

Decadal Agromet Bulletin of Pakistan



Highlights...

- ❖ Light to moderate rainfall reported from Khyber Pakhtunkhwa, Gilgit-Baltistan, Punjab and Azad Jammu & Kashmir, whereas light rainfall reported from Sindh at a single station.
- ❖ Highest amount of rainfall recorded as 74.6 mm at Astore during the last decade.
- ❖ Highest maximum temperature recorded as 48.5°C at Turbat during the last decade.
- ❖ Mainly hot and dry weather is expected in most parts of the country. However, dust-thundershower/rain with gusty winds is expected at isolated places in Punjab (Rawalpindi, Gujranwala, Lahore, Sargodha, Faisalabad, Multan, D.G. Khan divisions), Islamabad, Khyber Pakhtunkhwa, Gilgit Baltistan and Kashmir during the current decade.
- ❖ The farmers of lower half may regularly irrigate their Kharif crops by keeping in view the ongoing hot weather conditions.
- ❖ Rice growers are advised to sow the crop's PANERI in accordance with the recommendation by the agricultural experts.
- ❖ Measures may be taken to preserve the standing crops/orchids from the damaging impacts of extreme weather conditions like thunder/dust storm, gusty winds, hails etc in particular areas.
- ❖ The fields got fallow after the harvesting of wheat may be deeply ploughed and leave empty for a few weeks.

