Wind speed recorded as 0.6 km/hr with mean wind direction *north westerly*.

### 2.2 **RAMC, Faisalabad (Central Punjab)**

Rainfall reported as 15.0 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 60%. Mean day temperature was 37.6°C while night temperature recorded as 27.1°C with 78.5 hours bright sunshine duration. Wind speed recorded as 3.6 km/hr with mean wind direction *south easterly*.

**Cotton:** *V. Good, Maturity.*

### 2.3 **RAMC, Tandojam (Lower Sindh)**

Dry weather reported during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 37.9°C while night temperature recorded as 24.9°C with 82.7 hours bright sunshine duration. Wind speed recorded as 10.4 km/h with mean wind direction *south westerly*.

**Cotton (Shahbaz-95):** *Good condition, Boll Opening stage.*

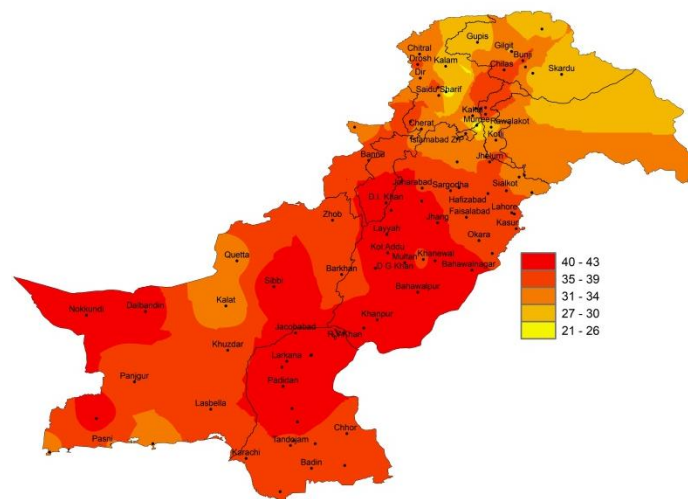
### 2.4 **RAMC, Usta Muhammad (Eastern Baluchistan)**

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 63%. Mean day temperature was 39.0°C while night temperature recorded as 28.2°C & Wind speed recorded as 2.9 km/h with mean wind direction *south easterly*.

