

Northeast India

- During the week minimum temperatures were below normal (-3 to -2°C) in parts of Northeast India.
- Rainfall occurred at one or two places over Arunachal Pradesh and mainly dry weather prevailed over rest of the region.
- **Advisory:**
 - To harvest the already matured rice crop. Continue nursery rising of *boro* rice. Also complete land preparation and sowing of rapeseed and mustard, *rabi* pulses, planting of potato and transplanting of 4-6 weeks old seedlings of winter vegetables like cauliflower, radish, tomato, brinjal, knol-khol, carrot and spinach in the main field in Assam.
 - In Arunachal Pradesh maintain proper moisture level in cauliflower, cabbage, broccoli and knol-khol fields and also prepare seedbed for tomato and radish.
 - In Mizoram continue preparation of nursery for cole crops, preferably in rain sheltered area and also transplanting of these crops.
 - In Nagaland harvest *jhum* rice and wetland rice and undertake land preparation and transplanting of tomato and cabbage.
 - In Manipur continue land preparation and sowing of maize, pea and zero tillage rapeseed and planting of potato. Farmers are also continue transplanting of cabbage, cauliflower, broccoli, onion etc.
 - In Meghalaya are advised to continue nursery raising as well as transplanting of cole crops and other winter vegetables. Farmers are also advised to continue sowing of *rabi* maize in low and medium altitude regions.
 - Farmers in Tripura are advised to undertake intercultural operation like thinning and weeding in *rabi* maize. Farmers are also advised to undertake sowing of lentil in Tripura.

Northwest India

- During the week minimum temperatures were below normal (-5 to -1°C) in parts of Northwest India. Minimum temperature was near normal over remaining parts of the region.
- No significant rainfall occurred over the region.
- **Advisory:**
 - Farmers in Punjab are advised to continue sowing of wheat. Complete sowing of gram under rainfed conditions. Sow hybrid varieties of gobhi sarson and undertake sowing of radish and turnip. Continue transplanting of 4 to 6 week old seedlings of cabbage, Chinese cabbage and late season cauliflower.
 - Farmers in Western Zone in Haryana are advised to continue sowing of wheat and fodder crops. In first week of December farmers can sow late varieties of wheat. Complete picking of cotton.
 - Complete sowing of toria and continue sowing of pea, radish, turnip, coriander, cabbage, knol-khol, broccoli, parsley, lettuce, fennel, cauliflower in Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh. In high hills complete picking of apple and pear.
 - In Jammu & Kashmir, continue sowing of wheat, gram, barley, *rabi* oilseeds, pulses and vegetable crops like radish, carrot, garlic, spinach and methi without further delay and complete harvesting of rice. Also continue sowing of lentil, oat, pea, mustard and fodder crops like berseem. Planting of garlic, transplanting of onion seedlings in well prepared land may be undertaken. In view of occurrence of rain / snow at many places, arrange for smoking to save the crops from cold injury.
 - In Uttarakhand, complete sowing of wheat, sarson, barley, oat, pea and chickpea, planting of sugarcane with intercrops like potato, lentil and transplanting of vegetable crops. Give light irrigation in early sown toria and mustard crops. Apply irrigation and undertake weeding and thinning in other standing crops. If irrigation facilities are not available, apply straw mulch in between rows for soil moisture conservation. Remove weeds from other standing vegetable crops and keep grass lying on the ground for conserving soil moisture.
 - In Rajasthan, start sowing of wheat, barley, maize, taramira, toria, pea, rainfed gram, mustard, vegetables like carrot, spinach and radish. Complete Autumn planting of sugarcane. Continue harvesting of bajra and *kharif* pulses.
 - Farmers in Uttar Pradesh are advised to complete preparation of land and sowing of wheat, chickpea, pea, berseem and planting of potato. Farmers are also advised to irrigate early sown wheat, potato, berseem and undertake intercultural operations in chickpea and thinning in mustard crops.
 - In Delhi farmers are advised to continue sowing of wheat. Undertake sowing of oat and berseem, *rabi* onion, planting of late cultivars of potato, sowing of European varieties of carrot and radish, Crimson Globe cultivar of beetroot and also turnip. Undertake sowing of leafy vegetables like sarson saag, bathua, spinach, fenugreek and coriander. Undertake transplanting of matured seedlings of cauliflower, cabbage and broccoli.

(Continued on Page 2)



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National Agrometeorological Advisory Service Centre, Agricultural Meteorology Division,
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The bulletin is also displayed in the website (<http://www.imdagrimet.gov.in>) of the Division

Executive Summary

(Continued from page no. 1)

East India

- During the week the minimum temperatures were below normal (-3 to -1°C) in parts of East India.
- Dry weather prevailed over all the States in the region.
- **Advisory:**
 - Farmers in West Bengal are advised to undertake land preparation for sowing of wheat and preparation of nursery bed for *boro* rice. Farmers are also advised to harvest *aman* rice and continue land preparation for sowing of wheat and mustard and seasonal flower like marigold, verbena, jerbera and jinia etc and planting of potato.
 - Farmers in Bihar are advised to apply light irrigation to potato and tomato crops at an interval of 10-20 days. Stop intercultural operation in mango and litchi orchards. Prepare land for sowing of *rabi* crops.
 - Farmers in Jharkhand are advised to undertake sowing of wheat and other *rabi* crops like gram, linseed, mustard, lentil, pea with assured irrigation facilities. Harvest the matured rice.
 - Farmers in Orissa are advised to complete sowing of mustard and rapeseed and land preparation for sowing of groundnut. Undertake sowing of green pea and also undertake planting of *rabi* vegetables.

Central India.

- During the week the minimum temperatures were below normal (-3 to -1°C) in parts of Central India. Minimum temperature was near normal over remaining parts of the region.
- Dry weather prevailed over all the States in the region.
- **Advisory:**
 - Farmers in Madhya Pradesh are advised to undertake sowing of wheat and *rabi* crops like chickpea, lentil, mustard, linseed and pea. Irrigate early sown gram and vegetable crops.
 - In Chhattisgarh, present weather conditions are suitable for sowing of wheat, sugarcane, cabbage, tomato, brinjal, niger, horse gram, lobia, chilli, gram, pea, mustard and linseed. Farmers are advised to undertake sowing of these crops and also transplanting of vegetables.

West India

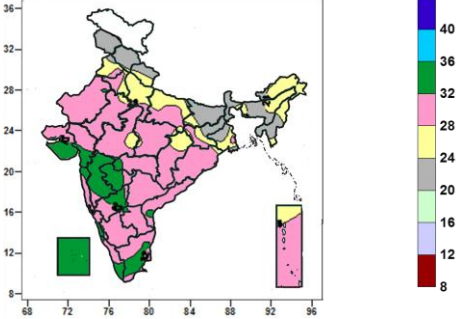
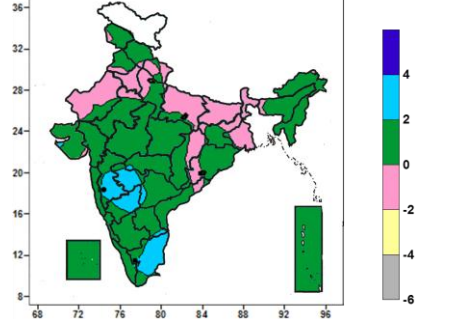
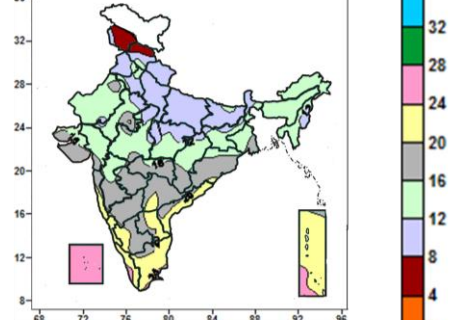
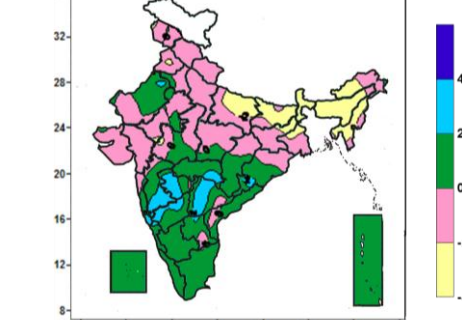
- During the week the minimum temperatures were below normal (-3 to -1°C) in most parts of Gujarat & Saurashtra & Kutch. In Maharashtra, below normal (-3 to -1°C) over Dahanu, Ratnagiri and Yeotmal and above normal over rest of the State.
- Dry weather prevailed over all the States in the region.
- **Advisory:**
 - As weather conditions in Gujarat are favourable for sowing of *rabi* crops, farmers are advised to complete sowing of wheat, gram, cumin, rajma, potato, coriander etc. as early as possible. As dry weather prevailed and likely to prevail, farmers are advised to carry out weeding and apply irrigation to the standing crops. Continue picking of cotton during morning hours. Complete transplanting of cauliflower and onion.
 - Farmers in Madhya Maharashtra, Marathwada and West Vidarbha are advised to apply irrigation to the sugarcane crop at an interval of 8 to 10 days. As prevailing weather is favourable, farmers in South Konkan are advised to prepare the land and undertake sowing of *rabi* groundnut. Pulses like horse gram, cowpea and lablab bean may also be sown on residual soil moisture immediately. Weather is also favourable for sowing of mustard in the region. Farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to complete sowing of irrigated wheat.
 - Under prevailing weather, there may be attack of pod borer in red gram in Pune and Marathwada region and incidence of hoppers on new flush of mango in some parts on Konkan. Farmers are advised to take proper plant protection measures.

South India

- During the week the minimum temperatures were above normal (1 to 4°C) over the region except Cuddapa, Rentachintala, Kamamum districts in Andhra Pradesh, Bidar in Karnataka.

- Kanchipuram, Theni, Tirunelveli, Thiruvannamalai and Toothukudi districts in Tamil Nadu, Kollam district in Kerala, Chittoor district in Andhra Pradesh received rainfall during last week. No significant rainfall occurred over remaining parts of the region.
- **Advisory:**
 - Undertake intercultural operations and application of fertilizers and pesticides in *samba* rice and undertake sowing of late season crops like sunflower and pearl millet under rainfed conditions and also carry out hand weeding. Incidence of gall midge and leaf folder in *samba* rice and bacterial leaf blight and bacterial leaf streak in *samba* and *thaladi* paddy are noticed due to prevailing weather condition in the Cauvery Delta Zone; farmers are advised to take appropriate plant protection measures in Tamil Nadu.
 - Monitor *mundakan* rice for rice bug incidence and undertake plant protection measures in Kerala.
 - Undertake sowing of pulse crops in Coastal Zone of Karnataka, In North Dry Zone, sowing of sunflower, safflower, *rabi* jowar, wheat (irrigated) and chickpea may be continued.
 - Intercultural operations may be done in *rabi* crops like jowar, Bengal gram and safflower in the North East Dry Zone. Farmers are also advised to continue picking of cotton and harvesting of rice.
 - Incidences of pod fly in pigeon pea and wooly aphid in sugarcane was noticed in the North East Transition Zone of Karnataka; farmers are advised to take appropriate plant protection measures. Bollworm incidence and grey mildew in desi and non Bt cotton, early leaf blight (ELB) in tomato and root grub in sugarcane are noticed in the North Transition Zone of Karnataka. Farmers are advised to take protection measures.
 - Continue sowing of *rabi* groundnut, horse gram and Bengal gram also continue harvesting of the *khariif* groundnut when sufficient moisture is available and picking of cotton & castor crop in Coastal Andhra Pradesh.
 - Continue sowing of *rabi* Bengal gram and *rabi* groundnut Rayalaseema in the Cuddapah districts.