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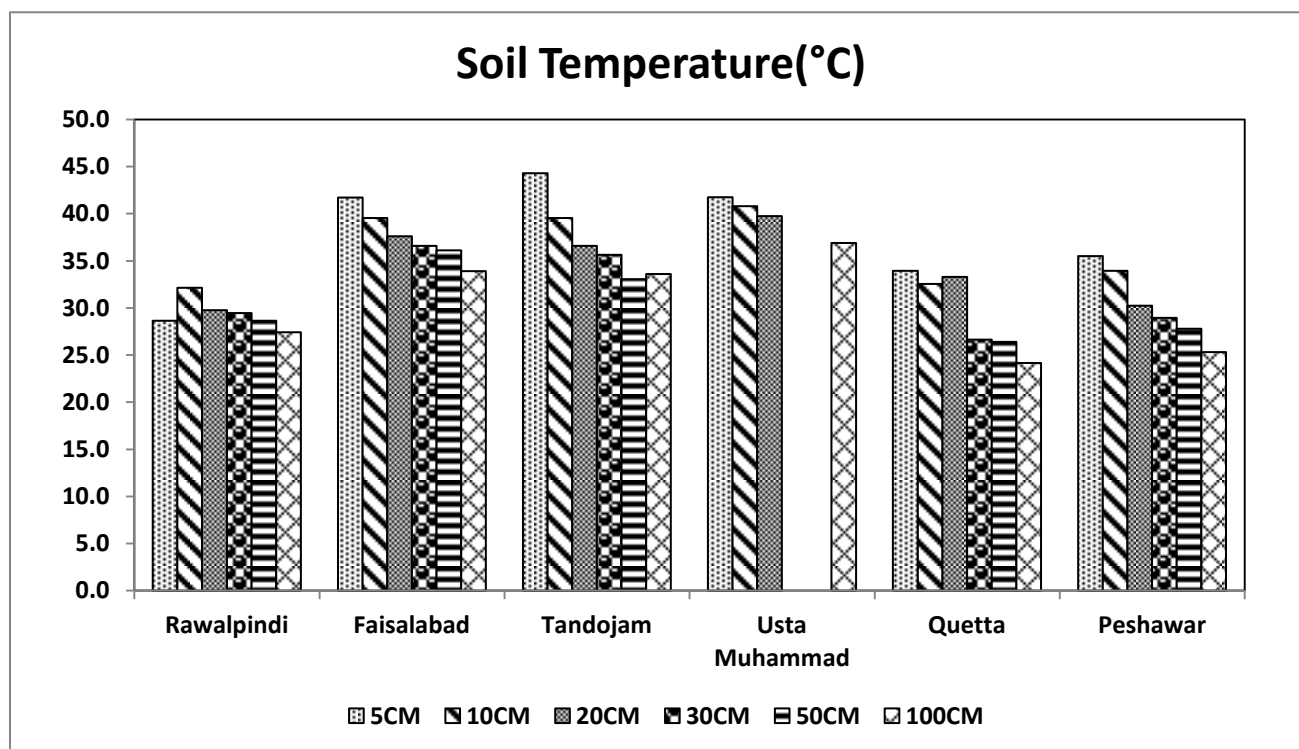
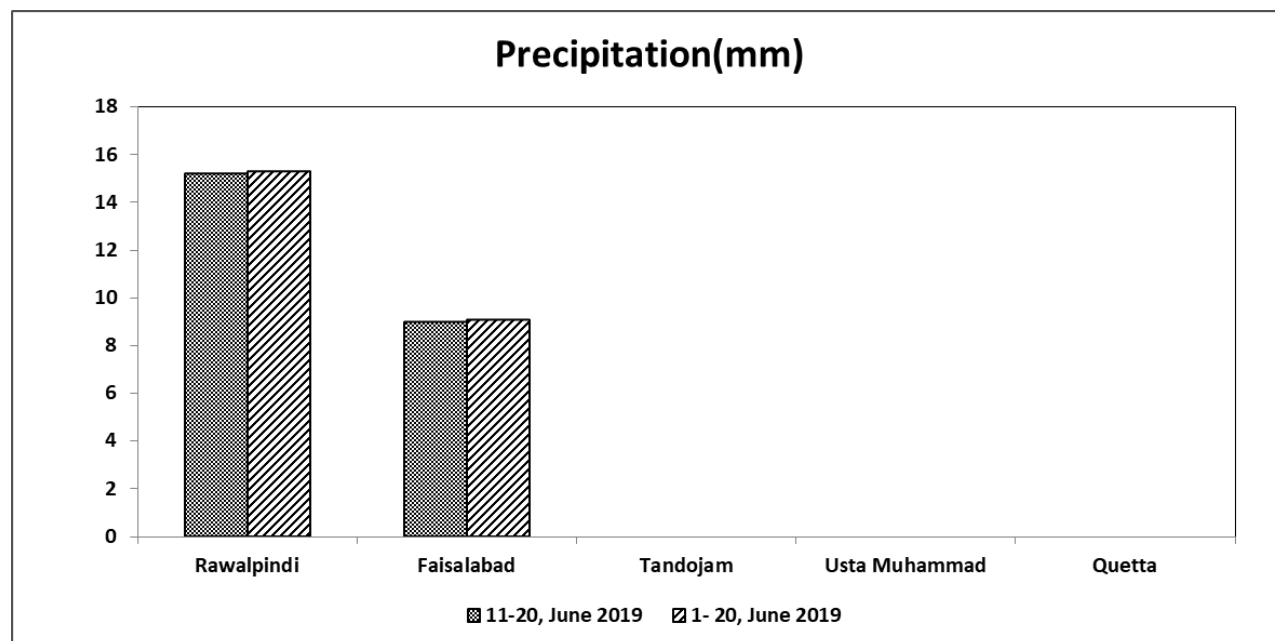
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Meteorological Conditions during 2nd Decade of June, 2019

