Monthly Agromet Bulletin

National Agromet Centre
Pakistan Meteorological Department Islamabad

Vol: 9-2014 **SEPTEMBER 2014**

Highlights…

•Rainfall was observed mostly below normal in the agricultural plains the country except Potohar region, central Punjab and GB region; where above normal rains along with flash flooding were reported during the month.

•Thermal regime in this month remained normal to slightly above normal in most of the agricultural plains of the country.

• ETo and R.H mostly remained below normal in the agricultural plains of the country.

• Agricultural soils showed mostly normal to cooler trend in most of the agricultural plains of the country.

•Spraying of chemicals on cotton and sugarcane, picking of early grown cotton verities and evacuating stagnant flood water from the fields were the major field operations in most of the agricultural areas of the country. Some farmers have started land preparation for Rabi sowing specially on fallow lands and sowing of winter vegetables was in progress during the month.

• farmers are advised to cultivate Rabi crops well in time so that soil moisture stored due to monsoon rains up to September may be fully utilized especially in northern rainfed areas of the country.

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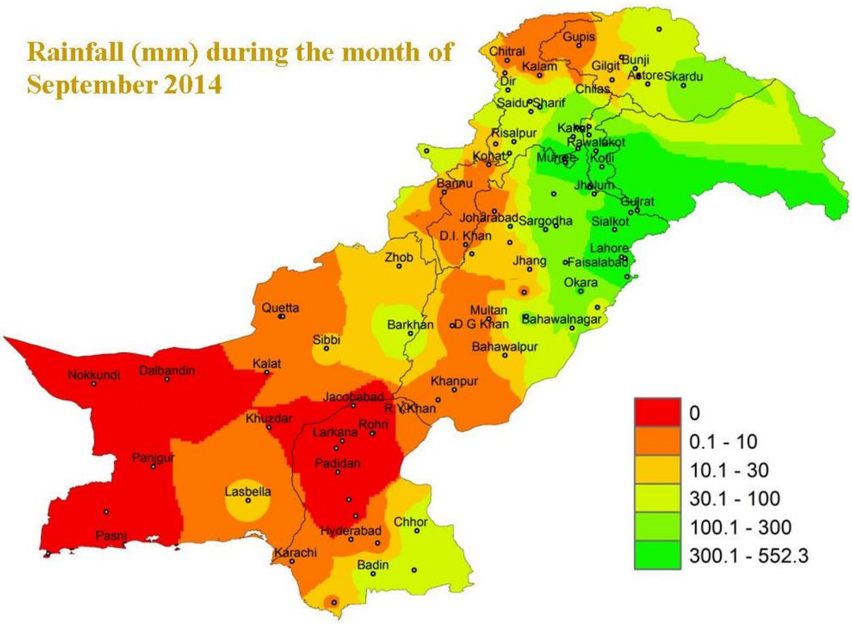
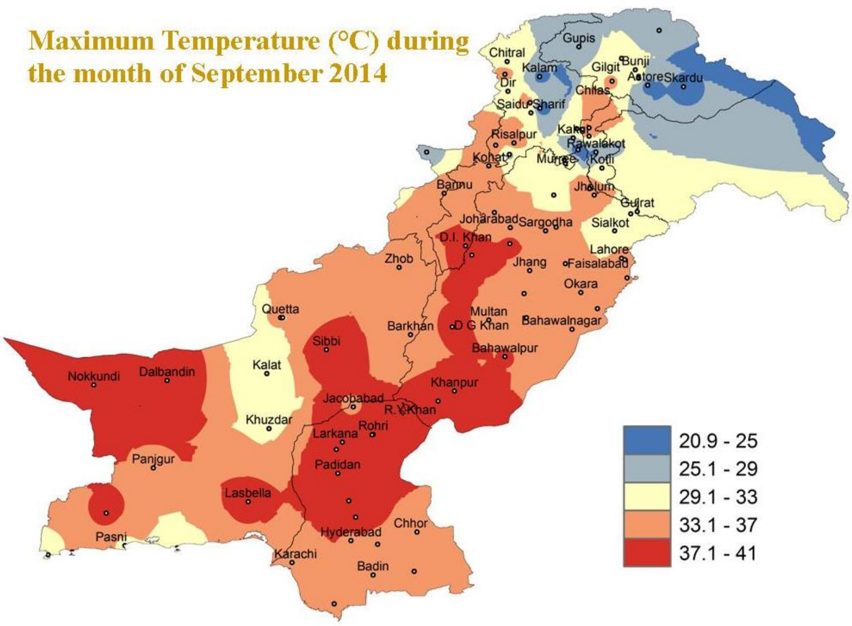
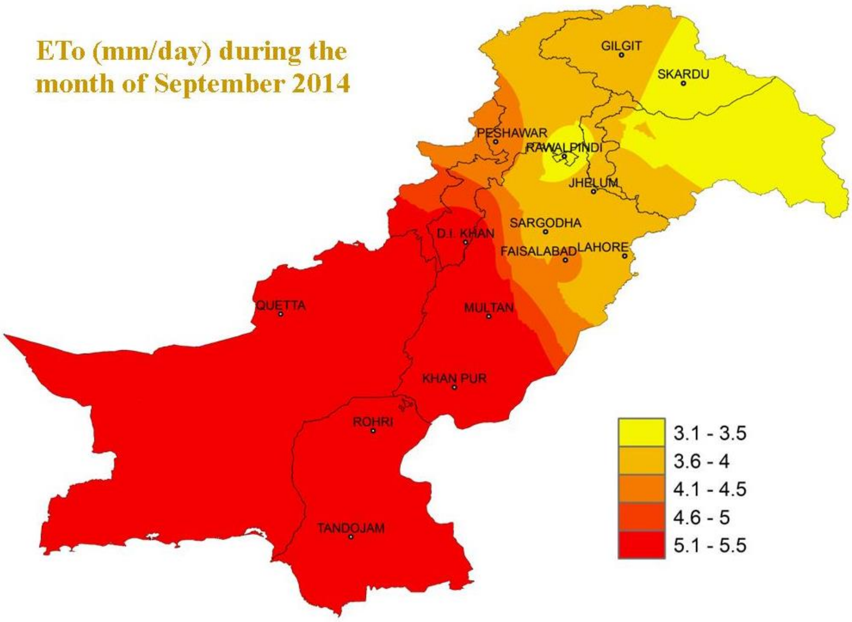
EXPLANATORY NOTE

1. This Agrometeorological bulletin is prepared on the basis of data from 15 stations of Pakistan Meteorological Department (PMD). These stations, selected in consultation with the agricultural authorities, represent major agricultural areas of the country. There are still important agricultural areas which are not represented by the stations included in the bulletin. This may be (a) because there are no PMD stations in these areas and /or (b) the fact that we had to limit the number of stations due to the requirement of speedy data communication and processing (both of which are important for producing and dispatching timely Agrometeorological bulletins).
2. Due to the above, all inferences and conclusions hold true primarily for the above areas and not for Pakistan territory which include areas that may not be very important from the agricultural point of view and the climate of which may not bear directly on agriculture in the major producing areas.
3. The normally expected weather of next month is prepared on the basis of premise of normal or near normal weather prevailing during the coming month. As such it should not be confused with synoptic weather of the next month.
4. Summer Season/ Kharif remains from April/May to October/November and Rabi season from November to April. Mean Daily Maximum Temperature images are included in summer and Daily Mean Minimum Temperature images are included in winter in the Bulletin.
5. In the tables, the values in the parentheses are based on 1981 to 2010 normal. Normal values (in parenthesis) of Soil Temperatures are based upon 10 years data. Dotted line **(---)** means missing data. Solar radiation intensities are computed from sunshine duration using co-efficients developed by **Dr.Qamar-uz-ZamanChaudhry** of Pakistan Meteorological Department.


Rainfall (mm) during the month of September 2014
Chitral
Gupis
Kalam
Gilgit
Bunji
Astore
Skardu
Dir
Chilas
Saidu Sharif
Risalpur
Kakul
Rawalakot
Kohat
Murree
Kotli
Bannu
Jhelum
Gujrat
Joharabad
Sargodha
Sialkot
D.I. Khan
Lahore
Zhob
Jhang
Faisalabad
Okara
Quetta
Multan
Barkhan
D G Khan
Bahawalnagar
Sibbi
Bahawalpur
Nokkundi
Dalbandin
Kalat
Khanpur
Jacobabad
R.Y.Khan
Khuzdar
Larkana
Rohri
Panjgur
Padidan
Lasbella
Chhor
Hyderabad
Pasni
Karachi
Badin
0
0.1 - 10
10.1 - 30
30.1 - 100
100.1 - 300
300.1 - 552.3


Maximum Temperature (°C) during the month of September 2014
Chitral
Gupis
Kalam
Gilgit
Bunji
Astore
Skardu
Dir
Chilas
Saidu Sharif
Risalpur
Kakul
Rawalakot
Kohat
Murree
Kotli
Bannu
Jhelum
Gujrat
Joharabad
Sargodha
Sialkot
D.I. Khan
Lahore
Zhob
Jhang
Faisalabad
Okara
Quetta
Multan
Barkhan
D G Khan
Bahawalnagar
Sibbi
Bahawalpur
Nokkundi
Dalbandin
Kalat
Khanpur
Jacobabad
R.Y.Khan
Khuzdar
Rohri
Larkana
Panjgur
Padidan
Lasbella
Chhor
Hyderabad
Pasni
Karachi
Badin
20.9 - 25
25.1 - 29
29.1 - 33
33.1 - 37
37.1 - 41


ETo (mm/day) during the month of September 2014
GILGIT
SKARDU
PESHAWAR
RAWALPINDI
JHELUM
SARGODHA
D.I. KHAN
FAISALABAD
LAHORE
QUETTA
MULTAN
KHAN PUR
ROHRI
TANDOJAM
3.1 - 3.5
3.6 - 4
4.1 - 4.5
4.6 - 5
5.1 - 5.5

Crop Report during September, 2014

Spraying of chemicals on cotton and sugarcane, picking of early grown cotton verities were the major field operations in most of the agricultural areas of the country. Some farmers have started land preparation for sowing Rabi crops specially on fallow lands and sowing of winter vegetables was also in progress during the month.

In **Punjab:** Major crops in Punjab are cotton, rice and sugarcane. The growth and development of cotton crop has been observed/reported satisfactory. Mild attacks of White fly; boll worm and thrips have been reported in different parts of the province. The spray operations are in progress to control these pest attacks. Opening and picking of cotton crop has been started in the province. Condition of rice crop is reported satisfactory and harvesting of early grown verities has been started. Sowing of maize (autumn) has been completed. Germination and growth of the crop is reported satisfactory. Condition of sugarcane crop is reported satisfactory. However mild attacks of borer reported in some areas of central Punjab. Sowing of pulses and winter vegetables has been started.