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 28.11.2012

<p>Actual Mean Maximum Temperature (°C) in India for the week ending 28.11.2012</p> 	<p>Maximum Temperature (°C) Anomaly in India for the week ending 28.11.2012</p> 
<p>Actual Mean Maximum temperature ranged between 32 to 36⁰C over many parts of Gujarat, Saurashtra & Kutch, Madhya Maharashtra, Marathwada, Lakshadweep Islands, some parts of Vidarbha, Coastal Andhra Pradesh, Raylaseema, Tamil Nadu, Kerla, 20 to 24⁰C over of many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Mizoram, Tripura, some parts of Gangetic West Bengal, 24 to 32⁰C over remaining parts of the country.</p>	<p>Actual Mean Maximum temperature anomaly ranged between 2 to 4⁰C over many parts of Madhya Maharashtra, Marathwada, North Interior Karnataka, Tamil Nadu, some parts of Vidarbha, Telangana, Raylaseema, -2 to 0⁰C over many parts of Utrakhand, East Rajasthan, Haryana, Delhi, East Uttar Pradesh, Bihar, West Bengal & Sikkim, some parts of Jammu & Kashmir, Himachal Pradesh, Punjab, West Uttar Pradesh, Assam, Jharkhand, Chattisgarh, Orissa, Coastal Andhra Pradesh, Saurashtra, 0 to 20⁰C over rest of the country.</p>
<p>Actual Mean Minimum Temperature (°C) in India for the week ending 28.11.2012</p> 	<p>Minimum Temperature (°C) Anomaly in India for the week ending 28.11.2012</p> 
<p>Actual Mean Minimum Temperature ranged between 24 to 28⁰C and above over many parts of Lakshadweep Islands, some parts of Andhaman & Nicobar Islands, 20 to 24⁰C over many parts of Coastal Andhra Pradesh, Raylaseema, Tamil Nadu, Kerala, Coastal Karnataka, Konkan & Goa, Andhaman & nicobar Islands, some parts of Telangana, North Interior Karnataka, 4 to 8⁰C over many parts of Jammu & Kashmir some pats of Himachal Pradesh, 12 to 20⁰C over remaining parts of the country.</p>	<p>Minimum Temperature anomaly ranged above 2 to 4 over many parts of Madhya Maharashtra, Marathwada, Telangana, some parts of Vidarbha, Coastal & North Interior Karnataka, -4 to -2⁰C over many parts Bihar, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Nagland, Manipur, Mizoram, some parts of of East Uttar Pradesh, Arunachal Pradesh, -2 to 2⁰C over remaining parts of the country.</p>

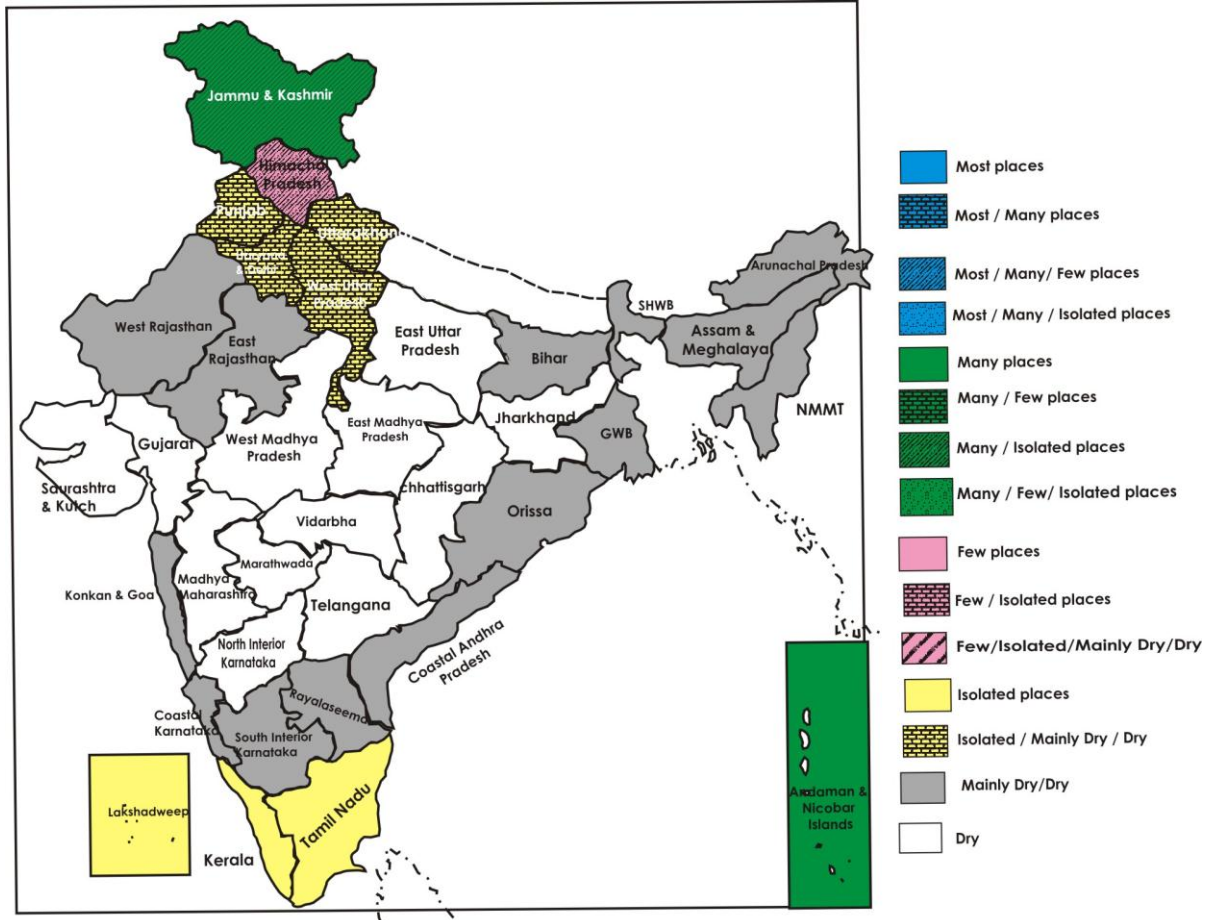
Distribution of rainfall of the country during week ending on 21.11.2012

State/Districts	Actual	28.11.12						
Karnataka			Ernakulam	15.4	-31	Tirupur	13.8	-20
Coastal Karnataka			Idukki	12.7	-39	Tiruvallur	19.2	-58
Dakshin Kannada	6.5	-49	Kasaragod	0.6	-95	Tiruvannamalai	32.3	28
Udupi	0.8	-93	Kollam	39.9	52	Tiruvarur	13.0	-78
Uttar Kannada	0.1	-98	Kottayam	3.4	-87	Toothukudi	40.4	26
North Interior Karnataka			Kozhikode	10.6	-41	Trichy	19.5	-13
Bagalkote	0.1	-98	Malappuram	1.2	-94	Vellore	28.8	47
Belgaum	0.0	-100	Palakkad	7.3	-64	Villupuram	22.5	-26
Bidar	0.0	-100	Pathanamthitta	14.2	-41	Virudhunagar	22.9	-18
Bijapur	0.0	-100	Thiruvananthapuram	8.5	-64	Andhra Pradesh		
Dharwad	0.0	-100	Thrissur	0.4	-98	Coastal Andhra Pradesh		
Gadag	0.0	-100	Wyanad	24.8	52	East Godavari	3.4	-75
Gulbarga	0.0	-100	Tamil Nadu			Guntur	0.3	-97
Haveri	0.0	-100	Ariyalur	3.0	-90	Krishna	0.8	-93
Koppal	0.0	-100	Chennai	1.9	-97	Nellore	28.4	-35
Raichur	0.0	-100	Coimbatore	15.8	-21	Prakasam	4.1	-75
Yadgir	0.0	-100	Cuddalore	15.4	-67	Sirkakulam	0.0	-99
South Interior Karnataka			Dharmapuri	2.1	-88	Visakhapatnam	4.7	-63
Bangalore Rural	10.5	29	Dindigul	16.2	-27	Vizianagram	0.0	-100
Bangalore Urban	9.7	8	Erode	4.7	-67	West Godavari	1.3	-89
Bellary	0.0	-100	Kanchipuram	48.3	-4	Telangana		
Chamarajnarag	11.3	32	Kanyakumari	6.4	-77	Adilabad	0.0	-100
Chichballapur	3.9	-58	Karikal	25.2	-76	Hyderabad	0.0	-100
Chickmagalur	0.0	-100	Karur	13.9	-22	Karimnagar	0.0	-100
Chitradurga	0.0	-100	Krishnagiri	0.2	-99	Khammam	0.0	-100
Davangere	0.1	-98	Madurai	29.2	47	Mehabubnagar	0.0	-100
Hassan	1.3	-84	Nagapattinam	23.6	-70	Medak	0.0	-100
Kodagu	6.6	-53	Namakkal	12.3	-1	Nalgonda	0.0	-100
Kolar	0.4	-95	Nilgiris	19.7	-32	Nizamabad	0.0	-100
Mandya	1.2	-79	Perambalur	21.0	-15	Rangareddy	0.0	-100
Mysore	0.0	-100	Puducherry	2.0	-98	Warangal	1.1	-67
Ramnagara	0.0	-100	Pudukottai	16.4	-36	Royalaseema		
Shimoga	0.0	-100	Ramanathapuram	19.9	-38	Anantapur	1.8	-66
Tumkur	0.3	-97	Salem	1.3	-93	Chittoor	44.2	86
Kerala			Sivaganga	7.2	-68	Cuddapah	15.7	43
Alappuzha	0.5	-98	Thanjavur	4.6	-88	Kurnool	2.4	-52
Kannur	15.4	4	Theni	40.3	102			
			Tirunelveli	59.2	76			

Legends

	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

Weather Forecast (Valid upto 0830 hours of 2nd December, 2012)



Major Feature of Weather Forecast up to 0830 hours IST of 2nd December, 2012

- Rain/snow would occur at many places over Jammu & Kashmir during next 24 hours and at one or two places thereafter.
- Rain/snow would occur at a few places over Himachal Pradesh and at one or two places over Uttarakhand during next 24 hours.
- Light rain/thundershower may occur at one or two places over Punjab, Haryana & Delhi and west Uttar Pradesh during next 24 hours.
- Rain/thundershowers would occur at many places over Andaman & Nicobar Islands.
- Rain/thundershowers would occur at one or two places over south Tamilnadu, Kerala and Lakshadweep.
- No significant change in temperatures over northwest India till tomorrow and fall in minimum temperatures by 2-3°C thereafter.
- Weather would be mainly dry over rest parts of the country.

Weather Warning during next 3 days

- Heavy rainfall would occur at one or two places over Andaman & Nicobar Islands during next 48 hours.
- Heavy rain/snow (3 cm or more equivalent water) would occur at one or two places over Jammu & Kashmir during next 24 hours.

Weather Outlook for subsequent 4 days up to 0830 hours IST of 6th December, 2012

- Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands.
- Mainly dry weather would prevail over rest of the country.

Zonewise Agromet Advisories

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- **Realised Rainfall:** Mainly dry weather prevailed over most of the districts of the States of the region during last week except upper Siang and Papumpara districts of Arunachal Pradesh.
- **Rainfall Forecast:** Mainly dry weather will prevail over the States of the region.