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	Tmax Dep	Tmin Dep	Mean	5cm	10cm	20cm	30cm	50cm	100cm				
1	Rawalpindi	3.5	15.2	11.7	2.0	-2.8	29.8	28.7	32.2	29.8	29.5	28.7	27.4	61	103.5	2.5	5.9
2	Faisalabad	2.7	9.0	6.3	1.2	0.0	33.1	41.7	39.6	37.6	36.6	36.1	33.9	37	92.3	4.7	6.6
3	Jhelum	2.8	23.6	20.8	2.4	-1.3	33.3	42.4	39.2	36.2	35.1	34.7	***	31	95.7	5.3	7.2
4	Lahore	3.5	10.9	7.4	1.3	-1.3	33.2	36.5	35.4	33.3	32.9	***	30.4	43	78.6	3.4	5.7
5	Sargodha	1.8	8.8	7.0	1.1	-0.6	33.8	41.3	38.6	34.9	33.9	***	30.1	41	86.0	4.4	6.4
6	Multan	0.4	20.2	19.8	-1.5	-0.2	34.4	***	***	***	***	***	***	40	82.0	9.8	8.2
7	Khanpur	0.2	15.4	15.2	0.3	0.8	35.6	***	38.8	38.9	38.9	38.7	36.2	50	85.7	7.8	7.6
8	Tandojam	0.0	0.0	0.0	-0.4	0.4	32.8	44.3	39.6	36.6	35.7	33.1	33.6	58	93.2	9.5	7.3
9	Sakrand ☆	0.0	0.0	0.0	-2.0	0.5	33.7	44.1	***	***	***	***	34.3	48	114.0	14.8	3.8
11	Rohri ☆	0.3	0.0	-0.3	-1.3	***	41.9	***	***	***	***	***	***	43	102.4	6.0	7.5
12	D.I Khan	1.5	9.0	7.5	1.8	0.1	33.9	37.7	35.8	34.6	35.7	22.8	***	39	81.8	13.4	9.7
13	Peshawar	0.8	5.0	4.2	0.7	-2.9	31.2	35.5	34.0	30.3	29.0	27.8	25.3	35	86.2	2.8	5.6
14	Usta M.	0.0	0.0	0.0	-0.5	3.2	37.5	41.8	40.8	39.8	***	***	36.9	39	***	5.4	7.3
15	Quetta	0.0	0.0	0.0	-2.3	-1.1	24.9	34.0	32.6	33.3	26.7	26.4	24.2	23	107.8	6.2	6.6
16	Skardu	0.3	47.1	46.8	-6.2	-6.5	15.3	***	***	***	***	***	***	51	63.8	4.5	4.8
17	Gilgit	0.3	23.9	23.6	-6.7	-1.2	20.8	***	***	***	***	***	***	46	64.8	3.4	4.3

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 June, 2019



Past Weather (11th to 20th June, 2019)

Light to moderate rainfall reported from Khyber Pakhtunkhwa, Gilgit-Baltistan Punjab and Azad Jammu & Kashmir, whereas light rainfall reported from Sindh at a single station.

1.1 Punjab

Light to moderate rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Lahore airport, Narowal & Mangla. Decadal maximum raised above normal by 1.0°C and minimum dropped below the normal by 0.8°C respectively in the province. Whereas values of relative humidity, sunshine hour, wind speed & ETo were recorded as 43%, 89.1 hrs, 5.4km/hr and 6.8mm/day respectively.

1.2 Sindh

Light rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Mithi (single station). Decadal maximum dropped below the normal by 1.2°C and minimum raised above the normal by 0.5°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 50%, 103.2hrs, 10.1km/hr and 6.2 mm/day respectively.