In **Sindh:** Growth of cotton crop is reported in normal condition**.** Picking of the crop is in progress in different areas. Condition of rice crop is reported satisfactory and harvesting of early grown varieties of rice crop has been started in some areas. Sowing and early growth of sunflower is reported satisfactory. Growth of sugarcane is also reported satisfactory. Some pest's attacks have also been reported on sugarcane but overall condition of the crop is reported satisfactory in different areas. Sowing of winter vegetables has been started in the province.

In **Khyber Pakhtunkhwa:** Growth and development of all standing crops reported above normal due to satisfactory rains in the province during monsoon up to September. Major standing crops during the month were sugarcane and maize. The growth of both crops was reported above normal due to satisfactory atmospheric conditions. Condition of Sugarcane crop is reported well. Maize is at grain formation stage in most parts and harvesting of early grown verities has been started in the lower and central plain areas. Rice crop is also reported satisfactory and is growing at grain filling stage and is in healthy condition. Overall condition of orchards is reported satisfactory in the province. Sowing of winter vegetables is in progress.

In **Balochistan:** Condition of standing crops like cotton, sunflower, maize and orchards is reported satisfactory. Marketing of local fruits and vegetables is in progress.

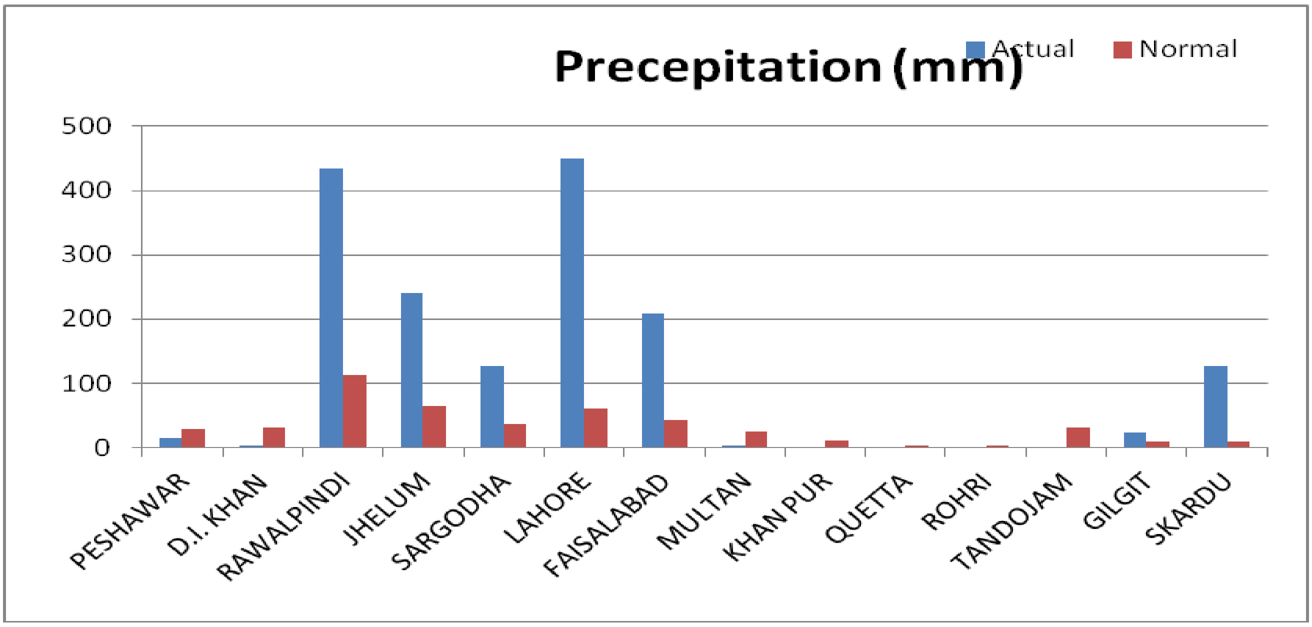
In **Gilgit Baltistan:** The main crops in the area are maize and lobiya. Both these two crops are growing normally. Condition and yield of orchards and summer vegetables are also reported satisfactory.

Moisture Regime during September, 2014

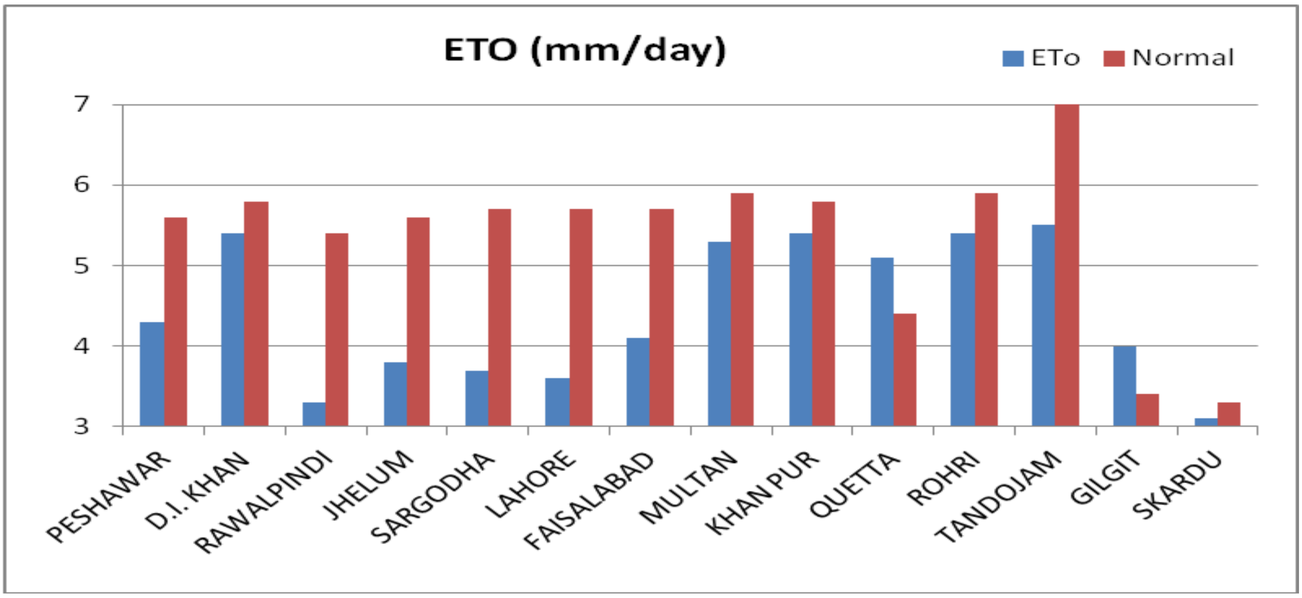
September is the last month of monsoon rains in Pakistan. Monsoon weather systems remain active till the mid of this month. These monsoon weather systems along with westerly waves penetrate mostly in the upper half of the country and cause rainfall of light to moderate intensity in this month. However, in this September, mostly heavy rainfall with sever flash flooding were recorded in the agricultural plains of the Punjab especially northern and central Punjab and below normal rain was reported in southern Punjab and other provinces.

The highest amount of rainfall reported in the month was 594mm in Lahore followed by 551mm in Sialkot, 547mm in Rawalakot, 487mm in Kotli, 438mm in Islamanad and 419mm in Rawalpindi. Number of rainy days recorded in agricultural plains of the country reached up to 14.

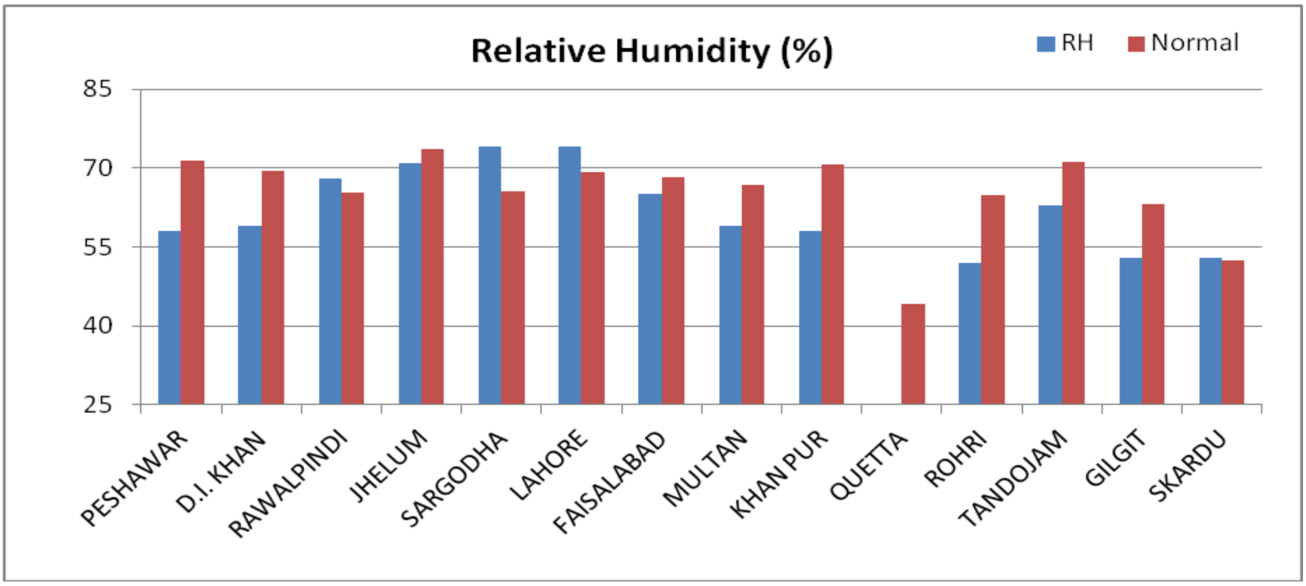
Maximum number of rainy days was recorded (14 days) in Rawalakot followed by 13 days in Kotli and Islamabad each, 12 days in Skardu, Gilgit and Kakul each and 11 days at murree and Sialkot each.



The evaporative demand of the atmosphere represented by reference crop evapotranspiration (ETo) remained normal to below normal in most of the agricultural plains of the country. However ETo was observed above normal in Quetta velley in Balochistan and Gilgit in GilgitBaltistanregion.The highest value of ETo was estimated in Khanpur.



The mean daily Relative Humidity (R.H) remained normal to below normal in most of the agricultural plains of the country except Potohar region and central Punjab where R.H observed above normal due to heavy rains reported in these areas. Maximum value of mean Relative humidity was observed 74% at Sargodha and Lahore, followed by 71% at Jhelum. Maximum number of days with mean R.H greater or equal to 80% was observed for 7days at Lahore and Sargodha each and 5 days at Faisalabad and Jhelum each.

