

Satellite image 0600 UTC date
14th December, 2012

South Region

- During the week the minimum temperatures were below normal by 2°C in most parts of South Interior Karnataka, some parts of Andhra Pradesh, North Interior Karnataka, Coastal Karnataka, North Kerala, North Tamil Nadu and near normal to above normal over rest of the region.
- No significant rainfall occurred over most parts of the region except in Nellore in Coastal Andhra Pradesh.
- **Tamil Nadu:** Due to prevailing dry weather in the State, farmers are advised to undertake foliar application of 1% KCl for the standing crops like maize, groundnut and cotton to mitigate water stress and undertake land preparation for sowing of short duration varieties of groundnut and pulses.
- **Kerala:** Basin mulching may be continued in coconut, banana and arecanut to conserve soil moisture.
- **Karnataka**
 - **Coastal Karnataka:** Farmers are advised to complete harvesting of rice crop. Farmers who have already harvested rice may undertake land preparation for sowing of pulse crops.
 - **South Interior Karnataka:** Farmers are advised to harvest rice, maize, ragi, groundnut and undertake sowing of sunflower.
 - **North Interior Karnataka:** Farmers are advised to harvest matured *kharif* crops and continue sowing of wheat.

• Andhra Pradesh

Incidence of leaf webber and maruca pod borer is noticed in red gram. Farmers are advised to spray 5% NSKE or neem oil @ 5 ml / litre of water to avoid egg laying by Maruca adults.

Coastal Andhra Pradesh: Farmers are advised to complete sowing of *rabi* groundnut, pulses and rice fallow maize and nursery preparation of rice. They are also advised to harvest cotton and rice.

Rayalaseema: Farmers are advised to continue sowing of *rabi* groundnut and nursery preparation of rice.

Telangana: Farmers are advised to undertake sowing of *rabi* maize, cowpea and sunflower and harvest sugarcane.

North East Region

- During the week minimum temperatures were below normal by 2°C over some parts of Nagaland and near normal to above normal by 2°C over rest part of the region.
- Rainfall occurred in Upper Siang district of Arunachal Pradesh. Mainly dry weather prevailed over the remaining States of the region during last week.
- **Advisory:**
 - Taking the advantage of dry weather, farmers in Assam are advised to harvest the already matured rice crop. Continue nursery raising / transplanting of *boro* rice. Also complete land preparation and sowing of rapeseed and mustard, *rabi* pulses, planting of potato and transplanting of winter vegetables like cauliflower, radish, tomato, brinjal, knolkhol, carrot and spinach in the main field. Continue land preparation and sowing of wheat.
 - Farmers in Mizoram are advised to continue preparation of nursery for cole crops and also transplanting of these crops.
 - Farmers in Nagaland are advised to harvest *jhum* rice and wetland rice. Farmers are also advised to complete transplanting of tomato and cabbage.
 - Farmers in Manipur are advised to continue land preparation and sowing of maize, pea and rapeseed, planting of potato and transplanting of cabbage, cauliflower, broccoli, etc. Farmers are also advised to complete transplanting of onion.
 - Farmers 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.
 - In Mild Tropical Plain Zone of Tripura, farmers are advised to undertake land preparation for planting of potato.

(Continued on Page 2)



Issued by

National Agrometeorological Advisory Service Centre, Agricultural Meteorology Division,
India Meteorological Department, Shivajinagar, Pune.

The bulletin is also displayed in the website (<http://www.imdagrimet.gov.in>) of the Division

Executive Summary

(Continued from page no. 1)

East Region

- During the week minimum temperatures were below normal by 2°C in some parts of West Bengal, Bihar, Jharkhand and near normal to above normal in remaining parts of the region.
- Rainfall occurred in East and West Singhbhum districts of Jharkhand, Balasore district in Orissa, East & West Midnapore, Howrah, Kolkata and 24 Pargana (S) in Gangetic West Bengal. Dry weather prevailed over rest of the region.
- **Advisory:**
- Farmers in West Bengal are advised to undertake land preparation for sowing of wheat and mustard and preparation of nursery bed for *boro* rice. Farmers are also advised to complete harvesting of *aman* rice and planting of potato.
- As dry condition is prevailing, farmers in Bihar are advised to apply light irrigation to potato and tomato. Complete sowing of late potato, lentil, tea and mustard. Undertake intercultural operations in toria. Complete harvesting of rice and early season sugarcane. Complete sowing of maize and wheat as early as possible.
- Farmers in Jharkhand are advised to undertake sowing of wheat and other *rabi* crops like gram, linseed, mustard, lentil, pea with assured irrigation facilities.
- Farmers in Orissa are advised to complete sowing of wheat, mustard and rapeseed. Undertake sowing of lentil and Bengal gram and planting of *rabi* vegetables. Apply irrigation in early sown wheat which is at crown root initiation stage and vegetable crops.

North West Region

- During the week minimum temperatures were below normal by 2°C in some parts of Jammu & Kashmir, Uttarakhand, Punjab, Haryana and near normal to above normal in remaining parts of the region.
- Rainfall occurred at Una in Himachal Pradesh. Weather was mainly dry over rest of the region during last week.
- **Advisory:**
- Farmers in Delhi are advised to undertake sowing of late wheat varieties. Transplanting of onion, tomato, cauliflower, cabbage, knol-khol and broccoli in the raised beds may be carried out. In view of prevailing dry weather condition, farmers are advised to apply irrigation in timely sown mustard crop which is about 35 days old.
- Farmers in Punjab and Haryana are advised to continue sowing of short duration varieties of wheat like PBW 590, PBW 373 and PBW 509.
- Farmers in Western Plain Zone of Punjab are advised to complete sowing of sunflower during this month. Farmers in Central Plain Zone of Punjab are advised to complete harvesting of toria to avoid losses due to shattering caused by high winds. Complete transplanting of tomato seedlings during this period.
- Farmers in Eastern Zone in Haryana are advised to harvest the matured sugarcane crop. Farmers in Western Zone in Haryana are advised to complete sowing of multi-cut improved jai and berseem as fodder crop. Apply irrigation and hoeing in vegetable crops.
- In Himachal Pradesh, complete sowing of early variety of pea and direct sowing of root crops. Complete sowing of winter fodder crops like berseem, oats and leucerne during this fortnight.
- In Jammu region of Jammu & Kashmir, farmers are advised to complete sowing of barley and continue sowing of wheat, gram, *rabi* oilseeds, pulses, oat and fodder berseem. Complete transplanting of onion and sowing of vegetable crops like potato, radish, carrot, garlic, spinach, methi without further delay. But in Valley Temperate Zone of Jammu & Kashmir, *rabi* cereal (wheat), pulses (pea and lentil), brown sarson and fodder (oat) crops are under dormant stage. It is advised to maintain surface drainage channels in and around the field to avoid water stagnation in the field during winter months.
- In Uttarakhand, farmers are advised to complete sowing of wheat and lentil crops. Farmers are advised to apply light irrigation in early sown wheat crop which is at Crown Root Initiation (CRI).
- In Rajasthan, continue sowing of wheat (late varieties), barley (late varieties), maize, taramira, toria, pea, rainfed gram, mustard, opium poppy, vegetables like carrot, spinach, fenugreek, coriander and garlic and transplanting of autumn vegetables like tomato, brinjal, cauliflower, cabbage and radish. Complete sowing of winter maize and autumn sugarcane.