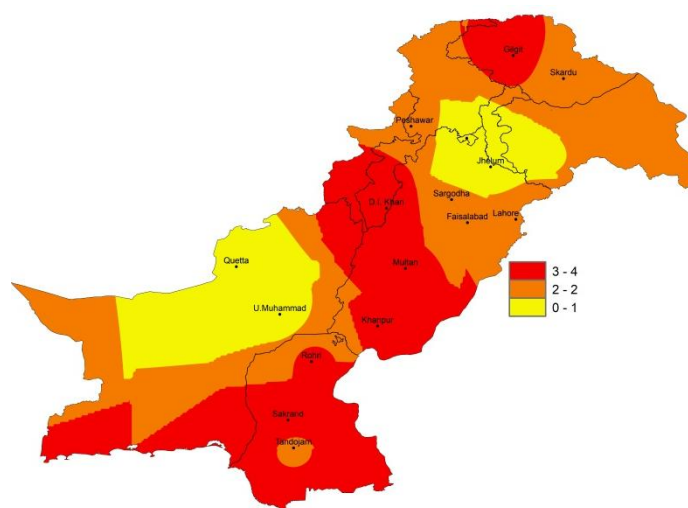
**Rice:** *Good, Shooting stage.*

### 2.5 **RAMC, Quetta (Northern Baluchistan)**

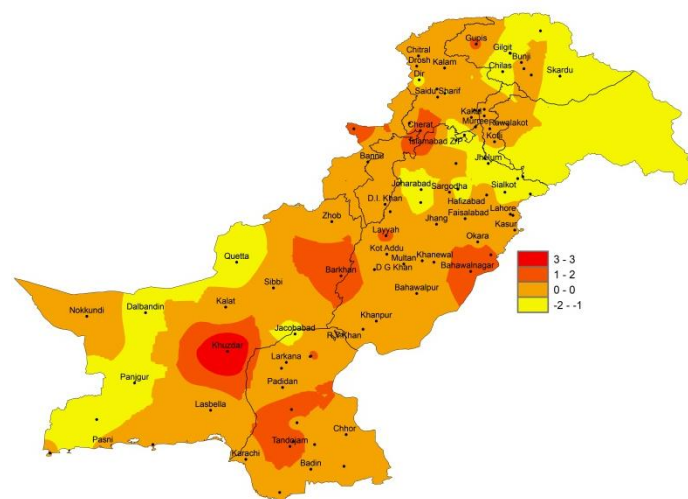
Dry weather reported during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 17%. Mean day temperature was 32.4°C while night temperature recorded as 15.4°C with 117.2 hours bright sunshine duration. Wind speed recorded as 4.4 km/hr with mean wind direction *north westerly*.



I. **Actual max-temp**



II. **Departure of max-temp from Normal**



III. **Departure of max-temp from Previous Decade**

**Figure.2: Maximum Temperature distribution during previous decade (°C)**



## 2(b) Past Weather for Sub-Regional Agricultural Plains (11<sup>th</sup> to 20<sup>th</sup> September, 2019)

### 2.6 Jhelum

Rainfall reported as 44.7 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 71%. Mean day temperature was 34.7°C while night temperature recorded as 25.7°C with 62.4 hours bright sunshine duration. Wind speed recorded as 3.1 km/hr with mean wind direction *southerly*.

### 2.7 Lahore

Rainfall reported as Trace (Not measureable) during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 68%. Mean day temperature was 35.8°C while night temperature recorded as 27.6°C with 65.1 hours bright sunshine duration. Wind speed recorded as 2.3 km/hr with mean wind direction *Easterly*.

### 2.8 Sargodha

Rainfall reported as 9.5 mm during the decade; however weather remained cloudy for 10 days during the decade. Average relative humidity recorded as 70%. Mean day temperature was 36.8°C while night temperature recorded as 27.5°C with 66.4 hours bright sunshine duration. Wind speed recorded 2.3 km/hr with mean wind direction *Easterly*.

### 2.9 Multan

Dry weather reported during the decade; however weather remained cloudy for 05 days during the decade. Average relative humidity recorded as 53%. Mean day temperature was 38.8°C while night temperature recorded as 28.9°C with 94.5 hours bright sunshine duration. Wind speed recorded 5.4 km/hr with mean wind direction *southerly*.

### 2.10 Khanpur

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 61%. Mean day temperature was 39.3°C while night temperature recorded as 26.6°C with 94.2 hours bright sunshine duration. Wind speed recorded 2.8 km/hr with mean wind direction *south westerly*.

### 2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 03 days during the decade. Average humidity recorded as 50%. Mean day temperature was 39.6°C while night temperature recorded as 25.6°C with 104.3 hours bright sunshine duration. Wind speed recorded 4.2 km/hr with wind direction *southerly*.

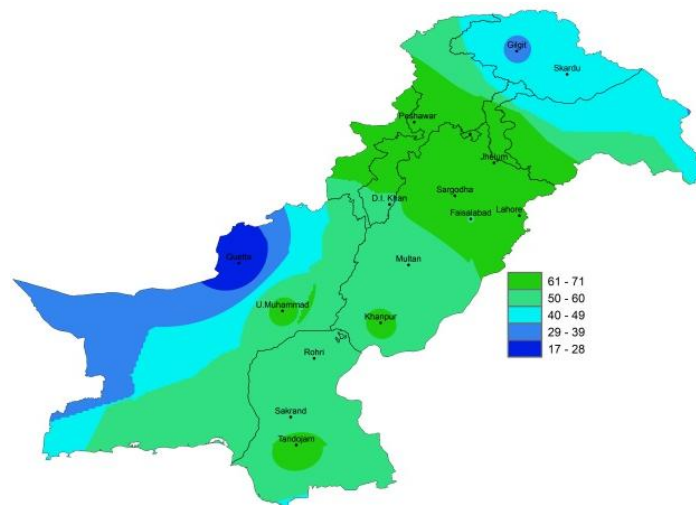


Figure.3: Relative Humidity in Percentage (%)