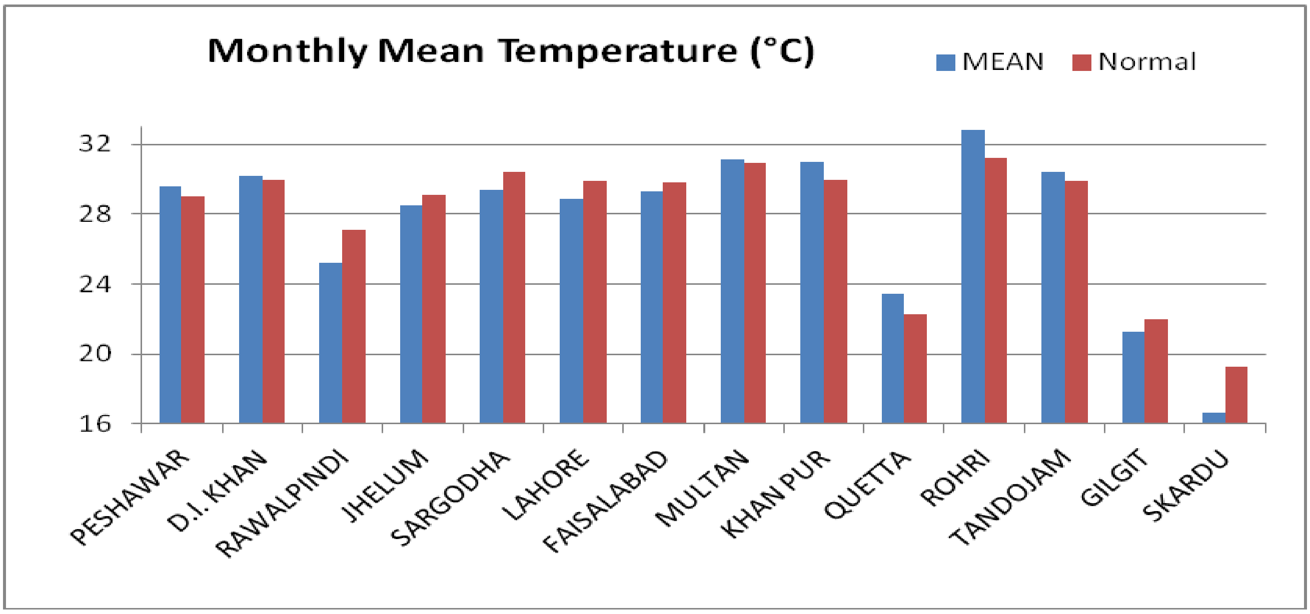


From overall analysis of the whole monsoon season of this year it is evident that satisfactory rains were reported in all agricultural plains of the country during this season. These rains have produced floods/flash flooding causing loss of Crops, life and property at areas of Punjab and Sindh. However the moisture stress has almost finished and sufficient moisture is available in the atmosphere producing favorable conditions for the coming Rabi crops especially at sowing time. Farmers of follow lands should utilize the present soil moisture for sowing wheat especially in upper half of the country.

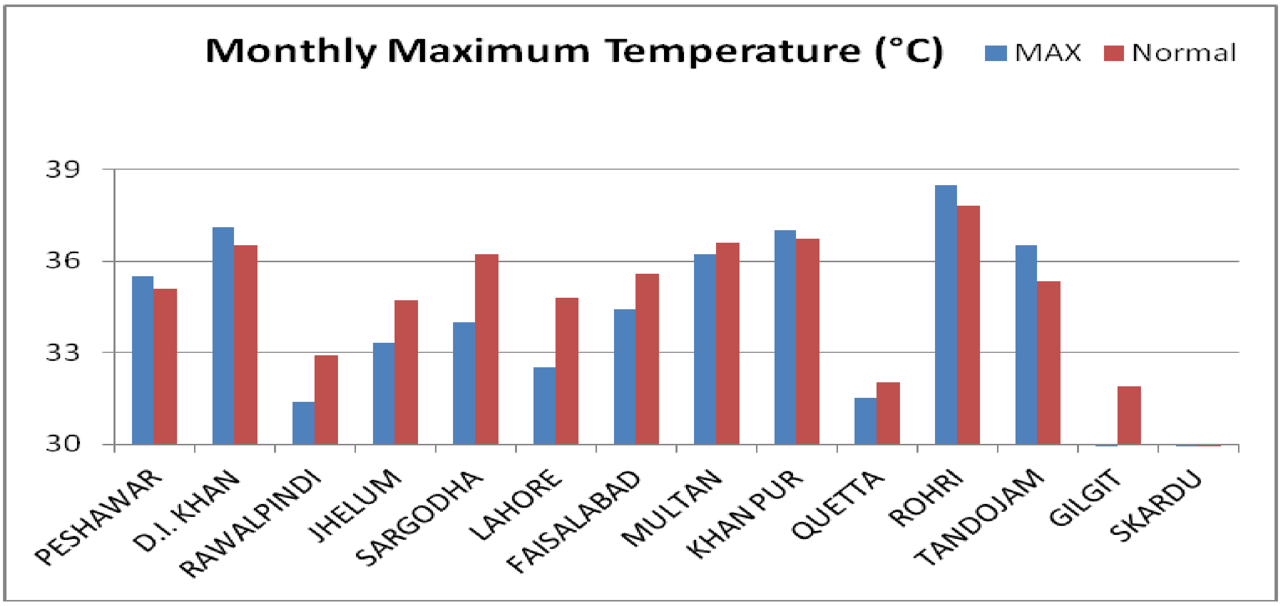
Temperature Regime during September, 2014

Temperature plays vital role in the growth and development of crops. Thermal regime in this month remained normal in most of the agricultural plains of the country.

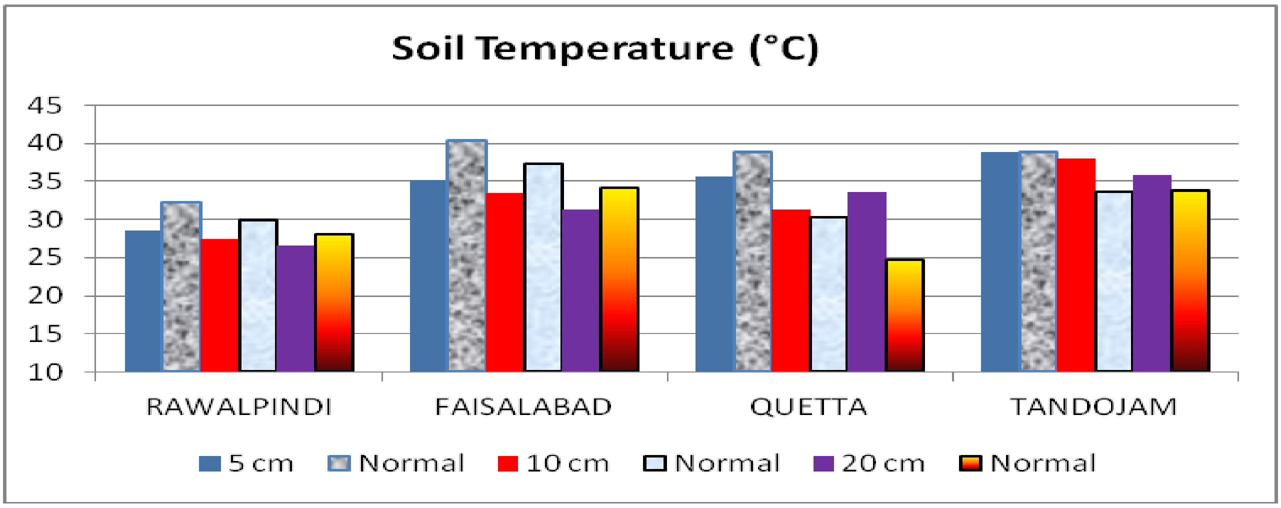
Mean daily temperature ranged 29 to 31°C in Khyber Pakhtunkhwa, 27 to 29°C in Potohar plateau, 29 to 31°C in remaining parts of Punjab, 30 to 33°C in agricultural plains of Sindh, 17 to 21°C in GilgitBaltistan region and it was observed 23°C in the high elevated agricultural plains of Baluchistan represented by Quetta valley.



The day time temperature represented by mean maximum also remained above normal by 1-2°C in the agricultural plains of KP, Sindh and GB and observed below 1-3°C normal in Punjab. The highest maximum temperature in the agricultural plains of the country was recorded 41.0°C at Dalbandin. Number of stress days with maximum temperature greater or equal to 40°C and R.H. less than or equal to 30% was nil in all agricultural plains of the country.



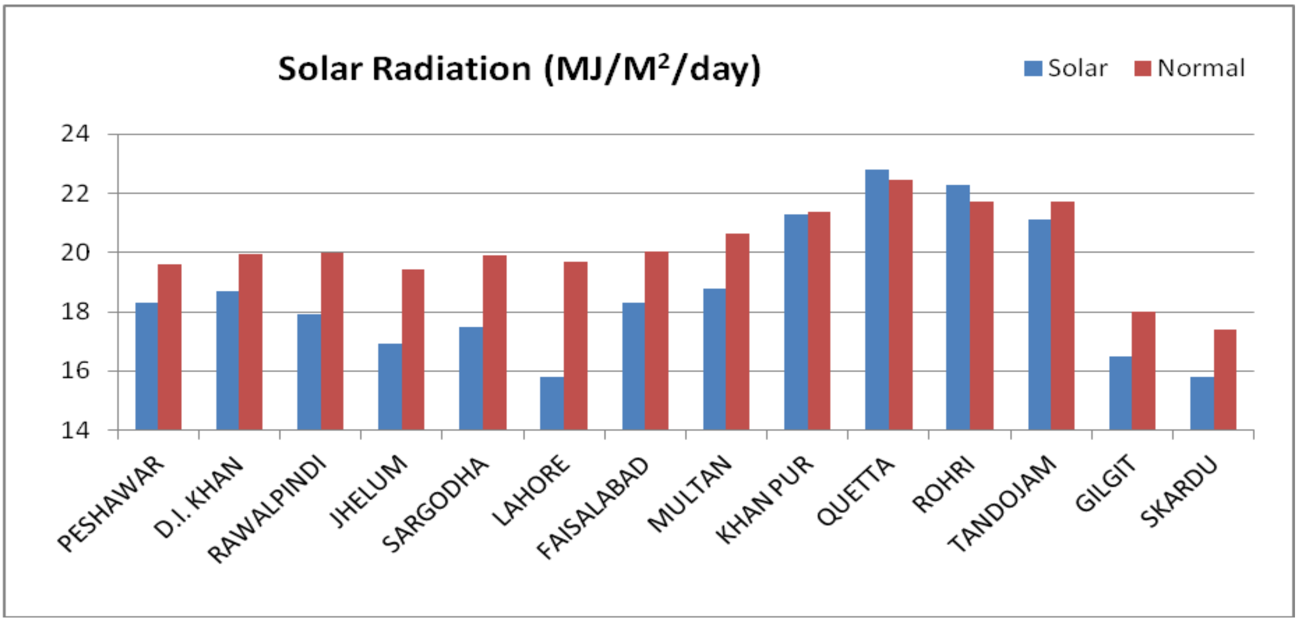
Agricultural soils showed mostly normal to cooler trend in most of the agricultural plains of the country.

