## Monthly Agromet Bulletin National Agromet Centre Pakistan Meteorological Department Islamabad

## Vol: 01-2014

## Highlights...

•Dry weather/below normal precipitation was reported in the country. Dry continental air/foggy atmosphere prevailed over most of the agricultural plains of the country during the month.

Thermal regime in this month remained mostly normal in 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 irrigated areas and slightly warmer in rainfed areas of Potohar and northern hilly areas of Baluchistan.

•Picking/harvesting/crushing of sugarcane, seasonal vegetables and fruit orchids especially citrus and apple were the major field activities in most of the agricultural plains of the country during the month.

•Farmers are advised to protect nurseries and orchard trees from expected frost in this month if night time temperature starts to drop below 0.5°C during clear skies.

•Sunflower crop may be planted in areas where wheat crop is not cultivated.

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## **JANUARY, 2014**

## 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 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 coefficients developed by Pakistan Meteorological Department.



## Crop Report during January, 2014

Picking/harvesting/crushing of sugarcane, seasonal vegetables and fruit especially citrus and apple were the major field activities in most of the agricultural plains of the country during the month. Irrigation as per requirement and availability was provided. Weather remained dry during most of the days during the month due to which growth of standing crops affected to some extent.

In **Punjab:** The growth and development of the crops both in rainfed and irrigated areas has reported satisfactory but somewhat poor due to lack of soil moisture especially in rainfed areas. Recent occurred and coming expected rains will improve this situation in rainfed areas. The crop is reported at tillering/shooting stages. Growth and development of Gram crop has been reported satisfactory. The early sown crop is attaining flowering stage. The growth of oilseed crop is reported satisfactory and the crop is at pod formation while the mid and late sown crop is at flowering stage. Sowing of Masoor crop has been completed. Germination/growth of the crop is reported satisfactory. Harvesting/picking of winter vegetables and fruit (citrus) is in progress and very good yield has obtained this year.

In **Sindh:** Condition of wheat crop is reported satisfactory. The crop is at heading/ flowering stage. Condition of oil seed crops is reported satisfactory. Castor oil and jtropha crops are growing satisfactory at capsule formation stage. Rape mustard is at pod formation stage, safflower and Linseed are at vegetative stage and sunflower at early germination stage. Crushing of sugarcane is in full swing and very good yield is expected in the areas which are not affected by floods. Seasonal fruits like Guava, banana, cheeko are in good condition. Cheeko and apple stone (Bare) are at fruit formation stage. Picking/harvesting of winter vegetables is in progress and good yield is being obtained.

In **Khyber Pakhtoonkhawa:** The growth and development of the crops in irrigated as well as in rainfed areas are reported unsatisfactory due to mostly dry weather reported during the month. The condition of wheat crop is reported satisfactory in irrigated areas but growth suffered due to moisture dificiency. The crop is growing at shooting/heading stage. The growth of oil Harvesting/crushing of sugarcane crop is in progress and very good yield is reported. The growth of oil seed crops including newly introduced biofuel crop Jtropha is reported satisfactory. Harvesting of winter vegetables is in progress and these are available in the market. Growth of orchid is satisfactory and good yield of citrus has reported.

In **Balochistan:** Condition of standing crops and orchards is reported satisfactory. All varieties of apples have developed colour and picking of the fruit is in progress. Yield of winter vegetables are reported well and these are available in the market.

In **Gilgit Baltistan**: Most of the agricultural activities stop during the winter season in the area. Soil has been prepared for wheat crop to be sown in the coming months.

## Moisture Regime during January, 2014

Normally January is a rainy month in winter season in the agricultural plains of the country but during this January mostly dry weather/below normal rainfall was reported in the agricultural plains of the country. Dry and cold continental winds prevailed over the country for most of the days during dry weather. The highest amount of rainfall was reported 41mm at Garhidupatta, 39mm at Jiwani and 36mm at Murree.

Numbers of rainy days recorded in the country ranged from 1 to 7days. The maximum number of rainy days in the country observed 7 at Skardu followed by 06 days at Gilgit and 05days at Lahore etc.



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. Highest value of ETo was observed at Rohri followed by Quetta and Tandojam, which is due to mostly dry weather/clear skies observed during the month in these areas. Whereas lowest values observed observed at Skardu due to very cold climate of this region during the month.