- In Uttar Pradesh, dry weather prevailed in Western Uttar Pradesh region during this week. Continue land preparation and sowing of wheat, barley, chickpea, potato, field pea and berseem. Apply irrigation in early sown wheat, potato, berseem and undertake intercultural operations in chickpea and thinning in mustard crop.

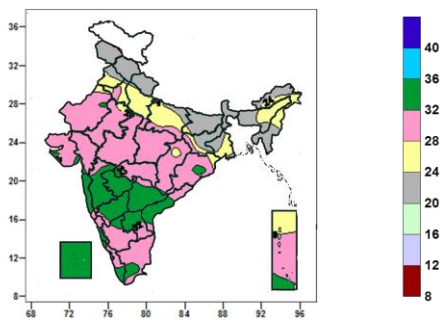
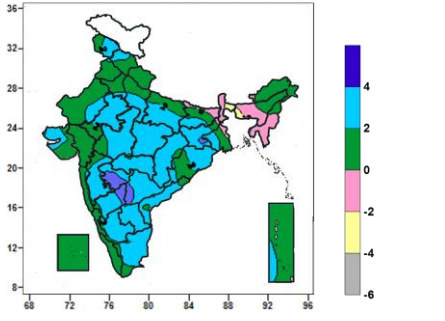
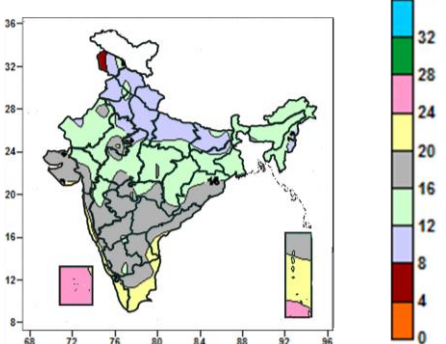
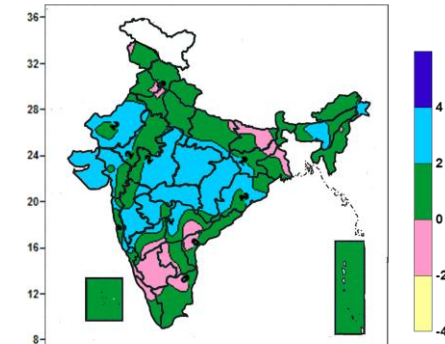
West Region

- During the week minimum temperatures were near normal in some parts of East Gujarat, Konkan & Goa, North Madhya Maharashtra and above normal by 2 to 4°C in rest of the region.
- Dry weather prevailed over the States in the region.
- **Advisory:**
- Complete sowing of *rabi* crops as early as possible in Gujarat. As dry weather prevailed and is likely to prevail, farmers are advised to carry out weeding and apply irrigation to the standing crops like wheat, castor, fennel, vegetables (brinjal, chilli, tomato, cabbage, cauliflower) and earthing up operations in transplanted fennel. Sowing of green fodder crops like lucerne, fodder bajara and jowar may be undertaken.
- As dry weather prevailed during last few weeks in the Maharashtra and expected to continue during next 5 days, farmers are advised to apply irrigation to sugarcane, *rabi* jowar, gram, wheat and vegetables in Madhya Maharashtra, Marathwada and Vidarbha.
- Farmers of South Konkan are advised to complete nursery sowing of *rabi* rice as early as possible. Prevailing weather is favourable for sowing of *rabi* groundnut, horse gram, cowpea and lablab bean in North Konkan and irrigated wheat in East Vidarbha. Farmers of Madhya Maharashtra and Marathwada are advised to prepare field for planting of *Suru* sugarcane.

Central region

- During the week the minimum temperatures were near normal in extreme western part of West Madhya Pradesh and above normal by 2 to 4°C in remaining parts of the region.
- Rainfall occurred in Seoni district in East Madhya Pradesh. Dry weather prevailed over rest of the region.
- **Advisory:**
- Farmers in Madhya Pradesh are advised to complete sowing of wheat and other *rabi* crops like chickpea, lentil, mustard, linseed and pea. Apply irrigation in early sown gram, wheat and vegetable crops. Apply fertilizer in wheat crop after 20-25 DAS.
- In Chhattisgarh, farmers are advised to undertake sowing of wheat, sugarcane, cabbage, tomato, brinjal, niger, horse gram, lobia, chilli, gram, pea, mustard and linseed. Undertake transplanting of vegetables.

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 12.12.2012

<p>Actual Mean Maximum Temperature (°C) in India for the week ending 12.12.2012</p>  <p>Actual Mean Maximum temperature ranged between 32 to 36°C over many parts of Konkan & Goa, Madhya Maharashtra, Marathwada, North Interior Karnataka, Andhra Pradesh, Lakshadweep Islands, some parts of Orissa, Kerala, Tamil Nadu, Coastal & South Interior Karnataka, Andaman & Nicobar Islands, 20 to 24°C over of many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Mizoram, Tripura, some parts of Punjab, Uttar Pradesh, Gangetic West Bengal, Assam, Manipur, 24 to 32°C over remaining parts of the country.</p>	<p>Maximum Temperature (°C) Anomaly in India for the week ending 12.12.2012</p>  <p>Actual Mean Maximum temperature anomaly ranged above 4°C over many parts of Marathwada, some parts of North Interior Karnataka, Telangana, 0 to 2°C over many parts of Himachal Pradesh, Uttarakhand, Punjab, Haryana, West Rajasthan, Gujarat, Saurashtra & Kutch, Arunachal Pradesh, Konkan & Goa, Coastal Karnataka, Kerala, Lakshadweep, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, East Rajasthan, Uttar Pradesh, Bihar, Gangetic West Bengal, Orissa, Chattisgarh, Coastal Andhra Pradesh, Tamil Nadu, West Madhya Pradesh, -2 to 0°C over most parts of Sub-Himalyan West Bengal, Sikkim, Mizoram, Tripura, Assam, some parts of Bihar, Gangetic West Bengal, Mizoram, 2 to 4°C over rest of the country.</p>
<p>Actual Mean Minimum Temperature (°C) in India for the week ending 12.12.2012</p>  <p>Actual Mean Minimum Temperature ranged between 24 to 28°C and above over most parts of Lakshadweep Islands, some parts of Andhaman & Nicobar Islands, 20 to 24°C over many parts of Tamil Nadu, Kerala, Andhaman & Nicobar Islands, some parts of Coastal Andhra Pradesh, Rayalaseema, 4 to 8°C over some parts of Jammu & Kashmir, 8 to 12°C over most parts of Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh, Bihar, some parts of Jammu & Kashmir, East Rajasthan, West Madhya Pradesh, 12 to 20°C over remaining parts of the country.</p>	<p>Minimum Temperature (°C) Anomaly in India for the week ending 12.12.2012</p>  <p>Minimum Temperature anomaly ranged between 2 to 4 and above over most parts of West Rajasthan, Gujarat, Saurashtra & Kutch, Madhya Pradesh, Maharashtra (except Konkan & Goa), Orissa, Chhattisgarh, some parts of North Interior Karnataka, Uttar Pradesh, East Rajasthan, Jharkhand, Assam, Goa, -2 to 0°C over many parts Bihar, South Interior Karnataka, some parts of Jammu & Kashmir, Punjab, Haryana, East Uttar Pradesh, Jharkhand, Manipur, Gangetic West Bengal, Andhra Pradesh, Coastal & North Interior Karnataka, Tamil Nadu, Kerala, 0 to 2°C over remaining parts of the country.</p>