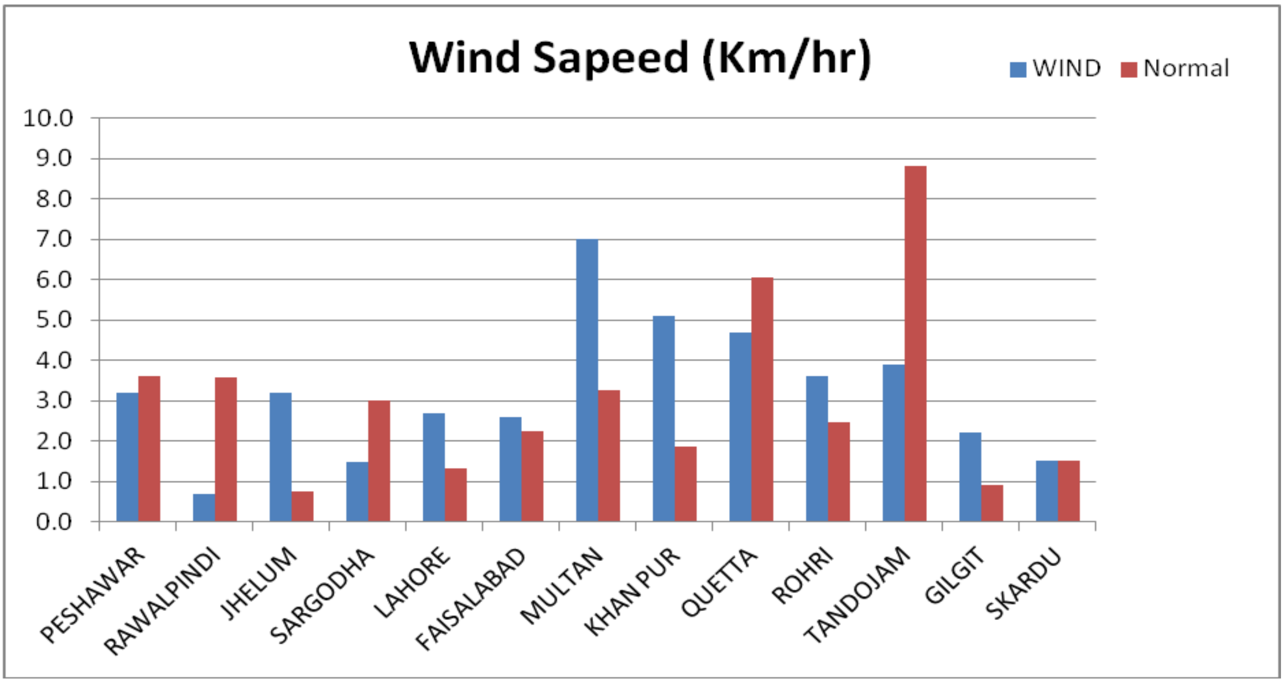


From the general analysis of soil behavior in this month, it is concluded that moisture has penetrated more in deep layers at potohar region and central Punjab as compared to lower parts of the country due to comparatively less rainfall reported during the month. However overall condition of moisture content is satisfactory for sowing of coming wheat and other seasonal crops and vegetables especially in rainfed areas of the country. Therefore farmers are advised to cultivate Rabi crops well in time so that soil moisture stored due to monsoon rains in September may be fully utilized especially in northern rainfed areas of the country.

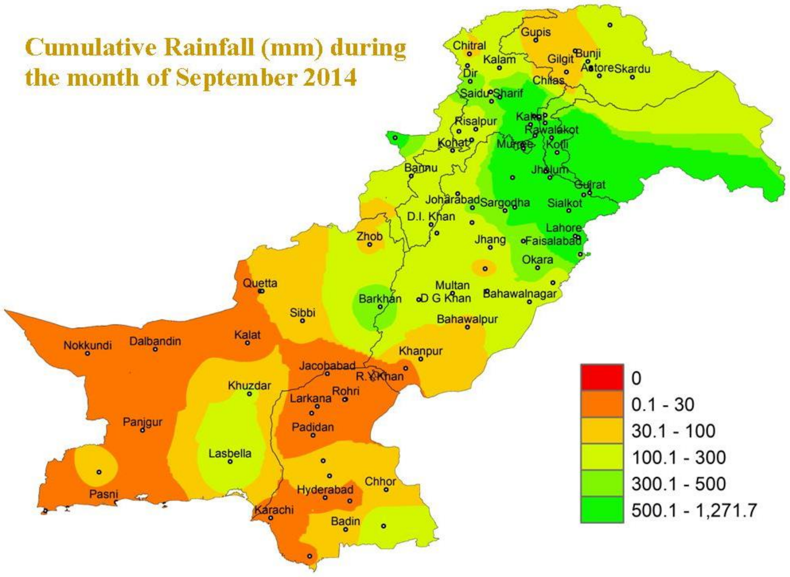
Solar Radiation and Wind Regime during September, 2014

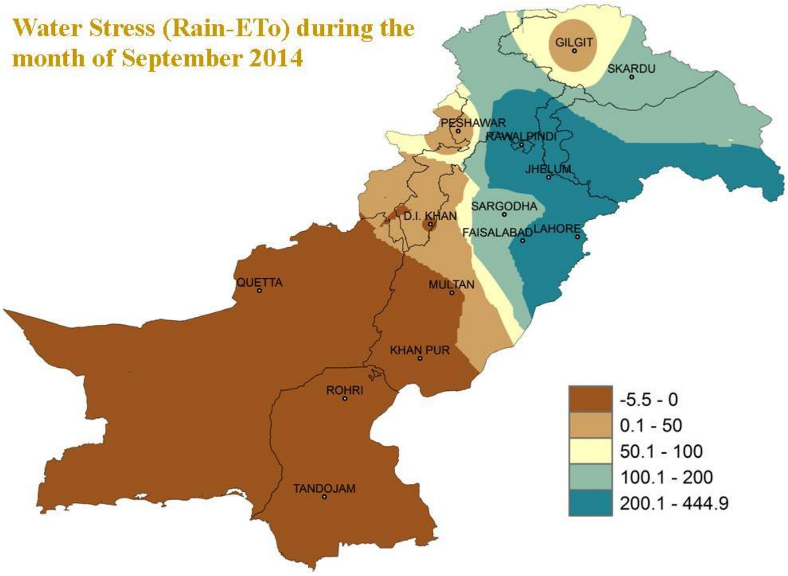
Total bright sunshine hours and solar radiation intensity remained normal to below normal in most of the agricultural plains of the country. Mean wind speed throughout agricultural plains of the country ranged between 1to 7km/h with North-east to North-west and South trend. Maximum wind speed was rounded to 6 km/h observed at Multan in southern Punjab.

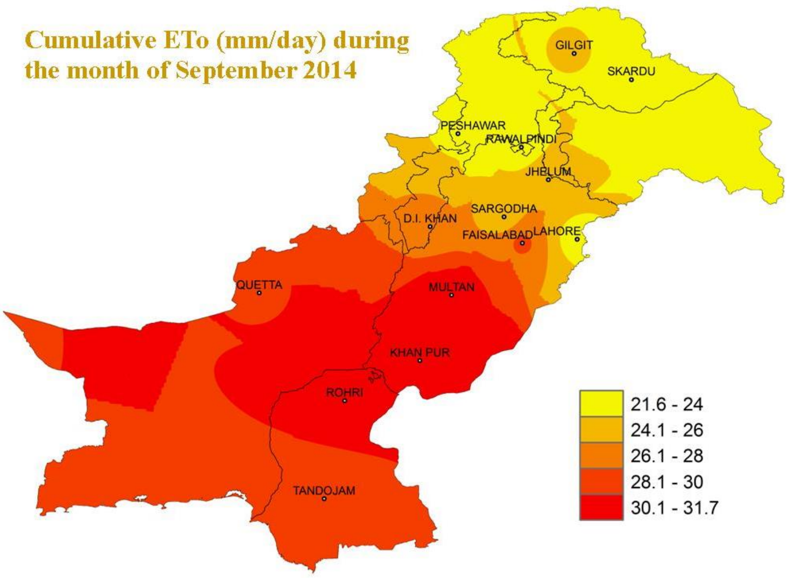


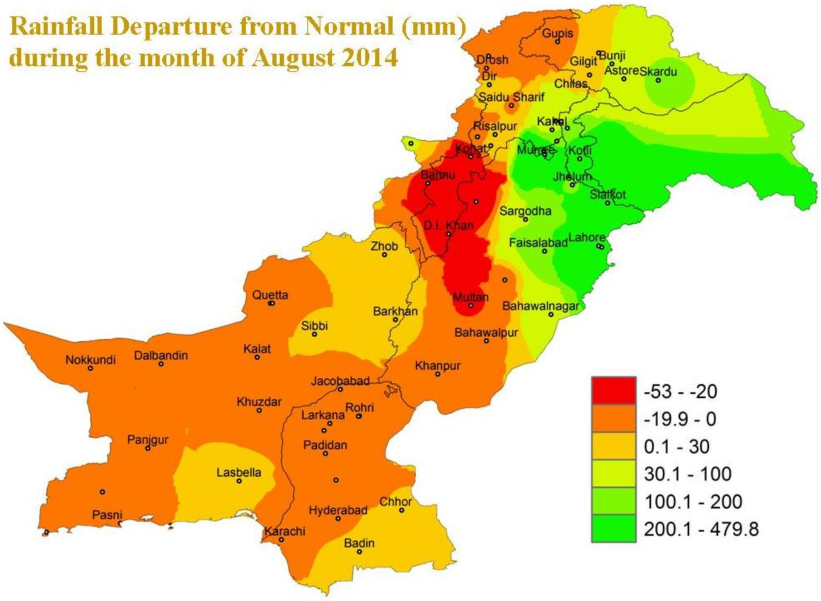


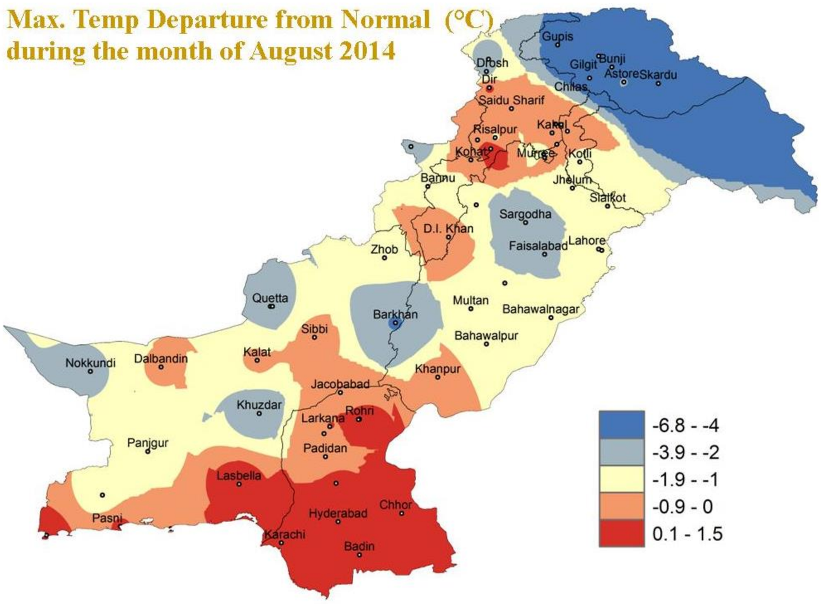
Cumulative Rainfall, ETo and water stress for Kharif Season (May to September)