The mean daily Relative Humidity (R.H) remained normal to below normal in most of the agricultural plains of the country. Maximum value of mean Relative humidity was observed 73% at Lahore followed by 69% at Multan and 67% at Skardu. The minimum value was observed at Quetta due to clear skies and its dry climate in this month. Maximum number of days with mean R.H greater or equal to 80% was observed for 12 days at Rohri, followed by 10 days at Lahore and 05 days at Skardu and Sargodha each.



From overall analysis of atmosphere it is evident that due to below normal rains received in this month moisture status in the atmosphere observed below normal. Rains expected during February may further improve the moisture content in atmosphere and soils in the agricultural plains of the country.

## **Temperature Regime during January, 2014**

Temperature plays vital role in the growth and development of crops. Thermal regime in this month mostly remained normal in the agricultural plains of the country, except Sargodha in central Punjab and Rohri in lower Sindh where it remained above normal by 1-2°C.

Mean daily temperature ranged 12 - 13°C in Khyber Pakhtoonkhawa, 11 to 13°C in Potohar plateau, in remaining parts of Punjab it ranged 13-14°C, in Sindh it was ranged 13 to 14°C, in Gilgit Baltistan region it ranged -3 to 2°C and was rounded to 5°C in the high elevated agricultural plains of Balochistan represented by Quetta valley.

Number of stress days with minimum temperature less than or equal to  $0^{\circ}$ C was observed throughout the month 30 days in Skardu and Gilgit Gilgit and 19 days in Quetta valley. Number of stress days with maximum temperature greater or equal to  $30^{\circ}$ C or  $40^{\circ}$ C and R.H. less than or equal to  $30^{\circ}$ W was nil in all agricultural plains of the country.



The night time temperature represented by mean minimum remained normal to below normal by 1 to  $4^{\circ}$ C in most of the agricultural plains of the country. Whereas in Rohri and Sargodha the night time temperature remained above normal by 1-6°C. The lowest minimum temperature was recorded  $-13.6^{\circ}$ C at Skardu.



Agricultural soils showed mostly normal to below normal trend in most agricultural areas of the country in shallow as well as in deep soils. However in Quetta valley, soil temperature was observed slightly above normal. In Rawalpindi division soil temperature was observed normal and at Faisalabad and Tandojam the values of soil temperature at different depths observed below normal both at shallow layers and major root zone.



From the general analysis of soil behavior in this month, it is concluded that moisture content is more satisfactory in irrigated areas like Faisalabad and Tandojam than rainfed areas like Rawalpindi and Quetta valley. The situation of soil moisture will further improve due to expected rains in February.

### Solar Radiation and Wind Regime during January, 2014

Total bright sunshine hours and solar radiation intensity showed falling trend in most of the agriculture plains except in the agricultural plains of Sindh, where the trend was slightly on rise due to clear skies for most of the days in this month . Mean wind speed throughout agricultural plains of the country reached up to 7 km/h with North to North-West trend.





#### Cumulative Rainfall, ETo and water stress for Rabi Season (October to April)





## Normally Expected Weather during February, 2014

Westerly waves would continue to move along the middle latitudes and their troughs are expected to extend southward occasionally affecting country's agricultural plains. A normal precipitation ranges from 50 to 75 mm over Potohar plateau, 30 mm to 50 mm in Khyber Pakhtoonkhawa, Quetta valley and central Punjab. Less than 10 mm rainfall is expected in southern Punjab, Sindh and lower Balochistan.

Evaporative demand of the atmosphere is not likely to change significantly relative to January. According to the average conditions, it is expected to remain 2 to 3 mm/day in Punjab and Khyber Pakhtoonkhawa. In Quetta valley it will vary from 1 to 2 mm/day; while its maxima will be observed in Sindh where it may reach 4 mm/day. The probability of occurrence of rainfall over Potohar plains is given below:-

Amount/ Day	PERCENTAGE PROBABILITY OF OCCURANCE OF DIFFERENT AMOUNTS OF RAINFALL IN FEBUARY					
	1-5	6-10	11-16	17-20	21-25	26-28
10 mm	21	22	38	40	42	29
20 mm	13	18	32	30	34	21
30 mm	6	8	21	13	17	12

The days and night, during February may be slightly warmer than January. The maximum temperature in Punjab and Khyber Pakhtoonkhawa are likely to range between 19 to 24°C, 25 to 28°C in Sindh and lower Balochistan. Quetta valley will have average day temperatures around 13°C. The minimum temperature may vary from 5 to 9°C in Punjab and Khyber Pakhtoonkhawa. Slightly higher minimum would be experienced in lower Balochistan and Sindh varying from 10 to 13°C. In Quetta valley, monthly average of minima will be around 0°C. The frequency of occurrence of freezing nights will be higher in Quetta followed by mountainous and sub mountainous plains of Khyber Pakhtoonkhawa and Punjab.