Advisories:

- As there was no significant rain over most of the districts of the States of the region during last couple of weeks and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.
 - Farmers in North Bank Plain Zone and Hill Zone of Assam are advised for nursery raising of *boro* rice. Also continue land preparation and sowing of rapeseed, mustard and lentil, planting of potato and transplanting of the seedlings of winter vegetables. Continue transplanting of 4-6 weeks old seedlings of vegetables in the main field.
 - Farmers in Lower Brahmaputra Valley Zone of Assam are advised to continue land preparation and sowing of *rabi* maize, *rabi* pulses, rapeseed and mustard, sowing and transplanting of cauliflower, cabbage, knolkhol, tomato and planting of potato.
 - Farmers in Upper Brahmaputra Valley Zone of Assam are advised to continue sowing of brinjal, knolkhol and transplanting of seedlings of cauliflower and cabbage. Farmers are also advised to continue land preparation and sowing of rapeseed and mustard.
 - Farmers in Central Brahmaputra Valley Zone of Assam are advised to continue land preparation and sowing of *rabi* crops (kitchen garden, cole crops, rapeseed and mustard and wheat). The seedlings of cole crops may be transplanted when they become 30-35 days old. Farmers are also advised to prepare land and undertake planting potato. Complete sowing for *rabi* pulses like lentil, rajmah, pea, lathyrus and oilseeds like linseed and niger at the earliest.
 - Farmers in Barak Valley Zone of Assam are advised to continue transplanting of seedlings of brinjal and planting of potato in the main field. Farmers are also advised to undertake field preparation and planting of sugarcane setts (autumn planting). Select upland sandy loam soil for the cultivation of cauliflower.
 - Farmers in Sub Tropical Hill Zone of Arunachal Pradesh are advised to maintain proper moisture level in cauliflower, cabbage, broccoli and knolkhol fields. Farmers are also advised to prepare seedbed of tomato and raddish.
 - In Mild Tropical Hill Zone of Mizoram, farmers are advised to continue preparation for nursery of cole crops in rain sheltered area.
 - In Mild Tropical Hill Zone of Nagaland, farmers are advised to continue harvesting of jhum rice and wetland rice. Farmers are also advised for land preparation and transplanting of the seedlings of tomato and cabbage.
 - Farmers in Sub Tropical Plain Zone of Manipur are advised to continue land preparation and sowing of maize, pea and zero tillage rapeseed and planting of potato. Farmers are also advised to continue transplanting of the seedlings of cabbage, cauliflower, broccoli, onion etc. Farmers are also advised to apply light irrigation to zero tillage rapeseed and onion in early vegetative stage.
 - In Temperate Sub Alpine Zone of Meghalaya, farmers are advised to continue nursery raising as well as transplanting of cole crops and other winter vegetables. Farmers are also advised to continue sowing of *rabi* maize in low and medium altitude regions. Sowing of pea, mustard, and garlic in high altitude region may be completed.
 - In Mild Tropical Plain Zone of Tripura, farmers are advised to undertake intercultural operation like thinning and weeding in *rabi* maize. Farmers are also advised to undertake sowing of lentil.
 - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
 - Due to high relative humidity, there is possibility of attack of cutworm in Sub Tropical Hill Zone of Arunachal Pradesh. Farmers are advised to monitor cole crops like cauliflower, cabbage, knolkhol, broccoli etc. If infestation exceeds ETL, to protect the seedlings, apply Carbaryl 5% as bait @ 10 kg per acre.
 - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In North Bank Plain Zone and Brahmaputra Valley Zone of Assam and Sub Tropical Plain Zone of Manipur and Mid Tropical Zone of Tripura, farmers are advised to vaccinate cattle, pigs and buffaloes against FMD, HS, BQ as well as anthrax disease.
 - Farmers in Centre Brahmaputra Valley Zone of Assam are advised to vaccinate poultry against Ranikhet.
 - In Mild Tropical Hill Zone of Mizoram and Sub Tropical Plain Zone of Manipur, farmers are advised to deworm and vaccinate cattle against FMD, vaccinate poultry against Ranikhet and Coccidiosis, deworm pigs and vaccinate against swine fever.

- Farmers in Barak Valley Zone of Assam are advised to make provision to insulate the livestock sheds particularly in which young stock is accommodated at night. Animals should be fed with increased amount of concentrates. Animals should be provided with anti-stress vitamins.
- Heavy mortality in cloven footed animals has been reported due to Foot and mouth diseases (FMD) in Sub Tropical Hill Zone of Arunachal Pradesh. Farmers are advised to vaccinate the healthy animals against FMD (through State Veterinary Dept.), provide feed supplements and avoid mixing of infected and healthy animals. Also, provide heat by lighting 100W bulb @ 1 bulb per 20 newly born chicks.
- In Temperate Sub Alpine Zone of Meghalaya, farmers are advised to vaccinate poultry against Ranikhet, deworm cattle and vaccinate pigs against swine fever.
- **Pisciculture**
 - Farmers in Central Brahmaputra Valley Zone of Assam are advised to apply chemicals Potash @ 4-5 mg / litre of water, Sukrena WS @ 1 lit per bigha of water, Lime in required doses to protect the fish population against various bacterial diseases prevalent in winter season.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL & SIKKIM]

- **Realised rainfall:** Mainly dry weather prevailed over the States of the region.
- **Rainfall Forecast:** Weather will be mainly dry over the region during the period.
- **Advisories:**
 - Farmers are advised to apply irrigation to the standing crops in Jharkhand, Bihar, Orissa, West Bengal and Sikkim as there was no significant rainfall in most of the districts in States of the region and mainly dry weather is likely during next three days.
 - In South Bihar Alluvial Zone, farmers are advised to harvest matured short duration rice crop and to prepare field for sowing of gram, lentil, peas, sunflower and mustard. Prepare nursery bed with recommended dose of fertilizers for sowing of autumn planted tomato, cauliflower, chillies, palak, carrot, radish, knol khol, turnip, beet, garlic and cabbage. Prepare field for sowing of irrigated, non-irrigated wheat, oat and maize crop.
 - In North West Alluvial Plain Zone of Bihar, farmers are advised to harvest matured rice crop. Where soil moisture is limited in the field, farmers are advised to give light irrigation to potato and tomato crops within interval of 10-20 days. Farmers are also advised to stop cultural operation inside the mango and litchi orchard. Spray Borax (Suhaga) @ 4 gm/liter as early as possible on litchi for good fruiting.
 - In North East Alluvial Zone of Bihar, farmers are advised to use broad spectrum fungicide in treatment of seed. Prepare land for sowing of *rabi* as well as winter crop. Complete harvesting of *kharif* rice crop.
 - Farmers in Western Undulating Zone of Orissa are advised to prepare land for sowing of groundnut and mustard.
 - The farmers of East and South Eastern Coastal Plain Zone of Orissa are advised to complete sowing of mustard, wheat, Bengal gram, *rabi* pulses and sunflower. Go for planting of potato, drum stick.
 - Farmers of North Central Plateau Zone of Orissa are advised that sowing of mustard and groundnut may be completed immediately. Weather is optimum for sowing of sunflower, onion and garlic in irrigated upland and medium land.
 - Farmers of North Eastern Coastal Plain Zone are advised for planting of tomato, cabbage & cauliflower. Land preparation for groundnut may be started in uplands.
 - Farmers of Mid Central Table Land Zone of Orissa are advised to start sowing of sugarcane, black gram and green gram.
 - Farmers of North Eastern Plateau Zone of Orissa are advised to prepare the field and complete the sowing of groundnut and wheat in the water available area after the harvesting of paddy.
 - Farmers of North Eastern Coastal Plain Zone of Orissa are advised to complete sowing of rapeseed, groundnut and mustard taking advantage of stored soil moisture. They are also advised that this is the ideal time for growing tomato, cauliflower, cabbage, Knol Khol, broccoli and radish, etc.
 - Farmers of North Eastern Ghat Zone of Orissa are advised for sowing of rainfed groundnut and green pea in the fallow uplands and sowing of sesame.
 - In Jharkhand, farmers are advised to undertake sowing of wheat varieties (at Annexure-II) with assured irrigation facility.
 - Farmers in Central and North Eastern Plateau Zone of Jharkhand are advised to undertake sowing of improved varieties of gram as single crop or intercropping with linseed or mustard. Cultivate improved varieties of lentil, toria, mustard, green pea, tomato, cabbage, cauliflower and potato. Raise improved varieties of onion seedlings in prepared nursery bed.
 - In Western Plateau Zone of Jharkhand, farmers are advised to prepare the land immediately after harvesting of rice and sow wheat crop. Farmers are advised to sow *rabi* crops like gram, lentil, linseed, pea, mustard, barley etc. and undertake planting of potato.

- In Coastal Saline Zone of West Bengal, farmers are advised to harvest *aman* rice and start sowing *boro* rice in the seed bed @12kg/bigha. Treat the seeds before sowing by *Trichoderma viridi* @4g/kg of seed. Farmers are advised early earthing up at the base potato plant.
- In New Alluvial Zone of West Bengal, farmers are advised to start nursery bed preparation of *boro* rice and treat the seeds with Thiram 75% or Bavistin @ 2.5-3 g dissolved in 1.5 lt. of water and soak 1kg seed for 8-10 hrs. Apply 100kg FYM/kata of seed bed, one week before sowing. Farmers are also advised to start land preparation for sowing of wheat and sowing of potato, apply 1.5- 2 ton cow dung manure or compost manure for a bigha before land preparation.
- Farmers in Laterite and Red Soil Zone of West Bengal are advised to start sowing of potato and before sowing seeds should be dipped in Bavistin solution for 10 minutes. Farmers are advised to complete final land preparation of brinjal and tomato. Farmers are also advised sowing of seasonal flower like marigold, verbena, jarberra jinia etc.
- Farmers in Old Alluvial Zone of West Bengal are advised to undertake land preparation and sowing of wheat, potato and mustard and start seedbed preparation for sowing of tomato.
- Farmers in Terai Zone of West Bengal are advised to prepare main field for planting wheat and potato. For planting of potato treat the seeds before planting with Carbendazim @1gm/lt and Mancozeb @ 2 gm/lt of water for 30 min.
- **Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.**
- Mustard is found to be affected by Crocidollemma and aphids. The farmers of East and South Eastern Coastal Plain Zone of Orissa are advised to spray 400 ml Dimethoiate per acre for controlling aphids and 200 ml Ethofenprox or Deltamethrin in 200 litre water per acre
- Fruit and shoot borer in brinjal has been found in Mid Central Table Land Zone of Orissa. Farmers are advised to control it, install pheromone trap @12 nos /ac. Alternately spray 4 g Sevin WP or 2 ml Malathion in 1 litre water. If thrips in chilli has been found, spray 300 ml Ethion or 400 ml Carbosulphan in 200 litre water/acre.
- Due to favourable weather condition, in New Alluvial Zone of West Bengal, there is chance of attack of termites in wheat. Before sowing treat seeds with Aldrin 30EC @ 4ml/kg for the control of termites in the crop.
- In Terai Zone of West Bengal, there is possibility of downy mildew in cucumber due to favourable weather conditions. To manage the disease, spray Mancozeb @ 2gm/lt or Metalaxyl 8% and Mancozeb 64% @1-1.5 gm/lt of water.
- Under present hot and humid situation in Laterite and Red soil Zone of West Bengal, blast disease may be severe in *aman* rice. To prevent the disease apply Carbendazim 50% WP 1.5 gm/lt.
- **Animal Husbandry**
 - Farmers of Western Undulating Zone of Orissa are advised to vaccinate cattle with intramuscular Qil Adjuvant FMD vaccine @2ml per one cattle and @1ml per one sheep or goat as a preventive against FMD during the winter season. The poultry should be vaccinated with R₂b strain RD vaccine as a preventive against Ranikhet Disease and administered @0.5ml per bird subcutaneously.
- **Pisciculture**
 - As the winter is in the starting phase, there is a possibility of “EUS” disease in fish. Farmers North Eastern Coastal Plain Zone of Orissa are advised to apply ‘Cifax’ @ 400 ml mixed with 40 litre of water in one acre pond area as a preventive measure.
 - Stages of major crops are mentioned in Annexure I.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Mainly dry weather prevailed over the States of the region.
- **Rainfall Forecast:** Dry or mainly dry weather would prevail over the States of the region.
- **Advisories:**
 - As there was no rainfall during last few weeks and also dry weather is expected during next 5 days, farmers in Madhya Maharashtra, Marathwada and West Vidarbha are advised to give irrigation to the sugarcane crop at an interval of 8 to 10 days.
 - As prevailing weather is favourable, farmers in South Konkan region of Maharashtra are advised to prepare land and undertake sowing of *rabi* groundnut. Pulses like horse gram, cowpea and lablab bean may also be sown on residual moisture immediately. Weather is also favourable for sowing of mustard in the region.
 - Farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to complete sowing of irrigated wheat.
 - As weather conditions are favourable for sowing of *rabi* crops in North Gujarat Zone, complete sowing of wheat, gram, cumin, rajma, fenugreek, ajwain, and lucern. For potato, select short duration cultivars for planting.
 - As temperature is favourable for better germination of seeds, carry out sowing of wheat in South Gujarat Heavy Rainfall Zone. Taking the advantage of prevailing dry weather, farmers are advised to carry out intercropping

operation to the standing crops and carry out picking of cotton during morning hours before evaporation of dew for better quality. As there was no significant rainfall during last few weeks, provide irrigation to the crops.