1.3 Khyber Pakhtunkhwa

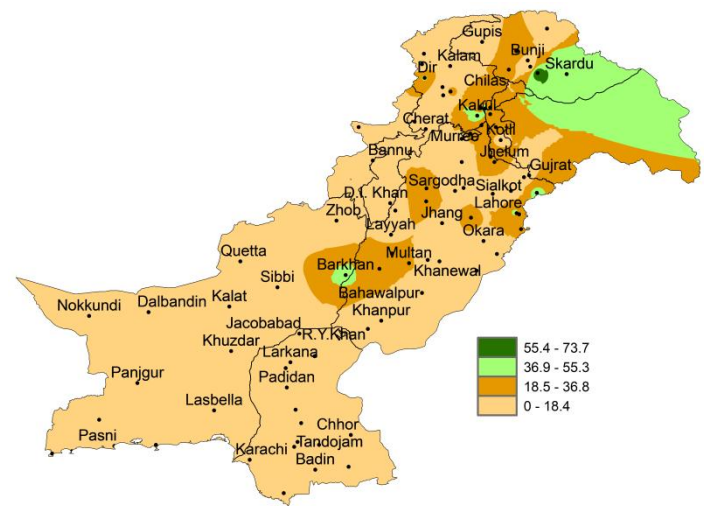
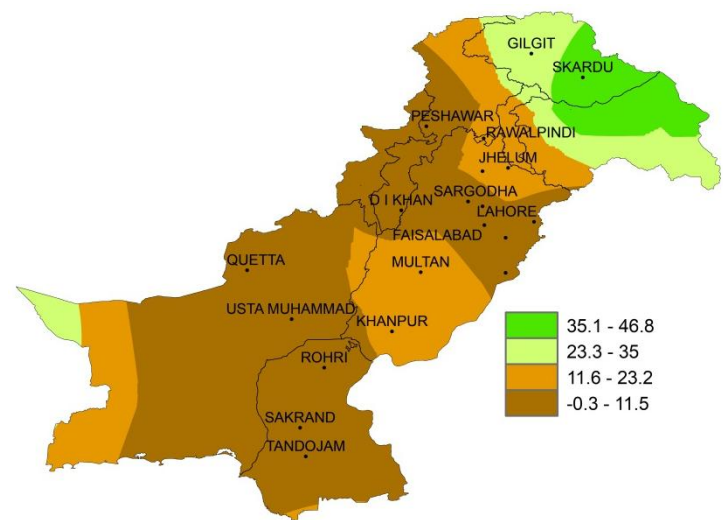
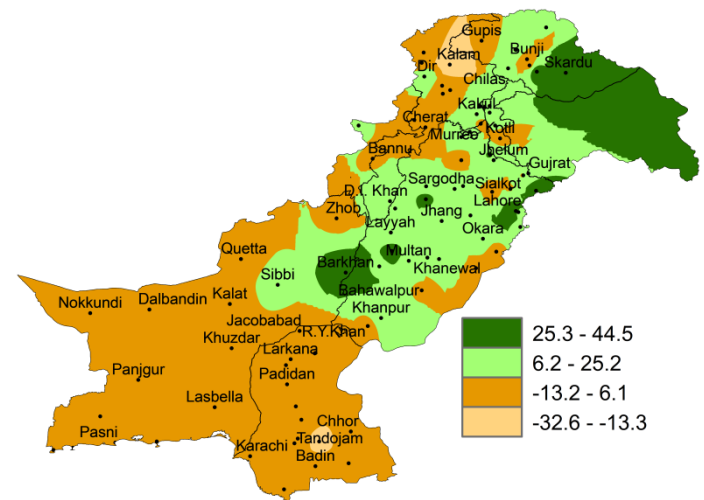
Light to moderate rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Kakul, Malamjabba & Dir. Decadal maximum raised above normal by 1.3°C and minimum dropped below the normal by 1.4°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 37%, 84.0 hrs, 8.1km/hr and 7.7mm/day respectively.

1.4 Baluchistan

Dry weather reported from most of the agricultural plains of the province. Highest rainfall reported from Barkhan, & Quetta. Decadal maximum dropped below the normal by 1.4°C and minimum raised above the normal by 1.1°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 31%, 107.8 hrs, 5.8km/hr and 7.0 mm/day respectively.

1.5 Gilgit-Baltistan and Azad Jammu & Kashmir

Light to moderate rainfall reported from most of the agricultural plains of the province. Highest rainfall reported from Astore, Skardu & Muzaffarabad. Decadal maximum & minimum both dropped below the normal by 6.5°C & 3.9°C respectively in the province. Whereas mean values of relative humidity, sunshine hour, wind speed & ETo were recorded as 49%, 64.3hrs, 4.0km/hr and 4.6mm/day respectively.

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

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2(b) Past Weather for Sub-Regional Agricultural Plains (11th to 20th June, 2019)

2.6 Jhelum

Rainfall reported as 23.6 mm during the decade; however weather remained cloudy for 08 days during the decade. Average relative humidity recorded as 31%. Mean day temperature was 41.3°C while night temperature recorded as 25.3°C with 95.7 hours bright sunshine duration. Wind speed recorded as 5.3 km/hr with mean wind direction *south easterly*.

2.7 Lahore

Rainfall reported as 10.9 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 43%. Mean day temperature was 39.7°C while night temperature recorded as 26.7°C with 78.6 hours bright sunshine duration. Wind speed recorded as 3.4 km/hr with mean wind direction *Southerly*.

2.8 Sargodha

Rainfall reported as 8.8 mm during the decade; however weather remained cloudy for 01 day during the decade. Average relative humidity recorded as 41%. Mean day temperature was 41°C while night temperature recorded as 26.5°C with 86.0 hours bright sunshine duration. Wind speed recorded 4.4 km/hr with mean wind direction *Easterly*.