The photo period during February is expected to vary between 6 hours in the north and 9 hours in the South following more or less uniformly increasing trend from north to south. Accordingly, the solar radiation intensity would also be higher in South as compared to north. It would range from 12 to 16  $MJ/M^2/day$ . Wind speed at low elevation plains may remain less than 7 km/hr whereas at higher elevation it may be slightly higher. Westerly component will remain more prevalent.

The monthly water requirement of wheat crop during February is given below:

S.No	Region	Water Requirement		
		(mm)	Cubic Meter/Hectare	
1.	Quetta valley	20-25	200-250	
2.	Potohar plateau and upper KPK	30-35	300-350	
3.	Central Punjab and lower KPK	35-40	350 - 400	
4	Southern Punjab	40-45	400-450	
5.	Sindh and lower Balochistan	45-55	450-550	

## 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 Feb 01, 2014. 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 lower intensity with bigger convergence areas of high winds towards the west. Intensity of jet stream will be slightly below normal during predicted period

Probability outlook: below normal intensity of jet stream is associated with normal to below normal precipitation in the region and vice versa.

• A ridge at 500 hPa is expected to be at same position with higher intensity. As a result, track of the western disturbances may be changed and tilted towards northward.

Probability outlook: Precipitation is likely to occur more frequently over upper half of the country and less over southern parts of the country.

- Surface temperatures are expected to be on lower side than normal over central parts of the country as compared with normal (1981-2010). However, southern and northern parts with higher than normal temperature will be expected during January.
- North Atlantic Oscillation (NAO) is in positive phase (0.29) approaching towards neutral phase. 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.asc ii.table

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

- While remaining ENSO-neutral, January was characterized by the periodic emergence of belowaverage sea surface temperatures (SSTs) across the tropical Pacific Ocean. Weekly Niño index values in Niño-3 and Niño-3.4 bounced around -0.5°C. This recent cooling was associated with the upwelling phase of an oceanic Kelvin wave, which was reflected in a dip in the oceanic heat content and below-average subsurface temperatures at depth across the eastern Pacific. Collectively, these atmospheric and oceanic conditions reflect ENSO-neutral.
- Nearly all model forecasts indicate the persistence of ENSO-neutral (Niño-3.4 index between 0.5°C and 0.5°C) through the Northern Hemisphere spring 2014, but afterwards, an increasing number of models suggest the possible onset of El Niño. Strong surface westerly winds in the

western Pacific and the slight eastward shift of above-average temperatures in the subsurface western Pacific potentially portend warming in the coming months. However, the spring is also historically associated with lower forecast skill, so the chance of El Niño developing after the spring is not much different from ENSO-neutral. The consensus forecast is for ENSO-neutral to continue through the Northern Hemisphere spring 2014 (http://iri.columbia.edu/our-expertise/climate/forecasts/enso/2014-february-quick-look/?enso tab=enso-cpc update)

Probability outlook: La Nina (3%), Neutral (91%) and El Nino (6%) during Feb-Mar-Apr, 2014 season

- Arabian Sea Surface Temperatures are expected to be slightly above normal near western coastal belt of Pakistan.
- Caspian Sea surface temperatures expected to be slightly above normal.
- Mediterranean Sea surface temperatures are normal to slightly above normal.
- Bay of Bengal Sea Surface Temperatures are slightly below normal.

Probability outlook: Sea Surface Temperature trend is going towards normal leads to normal/below normal rainfall over the region.

## Seasonal Weather Outlook Summary (Feb, 2014)

Synthesis of the latest model forecasts for Feb-Apr, 2014 (FMA), current synoptic situation and regional weather expert's judgment indicates that below average precipitation is expected all over the country with below normal during March and normal during February and April. Slightly below Normal temperature is likely to occur during February while above normal night temperature will be expected during March and April over most part of the country. Neutral-ENSO condition is expected to persist throughout the predicted period.

## Weather outlook

## "Below Average precipitation is expected during the season all over the country."

Below average precipitation is expected during predicted season.

In February average precipitation is expected all over the country with slightly above over GB and FATA region. Night temperatures are likely to slightly below normal over northern parts of the country and normal over rest of the country.