- Complete *rabi* sowing for the crops *rabi* wheat, cumin, gram etc. as early as possible in Middle Gujarat Zone. Carry out transplanting of cauliflower, onion and planting of potato.
- Undertake sowing of cumin in North Saurashtra Zone.
- Undertake sowing of coriander in South Saurashtra Zone. Harvest ripe spikelets of casor in time. Apply irrigation in sugarcane, custard apple at regular interval and harvest ripe fruits of custard apple.
- Farmers of Bhal and Coastal Zone of Gujarat are advised to complete remaining sowing of *rabi* crops as early as possible. Carry out intercultural operation in cotton crop. Cotton-picking may be carried out during morning hours.
- Farmers in South Gujarat Zone are advised to apply urea @ 75 gm per banana plant and make ring around plant for irrigation.
- Varieties of *rabi* crops are mentioned in Annexure II.
- Under prevailing weather there may be attack of pod borer in red gram in Pune and Marathwada region; spray Heliokil @ 200 ml / acre in 200 litres of water.
- Present weather is favourable for incidence of hoppers on new flush of mango and inflorescence as observed in some parts of Konkan; spray 25 % Cypermethrin @ 3 ml, or 2.8% Deltamethrin @ 9 ml or 20 % Fenvalerate @ 5 ml in 10 litres of water on foliage as well as on branches and stem.
- Weather conditions are favorable for outbreak of shoot and stem borer in jowar in South Gujarat Heavy Rainfall Zone. Farmers are advised to spray Chlorpyrifos 20 EC @ 20 ml or Quinalphos 25 EC @ 20 ml in 10 liters of water. Also there is possibility of outbreak of thrips in South Gujarat Heavy Rainfall Zone, adopt appropriate control measure for it.
- There is a possibility of army worm in *rabi* crops in Bhal and Coastal Zone of Gujarat. Farmers are advised to adopt integrated pest management measures to control the pest.
- Weather conditions are favorable for outbreak of sucking pest in cotton in South Gujarat Zone. Spray Acetamiprid 20 SP @ 0.004% (2 g/10 liter water).
- Stages of the crops are mentioned in Annexure I.

NORTHWEST INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- **Realised Rainfall:** Mainly dry weather prevailed over the States of the region.
- **Rainfall Forecast:** Rain/snow would occur at many places over Jammu & Kashmir during next 24 hours, one or two places thereafter, at few places over Himachal Pradesh during next 24 hours and one or two places thereafter. Isolated rainfall is likely to occur over Uttarakhand during next 48 hours. Light rain/thundershower may occur at one or two places over Punjab, Haryana, Delhi and West Uttar Pradesh during next 24 hours.
- **Warning:** Heavy rain/snow (3 cm or more equivalent water) would occur at one or two places over Jammu & Kashmir during next 24 hours.
- **Advisory:**
 - As no significant rainfall occurred over the States of the region and no significant rainfall is likely during the period, farmers are advised to apply irrigation to the standing crops in the region. In view of occurrence of rain / snow at many places, arrange for smoking to save the crops from cold injury.
 - Farmers in Flood Prone Eastern plain zone (Bharatpur) of East Rajasthan are advised to continue sowing of *rabi* crops like wheat, mustard, barley, potato and lentil and sow seeds in nursery for raising seedling of autumn vegetables like tomato, brinjal, cauliflower, cabbage and radish.
 - Farmers in Semi-arid Eastern plain zone of Jaipur of East Rajasthan are advised to complete the sowing of mustard and gram at the earliest and start field preparation for the sowing of *rabi* crops like wheat, barley. Undertake planting nursery of late cauliflower, cabbage and *rabi* onion. Start sowing of summer brinjal, tomato, chilli, fenugreek, cumin, Isabgol, ajwain, carrot, radish & garlic may be continued.
 - In Arid Western Plain Zone Bikaner of West Rajasthan, farmers are advised to continue the harvesting of matured late sown *kharif* crops, also continue sowing of barley and wheat.
 - In Arid Western Plain Zone Jodhpur of West Rajasthan, farmers are advised to complete the sowing of mustard and field preparation may be undertaken for sowing of wheat and barley and also sowing of vegetables.
 - In Transitional plain zone of Inland Drainage of Rajasthan, farmers are advised to continue sowing of taramira, toria, pea, rainfed gram and mustard and vegetables like carrot, spinach and radish.
 - In irrigated northwestern plain zone of west Rajasthan, farmers are advised to complete sowing of wheat, gram and barley and complete the sowing of mustard.
 - In Sub Humid Southern Plain zone of Rajasthan, farmers are advised to complete sowing of wheat, barley, gram and opium poppy.

- In southern humid plain zone of Rajasthan, farmers are advised to start preparation of field for sowing of *rabi* crops like wheat, barley and gram. Sowing of opium poppy should also be started during this week. Complete the planting of autumn sugarcane.
- In southeastern humid plain zone of East Rajasthan, farmers are advised to start field preparation for sowing wheat, gram and mustard. Also advised to start sowing of winter maize in irrigated conditions. Autumn planting of sugarcane may be completed.
- In sub tropical zone of Jammu & Kashmir, farmers are advised to complete sowing of barley and continue sowing of wheat, gram, *rabi* oilseeds, pulses. Sowing of vegetables like radish, carrot, garlic, spinach and methi may be completed without any further delay. Also continue harvesting of early maturity varieties of rice.
- In Intermediate zone of Jammu & Kashmir, farmers are advised to complete sowing of barley and continue sowing of wheat, gram, lentil, oat, pea, oil seeds like toria, gobi sarson, mustard, vegetables and fodder barseem.
- In Valley Temperate Zone of Jammu & Kashmir, farmers are advised to continue sowing of *rabi* cereal (wheat), pulses (pea and lentil), brown sarson, fodder (oat), also sowing of spinach and methi may be continued. Planting of garlic, transplanting of onion seedlings in well prepared land may be done. Maintain surface drainage channels in and around the field so that water is not stagnated in the field during winter months.
- In Barbar & Tarai region of Uttarakhand, due to expected dry weather conditions during this week, farmers having irrigation facilities are advised to give first irrigation in wheat crop at Crown Root Initiation stage and then top dress @ 2.5 kg Urea per Nali under optimum soil moisture. Also advised to complete sowing of lentil with available improved varieties under sufficient moisture in soil. Do irrigation, weeding & thinning in garlic, mustard, pea, chickpea and rajmash etc. & top dress 1/2 kg Urea per Nali if not done so far. However, if irrigation facilities are not available, then put straw mulch in between rows for moisture conservation in the soil. Remove weeds from other standing vegetable crops and keep grass lying on the ground for conserving soil moisture. Apply irrigation in crops including coriander, spinach, radish, menthe etc. under low soil moisture.
- In Sub humid sub tropic of Uttarakhand, farmers are advised complete sowing of vegetable pea, mustard and land preparation for sowing of wheat. Supplemental irrigation should be done after earthing up and weeding in crops like brinjal, chilli, lady's finger. Ploughing of early planted fruit crop and other plant and after ploughing apply recommended fertilizer as per age of the plant. Planting of cauliflower, brinjal and chilies sapling may be completed.
- In Hill zone in Uttarakand, farmers are advised to complete sowing of high yield variety of toria, wheat, vegetables, mustard. Do irrigation, weeding and thining in standing crops and in wheat crops after 10 – 15 days of sowing.
- Farmers in Central plain Zone of Uttar Pradesh, are advised to complete sowing of wheat intercropping with raya, toria, gobhi sarson, pea, gram and potato etc. upto 30th November. Also continue sowing of lucerne, oats and senji crop. Apply light irrigation to already sown crops like pea & masoor etc. Weather condition is favorable for sowing of garlic.
- In Bundelkhand Zone of Uttar Pradesh, farmers are advised to complete sowing of *rabi* crops like wheat, pea, masoor & gram, fodder barseem after seed treatment and also irrigate already sown *rabi* crops like pea, toria and lahi.
- In North Eastern Zone of Uttar Pradesh, farmers are advised to complete sowing of mustard, pea, lentil, gram, maize.
- In Western Plain Zone of Uttar Pradesh, farmers are advised to continue sowing of wheat, potato, maize, pea, masoor, als, vegetables (like onion, tomato, raddish, carrot, palak, cauliflower, cabbage etc.) and planting of sugarcane, chilli and brinjal. Weeding operation may be done in turmeric.
- In Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, farmers are advised to complete nursery sowing of early variety of pea, raddish, turnip, coriander, cabbage, knol khol, broccoli, parsley, lettuce, fennel and cauliflower. If the nursery of cabbage, cauliflower and broccoli is at 4-6 weeks stage, it may be planted in the fields directly. It is optimum time for nursery sowing of onion.
- Farmers of Mid hill sub humid zone of Nauni of Himachal Pradesh are advised to start coating of lime on the trunk of temperate fruits upto 2-3 ft from ground. Also, complete the sowing of early variety of pea and direct sowing of root crops may be continued. Cultivation of winter fodder crops like Berseem, Oats and Lucerne must be completed in this fortnight.
- In view of clear weather in Delhi for the next five days, farmers are advised to continue sowing of wheat. Undertake sowing of oat and barseem for fodder purpose. Sowing of late field pea and planting of late cultivars of potato may be done in present weather conditions. Sowing of European group of carrot and radish, crimson globe cultivar of beetroot and P.T.W.G. cultivars of turnip can be done in this week. This is suitable time for sowing of leafy vegetables like sarson saag, bathua, spinach, fenugreek and coriander. Weather is suitable for sowing of *rabi* onion. Undertake transplanting of mature seedlings of cauliflower, cabbage and broccoli.