2.9 Multan

Rainfall reported as 20.2 mm during the decade; however weather remained cloudy for 07 days during the decade. Average relative humidity recorded as 40%. Mean day temperature was 40°C while night temperature recorded as 28.7°C with 82.0 hours bright sunshine duration. Wind speed recorded 9.8 km/hr with mean wind direction *south westerly*.

2.10 Khanpur

Rainfall reported as 15.4 mm during the decade; however weather remained cloudy for 03 days during the decade. Average relative humidity recorded as 50%. Mean day temperature was 42.3°C while night temperature recorded as 28.8°C with 85.7 hours bright sunshine duration. Wind speed recorded 7.8 km/hr with mean wind direction *south westerly*.

2.11 Sakrand

Dry weather reported during the decade; however weather remained cloudy for 01 day during the decade. Average humidity recorded as 48%. Mean day temperature was 39.3°C while night temperature recorded as 27.4°C with 114.0 hours bright sunshine duration. Wind speed recorded 14.8 km/hr with wind direction *southerly*.

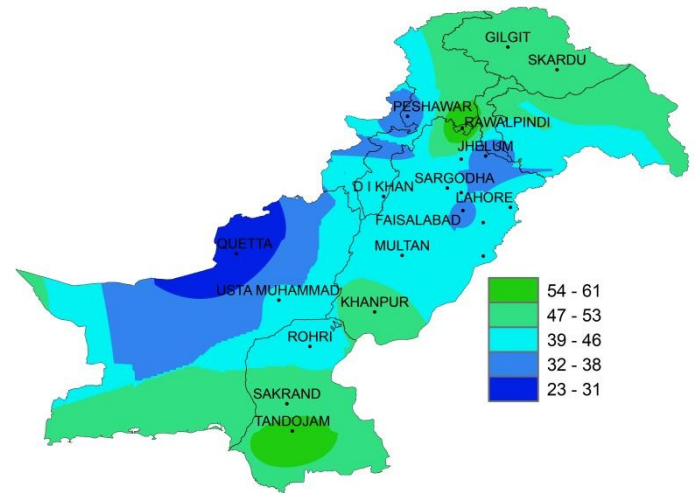


Figure.3: Relative Humidity in Percentage (%)

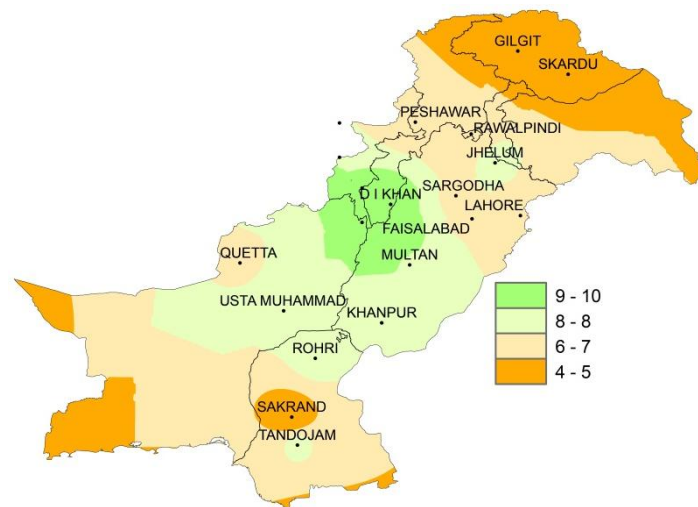


Figure.4: Reference Crop Evapotranspiration ETo (mm/day)