In March below average precipitation with normal night temperature is expected all over the country. Night temperature will continue to increases gradually over Sindh and southern Punjab during the month.

In April average precipitation is expected over the country. However below normal precipitation is expected over central parts of the country including Punjab, KP, FATA and AJK. Night temperature will be on higher side than normal all over the country.

Density of fog will be less during upcoming winter months

Two to three rainy spells are expected during February. The focus of rainy spell will be towards north and southern Khyber Pakhtunkhawa (KP).

Very limited chances of well rainy spell over southern Punjab and Sindh during month of March. In April one to two rainy spell are expected in third decade and focus may be towards southern parts (Sindh) of the country.

March may be dry month in most of agriculture plain however; light precipitation is expected over northern parts of the country.

More snowfall spells over northern glaciers are expected during February.

Expected Minimum temperature will be below normal all over the country during whole predicted months whereas March will be expected colder month than normal over the country.

	Feb, 2014		Mar, 2014		Apr, 2014		Feb-Apr, 2014	
	Ave	Exp	Ave	Exp	Ave	Exp	Ave	Exp
GB	29.7	Abv. Ave	34.6	Abv. Ave	43.5	Ave	107.8	Abv. Ave
КР	71.9	Ave	92.5	Blw. Ave	74.7	Blw. Ave	239.1	Blw. Ave
AJK	110.5	Blw. Ave	127.5	Blw. Ave	94.9	Blw. Ave	332.9	Blw. Ave
FATA	54.0	Abv. Ave	67.4	Blw. Ave	51.5	Blw. Ave	172.8	Blw. Ave
PUNJAB	27.2	Ave	30.9	Blw. Ave	22.4	Blw. Ave	80.5	Blw. Ave
BALUCHISTAN	20.9	Ave	23.3	Blw. Ave	11.5	Abv. Ave	55.7	Blw. Ave
SIND	5.4	Ave	4.7	Ave	3.6	Abv. Ave	13.7	Abv. Ave
	Precipitation is in mm/month							
Pakistan	27.2	Ave	31.7	Blw. Ave	23.1	Ave	81.9	Blw. Ave

## Monthly Quantitative Weather Forecast

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 (0.5x0.5o) latitude by longitude. Ensembles of different climate models are used for computation of expected precipitation over the region.

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



Monthly expected Precipitation for Feb, 2014



## Expected daily rainfall, Feb 2014

### Monthly departure from normal (Rainfall) during Feb, 2014



#### Spatial distribution of expected Minimum Temperature during Feb, 2014



#### Monthly departure from normal (Minimum Temperature) during Feb, 2014

Departure of Minimum Temp. from normal during Feb,2014



## **Livestock Advisory for February-March 2014**

The persistency in minimum temperature during night time in February and March 2014 coupled with average precipitation will mark February-March as colder months than normal in the country. For the livestock farmers the followings are advised to reduce suffering of animals and maintain the production level;

- 1. During cold weather animal's need for energy is increased by 20-30% to keep them warm. For this purpose add energy rich feedstuffs such as 1-2 kg/day grains or molasses to the animal rations.
- 2. In February-March berseem will be available as main fodder. This is rich in protein but low in energy. Therefore dairy farmers are advised to cut down oilseed cakes in Vanda and replace one third or half quantity of oilseed cakes with crushed maize grains or other available grains. Feeding rice polishing up to one kg/ day is also very useful. Such change in the diet will increase milk production and will minimize nitrogen wastage and will be less damaging to environment.
- 3. Provide fresh drinking water to animals freely. Avoid using over-night chilled water for drinking which make the animal sick.
- 4. Due to fear of minimum night temperature, never keep animals in tightly/sealed room/shed. Provide them adequate cross ventilation. Put on some sort of curtains such as bag hanging on windows and doors to give them shelter against cold wind/breeze during night. Be sure that good and balanced feeding will enable the animal to kick off cold.
- 5. Keep the feed troughs/manger filled with wheat straw mixed with green fodder during night to allow animals continue eating which help them keep warm.
- 6. Keep the floor of shed dry by providing good drainage and spreading some clay/sand/dried straw etc on the floor. Wet floor not only make the animals feel colder but also causes infection of the udder.
- 7. Expose animals to sun by taking them out of shed for a while daily if weather allow. It keep them healthy.
- 8. Most importantly vaccinate the animals against Mun Khur (Foot & Mouth disease) and Gul Ghoto (Hemorrhagic Septicemia Disease) immediately if you have not done it so far. Sheep and goats shall also be vaccinated against pneumonia (Contagious pleuroneumonia). It cost very little but save your animals and your spending on treating the sick animals.