- Farmers in Punjab are advised to continue sowing of wheat varieties recommended by PAU. Complete the sowing of varieties of gram under rainfed conditions by this week as further delay in sowing results reduction in yield. Start crushing/harvesting early maturing varieties of sugarcane like CoJ-64, CoJ-83 and CoJ-85. Sow hybrid varieties of gobhi sarson. Transplanting of gobhi sarson is more profitable than direct sowing. For transplanting use 30-40 days old seedlings of PGSH-51. This is the right time for sowing of English varieties of radish and turnip. Undertake transplanting of 4 to 6 week old seedlings of cabbage, Chinese cabbage and late season cauliflower. Irrigate methi and palak once in a week. Take the first cutting of Barseem.
- Farmers in Western Zone of Haryana are advised to continue sowing of wheat. In first week of December, farmers can sow late varieties of wheat. Complete picking of cotton bolls. Irrigate fodder crops.
- Farmers in Eastern Zone of Haryana are advised to changing weather at at the time of sowing of wheat. Do the sowing of multi-cut improved jai and barseem as fodder crop. Apply the hoeing in vegetable crops as per their requirement.
- In Arid Western Plain Zone Bikaner of West Rajasthan, humidity in atmosphere may increase, farmers are advised for control attack of painted bug in mustard, by dusting the crop with methyl parathion dust @ 25 kg/ha.
- In Barbar & Tarai region of Uttarakhand, due to cloudy weather conditions, the incidence of aphids is possible. If the aphids are seen in 10 % population, then 200 SL Emidachlorepid @ 3 ml per 10 liter of water.
- **Animal Husbandry**
 - In Barbar and Tarai region of Uttarakhand, do proper chopping of maize, sorghum and other fodder and mix it in green fodder equally. Give them fresh water for drinking water for 2 times in a day. Since night temperature will fall further during this week, hence keep all types of small animals under the shed during the night. Put rice straw or dry leaves of sugarcane on the ground for their comfort during the night time.
 - Farmers in Punjab and Haryana are advised to protect animals from cold winds and keep them at dry places. Feed balanced fodder and increase 4 to 5% energy sources in the ration of animals like cereals, grains etc.
 - In Intermediate zone of Jammu & Kashmir, vaccination of animals against FMD advised. Weather is conducive for ticks and mites attack on animals. For control spray Butox@ 2.0 ml per litres of water. Ensure proper drainage in the surroundings of cowshed.
 - In Valley Temperate Zone, Jammu & Kashmir, farmers are advised as the night temperature is reducing day by day proper arrangement should be done to provide warming to the livestock. During day time animals should not be moved out of sheds too early. Animals should be fed with a balanced diet containing higher amount of minerals and vitamins. Animals should not be allowed to graze late in the nights.
 - Farmers in Semi-arid Eastern plain zone of East Rajasthan are advised to keep teats of milch cow & buffalo clean before & after milking to protect them from the attack of Mastitis. Keep their teats clean before & after milking.
- **Horticulture :**
 - For control of leaf curl and Stigmia blight on peach, plum, apricot and almond, farmers in intermediate zone of Jammu & Kashmir are advised to spray copper oxychloride (0.3%) or captan (0.2%) before leaf fall.
 - In Valley Temperate Zone of Jammu & Kashmir, farmers are advised to start pruning in apple trees. Older trees should be pruned first as younger trees are more prone to winter injury. Cease all pruning operations well before any chance of a severe temperature drop.
 - In Semi Arid Eastern plain zone of East Rajasthan, mango, guava & pomegranate may be attacked by mealy bug insect. Hopper of this bug suck sap of tender leaves of these trees. To control this farmers are advised to mix quinalphos 1.5 % @ 50-100 gm per tree in soil at a depth of 10-25 cm.
 - In Transitional plain zone of Inland Drainage of east Rajasthan, farmers are advised to control leaf curl, mosaic in papaya uproot & burn the affected plants and spray Dimethoate 30 EC or Methyl Dimeton 25 EC @ 1 ml per litre water.
 - In Arid Western Plain Zone(Bikaner) in Rajasthan, farmers are advised to avoid heavy irrigation in ber to prevent fruit drop at this time of fruiting. Spray Monocrotophos 36 SL @ 0.04 % at the pea grain size stage of ber fruit.
 - In Arid Western Plain Zone(Jodhpur) as there is starting of fruiting stage of ber, farmers are advised to apply urea per plant as per the age of ber fruit and also apply irrigation.
 - In Irrigated North Western plain zone of Rajasthan, farmers are advised to give regular irrigation to kinnow fruit.
 - In arid western plain and semi-arid eastern plain zone of Rajasthan, farmers are advised to spray Dimethoate 30 EC at recommended dose to control mosaic disease in papaya.
- **Apiculture**
 - In Intermediate zone of Jammu & Kashmir, provide ample space for queen bee by giving drawn comb. Week colonies may be provided sealed brood from strong one to equalize the strength of all the colonies. Stimulating feeding of sugar, syrup should be given for expansion of brood area, if needed at the start of the month.

Queenless colonies should be united with strong ones. (Sulphur dusting should be avoided in temperate regions).

- In Sub Tropical Zone of Jammu & Kashmir, weak colonies may be provided sealed brood from strong ones. Provide ample space to queen for eggs by giving drawn comb.
- Due to humid weather, there is possibility of white rust and Alternaria blight in the mustard crop in Eastern Zone of Haryana. Farmers are advised to spray the recommended fungicide when the weather is clear.

- **Floriculture**

- In valley temperate zone of Jammu and Kashmir, farmers are advised to complete planting of tulip bulbs and spring annuals as early as possible. Harvesting of gladiolus corms should be completed as early as possible to avoid frost injury.
- It is optimum time for raising the nursery of winter flowers like Calendula, arctotis, dog flowers, sweet pea, dianthus, petunia, stock and flox in fields in Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh.
- Farmers of Mid hill sub humid zone of Nauni of Himachal Pradesh are advised to complete the harvesting of chrysanthemum and marigold flowers. Planting of gladiolus corms in the lower hill areas and planting of Liliun bulbs in low and mid hills should be done.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

- **Realised Rainfall:** Kollam in Kerala, Chittoor in Rayalaseema and Kancheepuram, Madurai, Theni, Thirunelveli and Thiruvannamalai in Tamil Nadu received sufficient rainfall during last week. No significant rainfall occurred over remaining parts of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at one or two places over south Tamil Nadu and Kerala. Mainly dry weather is likely to prevail over remaining parts of the region during next three days.
- **Advisories:**
 - As Kollam in Kerala, Chittoor in Rayalaseema and Kancheepuram, Madurai, Theni, Tirunelveli and Thiruvannamalai in Tamilnadu received sufficient rainfall during last week received sufficient rainfall during last week, postpone irrigation to the standing crops.
 - Cloudy weather and medium rainfall has affected harvesting of paddy crop in the Coastal Zone of Karnataka. Farmers are advised to take precautionary measures while harvesting. Mechanical paddy harvesting is best suitable under such situations. Farmers who have already harvested paddy and are going in for pulse crops in next season, are advised to grow the varieties mentioned in Annexure-I.
 - Moderate amount of rainfall has been received at many places during past 5 days and as per forecast there will moderate amount rainfall at many places during the next five days in Hill Zone of Karnataka. Taking advantage of the rainfall, farmers are advised to complete sowing of rabi crops as early as possible.
 - Farmers in the North East Dry Zone of Karnataka are advised to undertake inter cultivation (more than 20 days age) in rabi crops like jowar, Bengal gram and safflower. Farmers are also advised to continue picking of cotton and harvesting of paddy.
 - Farmers in the Problem Area Zone of Kerala are advised to complete harvesting of paddy. Sowing for punja paddy has started in some areas. In areas where crop is already harvested plan for taking next crop, the land should be ploughed thoroughly incorporating the crop residues and inundated water for decomposing. Stale seed bed technique has to be adopted in padasekharams where wild rice was a problem during the preceding additional crop season. Mulch the coconut basins with green/dry leaves. This help to add organic matter to the soil and to reduce the soil temperature.
 - In the central zone of Kerala new planting in cool season vegetables has started. This is the best time for Cabbage and cauliflower seeds to be sown in the nursery beds. Pseudomonas culture is added to the soil at the time of planting cabbage and cauliflower will help to reduce fungal disease. If Bitter guard, Snake guard and pumpkin are cultivated during this season, they will be free from mosaic disease. Fertilizer application can be continued in coconut and arecanut.
 - In the northern zone of Kerala the season is ideal for planting intercrops in coconut gardens. The soil water content will remain in moist to wet regime. There is no need of irrigation to any of the crops. Mulch the soil to prevent evaporation loss of water. Sprayings if any may be done only when the sky is clear. This is the right time for raising cool season vegetables like cabbage cauliflower etc.
 - Farmers in the North Eastern Zone of Tamil Nadu are advised to harvest paddy, undertake field preparation and sowing of groundnut and paddy nursery can be made for next sowing, since no rainfall is expected for next five days.
 - As rainfall is not expected in the coming days, farmers in the Western Zone of Tamil Nadu are advised to give irrigation to garden land crops and spray 40 ppm NAA at 60 days after sowing on cotton crop to prevent early shedding of buds and squares and to increase the yield.

- Farmers in the South Zone of Tamil Nadu are advised to provide irrigation to the crops and undertake weeding in the late season rainfed crops when soil moisture content is optimum to eliminate the competition by weeds with the crops, as dry weather is expected in the coming days.
- Since there are no chances for rainfall, farmers in the High Rainfall Zone of Tamil Nadu are advised to undertake weeding and earthing up for banana using the available soil moisture and basin preparation for perennial crops may be undertaken.
- Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to sow groundnut crop up to 15th December under irrigated conditions.
- Farmers in the Southern Telangana Zone of Andhra Pradesh are advised to go for irrigated dry crops like maize, groundnut, sunflower etc. wherever feasible instead of rice cultivation due to insufficient ground water.
- Incidences of pod fly damage in pigeon pea and wooly aphid in sugar-cane was noticed in the North East Transition Zone of Karnataka. Farmers are advised to spray rogor (dimethoate) 2 ml per liter of water to avoid pod fly damage and take up the following measures to eradicate wooly aphid- remove the infested leaves and burn, avoid carrying such leaves from one place to another, spray the crop with 3 ml Chloropyriphos or 2 ml Endosulphan dissolved in 1 ml of water, if the crop is of suitable height and mix 6 kg of Phorate granules in 20 kg of sand and spread this mixture uniformly on the soil and then give light irrigation, if the height of the crop is not suitable to spray the pesticide .
- Boll worm incidence and grey mildew in desi and non Bt cotton, early leaf blight (ELB) in tomato and root grub in sugar-cane is noticed in the North Transition Zone of Karnataka. Farmers are advised to spray the crop with monocrotophos @ 2.5ml/lit and Carbendizim 50 WP @ 1g/lit of water for effective control of boll worm incidence and grey mildew, mancozeb @ 2 g/L or cuprous oxide @ 2.5 g/L. to control early leaf blight and drench the soil with chlorophyriphos (20 EC) @ 10 ml / L to control root grub. Leaf reddening is increasing in Bt genotypes due to drop in temperature and prolonged dry spell. Farmers are advised to apply foliar application of 2 % of urea or DAP with 1% MgSO₄ to the crop. Mirid bug is also reported in parts of the zone. It is suggested to spray Acephate 75 SP @ 1 g/lit or Fipronil 5 SC @ 1.0 ml/lit of water to developing squares immediately.
- As the temperature is expected to shoot up to 33°C without rainfall in the Western Zone of Tamil Nadu, weather is favourable for stem borer incidence in paddy. Hence, farmers are advised to release Trichogramma japonicum for the management of pest incidence.
- Farmers in the South Zone of Tamil Nadu are advised to undertake plant protection measures to prevent incidence of stem borer in paddy, sucking pests in cotton, wilt in tomato and leaf spot in brinjal, as the anticipated weather having light cloud cover and moderate humidity is conducive for attack of pests.
- Due to low temperature and high humidity, cotton crop cultivated during “purattasi pattam” may be affected with leaf hopper, thrips and aphids in the North Western Zone of Tamil Nadu. Farmers are advised to spray Imidachloprid at the rate of 5 ml/ 10 lit of water to control them.
- Incidence of wilt in Bengal gram, leaf webber and maruca pod borer in red gram, aphids in safflower, rhizome rot and leaf spot in turmeric is noticed in the Southern Telangana Zone of Andhra Pradesh. Farmers are advised to undertake plant protection measures.
- **Animal Husbandry**
 - Slightly cloudy sky without rain is likely to persist in the North Western Zone of Tamil Nadu. Due to lower monsoon effect, mist formation during early morning and fall in night temperatures are possible. Farmers are advised to increase energy content of feed to combat increased feed intake in birds.
 - During night time temperature will go down up to 19 °C. Hence farmers in the North Eastern Zone of Tamil Nadu are advised to protect young calves, lambs and kids from chillness during night time by covering with dry gunny bags and by covering the side of the animal sheds.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Mainly dry weather prevailed over the region.
- **Rainfall Forecast:** Mainly dry weather is likely to occur during next three days.
- **Advisories:**
 - Farmers in Madhya Pradesh are advised to provide irrigation to the standing crops as there was no rainfall during last week and no significant rainfall is likely during next three days.
 - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised to harvest rice crop and dry it under sunlight. To avoid loss of soil moisture, field may be immediately prepared for the sowing of chickpea, lentil, mustard, and linseed crops. Seeds should be treated with fungicides before sowing. In pulse crops, seeds may be inoculated with Rhizobium bacteria. Also use recommended amount of fertilizers at the time of sowing in these crops. As minimum temperature decreasing, this is proper time for sowing of pea. Seedlings of cabbage, cauliflower and onion may be transplanted in the field. Also, broadcast urea in field after 30-35 days after transplanting.