Distribution of rainfall of the country during week ending on 12.12.2012

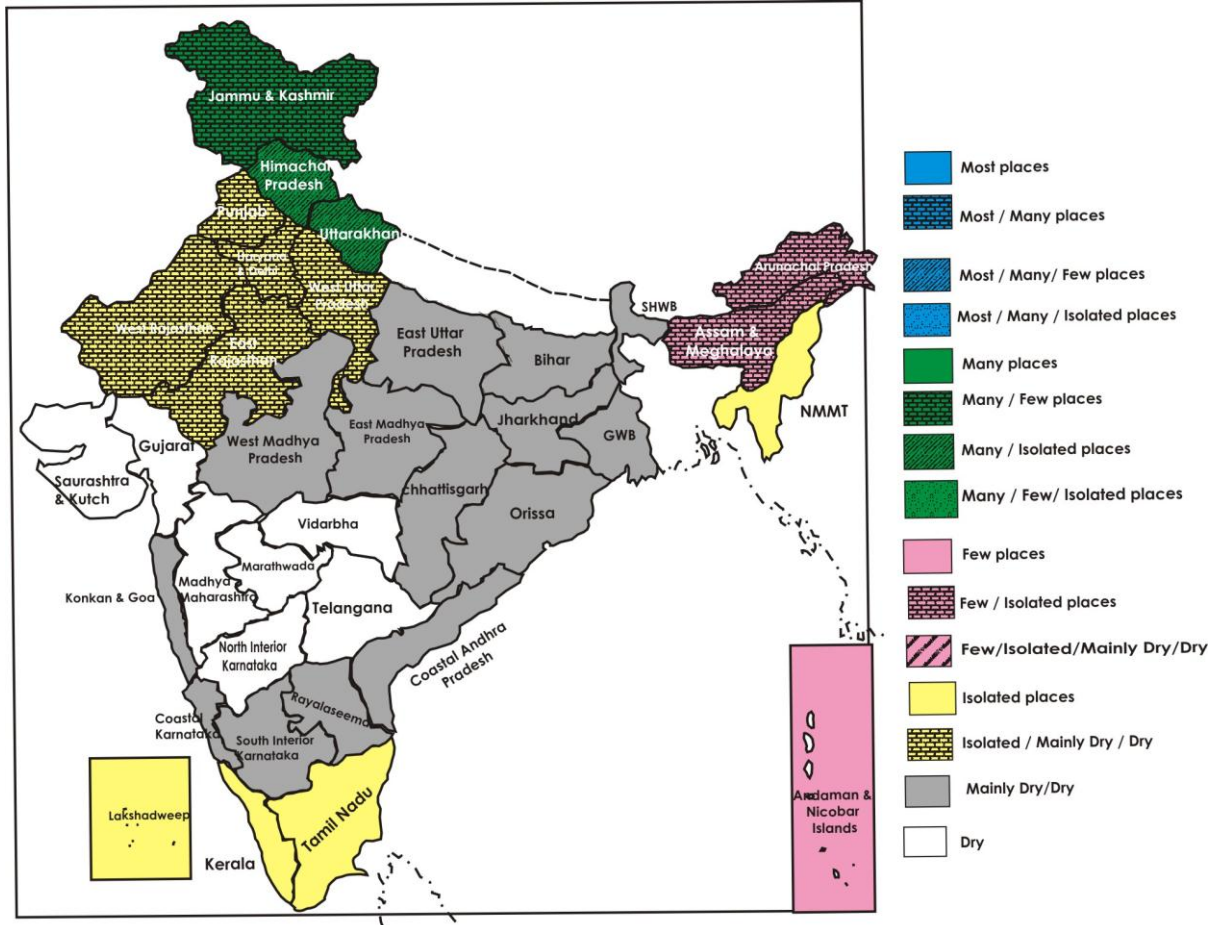
State/Districts	Actual (mm)	(% Dep.)						
Arunachal Pradesh			Godda	**	**	Ramnagara	0.0	-100
Anjaw	**	**	Gumla	19.5	786	Shimoga	0.0	-99
Changlang	0.7	-91	Hazaribagh	0.0	-100	Tumkur	0.1	-98
Dibang Valley	19	38	Jamtara	6.3	200	Kerala		
East Kameng	0.0	-100	Khunti	**	**	Alappuzha	0.0	-100
East Siang	0.0	-100	Koderna	**	**	Kannur	0.0	-100
Kurung Kumey	**	**	Latehar	**	**	Ernakulam	0.1	-99
Lohit	1.1	-65	Lohardagga	3.8	100	Idukki	0.0	-100
Lower Dibang Valley	**	**	Pakur	**	**	Kasaragod	0.0	-100
Lower Subansari	0.0	-100	Palamau	0.0	-100	Kollam	9.3	-47
Papumpara	19.8	1700	Ramgarh	14.2	3450	Kottayam	0.0	-100
Tawang	7.0	-9	Ranchi	4.9	114	Kozhikode	0.0	-100
Tirap	15.4	161	Sahebganj	**	**	Malappuram	0.0	-100
Upper Siang	34.2	220	Saraikela	12.1	1629	Palakkad	0.0	-100
Upper Subansari	9.8	172	Simdega	**	**	Pathanamthitta	0.0	-100
West Kameng	5.0	-35	West Singbhum	29.5	9717	Thiruvananthapuram	0.3	-98
West Siang	3.0	-68	West Bengal			Thrissur	0.0	-100
Himachal Pradesh			GWB			Wyanad	0.0	-100
Bilaspur	9.4	141	Bankura	16.8	3265	Tamil Nadu		
Chamba	1.5	-84	Birbhum	6.9	668	Ariyalur	0.0	-100
Hamirpur	12.7	285	Burdwan	5.7	415	Chennai	0.0	-100
Kangra	5.6	2	East Midnapore	27.6	299	Coimbatore	0.3	-98
Kinnaur	2.6	-51	Hooghly	10.7	613	Cuddalore	0.3	-99
Kullu	11.1	95	Howrah	33.0	705	Dharmapuri	0.6	-97
Lahaul and Spiti	1.7	-83	Kolkata	33.4	611	Dindigul	0.4	-98
Mandi	7.5	66	Murshidabad	0.0	-100	Erode	0.0	-100
Shimla	5.8	48	Nadia	2.7	-5	Kanchipuram	0.1	-99
Sirmaur	4.0	-1	24 Pargana (N)	14.9	607	Kanyakumari	2.4	-87
Solan	5.1	12	Purulia	16.5	2647	Karikal	1.1	-99
Una	22.1	481	24 Pargana (S)	34.5	604	Karur	0.0	-100
East Madhya Pradesh			West Midnapore	61.0	3967	Krishnagiri	0.3	-98
Anuppur	5.2	108	Karnataka			Madurai	0.6	-97
Balaghat	5.0	-10	Coastal Karnataka			Nagapattinam	0.4	-99
Chhatarpur	0.0	-100	Dakshin Kannada	0.0	-100	Namakkal	0.0	-100
Chindwara	0.0	-100	Udupi	0.0	-100	Nilgiris	2.1	-91
Damoh	0.0	-100	Uttar Kannada	0.0	-100	Perambalur	0.0	-100
Dindori	0.0	-100	North Interior Karnataka			Puducherry	16.4	-75
Jabalpur	0.0	-100	Bagalkote	0.0	-100	Pudukottai	0.0	-100
Katni	0.0	-100	Belgaum	0.0	-100	Ramanathapuram	10.7	-70
Mandla	1.5	-65	Bidar	0.0	-100	Salem	0.0	-100
Narsingpur	0.0	-100	Bijapur	0.0	-100	Sivaganga	0.0	-100
Panna	0.0	-100	Dharwad	0.0	-100	Thanjavur	1.1	-98
Rewa	0.0	-100	Gadag	0.0	-100	Theni	0.1	-99
Sagar	0.0	-100	Gulbarga	0.0	-100	Tirunelveli	13.5	-49
Satna	0.0	-100	Haveri	0.0	-100	Tirupur	0.0	-100
Seoni	21.9	347	Koppal	0.0	-100	Tiruvallur	0.4	-99
Shahdol	0.4	-78	Raichur	0.0	-100	Tiruvannamalai	3.9	-88
Sidhi	0.0	-100	Yadgir	0.0	-100	Tiruvarur	1.8	-97
Singrauli	0.0	-100	South Interior Karnataka			Toothukudi	10.6	-58
Tikamgarh	0.0	-100	Bangalore Rural	1.4	-58	Trichy	0.0	-100
Umaria	0.0	-100	Bangalore Urban	0.4	-92	Vellore	5.3	-80
Jharkhand			Bellary	0.3	-90	Villupuram	2.3	-94
Bokaro	11.1	484	Chamarajnagar	0.0	-100	Virudhunagar	0.0	-100
Chatra	**	**	Chichballapur	0.9	-84	Andhra Pradesh		
Deoghar	**	**	Chickmagalur	0.3	-90	Coastal Andhra Pradesh		
Dhanbad	9.1	552	Chitradurga	0.0	-99	East Godavari	0	-100
Dumka	0.0	-100	Davangere	0.1	-96	Guntur	0	-100
East Singbhum	22.1	3057	Hassan	0.0	-100	Krishna	0	-100
Garhwa	**	**	Kodagu	0.0	-100	Nellore	20.8	-50
Giridih	6.3	175	Kolar	2.3	-72	Prakasam	0.4	-97
			Mandya	0.0	-100	Sirkakulam	0	-100
			Mysore	0.0	-100	Visakhapatnam	0	-100