Contributed by: Professor Ghulam Habib, Livestock Consultant Peshawar

# فروری 2014ء میں کاشتکاروں کے لیے زرعی مشورے

ماہ جنوری میں ملک کے زیادہ تر زرعی میدانوں میں معمول ہے کم بارشیں ہوئیں ۔ماہ فروری میں ملک کے اکثر صوب میں بارش اور پہاڑوں پر برف باری ہونے کی اوقتع ہے جو کہ رائع کی اضلوں خصوصاً گندم کی فصل کے لیے نہایت ہی مفید ثابت ہوں گی ۔ کسان حضرات ہے گر ارش ہے کہ کھیتوں کے گر دحفاظتی پشتے مظبوط کریں تا کہ زیادہ ہے زیادہ ٹی محفوظ ہو سکے۔ ماہ فروری میں دہنہ حرارت بتدرج پریفیس سے تاہم بلندی پرواقع زرعی میدانوں میں برف اور بارش کی وجہ ہے درب نظلی میں اس کے کر محفوظ کر می تا کہ زیادہ ہے زیادہ نی محفوظ ہو سکے۔ ماہ فروری میں دہنہ خاطر رکھی کی گزارش ہے۔

ا۔ فصل کوکورے کے صفرائرات سے بچانے کے کیے کوراپڑنے والی متوقع راتوں میں کھیتوں میں بلکی آبپاش کرنے سے کھیت کا دیدہ جرارت فوراً یا اچا تک کم نہیں ہونا بلکہ آہستہ آہستہ کم ہونا ہے اور اس دوران پودے میں کورے کے خلاف مقابلہ کرنے کی صلاحیت پیدا ہوجاتی ہے۔ سکے علاوہ کورے سے بچاؤ کے لیے پودوں پر بنائی گئی تکوں کی چھو نیز کی کودن کے وقت سورج کی سمت کھول دینا چاہئے تاکہ سورج کی روشنی پودوں کو پنچتی رہے۔

۲۔ فصل میں جڑ کیادیوں کی موجود گی پیدادار میں کی کےعلاد ہدیگر منفی اثرات کابا عث بھی بنتی ہے لہندا اچھی پیدادار حاص کرنے کے لیےان جڑ کیادیوں کی تلفی کے لیےصل پر زہر کا فورا سپرے کریں یہ بیز ہوا، دہند مایا رش کی صورت میں سپر سے ہرگز نہ کریں اور محکمہ زراعت کے مشورے پڑ مل کریں ۔

۳۔ دود هدینے والے جانو روں اورائی پچوں کیلیے سر دکا کی شدت سے بچاؤ کے لیے مناسب انتظامات نہ ہونے کی صورت میں ڈینچنے والی اسر دکی یہت فقصان دہ ثابت ہوتی ہے اور اس سے متاثر ہونے والے جانوروں کی دود ہد کی پیداوار بہت کم ہوجاتی ہے جبکہ الکے بچ بعض اوقات زندگی سے ہاتھ دعو بطیخے ہیں ۔اس لیے ضرور کی ہے کہ انہیں رات کی اسر دکی اور شک ہوا ڈس سے مخفو ظار کھا جائے۔ مرغیوں کے انڈ ساور گوشت کی پیداوار بھی مرد کی کی شدت کی وجہ سے ہر کی طرح متاثر ہوتی ہے ۔اس لیے ضرور کی ہے کہ انہیں رات کی سر دکی اور شک ہوا ڈس سے مخفو ظار کھا جائے۔

۳۔ ماہ فروری جیسے جیسا بنے اختبام کی جانب بڑھے گا دور جرارت میں اضافہ ہونا جائے گائی کے ساتھ ضلوں کی نشو ونما بھی تیز ہوجائے گی۔ گندم کی فصل سٹر نکالنے کے مرحلہ پڑی کی دوی ہوگی میدوہ مرحلہ ہے جہاں پانی کی کی فصل کی پیدادار کو بر کی طرح متاثر کرتی ہے اس لئے ضرور کی ہے کہ آپ اس دو راہنے میں فصل کو چھی طرح سیراب کریں یہ کو کی حالات سے تعلق مزید معلومات کیلیے تحکہ موسمیات سے قریبی دفتر سے رابط کیا جا سکتا ہے جن کا پید درج ذیل ہے ۔