- Farmers in Jhabua Hills Zone of Madhya Pradesh are advised that this is suitable time for sowing of wheat. Give irrigation in early sown wheat crop at 21 DAS for proper moisture. Also semi-irrigated/ 2 irrigation wheat crop may be irrigated after 30-35 DAS. Also irrigate early sown gram crop. This is time of boll opening so keep field weed free and bolls has to be picked with clean. Apply fertilizers in chilli, capsicum, tomato, papaya, onion etc. and irrigate. This is suitable time for sowing of carrot, radish, pea, methi, palak and transplant tomato, brinjal, cauliflower and other vegetables etc.
 - Farmers in Gird Zone of Madhya Pradesh are advised to prepare fields for sowing of wheat and linseed. This is proper time for sowing of wheat and linseed. They are also advised to apply fertilizer and give irrigation to toria, mustard and barseem crops.
 - Farmers in Bundelkhand region of Madhya Pradesh are advised for sowing of wheat. They are also advised to irrigate the vegetable and fruit crops and broadcast / apply urea. Farmers are also advised to do weeding and hoeing in onion and garlic vegetable crops.
 - Farmers in Central Narmada Zone of Madhya Pradesh are advised to harvest paddy crop. They are also advised for sowing of gram, linseed, lentil, wheat and vegetable pea. Planting of winter sugarcane and garlic should be done. Transplanting of cabbage and cauliflower may be done. They are also advised to apply fertilizer to chilli, tomato, brinjal, cabbage, cauliflower and onion etc.
 - Farmers in Nimar valley zone of Madhya Pradesh are advised for sowing of wheat and gram. Sowing may be done up to 4-5cm depth.
 - In Chhattisgarh Plain Zone, present weather conditions and soil moisture are favourable for proper germination of gram, pea, mustard and lentil. Hence, farmers are advised for sowing of above crops as soon as possible. Before the sowing of pulse crops farmers are also advised for the seed treatment.
 - Due to availability of sufficient soil moisture, farmers are advised to prepare the field and sowing of *rabi* crops just after the harvesting of paddy.
 - Farmers are advised for transplanting of cauliflower, tomato, brinjal, chilli etc. in the main field during evening hours in Chhattisgarh Plain Zone. Farmers can also sow the leafy vegetables. Present weather conditions are favourable for sowing of potato and garlic and also for raising seedlings of Onion. Farmers having proper irrigation facilities are advised for sowing.
 - Looking to the forecast of clear weather in next 3-4 days, farmers are advised to harvest the matured rice crops and keep it for proper sun drying. After proper sun drying complete the threshing, cleaning and marketing/storage of the produce.
 - Looking to the present weather conditions and soil temperature, farmers are advised for the sowing of autumn sugarcane as early as possible in Districts Raigarh, Kabirdham and Durg.
 - Farmers in Bastar Plateau Zone in Chhattisgarh are advised to prepare field and undertake sowing of cowpea. Farmers are also advised for planting of cassava, colocasia, ginger, elephant foot yam and diascorea and support may be given by bamboo sticks. Colocasia and daag kanda harvesting may be done as per crop maturity.
 - Winter season vegetables may be sown in the main field beds as nursery should be ready by now. Leafy vegetables like spinach, methi, maranthus and laal bhaji may be sown in the beds. Sowing of urad, niger, kukthi crops may be completed at the earliest.
 - Farmers in Bundelkhand region of Madhya Pradesh are advised that there is attack of Diamond back and leaf borer in cabbage crop, for control measure spray with melathion 50 E.C. @ 1.0ml/L of water. Do not pick up curds within one week of the spray.
 - In North Hill Zone of Chhattisgarh, farmers are advised to prepare the land for sowing of wheat and sugarcane.
 - Due to prevailing weather, green hoppers, white hoppers and brown plant hoppers may be observed in Bastar and Narayanpur districts in Chhattisgarh, spray Monocrotophos @ 2 ml or Imidachloprid @ 0.5 ml per litre of water.
- **Animal Husbandry & Poultry**
 - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised that temperature is going to decreasing therefore precaution may be taken to improve temperature conditions in the poultry and dairy farms.
 - Farmers in Jhabua Hills of Madhya Pradesh are advised to vaccinate their cattle for FM disease. For control of Ranikhet disease in bird vaccinate them by F-1 or Lasota vaccine.
 - Farmers in Bundelkhand region of Madhya Pradesh are are advised to protect their animals from low night temperature and provide concentrate feed. Sheep raisers are advised to do medicine bath in sunny condition to control parasites.
 - Farmers in Central Narmada Zone of Madhya Pradesh are advised to provide clean and concentrate feed to the cattle and de-worm the cattle.

Annexure I

Major Crops

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- Sugarcane (vegetative), *sali* rice (maturity / harvesting), *boro* rice (nursery raising), black gram, green gram (pod maturity / harvesting), cole crops (early vegetative / vegetative), winter vegetables (nursery sowing / sowing / transplanting / early vegetative), wheat (sowing / germination), rapeseed, mustard (sowing / seedling / vegetative), potato (planting), *rabi* pulses like lentil, rajmah, pea, lathyrus (sowing / seedling) in Assam.
- WRC rice (grain maturity / harvesting), *rabi* maize (vegetative), cauliflower, cabbage (transplanting / vegetative), pea (sowing / vegetative) in Arunachal Pradesh.
- *Kharif* rice (harvesting), potato (land preparation / planting), pea (sowing / early vegetative), tomato (seedling / transplanting), cauliflower, cabbage (transplanting / early vegetative), rapeseed (sowing / early vegetative), *rabi* maize (sowing), onion (transplanting / vegetative) in Manipur.
- *Kharif* rice (grain maturity / harvesting), *rabi* maize (sowing / vegetative), cole crops (transplanting / vegetative), groundnut (harvesting), turmeric, ginger (vegetative / rhizome formation), pea, mustard, garlic (sowing), toria (vegetative) in Meghalaya.
- Cauliflower, tomato (nursery preparation / transplanting), ginger / turmeric (vegetative / rhizome formation), groundnut (vegetative / flowering), beans (vegetative / flowering), pea, lentil (sowing) in Mizoram.
- Tomato, cabbage (nursery preparation / transplanting / vegetative), pea (germination / vegetative / flowering / fruiting), mustard (vegetative), soybean (pod maturity / harvesting) in Nagaland.
- *Aman* rice (grain maturity / harvesting), groundnut (pod maturity / harvesting), *rabi* maize (sowing), *rabi* legumes, rapeseed, mustard etc. (sowing), bitter gourd and pointed gourd (harvesting) in Tripura.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL & SIKKIM]

- Mustard, gram, peas, sunflower, maize (land preparation / sowing), sugarcane (vegetative), fodder crops like sorghum, bajra, meth, kalai, boda and dinanath grass (vegetative), *kharif* rice (grain maturity), urad, arhar, bajra etc. (grain formation), mango, litchi, guava (early vegetative / vegetative), winter vegetables, wheat (sowing) in Bihar.
- Kulthi, African marigold, French marigold (sowing), urad, potato, green pea, toria, tomato, cauliflower, cabbage and bell pepper (sowing), gram (land preparation / sowing), rapeseed, linseed and mustard (sowing) radish, turnip, spinach, carrot (sowing), wheat (land preparation/sowing) in Jharkhand.
- Sugarcane (grand growth), banana (vegetative), rice (maturity/harvesting), mustard, sunflower, sesame, groundnut, cow pea (sowing) and fruit crops (planting / seedling) in Orissa.
- *Aman* rice (grain filling / maturity / harvesting), *kharif* maize (cob formation / cob maturity), cauliflower (sowing / seedling / transplanting), marigold, Gladiolus (planting), potato (sowing), betel vine (vegetative), winter vegetables (sowing), *kharif* vegetables (fruiting / harvesting), onion (sowing) in West Bengal.
- Ginger (germination / early vegetative), orange (transplanting / seedling), large cardamom (vegetative / primary flowering / secondary flowering), vegetables (vegetative), rice (grain formation / maturity) in Sikkim.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- Sugarcane (*suru*) (active tillering in Madhya Maharashtra and Marathwada), sugarcane *adsali* (elongation / cane maturity), sugarcane pre seasonal (elongation / cane maturity), sugarcane (new *adsali*) (early tillering), sugarcane (new pre seasonal) (planting / sprouting), *kharif* rice (grain maturity / harvesting), cotton (maturity / picking), red gram (pod formation), *rabi* jowar (early vegetative / vegetative), safflower (early vegetative / vegetative), maize (germination / early vegetative in Marathwada and early vegetative / vegetative in Madhya Maharashtra), gram (sowing / germination / branching), wheat (sowing / germination / crown root initiation) in Maharashtra.
- Wheat (sowing / germinating / crown root initiation), gram (sowing / branching), cumin (sowing / germination), cotton (boll formation / harvesting), sugarcane (vegetative / elongation), new sugarcane (planting), sesamum, new castor (flowering and capsule development / spike initiation), winter vegetables (onion, cauliflower, potato) (sowing / transplanting), chilli, brinjal (flowering / fruiting), mustard (sowing / seedling), pigeon pea (flowering), jowar (seedling) in Gujarat.

NORTHWEST INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- Wheat (sowing), apple (harvesting/new planting), pea, raddish, turnip, coriander, cabbage, Knol khol, broccoli, parsley, lettuce, fennel and cauliflower (nursery sowing), lentil, gram (sowing) in Himachal Pradesh.