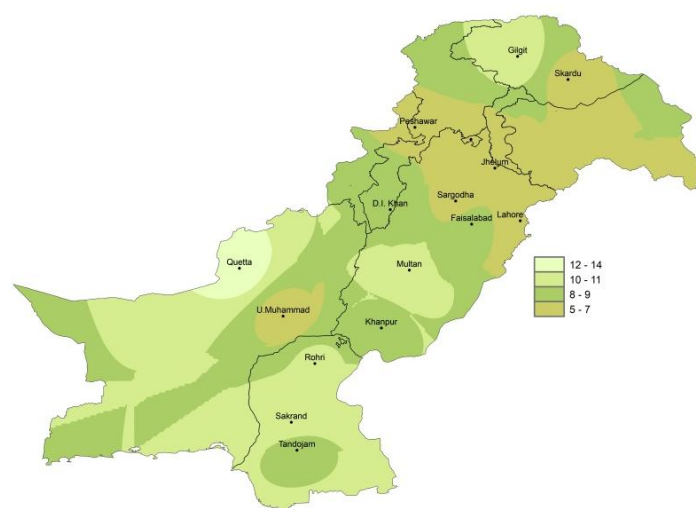


Figure.4: Reference Crop Evapotranspiration ET0 (mm/day)

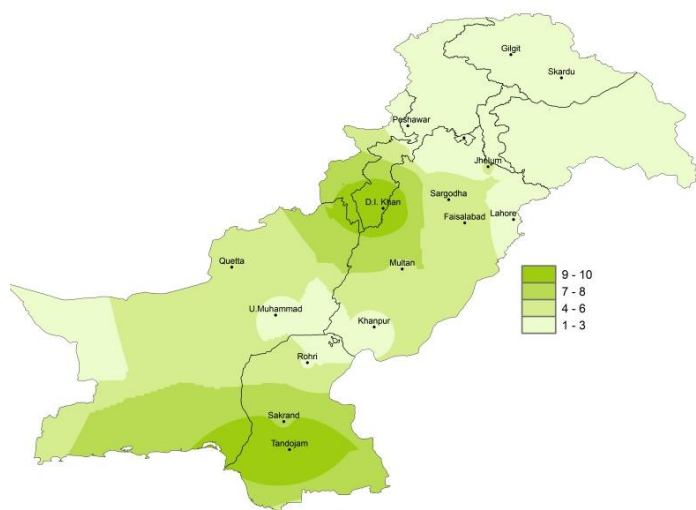


Figure 5: Wind Speed in kilometer per hour (km/h)

**2.12 Rohri**

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 51%. Mean day temperature was 40.7°C, with 102.6 hours bright sunshine duration. Wind speed recorded 3.0 km/hr with wind direction *south easterly*.

**2.13 D.I. Khan**

Dry weather reported as during the last decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 60%. Mean day temperature was 39.6°C while night temperature recorded as 26.6°C with 79.4 hours bright sunshine duration. Wind speed recorded as 9.8 km/hr with mean wind direction *south easterly*.

**2.14 Peshawar**

Dry weather reported as during the last decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 66%. Mean day temperature was 36.7 °C while night temperature recorded as 25.0 °C with 73.5 hours bright sunshine duration. Wind speed recorded as 2.7 km/hr with mean wind direction *north Easterly*.

**2.15 Skardu**

Rainfall reported as 0.2 mm during the decade; however weather remained cleared during the decade. Average relative humidity recorded as 39%. Mean day temperature was 28.4 °C while night temperature recorded as 10.7 °C with 39.7 hours bright sunshine duration. Wind speed recorded as 1.3 km/hr with mean wind direction *East-north-easterly*.