- ۳- ريجنل المكروميث سينظر مزدما رانى يوندورش، مرى دو ژ، راوليندى فون نمبر: -35 92906-051-051
- ۳ \_ ریجنل ایگردمین سینز، ایوب ریسر چانشینیوٹ، جھنگ رو ڈ، فیعل آبا دیفون نمبر: 041-2657047
  - ۵- ریجنل ایگرومید سیند، ایگریکچر را سر بنانشینود، شد وجام فون نمبر: 66583-2220
- ۲ ریجنل ایگردمین سینز، ایگریکلچررریسر چانشینیوٹ، سریاب روڈ کوئٹ فون نمبر: 081-921121 081-تفصیلی مومی معلومات کیلیے تحکہ موسمیات کی و <sub>ش</sub>یب <u>www.pmd.gov.pk</u>ملاحظہ کریں۔

## سورج کمھی کے نشونمااور پیدادار برموسم اور دیگر عوامل کے اثر ات

تعارف

وقت كاشت

پاکستان میں سورج تمصی کی دوضلیں ہوتی ہے۔ سردی میں کا شت کی ہوتی فصل اُسٹنے میں بارہ سے انتخارہ دن لیتی ہے۔ فصل کو دیر سے کا شت کرنے پر جلدی پک جاتا ہے جس سے دانے کا سائز سم رہ جاتا ہے۔ میدانی علاقوں میں جنوری اورفروری کے مینوں میں جبکہ سر دیہا ٹری علاقوں میں مارچ سے جون تک جبکہ ٹراس کی فصل جولاتی اورا گست کے مینوں میں کا شت زیادہ فائد ہند ہیں یختلف علاقوں کیلیے سورج تکھی کی کاشت کے نظام الاوقات مندرہ دیل ہیں

> **صوبه پنجاب:** ایہ بنور کیاہے مارچ تک

۲\_جولانی سےاگست تک

مويد منده۔

ا چوری ہے فروری تک ب

۲\_جولاقی سےاگست تک م

صوبة خيبر بخونخواه

افجرور**ی**ے مارچ تک ز

۲-جولاتی سےاگست تک ب

زمین کا<sup>ر ب</sup>تخا**ب**اور تیاری

بھار**ی** میرازین سورج تمصی کی کامثت کیلیے موزوں ہے۔ سیم زدہ، پھریلی اور بہت زیادہ ریتلی زئین مناسب ٹیں۔ زیادہ پیدادا رکے لئے کم ازکم ایک دفعہ گہرا ہل چلا ئیں ۔ گہرے تل کے لئے زئین پلٹنے والایا راجہ ٹل استعا**ل کریں ۔ س** کے بعد دویا تین دفعہ کلتو یٹر چلا کر ہما کہ چی کی سے کھر جہوارہوما خروری ہے۔

طريقه كاشت

اگر بیجانی بذریعہ ڈرل کرنی ہوڈو 2.5 فٹ قطاروں کے درمیان فاصلہ رکھ کر ڈرل کریں اورا گا وَتحمل ہونے کے بعد پودے پودے کافاصلہ 9 اپنچ رکھ کرچھد رانی کریں ۔اگر بیجانی چوکوں کی مددے کرنی ہوتو یودے یا فاصلہ 9 اپنچ رکھیں ۔

موزون اقسام اور پیج کاحصول

سور یہ کسمی کی دوغلی اقسام کا شت کریں کیونکہ ان کی پیداد اراد ریماریوں کے خلاف قوت مدا فعت زیا دہ ہوتی ہے محکمہ ءزراحت سے منظور شدہ بیجوں کی کاشت کریں ۔

<u>چھر رائی</u>

اُ گاؤے تقریباً ایک یا ڈیڑھ ہفتہ بعد پودوں کی چھد مانی ا**س**طرح کریں کہ پودوں کا درمیانی فاصلہ 22 سے 25 سنٹ میٹر رہ جائے ۔ آبپا ش علاقوں میں پودوں کی تعداد 22 تا 25 ہزار فی ایکڑ ہوٹی چاہئیے اور با مانی علاقوں میں پودوں کی تعداد 18 ہے 20 ہزار فی ایکڑ ہوٹی چاہئیے ۔

- 2. Government of Punjab, Agriculture Department "www.agripunjab.gov.pk."
- 3. Pakistan Agriculture Research Council "www.PARC.gov.pk"
- 4. Agriculture Department Punjab "http://www.pakissan.com/"