Vizianagram	0	-100	Khammam	0.0	-100	Warangal	0.0	-100
West Godavari	0	-100	Mehabubnagar	0.0	-100	Rayalaseema		
Telangana			Medak	0.0	-100	Anantapur	0.9	-75
Adilabad	0.0	-100	Nalgonda	0.0	-100	Chittoor	5.2	-77
Hyderabad	0.0	-100	Nizamabad	0.0	-100	Cuddapah	9.4	-2
Karimnagar	0.0	-100	Rangareddy	0.0	-100	Kurnool	0.2	-89

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 16th December, 2012)



Major Feature of Weather Forecast up to 0830 hours IST of 16th December, 2012

- Rain/snow would occur at many places over western Himalayan region during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at one or two places over Punjab, Haryana, Delhi, north Rajasthan and west Uttar Pradesh during next 48 hours.
- Rain/thundershowers would occur at a few places over Arunachal Pradesh and Assam & Meghalaya during next 24 hours and at one or two places thereafter. Rain/thundershowers would occur at one or two places over Nagaland, Manipur, Mizoram and Tripura.
- Rain/thundershowers would occur at one or two places over Lakshadweep, south Tamilnadu and Kerala.
- Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands.
- No significant change in minimum temperatures over northwest and adjoining central & east India during next 2-3 days.

Weather Warning during next 3 days

- Heavy rain/snow would occur at a few places over Jammu & Kashmir and at one or two places over Himachal Pradesh and Uttarakhand during next 48 hours.

Weather Outlook for subsequent 4 days up to 0830 hours IST of 20th December, 2012

- Rain/thundershowers would occur at one or two places over northeastern states and south peninsular India and increase over south peninsular India from 17th onwards.
- Rain/snow would occur at a few places over western Himalayan region.
- Fall in minimum temperatures by 2-4^oC over parts of plains of northwest India and adjoining central & east India.
- 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 in upper Siang district of Arunachal Pradesh.
- **Rainfall Forecast:** Rain / thundershowers would occur at a few places over Arunachal Pradesh and Assam & Meghalaya during next 24 hours and at one or two places thereafter. Rain / thundershowers would occur at one or two places over Nagaland, Manipur, Mizoram and Tripura during the period.
- **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 of Assam are advised to continue nursery raising and transplanting of *boro* rice. Also complete land preparation and sowing of wheat, rapeseed, mustard and lentil and planting of potato.
 - Farmers in Lower Brahmaputra Valley Zone of Assam are advised to continue sowing and transplanting of cauliflower, cabbage, knolkhol, tomato and planting of potato.
 - Farmers in Upper Brahmaputra Valley Zone of Assam are advised to continue transplanting of seedlings of cauliflower and cabbage. Farmers are also advised to complete land preparation and sowing of rapeseed and mustard.
 - Farmers in Central Brahmaputra Valley Zone of Assam are advised to continue 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 complete planting potato at the earliest. Complete sowing for *rabi* pulses like lentil, rajmah, pea, lathyrus and oilseeds like linseed and niger at the earliest.
 - In Mild Tropical Hill Zone of Mizoram, farmers are advised to undertake transplanting of cole crops under shade.
 - In Mild Tropical Hill Zone of Nagaland, farmers are advised to continue harvesting of *jhum* rice and wetland rice.
 - 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 etc. As dry weather is prevailing, 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 land preparation and sowing of potato.
 - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
 - Due to favourable weather conditions, there is chance of attack of late blight on tomato; farmers of Hill Zone and Lower Brahmaputra Valley Zone of Assam are advised to monitor the crop and to prevent the disease are may alternately apply Mancozeb 75 WP (2g/l), Dithane Z-78 @ 0.25% or Ridomil MZ-72 (2g/ lit) and Indofil M-45 2.5g / lit.
 - In Mild Tropical Hill Zone of Nagaland, due to favourable weather conditions, there is chance of attack of white rust in mustard crop; farmers are advised to monitor crop and maintain proper field sanitation and avoid over irrigation.
 - Due to prevailing weather, infestation of pseudo stem weevils on banana is reported in Mid Tropical Zone of Tripura; farmers are advised to kill weevils and remove dried and diseased leaves. Weather is also favourable for attack of aphids in toria at flowering stage. Spray Monocrotophos @ 2 ml per liter of water at an interval of 15 days.
 - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In North Bank Plain Zone and Central Brahmaputra Valley Zone of Assam, farmers are advised to vaccinate poultry against Ranikhet disease.
 - Due to prevailing weather conditions in Sub Tropical Hill Zone of Arunachal Pradesh, farmers are advised to protect the poultry from cold by using gunny bags / plastic sheets around the poultry shed during night, provide heat by lighting 100W bulb @ 1 bulb per 20 newly born chicks. Maintain warm conditions in the shed of pig and cattle.
 - In Sub Tropical Plain Zone of Manipur, farmers are advised to deworm and vaccinate cattle, buffaloes against Foot and Mouth Diseases, deworm and vaccinate poultry against Ranikhet and Coccidiosis, deworm pigs and vaccinate against swine fever.