- Rice (grain maturity stage), cauliflower, cabbage, broccoli and tomato (transplanting), coriander, spinach and radish (vegetative), carrot, pea & garlic (sowing), gram, mustard (sowing), maize (cob formation), sugarcane (vegetative), cotton (boll formation), sugarcane (vegetative) in Delhi.
- Sugarcane (planting), papaya (planting), sunflower (early vegetative / vegetative), maize (Normal sown –grain formation stage, early sown- harvesting stage, very late sown- cob maturity), garlic, cucurbits, okra(seedling), potato (sowing), radish (sowing), cabbage, cauliflower (nursery sowing), carrot, turnip (sowing), knol-khol, cole crops (transplanting), mustard (emergence), brown sarson (rosette stage), barley, pulses (pea, lentil) (sowing / germination), gram (vegetative), toria (reproductive), vegetables {Methi early bunching and kasuri methi, spinach}(sowing), *rabi* oilseeds (sowing/emergence), Wheat(sowing / tillering), Berseem (vegetative / 1st cutting) in Jammu & Kashmir.
- Wheat (sowing), groundnut, sorghum, urad, moong, rajma (grain maturity/harvesting), arhar and ginger (vegetative), autumn sugarcane, mustard, yellow serson, karan rai, brinjal, chilli, lady's finger, barley, oat, pea, chick pea, potato, lentil and vegetable (sowing/germination/vegetative) in Uttarakhand.
- Wheat (sowing), sugarcane (vegetative growth/ripening), chana, pea, masoor, alsi, barseem, jai(sowing), vegetables like onion, garlic, radish, carrot, coriander (germination/ early vegetative), mustard, pea, lentil & gram, maize(sowing) in Uttar Pradesh.
- Rice (harvesting), spring sugarcane (sprouting/tillering), radish, carrot, turnip, (sowing / germination/vegetative), cauliflower (transplanting/vegetative), tomato, sunflower (early vegetative), cotton (boll formation), okra, chilli, brinjal (transplanting/early vegetative), maize, mung, mash, tur (early vegetative), toria (sowing), maize (cob formation) in Punjab.
- Rice (harvesting), sugarcane (grand growth) (early vegetative/vegetative), barseem (vegetative / last cut), fodder (maize + cowpeas) (vegetative/ 1st cutting)), moong, mash, pigeon pea (vegetative), cauliflower, cabbage, carrot, potato (transplanting), radish, cotton (flowering), turnip (sowing/seedling) in Haryana.
- Cauliflower, cabbage, onion (transplanting / germination), sugarcane (new planting/ vegetative), maize (maturity), mirch, simla mirch, guar, vegetable (tinda, water melon, pumpkin, cucumber, coriander, bhendi, ridge gourd) (sowing/seedling), green gram, cowpea (harvesting) and groundnut (pod maturity/harvesting), short duration moth and guar (pod maturity/harvesting), moong (vegetative), kinnow (fruiting), oilseeds (sowing/emergence), wheat, mustard, gram, potato (sowing) in Rajasthan.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

- Sugarcane (vegetative/grand growth), late planted paddy (harvest), sunflower (flowering), groundnut (pod maturity/ harvest), cowpea (vegetative), pigeon pea (flowering/pod filling), maize (harvest), pearl millet (harvest), desi cotton (vegetative), cotton (boll opening/picking) and chilli (fruiting), *rabi* crops - wheat (sowing), safflower (sowing), red gram (pod formation), vegetables (fruit maturity), New vegetables (nursery sowing) in Karnataka.
- Sugarcane (June planted) (cane formation), vegetables (all stages), early sown rice (harvest), late sown rice (flowering), ragi (harvesting), castor (1st picking stage), late sown groundnut (pod formation/pod filling), *rabi* groundnut (sowing), *rabi* maize (vegetative), cotton (boll maturation –1st picking stage), Bengal gram (seedling / vegetative), red gram (pod formation), Bt. cotton (flowering/boll development) in Andhra Pradesh
- Coconut (flowering/nut development), cardamom (harvesting), rubber (tapping), vegetables (harvesting), *mundakan* paddy (tillering), banana /cardamom/vegetables (new planting) in Kerala.
- Late samba rice (vegetative), samba rice (harvest), thaladi (transplanting), rainfed maize (flowering), sorghum (early vegetative), cowpea (pre-flowering), rainfed groundnut (flowering), new groundnut crop (sowing), pulses (flowering), cotton (vegetative), new maize crop (vegetative), vegetables (vegetative) in Tamil Nadu.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Rice (harvesting), ladies finger, cucurbits (vegetative/flowering), pea, potato, sugarcane (sowing/planting), *rabi* vegetables (transplanting), wheat, maize, gram (sowing/crown root), fodder crops (sowing), chickpea, lentil, mustard, linseed (sowing) in Madhya Pradesh.
- Rice (grain formation / harvesting), sugarcane (planting/vegetative), groundnut (pod filling), sesame (late vegetative), ginger, turmeric, papaya, mango and guava (vegetative), onion (planting), vegetables (transplanting / vegetative), millet (vegetative), tapioca, ginger, colocasia, dioscorea, elephant foot yam and cassava (planting), wheat, sugarcane (land preparation) in Chhattisgarh.

Annexure II List of Varieties

Assam

Boro rice: Mahsuri, IR-50, Bishnuprasad, Jyotiprasad, Kanaklata and Dinanath. Boro 1, 2, 3, Kalinga-3, Joymati, Swarnav.

Lentil: B-77, L-9-12.

Cauliflower: Early Kunwari, Pusa Katki, Pusa Deepali.

Cabbage: Golden Acre, Pride of India, Pusa Mukta (Sel – 8), Japanese, Pusa Synthetic, Pusa Snowball and for late maturing varieties Snowball-16, Pusa Snowball, K-1 and Hissar 1 etc.

Tomato: Punjab Chhuhara, S-12, Punjab Kesri, Pusa Early Dwarf, Sioux, Pusa Ruby, VC- 48-1, Arka Abha (BWR-1).

Brinjal: Pusa Kranti, Pusa Purple Long, Pusa Purple Round, Pusa Vairab, Pant Samrat etc.

Rapeseed and Mustard: M-27, TS- 36, TS-38.

Potato: Kufri Chandramukhi, Kufri Jyoti, Kufri Megha, Kufri Badshah, Kufri Sindhuri, Pukhraj

Wheat: Sonalika, UP 262, K 7410, WH 291 and HDR-77, DBW-14, and HUVV-468.

Manipur

Cauliflower: White Shot.

Pea: Arkel, Azad Pea.

Meghalaya:

French bean: Arka Suvidha, Arka Anoop (bush type) and Naga local, RCMFB-1 (pole type).

Cabbage: H-139 and Pride of India.

Cauliflower: Pusa Meghna, Pusa Sharad and Meghalaya Local.

Broccoli: Puspa, Aiswarya and Fiesta.

Tripura:

Tomato: Trishul, Allrounder, T- 1408, T- 1458, Anup.

Cauliflower: CFL- 4048, Pusa Early Synthetic, Kamaya, Suhasihi.

Cabbage: BC- 76, Pusa Drum Head, Pusa Synthetic.

Broccoli: Everest, Ayeshwaria.

Pea: Arkel, Arka Ajit, TRCP- 8, 9.

Cowpea: Kashi Kanchan.

Rabi maize: HQPM- 1.

Lentil: WBL – 58.

Orissa

Cowpea: SEB-2, Pusa Barsati.

Brinjal: Utkala Tarini, Utkala Madhuri, Blue Star, Green Star, Pusa Purple Cluster.

Green chilli: Pant C-1, Kala Suryamukhi, Utkala Ava, Utkala Ragini etc.

Tomato: BT-2, BT-10, BT-12, Niladri, Sadabahar, Madhuri, Maharathi, Rasmi, Naveen, etc.

Mustard: Parbhathi, Anuradha, TS-29 & M-27, M-27, Pusa Jaikisan, Pusa Bold

Groundnut: Smruti and JL-24, TMV-2, Devi

Sunflower: Morden, Sunrise, Surya and Hybrid varieties like KBSH-1, KBSH-3 and MSFH.

Onion: Nasik Red, Patna Red, Pune Red, Bellary Red, Pusa Ratnar, Pusa Madhavi, Arka Niketan , Arka Pragati, Agrifound light red, Agrifound dark, Punjab Selection, Patna white, Bombay white, Pusa white round.

Sugarcane: Early-CO-6907, CO7508

Medium-CO-7219, CO-86249

Garlic: Phawari, Rajalbadi, Jamnagar and G-282.

Green Pea: Rachana, Arkel. and T -163.

West Bengal:

Cauliflower: Kanwari, Jowhar, Moti, Early Patna.

Tomato: Pusa Rubi, Pusa Early, S-2, Roma Super.

Mustard: Agrani (B-54), Panchali (T.W.C.-3), B-9, Rai-5 and Bhagirothi (R.W.-351) etc.

Sugarcane : Co- 7218, Co- 527, Co- 1148, Co- 6203 etc

Wheat : PBW-343, K-307, UP,-262, Janak, C-306, Raj-911 etc

Boro Rice : Supriya, Jamini, Bhupen, IET-2233 etc.

Jharkhand:

Wheat: H.U.W.-468, K-9107 & Birsa Genhu – 3.

Okra: Pusa A-4, Prabhani Kranti, Arka Anamika, Versha Uphar & Hybrid varieties like Sonal and Sarika.

Potato: Kufri Pushkar, Kufri Lalima and Kufri kanchan .

Toria: T-9, Panchali, Bhawani, PT-303.

Tomato: Pusa Ruby, Swarna Sampda, Swarn Lalima.

Cabbage: Golden Acre, Pride of India, Early Drum Head.

Cauliflower: Pusa Depali, Patna Early, Hazipur Extra Early, Pusa Ketki.
Mustard: Shivani, Pusa Jaikisan, Pusa Bold, Vardan.
Rapeseed: Panchali, Bhawani, P.T.-303.
Linseed: Sweta, Shubhra, T-397.
Gram: KAK-2, ICC-2, HK94-134(Kabuli) and Pusa 256, Pusa 372, Pant G-114, KWR 108, ICC 37.
Pea: Arkel, Kashi Nandini, PE - 6 and Birsa Matar.
Lentil: P.L.-406, P.L.-639, K.L.S-218 and K- 75.

Bihar

Gram: Rajendra Chana, Uday, Pusa 256, RAU 52, SG2.
Peas: Ratna, Aparna, Harbhajan, Malbai, Malviya mator 15, Harbhajan, Arpana and Pusa Prabhat.
Lentil: BR 25, Pant L 406, 639, Malika, Arun.
Cauliflower: Aghani, Early Snowball, Patna Main and Pusa Shuvra.
Rai: Baruna, Pusa Bold and Kranti.
Carrot: Pusa Keser, Pusa Meghali, Pusa Yamdagini, Desi Lal, Desi Kali, American beauty and Kalyanpur Yellow.
Sarson: Rajendra Sarson-1, Swarna etc.
Sunflower: Morden, Surya, Paradovic, KBSH 1, 44.
Maize: DHM117, Saktiman 1, 2, 3, 4; Laxmi, Rajendra Shankar Makka 1 and 2.
Potato: Kufri Lalima, Kufri Kuber, Kufri Alankaar, Khufri Jyoti, Khufri Chandramukhi, Ranjendra Aloo1, 2 And 3, Khufri Badshah.
Oyster mushroom: Sejoor Kaju, Florida.
Wheat: C306, HD2733, K9107.

Gujarat:

Gram: Gujarat Gram-1, 2, 3, Dahod Yellow or Chafa or ICCV-10 or PG-1.
Wheat: GW- 496, GW -503, GW -273, GW -322, GW-366, Lok-1.
Mustard: Varuna or Gujarat Mustard-1, 2, 3.
Cumin: Cumin Guj.- 4.
Chick pea: Gujarat Chick Pea-1 or 2, Dahod Pila, ICC-4.
Cauliflower: Pusa Early, Pusa Dipali, Pusa Kartiki, Early Kuvari for early maturity and Pusa Synthetic, Early Snowball, Snowball for medium duration, Jyayant Snowball, Super Snowball, Snowball-13, Pusa snowboll or Summer king.
Onion: Talaja Red, Nashik Red, Pusa Red, Pusa White, H 48, GWO-1, Nashik-53, N-2-4-1 or Arka Niketan.
Garlic: G. garlic-2, 3, 4 or G-50.
Potato: Kufri Badshah, Kufri Bahar, Laukar.
Cabbage: Kranti, Golden Acare Pride of India, Coppen Market.
Raddish: Pusa Hemadri, White ICL, Japanees White, Pusa Rashmi, Pusa Chetaki.

Maharashtra

Irrigated Wheat: NIAW-301, NIAW-917, MACS-6122 and NIDW-295 for Madhya Maharashtra, HD-2189, AKW-1071, AKW-3722, MACS-2496 or MACS-2846 for East Vidarbha, HD-2189, AKW-1071, HD-2380 or MACS-2496 in Central Vidarbha Zone and HD-2278 or HD-2189 in Marathwada.
Groundnut: Kokan Gaurav, Kokan Tapura, Phule Pragati, TG-26, SB-11 and TAG-24.
Mustard: Varuna, Pusa Bold.