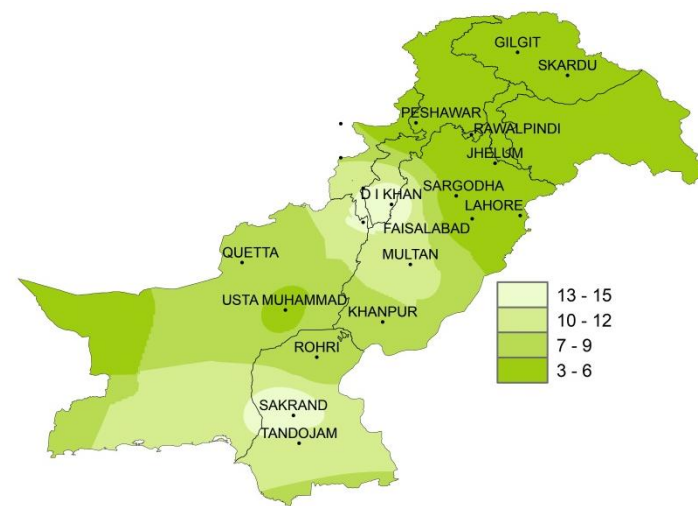


Figure 5: Wind Speed in kilometer per hour (km/h)

2.12 Rohri

Dry weather reported during the decade; however weather remained cloudy for 02 days during the decade. Average relative humidity recorded as 43%. Mean day temperature was 41.9°C with 102.4 hours bright sunshine duration. Wind speed recorded 6.0 km/hr with wind direction *North easterly*.

2.13 D.I. Khan

Rainfall reported as 9.0 mm during the decade; however weather remained cloudy for 03 day during the decade. Average relative humidity recorded as 39%. Mean day temperature was 42.2°C while night temperature recorded as 25.5°C with 81.8 hours bright sunshine duration. Wind speed recorded as 13.4 km/hr with mean wind direction *south easterly*.

2.14 Peshawar

Rainfall reported as 5.0 mm during the decade; however weather remained cloudy for 06 days during the decade. Average relative humidity recorded as 38%. Mean day temperature was 39.5°C while night temperature recorded as 22.8°C with 86.2 hours bright sunshine duration. Wind speed recorded as 2.8km/hr with mean wind direction *North Easterly*.

2.15 Skardu

Rainfall reported as 47.1 mm during the decade; however weather remained cloudy for 09 days during the decade. Average relative humidity recorded as 51%. Mean day temperature was 23.4°C while night temperature recorded as 7.2°C with 63.8 hours bright sunshine duration. Wind speed recorded as 4.5 km/hr with mean wind direction *southerly*.

2.16 Gilgit

Rainfall reported as 23.9 mm during the decade; however weather remained cloudy for 04 days during the decade. Average relative humidity recorded as 46%. Mean day temperature was 28.0°C while night temperature recorded as 13.6°C with 64.8 hours bright sunshine duration. Wind speed recorded as 3.4 km/hr with mean wind direction *North Westerly*.

Ten Days Weather Advisory for Farmers (21st to 30th June, 2019)

3.1 Temperature Forecast

Both day and night temperatures are likely to be above normal in most of the agricultural plains of the country during the decade.

3.2 Wind Forecast

Normal wind pattern may prevail in most of the agricultural plains of the country, however strong winds are expected in Baluchistan, Sindh and southern Punjab during the start of the decade.

3.3 Rain Forecast

- ❖ **Punjab:** Light to moderate is expected in most parts of the province. However, rain/thunderstorm is expected at isolated places in Rawalpindi, Gujranwala, Lahore, Sargodha, Faisalabad, Multan, D. G khan, Sahiwal divisions and Islamabad during the first half of the current decade.
- ❖ **Khyber Pakhtunkhwa:** Rain/thunderstorm is expected at scattered places of the provinces during the first half of the current decade.
- ❖ **Sindh:** Mainly hot and dry weather is expected during the current decade.
- ❖ **Baluchistan:** Mainly hot and dry weather is expected during the current decade.
- ❖ **Gilgit-Baltistan:** Dust-thundershower/rain is expected at isolated places in the province during the first half of the current decade.
- ❖ **Kashmir:** Dust-thundershower/rain is expected at isolated places in the province during the first half of the current decade.

3.4 Advisory for Farmers

- ❖ Measures may be taken to preserve the standing crops/orchids from the damaging impacts of extreme weather conditions like thunder/dust storm, gusty winds, hails etc in particular areas.
- ❖ The fields got fallow after the harvesting of wheat may be deeply ploughed and leave empty for a few weeks.
- ❖ The farmers of lower half may regularly irrigate their Kharif crops by keeping in view the ongoing hot weather conditions.
- ❖ Rice growers are advised to sow the crop's PANERI in accordance with the recommendation by the agricultural experts.

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)