- In Mild Tropical Hill Zone of Nagaland, farmers are advised to vaccinate the livestock against Foot and Mouth diseases and apply boroglycerine on mouth lesions, mouthwash with 1% KMNO₄, foot wash with 2% copper sulphate or 2-4% sodium carbonate solution for FMD. Vaccinate pigs against swine fever.
- In Temperate Sub Alpine Zone of Meghalaya, farmers are advised to vaccinate poultry against Ranikhet, deworm cattle, buffalo and vaccinate pigs against swine fever.
- In Mid Tropical Zone of Tripura, farmers are advised to vaccinate cattle, vaccinate poultry against Ranikhet disease and deworm pig.
- **Pisciculture**
 - Farmers in Central Brahmaputra Valley Zone, Lower Brahmaputra Valley Zone and North Bank Plain 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:** Significant rainfall occurred in East Singbhum and West Singbhum districts of Jharkhand, in Balasore district of Orissa, East and West Midnapore, Howrah, Kolkata and 24 Paragnas districts of West Bengal.
- **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 except in East Singbhum, and West Singbhum districts of Jharkhand, in Balasore district of Orissa, East and West Midnapore, Howrah, Kolkata and 24 paragnas districts of West Bengal 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 utilizing mainly dry weather likely during next three days and prepare field for sowing of gram, lentil, peas, sunflower and mustard. Prepare field for sowing of irrigated, non-irrigated wheat, oat and maize crop. Prepare field for sowing of potato.
 - In North West Alluvial Plain Zone of Bihar, farmers are advised to harvest matured rice crop utilizing mainly dry weather likely during next three days. 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. Continue sowing of normal sown wheat crop as temperature conditions are favorable. Undertake intercultural operations in toria crop.
 - In North East Alluvial Zone of Bihar, farmers are advised to complete sowing of late potato, lentil, and yellow mustard crop. Complete harvesting of rice crop and early season sugarcane. Complete sowing of maize and wheat as early as possible. Apply life saving irrigation to standing crops due to prevailing continuous dry weather conditions in the State.
 - Farmers of Western Undulating Zone of Orissa are advised to harvest matured rice crop and picking of cotton and give irrigation to vegetable crops as per requirement.
 - 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 Plateau Zone of Orissa are advised to prepare the field for sowing of *rabi* crops.
 - Farmers of North Eastern Ghat Zone of Orissa are advised for sowing of greens, pulses and mustard.
 - 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 complete sowing of *boro* rice in the seed bed @12kg/bigha after seed treatment.
 - 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 the seeds for 8-10 hrs. Farmers are also advised to complete the sowing of potato.

- Farmers in Laterite and Red Soil Zone of West Bengal are advised to start sowing of potato and wheat and nursery bed preparation of *boro* rice. Farmers are also advised sowing of pulses like lentil, mung and urad.
- Farmers in Old Alluvial Zone of West Bengal are advised to undertake land preparation and sowing of wheat, potato and start seedbed preparation for sowing of tomato. Earthing up may be done followed by light irrigation at 21 days after sowing in early sown potato crop.
- Farmers in Terai Zone of West Bengal are advised to prepare main field for planting of 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.
- In Khurda and Cuttack district of East and South Eastern Coastal Plain Zone of Orissa, mustard is found to be affected by *Crociodollemma* and aphids. Farmers are advised to spray 400 ml Dimethoate per acre for controlling aphids and 200 ml Ethofenprox or Deltamethrin in 200 litre water per acre for *Crociodollemma*.
- Due to dry weather condition, there may be bacterial infestation on onion crop in North Eastern Plateau Zone of Orissa. To control this, farmers are advised to spray mixture of Streptocycline @ 1gm+20gm Copper Oxchloride in 10 liters of water.
- Gundhibug infestation in the late planted rice at milking stage is found in West Central Table Land Zone of Orissa. Farmers are advised to dust 10 kg Malathion using duster or spray 200 ml DDVP/acre to control it.
- Farmers of Western Undulating Zone of Orissa are advised that if yellow mosaic vein appear in leaves of green gram and black gram crops, uproot the plant and destroy it and spray dimethoate or metasystox @2ml/lit of water. To protect the crop from pod borer spray Traizophos or profenofos @2ml/lit. of water as preventive measure. Repeat the spray after 15days of first spray.
- Fruit and shoot borer in brinjal has been found in Mid Central Table Land Zone of Orissa. Farmers are advised to control it by installing 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 and Laterite and Red soil 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/l lit or Metalaxyl 8% and Mancozeb 64% @1-1.5 gm/lt of water.
- **Animal Husbandry**
 - Farmers North Eastern Coastal Plain Zone of Orissa are advised that animals should be given mineral mixture along with salt regularly and wheat grains, jaggery etc. may be provided @ 10%-20% in the daily ration during winter season to meet the energy requirement of the animals.
 - Low temperature condition may adversely affect the milk production and performance of domestic animals. Farmers in North West Alluvial Plain Zone of Bihar are advised to give protein enriched diet to the animals and keep them in shed.
- **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:** Dry weather prevailed over the region.
- **Rainfall Forecast:** Weather would be dry or mainly dry over the region.
- **Advisories:**
 - As dry weather prevailed during last few weeks in the States of the region and dry weather is also likely to prevail during the period, farmers are advised to apply irrigation to sugarcane, *rabi* jowar, wheat and vegetable crops in Madhya Maharashtra, Marathwada and Vidarbha.
 - Farmers in South Konkan region are advised to complete nursery sowing of *rabi* rice as early as possible. As prevailing weather in North Konkan is favourable, undertake sowing of *rabi* groundnut, mustard, pulses *viz.*, horse gram, cowpea and lab lab bean in the region.