Himachal Pradesh:

Wheat: HPW-89,147 VL-738 and HS-240
Barley: HBL-316 and Dolma
Oat: Palampur-1
Cauliflower: Pride of India, Shweta, Madhuri, Himrani.
Cucumber: Kiyani seedless/243, Matgaura, Maliniseeded
Pea: Ageta – 6 or Arkal pea
Raddish : Japani white and early mino white
Turnip : PTWG-1,
Cabbage : Snow ball K-1 Palam uphar, golden acre,
Knol khol : White Bina,
Broccoli : Palm kanchan, Palam vichitra and palam samridhi.

Jammu & Kashmir

Potato : Kufri Badshah, K. Jyoti
Radish: P.Reshmi, Japanese White, Minowase
Carrot: Pusa Kesar, P. Yamdagani, Nantes, Chaman
Turnip: PTWG,
Garlic: Local, large segmented, Agrifound Paravati

Onion: Pusa Red ,N-53, Agrifound Dark Red & Agrifound Light Red,

Knolkhol: King of Market and White Vienna

Spinach: prickly seeded

Methi : Pusa early bunching and kasuri methi

Gobi sarson: GSS-1, GSL-2 & DGS –1.

Mustard: KOS-1, KS-101

Peas: Bonnevillea, AP-1, AP-3

Onion : Pusa Red, Punjab Selection

Barley: Ratna, Jyoti, sonu

Mustard: RLM-514, 619, 198, Kranti, Varuna, Pusa Basant, Pusa Bahar, RH-30, RSPR-01, RL 1359

Gram: C-235, K-468, Gourav, PBG-1, SCS-3

Wheat : Irrigated- PBW-550, PBW-502, PBW-621-50, DBW-17, Raj-3077, RSP-303, HD-2967, HD-2687 WH-542, PBW-502, HD-2687

Unirrigated: PBW-396 VL-738 and PBW-175 under the rainfed conditions. VL-738, VL-804, HS-240 under irrigated and rainfed areas. RSP-81 (jitto) HD-1553, HS-277, VL- 616 & SKW-196., Raj 1482 (suitable for heavy soils), Raj 3077, and Raj 4120. Important varieties of barley suitable for zone 1c are RD 2052, RD 2035 (suitable for saline and alkali soils) and RD 2715 (dual purpose).

Barley: RD-2052, RD-2552, RD-2035, RD-2503, RD-2508 etc.

Gram: RSG-44, Dahod yellow, GNG-16, ICCV-10 RSG-888 and Pratap Chana-1 and for Kabuli Chana kak- 2.

Lentil: L-9/12 and PL-406, Pea: T-163, PG-2 and Rachna.

Berseem: Mescavi, Pusa Giant, BL-1 and Vardan

Punjab & Harvana

Punjab :

Wheat: PBW 621, DBW-17, PBW-502, PBW-343, WH-542, HD 2967 and durum wheat WHD 943,PDW 314, PDW 291, PDW-274 and PDW-233

Radish: Punjab Safed, Punjab Pasand and Japanese White.

Turnip: L-1

Carrot: Selection 21 and PC-34

Gram: PBG 5 and PBG-1

Peas: Punjab 87, Punjab 88, Punjab 89 and Mithi Phali.

Raya: PBR-210, RLM-619, PBR-91 under irrigated conditions and PBR-97 under rainfed conditions.

Gobhi sarson: GSC-5, GSL-1, GSL-2, PGSH-51, Hyola (PAC-401) should be sown from 10th of October to end of October.

Delhi

Wheat: H.D. 2687, H.D. 2851, H.D. 2894, H.D. 2967, D.B.W.-17.

Carrot: Pusa Rudhira and Pusa Kesar.

Sarson Saag: Pusa Saag-1;

Bathua: Pusa Bathua-1

Radish: Japani White, Hill queen, French Radish;

Coriander: Pant Haritama, Hybrids;

Turnip: Pusa Swati, Local Red variety.

Potato: Kufri Badshah, Kufri Bahar, Kufri Aanand, Chipsona-1, Chipsona-2, Chipsona

Pea : Pusa Pragati, Arkel, Azad Matar-3, Pant Matar-3 and Bournville

Fenugreek: Pusa Kasuri

Garlic: G-1, G-41, G-50, G-282.

Gram: Kabuli type - Pusa 267, Pusa 1003, Pusa Chamatkar; local type – C235, Pusa 246, P.B.G. 1, Pusa 372.

Oat: - J.H.O-822, O.L.-9, Pusa oat-5,

Barseem : Vardan, Buland Barseem-1, Masakavi,

Lentil: Pusa Masoor -5 (L-4594).

Pea: Pusa Pragati, Arkel, Azad Matar-3, Pant Matar-3 and Bournville.

Rajasthan

Vegetables : Tomato: Pusa Ruby, Pusa Early and Vihar, Brinjal: Pusa long, Meghdoot, Arka Bahar, Pusa summer and prolific round, Cucumber: Balam, Pusa Sahyog.

Radish: Japanese White and Hill Queen, Early cauliflower: Pusa hybrid-2, Improved Japanese and Pusa Himjyoti,

Cabbage: Pusa Drum Head and Hybrid 10, Cauliflower: Pusa Snowball 1 and Hissar 1, **Taramira:** Karan Tara, Narendra Tara,

Mustard Early sown: NPJ112, EJ17, Pusa Mahak and Kanti Early Pea: Arkil, Hara bona, VL-3, Jawahar Matar-4, Matar Ageti-6 . Normal sown (irrigated)-Maya, Rohini, Pusa Jai kisan, Varuna, RGN13, RGN73, like Bharat Sarson-1 (NRCDR-2), Bharat Sarson-2 (NRCHB 101), Bharat Sarson-3 (NRCHB506), Laxmi and Pusa bold. Normal sown (rainfed) -Arawali, RGN48, Geeta and PBR 97, Saline sodic soils - CS52, CS54, CS56, Narendra Rai 1. Yellow Sarson - NRCYS-05-02, YSH401

Potato: Kufri Ashok and Kufri Chandramukhi, Kufri Anand, Chipsona-1, 2, Jyoti and Pukhraj.
Mustard: Jay Kisan (Bio-902), Rajat- P. C. R. -7 R.H. – 30, R.H.-819, G.M.-2, Uravashi, Pusa bold, Aravali- I.N. 393, R.N.505, Ashirwad – 48, R.G.N.- 145, R.G.N.-73, R.G.N.-13 Gobi sarson (GSL-1, DGS-1), T-59, RGN- 48,
Gram: G.N.G. 663 (Vardhan), G.N.G 469 (Samrat), G.N.G 1581 (Gangaur), Gram (Rainfed area): C-235, RSG-44, 945, 807, RSG-888, C-235, H-208 and GNG-146, K-468, Gourav and PBG-1 . Early pea: Arkil, Hara bona, VL-3, Jawahar Matar-4, Matar Ageti-6., Pea: T-163, PG-2, Rachna, HFP-3
Kabuli Chana: G.N.G 1499 (Gauri) and G.N.G 1292
Wheat: Raj-3077, Raj-3765, Raj-3777, Raj-1482 & Lok-1 Improved varieties : GW-273, GW-322, Raj-3777, Raj-3765, HI-8498, Raj 4037, Raj 4021, HD-2329,WH 147, PBW502 etc
Barley: R.D.-2035, 2552, 2592, 2052, 2660, 2035, 2503, 2508,2668, RD-2052, RD-2503, RD-2035, RD-2592 & RD-2552, BL 2.
Garlic (Ladva, Maleva), carrot (Nantis) and Ajwain. Labh Saleksha-1, Labh Saleksha-2 and RA-180,
Cumin & Isabgol: RMT-1, RMT-143 Fenugreek. RS-1, RZ-19, RZ-209,

Uttar Pradesh

Rai : Narebdra rai 8301, Rohini, Vaibhav, Varuna(Ta 59)

Potato: kupri, ashok, kupri chandramuki, kupri jawahar.

Non-irrigated wheat :lok-1, sujata, gomati, Indira.

Wheat:VL616, 829, 802, 804, 738, 719 and HS277.

Chana : KWR-108, JG-16, JGK-1(kabuli), pusa-256, radhe, PG-114, type-3, k-468, JD-1168, WR108.

Pea: Indira, JP-850, malviya matar-15, rachana malviya matar-2, panta matar-5, JP-885.

Masoor: Bokar-2, 3, K-75, IPL-81.

Alsi: bokar, Lakshmi-27, padmini, parvati, K-2, LC-2023, LC-54.

Sugarcane: GD1168, WR 108, Radhe, JG 315

Wheat : C-306, K-8027, K-8962, K-9465, K-9107, K-9006, Malviya-533, UP-2383, 2338, HD-3338, HD-2687, HD- 2888, HD-4713, HD-2894, HD-2851, HD 2781, PBW- 502, PBW-343, PBW-502, SCW 468, WH-147.

Sarson:Varun type-59, Rohini, Urvashi, Vaibhav, Maya, Narendra suvarna rai-8, Narendra agate rai-4.

Uttarakhand

Pea: VL Ageti Mater-7, Vivek Mater-10, Pant Subjee Mater-3, Azad Mater-3

Toria: PT-303, PT-507.

Vegetable pea : VL Ageti Mater-7, Vivel Mater-10, Pant Subjee Mater-3, Azad Mater-3 and Arkel

Barley : Jyoti, Vijaya or Jagrati etc, ;

Oat : UPO-212, UPO-94, JHO-822, UPO-50 or Kent etc.

Wheat: irrigated UP-2572, UP-2584, UP-1109, VL-802, VL-804, VL-738, VL-719, VL-421, HS-240. un-irrigated: VL-616, HS-277, VL-829, UP-2382, UP_2338, UP-2554, HD-2687, PBW-550, PBW-502 WH-542, PBW-343, PBW-154 etc.

Masoor: VL masoor-4, Panta masoor-5, VL masoor-1, VL masoor-203, PRB-502, PRB-507, PRB-701.

Mustard: Varuna, Vardan, Rohini etc and For Pea V.L.Ageti matar-7, Vivek Matar-3,

Potato: Kufri Chandramukhi, Kufri Jyoti, Kufri Anand, Kufri Jawahatr, Kufri Satlaj, Kufri Ashok etc.

Karnataka

Green gram: PS-16

Cow pea: C-152, TVX-944

Black gram: T-9, TAU-

Horse gram: PHG-9

Madhya Pradesh

Wheat: Sujata, HW- 2004, HI-1500, HI- 1531, HD-2004, JWS- 17, HD-4672,

Timely sown: HI-8498, HI -1418, HI- 1479, HI – 1544, GW -273, GW- 322, GW – 366

Gram: JG-130, JG-11, JG-315, JG-16, Jaki – 9218, Kabuli kak-2, JG-412, Vijay, JG-226

Lentil: RVL-31, JL-2

Maize: JVM -421, JM-16,

Pea: Pusa pragati, Jawahar Pea 1, Jawahar Pea 2, Jawahar Pea 5 and Bonvile

Sugarcane: KO-J-N- 86572, KO-J-N- 86141

Chattisgarh

Wheat : GW-273, Kanchan, GW-173, Amar, Lok-1, Ratan and HD-2329

Gram : Vaibhav, JG-74, JG-11, TG-315, ICC-2 (Kabuli)

Maize: Proagro-4640, 4212, Pusa Hybrid -42, MH-10, MH-11, Navjyot, HM-9.

Niger: JNC-1, JNC-6, JNC-9, GA-10, Ootakmund, KGN-2

Kulthi: AK-21, Ak-42, Bastar Kulthi, Birsa Kulthi and VLG-9

Annexure III

Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 28.11.2012