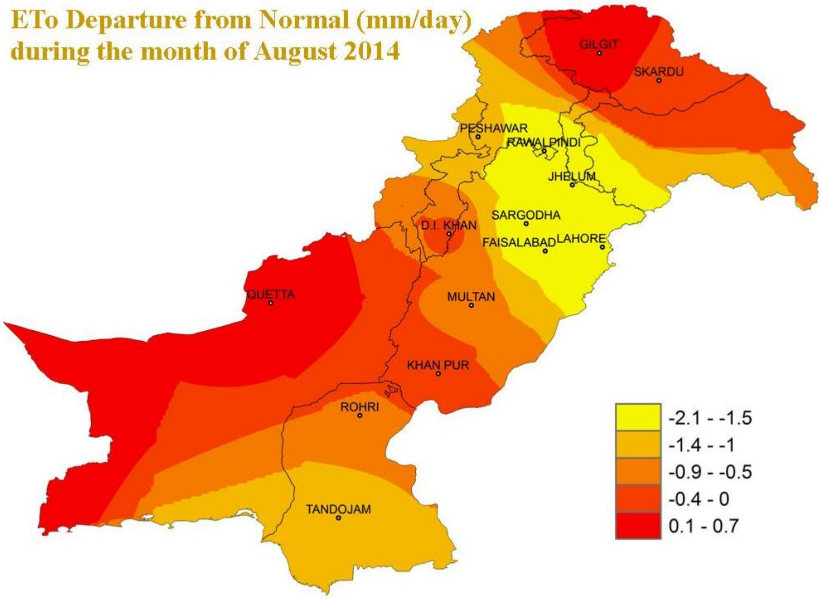







Rainfall Departure from Normal (mm)
during the month of August 2014
Gupis
Drosh
Dir
Gilgit
Bunji
Astore
Skardu
Chilas
Saidu Sharif
Risalpur
Kakul
Kohat
Murree
Kotli
Bannu
Jhelum
Sialkot
Sargodha
D.I. Khan
Faisalabad
Lahore
Zhob
Multan
Bahawalnagar
Quetta
Barkhan
Sibbi
Bahawalpur
Nokkundi
Dalbandin
Kalat
Khanpur
Jacobabad
Khuzdar
Rohri
Larkana
Panjgur
Padidan
Lasbella
Chhor
Hyderabad
Pasni
Karachi
Badin
-53 - -20
-19.9 - 0
0.1 - 30
30.1 - 100
100.1 - 200
200.1 - 479.8


Max. Temp Departure from Normal (°C)
during the month of August 2014
Gupis
Drosh
Dir
Gilgit
Bunji
Astore
Skardu
Chilas
Saidu Sharif
Risalpur
Kakul
Kohat
Murree
Kotli
Bannu
Jhelum
Sialkot
Sargodha
D.I. Khan
Faisalabad
Lahore
Zhob
Quetta
Multan
Bahawalnagar
Barkhan
Sibbi
Bahawalpur
Nokkundi
Dalbandin
Kalat
Khanpur
Jacobabad
Khuzdar
Rohri
Larkana
Panjgur
Padidan
Lasbella
Chhor
Hyderabad
Pasni
Karachi
Badin
-6.8 - -4
-3.9 - -2
-1.9 - -1
-0.9 - 0
0.1 - 1.5


ETo Departure from Normal (mm/day)
during the month of August 2014
GILGIT
SKARDU
PESHAWAR
RAWALPINDI
JHELUM
SARGODHA
D.I. KHAN
FAISALABAD
LAHORE
QUETTA
MULTAN
KHAN PUR
ROHRI
TANDOJAM
-2.1 - -1.5
-1.4 - -1
-0.9 - -0.5
-0.4 - 0
0.1 - 0.7

Normally Expected Weather during October, 2014

October is the transition month between the summer and winter weather systems. In general, October is considered as the driest month of the Rabi season. However, a few falls of light and moderate rain are expected over northern Balochistan, upper divisions of Khyber Pakhtunkhwa, submountaineous areas of Punjab and Kashmir due to incursion of moisture from the westerly troughs. Quantitatively, northern Punjab and Khyber Pakhtunkhwa is expected to receive 30 to 100 mm of rainfall. Rest of the country would remain practically dry as amount of rainfall is not likely to exceed 10 mm.

The probability of occurrence of rainfall is given below:

Amount / Dates	PERCENTAGE PROBABILITY OF OCCURRENCE OF DIFFERENT AMOUNTS OF RAINFALL IN OCTOBER					
	1-5	**6-10**	**11-16**	**17-20**	**21-25**	**26-30**
10mm	16	16	18	18	9	9
15mm	12	9	14	10	1	5
25mm	6	6	5	4	0	3

The mean daily relative humidity may range between 45% and 55% during the month. Over high agricultural plains of Balochistan, it may be around 35%. In general, the mean relative humidity all over the country would be 10% less than September except high agricultural plains of Balochistan, where it is expected to be slightly higher.

Despite the shorter days, cooler atmosphere and less intense solar radiation, evaporative demand of the atmosphere is expected to maintain the level of September values. The reasons are the clearer skies and drier atmosphere during October, relative to September. The ETo values are expected to range between 4.0 and 5.5 mm/day over most parts of Khyber Pakhtunkhwa, Punjab and Southern Balochistan. It would be close to 3.5 mm/day over high agricultural plains of Balochistan. It may exceed 6 mm/day over Sindh.

The mean daily temperatures are expected to drop about 3 to 5°C relative to September. They may range 22 to 26°C over most of Punjab and Khyber Pakhtunkhwa. However, it may exceed 30°C in Sindh whereas in high agricultural plains of Balochistan, it would be close to 15°C. The mean maximum temperatures are expected to range between 31 and 37°C. They are expected to be around 25°C in Quetta. Maxima may exceed 40°C at few places mainly in southern Punjab, upper Sindh and adjoining Balochistan. Mean daily minimum temperatures are expected to range between 14°C and 22°C except in high agricultural plains of the country. High agricultural plains of Balochistan are expected to experience few freezing nights towards the end of the month.

The numbers of bright sunshine hours are expected to range between 9 hours a day in north to 10 hours a day in south. Besides lower solar angle, there will be slight increase in bright sunshine duration relative to last September due to clearer skies during October. The intensities of solar radiation are expected to range between 17 and 20 MJ/M^2/day throughout the country.

During October, mean wind speeds are expected to remain below 10 Km/hour over most of agricultural areas of the country. It is expected that prevailing southerly wind flow may shift to northwesterly direction. Following is the water requirement of full canopied healthy crops in different regions of the country during October:

S. No	Region	Water Requirement	
		(mm)	**Cubic Meter/Hectare**
1	Northern Punjab, Northern Khyber Pakhtoonhawa and high agricultural plains of Balochistan	110-120	1100-1200
2	Southern Khyber Pakhtunkhwa, and Southern Punjab	140-160	1400-1600
3	Sindh and Southern Balochistan	180-190	1800-1900

Seasonal Weather Update

Introduction

A variety of methods including dynamical models, statistical methods, regional expert judgments *and combination of them have been used to generate long-range weather forecast by the different climate prediction centers around the world. National Agromet Center (NAMC), Pakistan Meteorological Department adopts an ensemble approach to formulate its seasonal weather outlook for Pakistan (on experimental basis), taking into consideration available products from major climate prediction centres and different Global Climate Models (GCMs).*

Regional weather (precipitation and temperature) outlook is predicted from different global climate models by using persisted sea surface temperature on 0000 Oct 01, 2013. Model's output then tuned by applying Regional Correction Factor (RCF). RCF has computed by comparison of Long Range Averages (LRA) with model's simulation for the period (2004-2012) on monthly basis. That might be somewhat different from actual weather because of time to time variation in Sea Surface Temperature (SST) during the season. Accuracy of Outlook seasonal weather mainly depend upon SST used in global climate models. Even with use of accurate SST, still is uncertainty in the climate forecast due to chaotic internal variability of the atmosphere.

Acknowledgement: *NAMC is gratefully acknowledges the International Research Institute (IRI) for climate and Society for providing access of dynamical prediction of Global Climate Model ECHAM4P5, developed and operated by European Center for Medium-Range Weather Forecasts model's simulations and hindcast data to support the formulation of seasonal weather outlook of Pakistan. Output maps have been prepared by using IRI climate software.*

Synoptic situation

- Location of jet stream (U wind at 200 hPa) is at normal position with normal intensity. The area of jet stream may be squeezed during Oct over northern of Afghanistan. The strong winds showed tilting towards south trend when enter over Pakistan. Below than normal strength of higher winds trend over the region.
  Probability outlook: Normal to below intensity of jet stream is associated with normal to below normal precipitation in the region. In addition weather system enters in the country from north rather than from west during first two predicted months.
- A trough at 500 hPa is expected to be over northern parts of the country. Slightly above normal trend is expected over northern and eastern parts of the region.
  Probability outlook: Precipitation is likely to occur over upper parts of the country. Lower and central parts of the country may be dry during October.
- Surface temperatures are expected to be on higher side than normal over eastern parts of Pakistan and western states of India.
- North Atlantic Oscillation (NAO) is in negative phase (-1.68) and in increasing trend. As a result normal track of western disturbances will persist. http://www.cpc.ncep.noaa.gov/products/precip/CWlink/pna/norm.nao.monthly.b5001.current.ascii.table

Probability outlook: Above Normal precipitation over all parts of the country will be expected. The focus of weather tracks may be towards central of the country.

- During August 2014, above-average sea surface temperatures (SST) continued across much of the equatorial Pacific. Most of the Niño indices warmed during the month with values of +0.5°C in Niño-4, +0.4°C in Niño-3.4, +0.4°C in Niño-3, and +0.8°C in Niño-1+2. Subsurface heat content anomalies (averaged between 180º-100ºW) also increased during the month as above-average subsurface temperatures developed across the central and east-central equatorial Pacific. This warming is associated with the downwelling phase of an equatorial oceanic Kelvin wave triggered in July by low-level westerly wind anomalies. Westerly wind anomalies continued in the central and eastern part of the basin early in August, but weakened by the end of the month. Enhanced easterly upper-level wind anomalies have prevailed during much of the month, and the Southern Oscillation Index has been negative. However, convective cloudiness remained generally near average over most of the region, except for below average cloudiness observed across the central and western Pacific. The lack of a coherent atmospheric El Niño pattern and near-average SSTs in the central Pacific indicate a continuation of ENSO-neutral.
- Most of the models continue to predict El Niño to develop during September-November and to continue into early 2015. A majority of models and the multi-model averages favor a weak El Niño. At this time, the consensus of forecasters expects El Niño to emerge during September-October and to peak at weak strength during the late fall and early winter (3-month values of the Niño-3.4 index between 0.5°C and 0.9°C). (http://iri.columbia.edu/our-expertise/climate/forecasts/enso/current/?enso_tab=enso-cpc_update)
  Probability outlook: La Nina (1%), Neutral (38%) and El Nino (61 %) during Oct-Nov-Dec, 2014 season
- Arabian Sea Surface Temperatures are expected to be slightly below normal near western coastal belt of Pakistan.
- Caspian Sea surface temperatures expected to be slightly above normal over southern half and below normal over upper half.
- Mediterranean Sea surface temperatures are normal to slightly above normal.
- Bay of Bengal Sea Surface Temperatures are close to normal.
  Probability outlook: Sea Surface Temperature trend is going towards normal leads to below normal precipitation over the region.