- As gram is at branching / flowering stage and dry weather is expected during next 5 days, farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to apply irrigation to the crop.
 - Prevailing weather is favourable for sowing of irrigated wheat in East Vidarbha. Also prepare field for summer rice and seedlings by sprouting method.
 - Farmers in Madhya Maharashtra and Marathwada are advised to prepare field for planting of *suru* sugarcane.
 - As weather conditions are favourable, farmers in North Gujarat Zone are advised to undertake sowing of wheat and isabgol. Optimum time for sowing is upto 20th December. As clear weather conditions are prevailing, carry out intercultural operation in castor, vegetables, fennel and earthing up operations in fennel. Apply regular irrigation and supplement dose of fertilizer in castor. Complete sowing of remaining *rabi* crops.
 - As wheat is at crown root initiation stage in Middle Gujarat Zone, apply irrigation in timely sown wheat. Carry out hand weeding and intercultural operations before flowering in mustard and sowing of isabgol.
 - In North West Zone of Gujarat undertake sowing of isabgol and green fodder if there is facility of irrigation. Apply light irrigation to the cumin crop.
 - In South Gujarat Heavy Rainfall Zone undertake sowing of gram. Taking advantage of prevailing dry weather, farmers are advised to carry out weeding, intercultural operation and provide irrigation in standing crops.
 - In South Saurashtra Zone harvest ripe spikelets of castor in time. Apply irrigation in sugarcane, custard apple and harvest ripe fruits of custard apple.
 - Varieties of *rabi* crops are mentioned in Annexure II.
 - Under prevailing weather there may be incidence of jassids and sap sucking insects in mango in Marathwada region; spray Quinolphos @ 20 ml in 10 litres of water on whole tree.
 - As cloudy weather prevailed in Western Maharashtra Scarcity Zone during last week, there may be attack of jassids in onion; spray Carbosulfan @ 10 ml or Fipronil @ 15 ml plus 10 ml sticker in 10 litres of water.
 - Weather conditions are favorable for outbreak of powdery mildew disease and aphids in mustard crop in North Gujarat Zone and South Gujarat Heavy Rainfall Zone. Spray Mencozeb (75%) @ 25 g / 10 litres of water to control powdery mildew and spray Phosphomidon (100%) 3 ml or Diamethoate (30%) @ 10 ml in 10 litres of water for control of aphids attack.
 - Stages of the crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In South Gujarat Heavy Rainfall Zone provide adequate warm water to lactating animals and keep young calves indoor during night time to avoid cold stress

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

- **Realised Rainfall:** Rainfall occurred at Una in Himachal Pradesh. Weather was mainly dry over rest of the region during last week.
- **Rainfall Forecast:** Rain/snow would occur at many places over Jammu & Kashmir and Himachal Pradesh and Uttarakhand during next 48 hours and decrease thereafter. Rain / thundershowers would occur at one or two places over Punjab, Haryana, Delhi, North Rajasthan and West Uttar Pradesh during next 48 hours.
- **Advisory:**
 - As rain/snow would occur at many places over Jammu & Kashmir, Himachal Pradesh and Uttarakhand during next 48 hours, postpone irrigation to the standing crops. Farmers are advised to provide adequate drainage facilities in the standing crops to avoid waterlogging as heavy rain/snow would occur at a few places over Jammu & Kashmir and at one or two places over Himachal Pradesh and Uttarakhand during next 48 hours. As no significant rainfall occurred over remaining 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.
 - Farmers in Flood Prone Eastern plain zone (Bharatpur) of East Rajasthan are advised for late sowing of wheat and continue sowing of *rabi* crops like wheat, mustard, barley, potato and lentil and transplant 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 sowing of mustard and gram at the earliest and start field preparation for the sowing of *rabi* crops like wheat, barley. Undertake transplanting of late cauliflower, cabbage and *rabi* onion.
 - In Arid Western Plain Zone (Bikaner) of West Rajasthan, farmers are advised to continue late sowing of barley and wheat.
 - In Arid Western Plain Zone Jodhpur of West Rajasthan, farmers are advised to continue sowing of wheat, barley and vegetables. Prepare field for sowing of fodder crop lucerne (Rijka).
 - In Transitional plain zone of Inland Drainage of Rajasthan, farmers are advised to sow late varieties of wheat and barley. Also continue sowing of taramira, toria, pea, rainfed gram, fenugreek, mustard and vegetables like coriander, garlic, carrot, spinach and radish.

- In irrigated northwestern plain zone of west Rajasthan, farmers are advised for late sowing of wheat. Apply first irrigation to early sown wheat, gram, barley and mustard.
- In Sub Humid Southern Plain zone of Rajasthan, farmers are advised to complete sowing of wheat (late varieties), barley, gram and opium poppy as early as possible. Apply first irrigation and top dress timely sown wheat crop.
- In southern humid plain zone of Rajasthan, farmers are advised to complete sowing of *rabi* crops like wheat, barley, winter maize and planting of autumn sugarcane. Sowing of opium poppy may be continued during this week.
- In southeastern humid plain zone of East Rajasthan, farmers are advised to continue sowing wheat, gram and mustard. Also advised to continue 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 and vegetables like potato, radish, carrot, garlic, spinach and methi may be completed without any further delay.
- 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 gobi sarson, mustard, vegetables and fodder barseem. Harvest toria when pods turn yellow.
- 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 rainfall during this week, farmers of hill region are advised not to give any irrigation in wheat crop at Crown Root Initiation & tillering stages and also all standing crops including chickpea, pea, lentil, rajmash, vegetable etc. crops. After current spells of rainfall, top dressing of 1.6 kg Urea per Nali in crop may be done. Remove weeds from the crop for its better growth and development and keep grass lying on the ground for conserving soil moisture, also in garlic crop, put straw as mulch in between rows for moisture conservation. Continue digging of potato on maturity of tubers.
- In Hill zone in Uttarakhand, farmers are advised to continue sowing of wheat if not yet done in irrigated areas. Do irrigation, weeding and thinning in standing crops and in early sown wheat crops.
- In Sub humid sub tropic of Uttarakhand, farmers are advised to apply light irrigation in early sown wheat crop which is at Crown Root Initiation stage, and spraying of urea may be done in this week. After the 1st cutting of berseem light irrigation may be given and apply urea as basal. Weed management in cauliflower, cabbage, brinjal, and chilly crops and application of urea may be done. Potato crop which is liable to susceptible against early blight of potato, so proper sanitation of crop is required, light irrigation during evening is profitable or apply Mancozeb 0.5 % solution on crop to control the disease. Garlic crop may be kept free from weed and light irrigation may be given.
- Farmers in Central plain Zone of Uttar Pradesh, are advised to apply light irrigation to already sown crops like vegetables, pea & masoor etc. Weather condition is favorable for sowing of garlic.
- In Bundelkhand Zone of Uttar Pradesh, farmers are advised to 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 and also irrigate already sown *rabi* crops.
- In Western Plain Zone of Uttar Pradesh, farmers are advised that weeding operation may be taken up in turmeric crops.
- In Eastern plain Zone of Uttar Pradesh, due to favourable weather, farmers are advised for sowing of medium duration varieties of wheat. Apply irrigation in potato up to 2/3rd height of ridges only, otherwise excess water may have adverse effect on the process of tuberization.
- In Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, farmers are advised for sowing of radish (Early Mino white, Japanese white, Chinese pink and Palm Hriday), peas (Palm priya or Linclon) in the fields and complete late sowing of wheat.
- Farmers of Mid hill sub humid sub temperate 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 the mid hills sub humid zone of Seobagh at higher altitudes training and pruning may be done and apply the Chaubatia paint after pruning at the cutting ends of the branches. In stone fruits like plum, apricot, almond etc. pruning may be done to half branch and paste with Chaubatia paste to prevent the infection. Prepare the basins and remove all the bushes from the orchards. Preparation for new orchards and digging of pits may be started.