**2.16 Gilgit**

Dry weather reported as during the last decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 38%. Mean day temperature was 34.4°C while night temperature recorded as 13.9°C with 100.4 hours bright sunshine duration. Wind speed recorded as 1.8 km/hr with mean wind direction *Easterly*.

### **Eight Days Weather Advisory for Farmers (23<sup>rd</sup> to 30<sup>th</sup> September, 2019)**

**3.1 Temperature Forecast**

Day time temperatures are likely to be below normal whereas night time temperatures are likely to be slightly above normal in most of the agricultural plains of the country during the decade.

**3.2 Wind Forecast**

Generally, normal wind pattern may prevail in most of the agricultural plains of the country.

**3.3 Rain Forecast**

- ❖ **Punjab:** Mainly hot and humid weather is expected. However, rain/wind-thunderstorm is expected at isolated places in Islamabad, Rawalpindi, Gujranwala and Lahore divisions during the current decade.
- ❖ **Khyber Pakhtunkhwa:** Mainly hot and humid weather is expected. However, rain/wind-thunderstorm is expected at isolated places in Malakand, Hazara, Kohat and Mardan divisions during the current decade.
- ❖ **Sindh:** Rains/wind-thunderstorm is expected at scattered places in most of the province during the decade.
- ❖ **Baluchistan:** Mainly hot and humid weather is expected in most of the province during the decade.
- ❖ **Gilgit-Baltistan:** Rain/wind-thunderstorm is expected at isolated places in the province during the current decade.
- ❖ **Kashmir:** Rain/wind-thunderstorm is expected at isolated places in the province during the current decade.

**3.4 Advisory for Farmers**

- ❖ Farmers are advised to schedule the irrigation plans in accordance with the expected weather, mentioned during the decade.
- ❖ Adopt better practices for weed management of Cotton crop as it is in critical weed period. Plant protection measures for worm may be initiated. Accordingly farmers are advised to take adoptive measures especially use of PB ropes in consultancy with plant protection department.
- ❖ Cotton picking may be initiated after 10 am in the morning as there will be dew present on cotton plants during early morning.

## Findings of AgMIP Pakistan, University of Agriculture, Faisalabad

- ❖ There would be significant increase in temperature i.e., 2.8°C in day and 2.2°C in the night during mid-century (2040-2069).
- ❖ There would be significant variability in rainfall patterns (about 25% increase in summer & 12% decrease in winter during 2040-2069).
- ❖ Climate Change will affect the crop yields negatively (about 17% for rice and 14 % for wheat).
- ❖ If there will be no adaptation to Climate Change, majority of farmers would be the economic losers.
- ❖ With Adaptation to Climate Change (through technology and management), there would be significant decrease in poverty and improvement in the livelihood of farming community.

*(Agricultural Model Inter-comparison and Improvement Project (AgMIP) Pakistan 2012-2014)*

- 1۔ سال 2040-69 کے دوران درجہ حرارت میں قابل ذکر اضافہ ہو سکتا ہے۔ جو کہ دن کے وقت 2.8°C اور رات کو 2.2°C تک ہوگا۔
- 2۔ گرمیوں کی بارش میں 25 فیصد اضافہ اور سردیوں کی بارش میں 12 فیصد تک کمی کا امکان ہے۔
- 3۔ مندرجہ بالا موسمی تغیرات کی وجہ سے دھان کی پیداوار میں 17 فیصد اور گندم کی پیداوار میں 14 فیصد تک کمی ہو سکتی ہے۔
- 4۔ اگر موسمی تغیرات کا مناسب بندوبست نہ کیا گیا۔ تو کسانوں کی اکثریت کو معاشی نقصان کا سامنا کرنا پڑے گا۔
- 5۔ موسمی تغیرات کے سدباب (بذریعہ نئی ٹیکنالوجی کا استعمال اور بہتر نظم و نسق) سے غربت میں کمی اور کسانوں کی زندگی میں خوشحالی لائی جاسکتی ہے۔

(ایگمپ پاکستان 2012-2014)