Seasonal Weather Outlook Summary (Oct- Dec-2014)

Synthesis of the latest model forecasts for Oct-Dec, 2014 (OND), current synoptic situation and regional weather expert’s judgment indicates that slightly above normal precipitation is expected all over the country with above average during December and normal during October and November. Slightly above average night temperature is likely to occur during whole predicted period with higher values over eastern parts of the country.

Weather outlook

"Slightly average precipitation is expected during the season all over the country with slightly above normal temperature."

I. Above average precipitation is expected during last phase of predicted month (December).

II. Normal to slightly below normal precipitation is expected during October.

III. In October, below average precipitation is expected all over the country whereas slightly above average rainfall over southern parts (Sindh) of the county. Night temperatures are likely to be above normal (about 1°C) all over the country with higher value over eastern and central parts of the country.

IV. Two rainy spells, one during 1st week and second on 3rd week , are expected during October

V. Normal precipitation is expected over all the provinces except Kashmir. Normally, November is dry month all over the county.

VI. Night temperature will be on higher side all over the country with higher values over central and eastern parts of the country.

VII. No heavy or moderate rainy spells are expected during all over the country. Light rain is expected over isolated places of the country during the month.

VIII. Slight rainy spell are expected over KP and FATA provinces during second decade of October.

IX. Above normal precipitation is expected during December. Snowfall over Northern hilly areas may start during the month of December.

X. Above normal precipitation is expected over Baluchistan and Sindh.

XI. Expected Minimum temperature will be slightly below normal during December with higher values over North-western parts of the country.

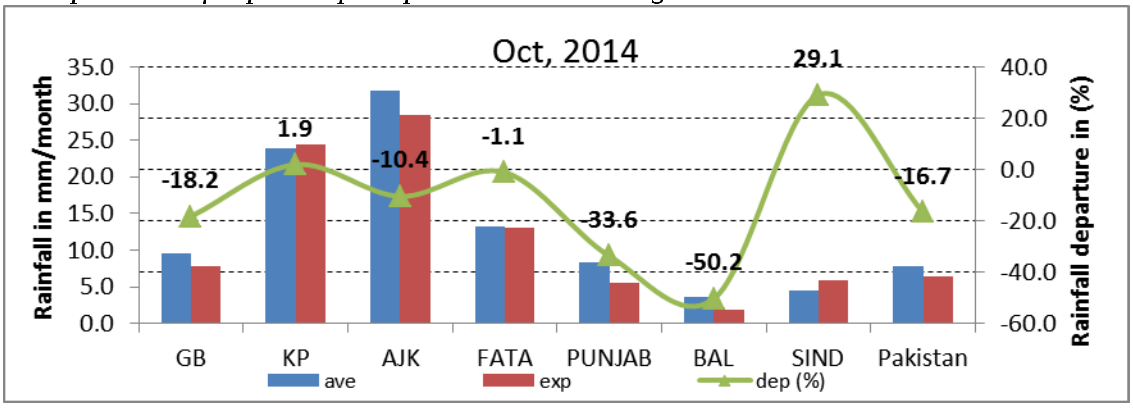
Monthly Quantitative Weather Forecast

	Oct, 2014		Nov, 2014		Dec, 2014		Oct-Dec, 2014	
	ave	exp	ave	exp	ave	exp	ave	exp
GB	9.6	Blw. Ave	10.0	Ave	16.3	Ave	35.8	Ave
KP	23.9	Ave	20.0	Ave	32.9	Ave	76.8	Ave
AJK	31.7	Ave	23.6	Blw. Ave	50.9	Ave	106.2	Ave
FATA	13.2	Ave	10.9	Abv. Ave	20.6	Abv. Ave	44.7	Abv. Ave

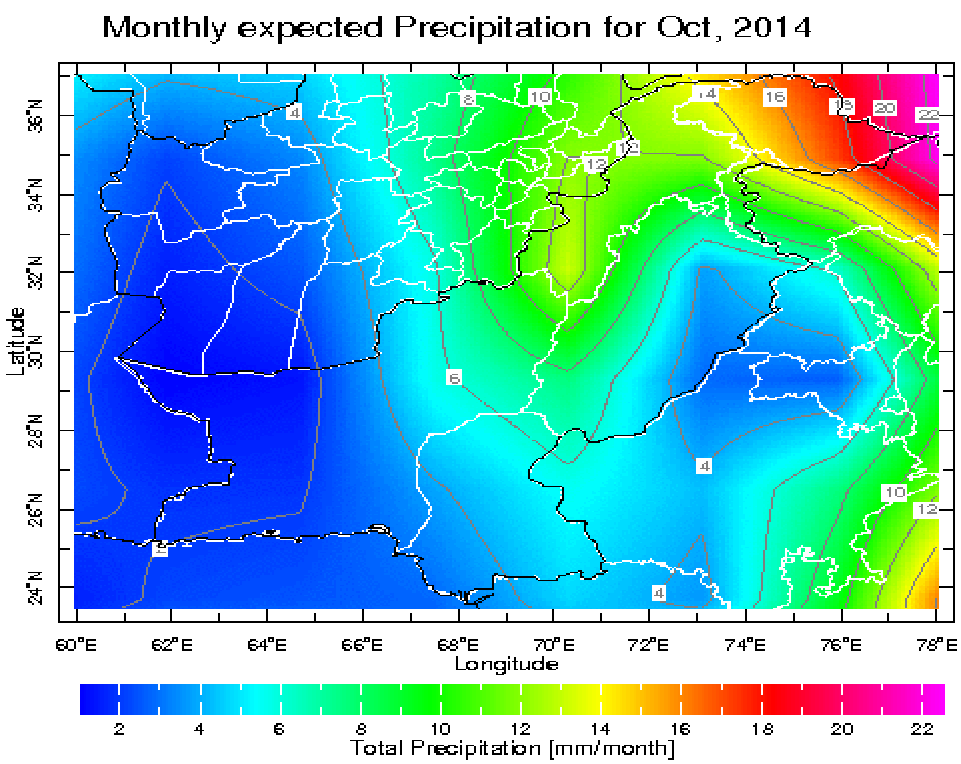
PUNJAB	8.4	Blw. Ave	4.2	Blw. Ave	12.0	Abv. Ave	24.6	Ave
BALUCHISTAN	3.7	Blw. Ave	3.2	Ave	14.8	Abv. Ave	21.6	Abv. Ave
SIND	4.5	Abv. Ave	1.6	Ave	5.0	Abv. Ave	11.2	Abv. Ave
Pakistan	7.8	Blw. Ave	5.7	Ave	14.9	Abv. Ave	28.3	Abv. Ave

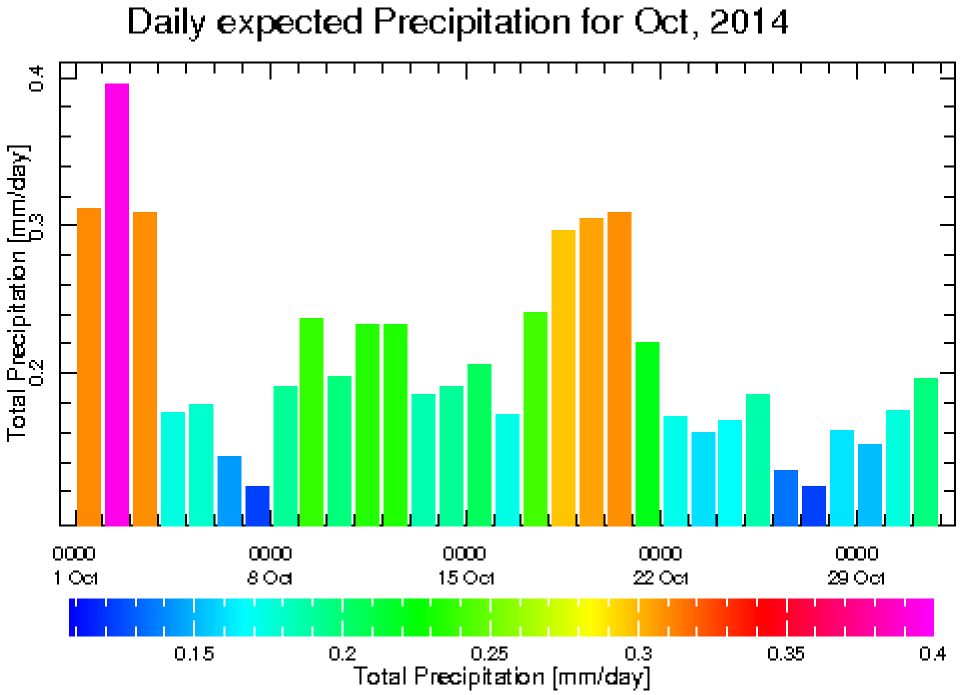
Ave.: *average (1981-2010),* ***Exp.****: Expected rainfall,* ***Below Average*** *(Blw. Ave) < -15 %,* ***Average*** *precipitation range (Ave) = -15 to +15 %,,* ***Above Average*** *(Abv.Ave) > +15 %*

Note: Average precipitation is computed by using Global Precipitation Climatology Centre (GPCC) gridded data by resolution (0.5x0.5°) latitude by longitude. Ensembles of different climate models are used for computation of expected precipitation over the region.

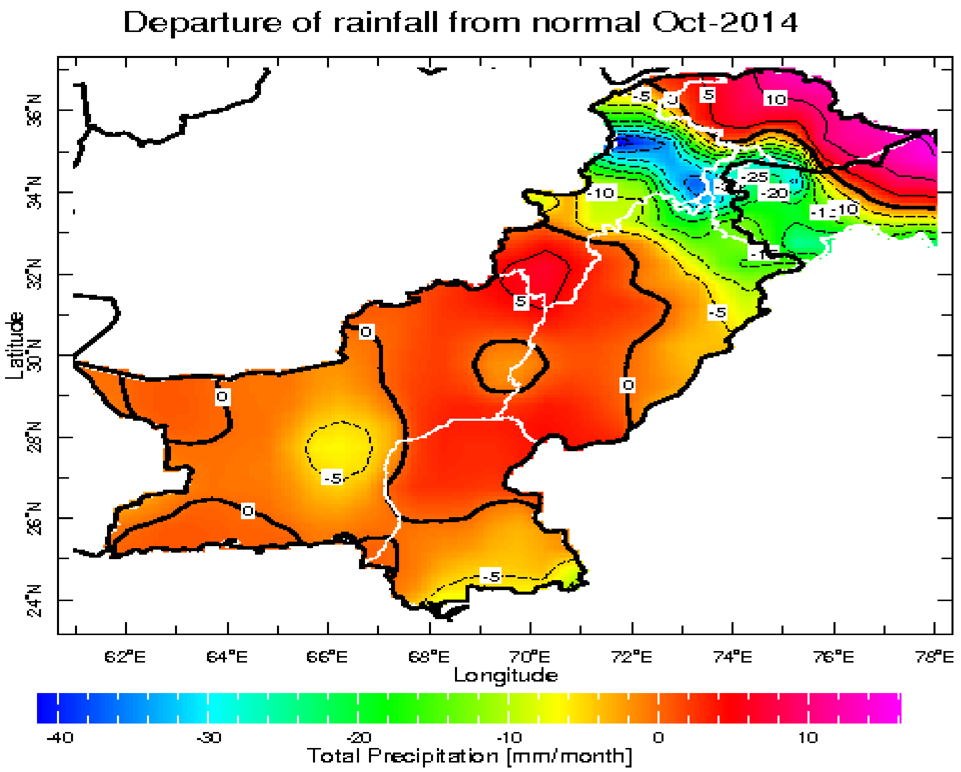


Spatial distribution of expected Rainfall during Oct, 2014 (GCM-ECHAM)

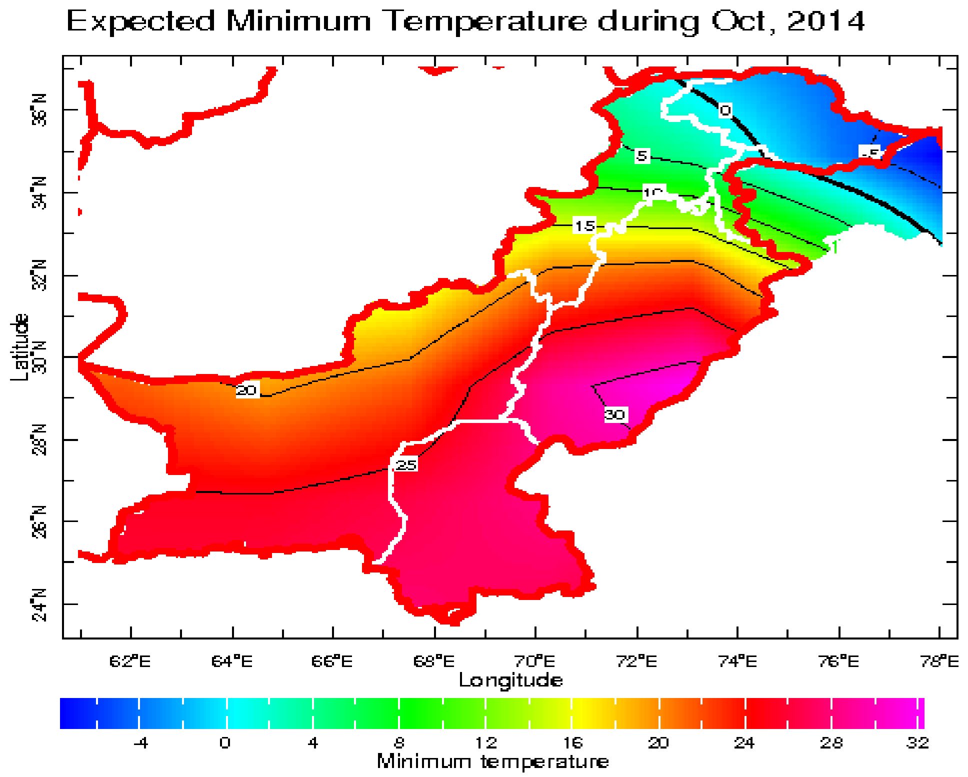




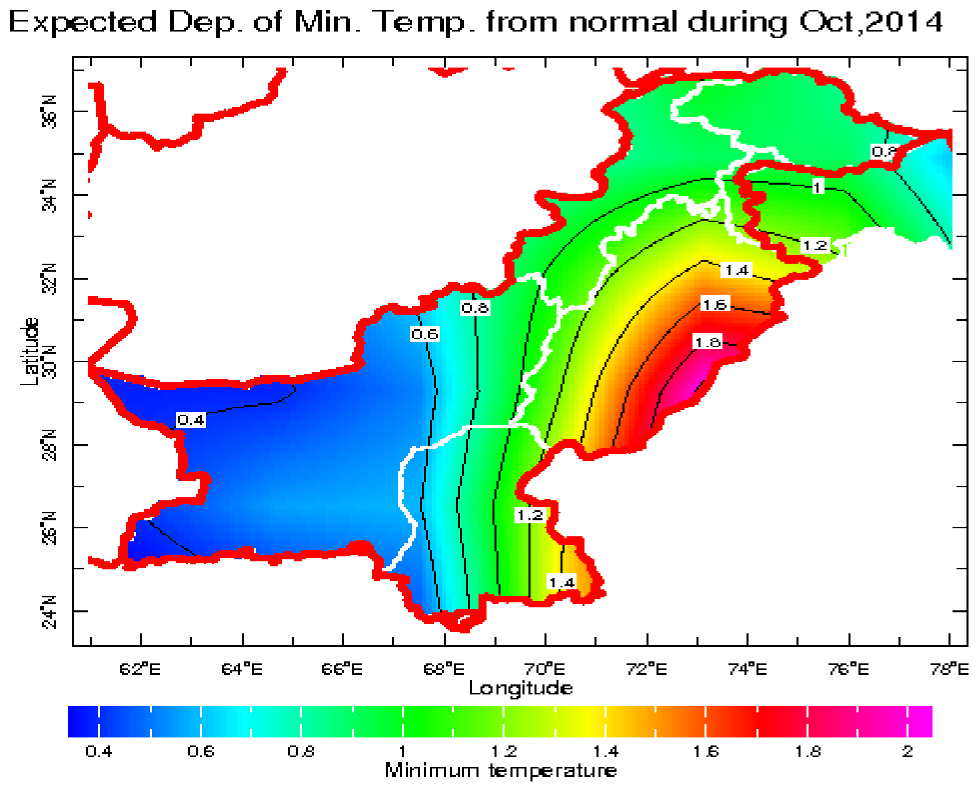
Monthly departure from normal (Rainfall) during Oct, 2014



<u>Spatial distribution of expected Minimum Temperature during Oct, 2014</u>



<u>Monthly departure from normal (Minimum Temperature) during Oct, 2014</u>



اکتوبر 2014ء میں کاشتکاروں کیلئے زرعی موسمیاتی مشورے

اس سال ماہ ستمبر میں مون سون کی اچھی بارشیں ہوئیں جس کی وجہ سے ربیع کی فصل کیلئے زمین میں پانی مناسب مقدار میں مہیا ہوگا۔ یہ بارشیں بارانی علاقوں کے کاشتکاروں کیلئے بہت زیادہ مفید ثابت ہونگی کیونکہ ربیع کی کاشت کا آغاز وسط اکتوبر سے ہوجائے گا۔ ستمبر کے آخر تک ہونے والی بارش کی نمی اگر زمین میں مناسب طریقے سے محفوظ کرلی گئی ہو تو یہ فصل ربیع کی کاشت اور اسکی ابتدائی نشوونما کیلئے انتہائی سازگار حالات پیدا کرے گی۔ اکتوبر اور نومبر کے موسمی حالات کو مدنظر رکھتے ہوئے ربیع کی فصل سے اچھی پیداوار کیلئے موزوں منصوبہ بندی کرنا وقت کی اہم ضرورت ہے۔ اس ضمن میں کسانوں کیلئے مندرجہ ذیل زرعی موسمیاتی مشورے بہت اہم ثابت ہوسکتے ہیں۔

۱۔ ربیع کی فصلوں کی بوائی کا آغاز اکتوبر کے وسط سے شروع ہوگا۔ گندم اس موسم کی اہم ترین فصل ہے۔ بہترین پیداوار حاصل کرنے کیلئے ضروری ہے کہ گندم کی کاشت نومبر کے وسط تک ہر صورت مکمل کرلی جائے تاکہ مطلوبہ پیداوار حاصل کرنے کیلئے فصل کو پورا وقت مل سکے۔

۲۔ بارانی علاقوں کے کسان موجودہ وتر کو استعمال کرتے ہوئے بہترین پیداوار حاصل کرسکتے ہیں۔ اس وقت زمینوں میں کم سے کم ہل چلایا جائے اور ہل چلانے کے بعد سہاگہ ضرور دے دیا جائے تاکہ زمین سے نمی کا ضیاع کم سے کم ہو۔ اگر گندم کی کاشت کیلئے محکمہ زراعت کے تجویز کردہ دورانیے میں کسی روز ۲۰ ملی میٹر یا اس سے زیادہ بارش ہوجائے تو اس وتر پر کاشت کی گئی فصل کی اگائی بہترین ہوتی ہے۔ مگر بارش کے انتظار میں فصل کاشت کرنے میں ہرگز دیر نہ کریں۔ کیونکہ ابھی زمین میں نمی موجود ہے جو کہ اچھی اُگائی کا موجب بن سکتی ہے۔ ایسے بارانی علاقوں میں جہاں زمین میں مناسب حد تک نمی نہیں اور بارش کا بھی امکان نہ ہو ضروری ہے کہ گندم کے بیج کو رات پہلے پانی میں بھگو دیا جائے۔ اور صبح سویرے کاشت کردیا جائے۔ گندم کے بیج کو بوائی سے پہلے دوائی لگانا ہرگز نہ بھولیں۔

۳۔ محکمہ زراعت مختلف فصلوں کے ساتھ گندم کی مخلوط کاشت کا مشورہ دیتا ہے۔ بیک وقت کھیت میں ایک سے زیادہ فصلوں کا ہونا مخلوط کہلاتا ہے۔ نہری یا زیادہ بارش کے علاقوں میں یہ طریقہ مفید ہے کیونکہ پودوں کیلئے پانی وافر مقدار میں موجود ہوتا ہے۔ کسان اگر بروقت جڑی بوٹیوں کا تدارک پانی اور کھاد کا تناسب مناسب رکھیں تو باغات کے ساتھ گندم اور ربیع کی دوسری فصل زیادہ پیداوار کے ساتھ اگائے جاسکتے ہیں۔

۴۔ دھان کی فصل اس وقت پیداوار کے آخری مراحل میں ہے یہ وہ وقت ہے جب چاول کی فصل کو پانی کی اشد ضرورت ہوتی ہے۔ کسان عام طور پر کھیت کو پانی سے لبالب بھر دیتے ہیں یہ ہرگز درست نہیں ہے بلکہ پانی کا ضیاع ہے۔ مناسب مقدار میں کھیت کو پانی دیا جائے تاکہ کئی دنوں تک وہ کھڑا نہ رہے اس کفائیت سے حاصل شدہ پانی کو کسی دوسری فصل کو مہیا کرکے اس سے بھی بہتر پیداوار حاصل کی جاسکتی ہے۔

۵۔ موسم برسات میں جاری کردہ مشوروں میں کہا گیا تھا کہ کھیتوں کی وٹ بندی سے گھاس پھوس کو تلف نہ کیا جائے کیونکہ یہ پانی کے بہاؤ کے ساتھ مٹی کے کٹاؤ کو کافی حد تک روکتا ہے۔ اب کھیتوں میں ربیع کی کاشت کرنا ہے اور ان گھاس پھوس کے پودوں کو فوری طور پر تلف کردیا جائے تاکہ زمین میں محفوظ نمی فصل کی کاشت کے کام آسکے۔

۶۔ زراعت کی کامیابی میں موسمی حالات کا بہت عمل دخل ہے اور بہتر حکمت عملی سے غیر موزوں موسمی حالات سے بھی استفادہ کیا جاسکتا ہے۔ محکمہ موسمیات کی پیشگوئی کو ملحوظ خاطر رکھ کر محکمہ زراعت کے ماہرین کی مشاورت سے اپنے معمولات طے کریں تو پیداوار میں خاطر خواہ اضافہ ممکن ہے۔ موسمی حالات سے متعلق مزید معلومات کیلئے محکمہ موسمیات کے قریبی دفتر سے رابطہ کیا جاسکتا ہے۔ جن کا پتہ درج ذیل ہے۔

۱۔ محکمہ موسمیات، نیشنل ایگرومیٹ سینٹر، پی۔ او۔ بکس نمبر 1214، سیکٹر ایچ ایٹ ٹو، اسلام آباد۔ فون نمبر:- 051-9250299

۲۔ محکمہ موسمیات، نیشنل فورکاسٹنگ سینٹر برائے زراعت، پی۔ او۔ بکس، 1214، سیکٹر ایچ ایٹ ٹو، اسلام آباد۔ فون نمبر: 051-9250364

۳۔ محکمہ موسمیات، ریجنل ایگرومیٹ سینٹر، بارانی یونیورسٹی، مری روڈ، راولپنڈی۔ فون نمبر:- 051-9290635

۴۔ محکمہ موسمیات، ریجنل ایگرومیٹ سینٹر، ایوب ریسرچ انسٹیٹیوٹ، جھنگ روڈ، فیصل آباد۔ فون نمبر:- 041-2657047

۵۔ محکمہ موسمیات، ریجنل ایگرومیٹ سینٹر، ایگریکلچر ریسرچ انسٹیٹیوٹ، ٹنڈوجام۔ فون نمبر:- 0222-766583

۶۔ محکمہ موسمیات، ریجنل ایگرومیٹ سینٹر، ایگریکلچر ریسرچ انسٹیٹیوٹ، سریاب روڈ، کوئٹہ۔ فون نمبر:- 081-9211211

تفصیلی موسمی معلومات کیلئے محکمہ موسمیات کی ویب سائٹ www.pmd.gov.pk ملاحظہ فرمائیں۔

کماد (گنے) کی فصل پر موسم سے متعلق اثر انداز ہونیوالے اہم عوامل

کماد پاکستان کی اہم ترین فصل ہے۔ پاکستان زیرِ کاشت رقبہ کے لحاظ سے دُنیا میں پانچویں نمبر پر کُل پیداوار کے لحاظ سے گیارویں نمبر پر اور فی ایکڑ پیداوار کے لحاظ سے 60ویں نمبر پر ہے۔ کماد سفید چینی اور گُڑ بنانے کا اہم ذریعہ ہے۔ اس کے علاوہ تقریباً 100 کے قریب دوسری کارآمد اشیاء بھی اس سے بنتے ہیں۔ پاکستان میں کماد پنجاب، سندھ اور خیبر پختونخواہ میں خریف کے فصل کے طور پر کاشت ہوتا ہے۔ کماد کی فی ایکڑ پیداوار ملک میں 480 من کے لگ بھگ ہے۔ جبکہ ہمارے ملک کے ترقی پسند کاشتکار گنے کی فی ایکڑ 1000 من سے زیادہ حاصل کر رہے ہیں۔ گنے کی پیداوار میں کمی بیشی کے بنیادی وجوہات میں مناسب زمین کا انتخاب اور تیاری، مناسب بیج اور شرح بیج، مناسب اور بروقت طریقہ کاشت، بروقت اور مناسب کھاد کا استعمال، مناسب مقدار اور گنے کے اوپر حملہ آور ہونے والے کیڑوں اور دوسرے بیماریوں کا بروقت تدارک، نئی فصل اور موڈی فصل (ratoun crop) کے مختلف ضروریات کیمطابق نگہداشت بروقت کٹائی اور مل تک ترسیل، نہری پانی کیساتھ مناسب وقفوں کیساتھ بارشیں، طوفانی ہوائیں، خشک سالی وغیرہ شامل ہیں۔ گنے کی بہترین نشونما کیلئے سب سے موزوں آب و ہوا گرم مرطوب ہے اسلئے یہ دُنیا کے اُن علاقوں میں کاشت ہوتا ہے جہاں بیشتر نشونما کے دوران آب ہوا گرم مرطوب ہو اور زمین میں نمی کی اچھی مقدار موجود ہو۔ جبکہ کٹائی کے دوران خشک اور نسبتاً کم درجہ حرارت درکار ہوتی ہے تا کہ گنے میں مٹھاس (Sugar) زیادہ سے زیادہ موجود ہو۔

1۔ کماد کے پودے میں 73-75 فیصد پانی ہوتا ہے۔ اس لئے پودے کو پانی کی ضرورت بہت زیادہ ہے۔ کماد کو کاشت کرنے کے لئے ایسے زمین کا انتخاب کرنا چاہئے جس میں پانی جذب کرنے کی صلاحیت زیادہ ہو۔ کلر اور تھور زدہ زمین پر گنے کی کاشت نہ کرے۔ اسلئے پنجاب، سندھ اور خیبر پختونخواہ کے وہ زرعی علاقے جہاں آبپاشی کیلئے پانی دستیاب ہے وہ کماد کی کاشت کیلئے موزوں ہیں۔

2۔ پاکستان میں گنے کی کاشت زیادہ تر ستمبر-اکتوبر (موسم خزاں) اور فروری-مارچ (موسم بہار) میں ہوتی ہے۔ پیداوار کے لحاظ سے موسم خزاں کی کاشت موسم بہار کے مقابلے میں بہتر ہے۔ جبکہ خیبر پختونخواہ میں کاشت اکتوبر- تک مکمل کرنی چاہئے اس لئے کہ ستمبر اور اکتوبر کے کاشت والی فصل کو موزوں آب ہوا میسر آجاتی ہیں۔ دیر سے کاشت کرنے پر کُل پیداوار 30 فیصد تک کم ہو سکتی ہے۔ اسلئے کہ دیر سے کاشت کرنے والی فصل کو مناسب آب و ہوا دستیاب نہیں ہوتی۔

3۔ دوسرے فصلوں کیطرح کماد کے پیداوار میں بھی 25 فیصد تک کمی زائد جڑی بوٹیوں کیوجہ سے واقع ہوتی ہے۔ اس لئے کیمیائی یا غیر کیمیائی طریقوں سے جڑی بوٹیوں کو بروقت تلف کیا جائے تا کہ فصل سے پانی اور دوسرے غذائی اجزاء کا زیاں ختم ہو۔ مون سون کے بارشوں کے دوران خصوصاً کماد کے کھیتوں میں جڑی بوٹیوں کی بہتات ہو جاتی ہے جس کی بروقت روک تھام ضروری ہے تا کہ فصل کی نشونما متاثر نہ ہو۔ مون سون سے پہلے ہی فصل کو Lodging سے بچانے کیلئے بروقت روایتی مواد محکمہ زراعت کے مشوروں کیمطابق احتیاطی تدابیر کرنی چاہیئے۔ اسلئے کہ Lodgng کماد کی پیداوار کم کرنے میں سب سے زیادہ کردار ادا کرتا ہے خصوصاً وہ علاقے جہاں مون سون کی بارشیں زیادہ ہوں

4۔ کماد کے فصل کو 1500 سے 2000 mm پانی کی ضرورت ہوتی ہے۔ جو کہ 15 سے 20 دفعہ پانی دینے سے پورا ہوتا ہے۔ فصل کو پانی کی سب سے زیادہ ضرورت مون سون سے پہلے مئی اور جون کے مہینے میں ہوتی ہے۔ پانی کے کمی کیوجہ سے کماد کے پودے کا سائز کم رہ جاتا ہے اور پودا وقت سے پہلے پختگی (mature stage) کے مراحل طے کر لیتا ہے تا ہم زائد پانی کیساتھ ساتھ لگ مون سون کی بارشیں ہو جائیں تو فصل میں زائد جڑی بوٹیوں کی بہتات ہو جاتی ہے اور نقصان دہ کیڑوں کے حملوں کا خدشہ بھی رہتا ہے۔ عام طور پر مارچ/اپریل میں 10-12 دن کے بعد، مئی/جون میں 8/9 دن کے بعد جولائی/اگست میں (اگر بارشیں ہوں) 12-14 دن کے بعد، ستمبر/اکتوبر میں 13-20 دن کے بعد اور نومبر/دسمبر میں 25-30 دن کے بعد پانی دینا چاہیئے، فصل کے کٹائی سے تقریباً ایک مہینہ پہلے پانی دینا بند کرنا چاہیئے لیکن فصل کے جس حصے کو آئندہ بیج کیلئے رکھنا ہو انھیں پانی دینا چاہیئے تا کہ دسمبر میں (Frost) کھورے سے نقصان نہ پہنچے۔ مون سون کے درمیان بہت صحت مند فصل کو پانی دینے میں احتیاط سے کام لیں تا کہ فصل (Lodging) گر جانے سے محفوظ رہے۔ مون سون سے پہلے ہی فصل کی Lodgng سے بچانے کیلئے بروقت روایتی اور محکمہ زراعت کے مشوروں کیمطابق احتیاطی تدابیر کرنی چاہیئے۔ اسلئے کہ Lodging کماد کی پیداوار کم کرنے میں سب سے زیادہ کردار ادا کرتا ہے خصوصاً وہ علاقے جہاں مون سون کی بارشیں زیادہ ہوں۔

5۔ فصل کی کٹائی کاشت کے حساب سے ہونی چاہیئے۔ اگیتی فصل (Early Sown) اور موڈی فصل کی کٹائی نومبر، درمیانی فصل کی کٹائی دسمبر اور پچھیتی فصل کی کٹائی جنوری میں شروع کر دیں۔ فروری/مارچ میں کاٹی گئی فصل موڈی فصل (Ratoon Crop) کیلئے سب سے زیادہ موزوں ہے۔