- In the Mid Hill Sub Humid Sub Temperate Zone of Nauni, for the control of wooly aphid in apple apply phorate (10-30 gram 10G) or carbofuran (30-50 gram furadan 3G) around the tree of 1-4 years age group at 5 cm depth and in fruit bearing trees spray triozophos 0.08% (400 ml hostathion 40 EC) or chlorpyriphos 0.02% (200 ml durmet/dursban/dhanushban 20 EC) in 200 litre of water.
 - Farmers in Delhi are advised to continue sowing of late wheat varieties. Irrigate timely sown mustard crop which is about 35 days old. Transplantation of onion should be done in this week. Transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli crop may be done in the raised bed.
 - Farmers in Punjab and Haryana are advised to continue sowing of late sown varieties of wheat.
 - Farmers in Western Zone in Punjab are advised to spray to check the infestation of aphid in sarson/raja. It is the right time for preparation of fields for planting deciduous plants in January.
 - Farmers in Western Plain Zone of Punjab are advised to complete sowing of sunflower in this month.
 - Farmers in Central Plain Zone of Punjab are advised to complete harvesting of toria to avoid losses due to shattering as winds with rainfall is expecting in coming days. Give hoeing to gram and lentil to keep weeds under check. First cutting of early sown oats may be taken during this month to meet the fodder scarcity. Complete transplanting of tomato seedlings during this period.
 - In view of mainly dry weather during last week and no significant rainfall is likely during next three days, farmers in Eastern Zone in Haryana are advised to apply irrigation to wheat crop. Harvest the mature sugarcane crop as per market demand. Take cutting of barseem for fodder.
 - Farmers in Western Zone in Haryana are advised to continue sowing of wheat with late sown varieties. Complete sowing of multi cut improved jai and barseem as fodder crop. Apply irrigation and hoeing in vegetable crops as per requirement.
 - Due to high relative humidity in Delhi, infection of early blight may occur in potato and tomato. Constant monitoring is advised to save the crop from disease.
 - Due to humid weather in Western Zone in Haryana, there is possibility of white rust and alternaria blight in the mustard crop. Farmers are advised to spray the recommended fungicide in clear weather.
 - In irrigated northwestern plain zone of west Rajasthan, it is seen that gram is affected by green caterpillar, to control spray Quinolphos 1.5% @ 6 kg per hec.
 - In Sub humid sub tropic of Uttarakhand, farmers are advised for the control of top borer and stem borer apply 2 liter of Thiodan 35 E.C. with 1000 liter of water for a hectare crop.
- **Animal Husbandry**
 - In Babar 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. Newly born calves need special care during cold weather as they are susceptible to attack of pneumonia. Provide curtains at the windows in the poultry sheds. Temperature inside the shed should not be below 60 °F. Keep poultry sheds clean, dry and warm. Poultry ration should have more energy. Therefore increase cereals by 5-8 % in the ration and adjust the rice bran content in Western Zone.
 - 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.
 - In Sub-Tropical Zone of Jammu & Kashmir, it is advised to protect the pregnant and mulch animals from cold and feed them mineral mixture regularly.
 - 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.
 - In Transitional Plain Zone of Inland Drainage, in view of falling night temperatures, farmers are advised to protect their infant animals from pink cold. They are also suggested for deworming of animals.
 - In Semi-arid Eastern plain zone of Jaipur of East Rajasthan, due to cold winds milch and baby animals are likely to be affected with infection of respiratory tracts. If symptoms like droppings from nose, fever etc. are seen in animals, A 3 day course of Cproflaxin, Anorflaxin or Sulpha may be given under the guidance of Veterinary Doctor.
 - In Arid Western Plain Zone of Rajasthan, protect milch animals from cold keeping them in shed or covered area during night.

- **Horticulture**

- 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 Sub-Tropical zone of Jammu & Kashmir, young evergreen plants should be provided with thatches prepared from Sarkanda or any other material, however, it should be kept open on eastern side to allow sufficient sun shine and air for the plant.

- **Apiculture**

- In Intermediate and Sub-tropical Zone of Jammu & Kashmir, weak colonies may be provided sealed brood from strong ones. Provide ample space for queen bee by giving drawn comb. Weak 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.
- In Sub-Tropical Zone of Jammu & Kashmir, it is advised to provide winter packing against cold and frost when bees start forming clusters.

- **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:** No significant rainfall occurred over most parts of the region except Nellore in Coastal Andhra Pradesh which received significant amount of rainfall.
- **Rainfall Forecast:** Rain/thundershowers would occur at one or two places over South Tamil Nadu and Kerala.
- **Advisories:**
 - As no significant rainfall occurred over most parts of the region, apply irrigation to the standing crops. Postpone irrigation to the crops in Nellore in Coastal Andhra Pradesh, since significant rainfall has occurred in the district.
 - Farmers in the Eastern Dry Zone of Karnataka are advised to undertake harvesting, drying and threshing of ragi and harvesting and drying of groundnut.
 - Farmers in the North Transition Zone of Karnataka are advised to irrigate wheat and jowar immediately as jowar plants are highly sensitive to any type of stress such as nutrient deficiencies or water deficits or excess and detaching may be taken up in sugarcane.
 - Farmers in the Hill Zone of Karnataka are advised to undertake seed treatment of sunflower before sowing to improve the germination percentage, vigour of the seedlings and yield, induce drought resistance in the crop and save 25 per cent nitrogen requirement of the crop.
 - Farmers in the Southern Transition Zone of Karnataka are advised to harvest and thresh the paddy crop and harvest the maize crop and allow the cobs to sun dry.
 - Farmers are advised that intercultivation and earthening up may be done in the North East Dry Zone of Karnataka to more than 30 days *rabi* sorghum crop, deep ploughing in pigeon pea can be done after harvest. To avoid moist condition in day hours harvesting of paddy can be started after 9.00 a.m. Prepare the nursery seed bed for summer paddy.
 - Farmers in the Central Dry Zone of Karnataka are advised to continue paddy harvesting, since there is no forecast for rains in the zone and utilize the soil moisture pulse seeds kept ready for sowing, in areas where paddy harvesting has been completed.
 - Due to prevailing dry weather conditions in the Cauvery Delta Zone of Tamil Nadu, farmers are advised to undertake foliar spray of 1% KCl to mitigate the water stress in samba paddy, rainfed maize, groundnut and cotton, in places where there are no irrigation facilities.
 - Farmers in the North Eastern Zone of Tamil Nadu are advised to undertake transplanting of paddy crop, undertake field/land preparation and sowing of groundnut and apply fertilizers containing sulphur to improve tillering of rice crop.
 - Farmers in the Western Zone of Tamil Nadu are advised to apply potassium chloride (KCl) at 0.5 per cent as foliar spray to cowpea, under moisture stress condition during vegetative stage.
 - Farmers in the South Zone of Tamil Nadu are advised to go for mobile sprinkler irrigation if irrigation water is available in rainfed crops for withstanding drought, provide soil mulch through intercultural operations, apply

crop residues in interrow space for reducing evaporation loss of water from the soil and irrigate the crops based on soil moisture depletion approach.

- Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to complete sowing of groundnut crop 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 scarce ground water level.
- Farmers in the North Coastal Zone of Andhra Pradesh are advised to continue sowing of *rabi* groundnut, pulses and nursery sowing of *rabi* rice.
- Farmers in the High Altitude Zone of Andhra Pradesh are advised to continue nursery sowing of *rabi* rice. The recommended varieties are Cottondora sannalu(MTU 1010), Vijetha (MTU 1001), Pushkala varieties.
- Farmers in the Northern Telangana Zone of Andhra Pradesh are advised to undertake sowing of maize, cowpea and sunflower. Farmers are advised to harvest the matured cane depending on variety, date of planting and juice quality.
- Farmers in the South Coastal Zone of Andhra Pradesh are advised to harvest the mature rice crop when more than 70% grains are mature. Cotton growing farmers are advised to pick the cotton which was affected due to rains separately and dried in shade and packed to avoid discolouration. Farmers are also advised to take up sowing of rice fallow maize and pulses. The recommended varieties for pulses are LBG 645, LBG685, LBG 648, LBG 402, LBG 752.
- Farmers in the Southern Zone of Andhra Pradesh are advised to undertake sowing of *rabi* groundnut and nursery preparation of rice. Spray monochlorophos @1.6 ml/lit or emidocloprid @0.3ml/lit on the groundnut crop which is twenty days old.
- In the Northern Zone of Kerala, weather is favourable for planting intercrops in coconut gardens utilising soil moisture. Apply soil mulching to prevent evaporation loss of water. Select cool season vegetables like cabbage and cauliflower etc. for sowing. New planting of coconut may be completed as early as possible. Cover the bunches of Nendran banana using thin polythene sheet to protect the bunches against bird attack. Propping of the banana may be done. Provide good drainage in the arecanut garden.
- Farmers in the Eastern Dry Zone of Karnataka are advised to undertake plant protection measures for control of leaf webber/ folders and wilt in red gram, fruit borer in chilli/ tomato/ brinjal. Tomato crop is infected with early leaf blight (ELB). Farmers are advised to spray mancozeb @ 2 g/L or cuprous oxide @ 2.5 g/L.
- Powdery mildew disease in chilli, bhendi and vegetables and Helicoverpa, pod borer is noticed in early sown bengal gram is reported in the North East Dry Zone of Karnataka. Farmers are advised to mix 3 g sulphur per liter of water and spray to control powdery mildew.
- Due to increasing day temperature up to 32°C, weather is conducive for sucking pest incidence in vegetables and mealy bug in cotton, papaya, tapioca and mulberry and leaf spot incidence in turmeric in the Western Zone of Tamil Nadu. Hence, the farmers in the Western Zone of Tamil Nadu are requested to take appropriate control measures.
- Leaf folder incidence, bacterial leaf blight and bacterial leaf streak is noticed in samba / thaladi paddy fields in the Cauvery Delta Zone of Tamil Nadu due to prevailing weather condition. Farmers are advised to spray chloripyriphos 500 ml/acre to control leaf folder incidence, streptomycin + tetracycline 120 g + copper oxy chloride 500 g mixture/acre or copper hydroxide at 500 g/ac in 200 litre of water to control bacterial leaf blight and bacterial leaf streak and apply nitrogenous fertilizers in four splits to reduce the incidence of pests and diseases in rice crop.
- Incidence of maruca and leaf webber is noticed in red gram state of Andhra Pradesh. Farmers are advised to spray 5%NSKE or neem oil @ 5 ml /lit should be taken up before flower bud initiation to avoid egg laying by Maruca adults.
- In some areas of Scarce Rainfall zone of Andhra Pradesh gram cater pillar and wilt was noticed in Bengal gram. Farmers are advised to spray quinaphos@2ml or Acephate @1.5 gm per litre of water for control of gram cater pillar and wilt drench with thiram or captan or Carbendazim @2.5 gm per 1 It of water for control of wilt.
- Incidence of wilt in Bengal gram, leaf webber 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.
- In the Problem Areas Zone of Kerala in already sown punja rice, present weather condition is highly favorable for the incidence of leaf thrips. Hence, farmers are requested to strict field surveillance. Similarly, present weather is most conducive for the incidence of dieback and leaf fall diseases in nutmeg and incidence of viral diseases mostly in cucurbitaceous vegetables.
- Farmers of the High altitude Zone of Kerala is advised to apply fertilizers to irrigated palms. Keep vigilance against red palm weevil attack, which may be more severe in young palms. Cleaning of the coconut crown and application of sand + carbaryl dust may be done against rhinoceros and red palm weevil. For controlling stem

bleeding chisel out the affected tissues and paint the wound with hot coal tar and apply Calixin 5% @ 25 ml in 25 liters of water.

- **Livestock**

- During night time, temperature will go down up to 17 °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.
- Due to decrease in temperature in the North Western Zone of Tamil Nadu, feed intake in birds likely to increase. Farmers are advised to prepare layer feed with slightly low (0.5%) in protein and increase energy content by 50 kcal from the normal level of 2500 to 2550kcal/kg diet and add Vitamin D3 separately to maintain the egg shell quality.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Significant rainfall occurred in Seoni district of East Madhya Pradesh and weather was dry in rest part of the region.
- **Rainfall Forecast:** Mainly dry / dry weather is likely in the region.
- **Advisories:**
 - Farmers in Madhya Pradesh are advised to provide irrigation to the standing crops as per requirement of crops since 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 that wheat crop is at 20-25 days, so apply urea and irrigate the field. Weed control may be done in field of chickpea, lentil, mustard, and linseed as crop becomes 20-25 days old. Seedlings of cabbage, cauliflower and onion may be transplanted in the field. Also, broadcast urea in field after 30-35 days after transplanting. Apply irrigation in tomato, chilli and egg plant as per the recommendations, and harvest the mature fruits.
 - Farmers in Malwa Plateau Zone of Madhya Pradesh are advised to complete sowing of *rabi* crops also apply nitrogen fertilizer and irrigate wheat crop. They are also advised to do earthing up in potato and apply 1/3 dose of nitrogen fertilizer. Undertake sowing/ transplanting of vegetables and planting of onion.
 - Farmers in Jhabua Hills Zone of Madhya Pradesh are advised for sowing of late varieties of wheat. Apply irrigation in early sown wheat crop at 21 DAS. Also semi-irrigated/ irrigated wheat crop may be irrigated after 30-35 DAS. Also irrigate early sown gram crop. After 30-35 DAS in maize crop undertake intercultural operation with dora, earthing & weeding may also be done. Use sprinkler/ rain gun for irrigation. They are also advised to pick up clean cotton open so rate in market is more than dusty and raw material bolls. Apply fertilizers and irrigate winter vegetables. This is suitable time for sowing of potato crop.
 - Farmers in Gird Zone of Madhya Pradesh are advised for sowing wheat and linseed. Apply fertilizer and give irrigation in potato, gram and vegetable crops.
 - Farmers in Central Narmada Zone of Madhya Pradesh are advised for sowing of gram, linseed, lentil, wheat and vegetable pea. Planting of winter sugarcane and garlic may be done. Apply irrigation in cabbage and cauliflower field. 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.
 - Farmers in Vindhya Plateau Zone of Madhya Pradesh are advised to irrigate wheat and gram crop and apply urea in wheat crop. Transplanting of vegetables may be done.
 - In Chhattisgarh Plain Zone, presently weather is favorable for the germination of gram, pea and wheat. Hence, farmers are advised for sowing of above crops as soon as possible. Before sowing of pulse crops, farmers are advised for seed treatment.
 - 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.
 - Farmers are advised to harvest the matured rice crop utilizing dry weather and keep it for proper sun drying. Looking to the present weather conditions, 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 dioscorea 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. Leafy vegetables like spinach, methi, maranthus and laal bhaji may be sown in the beds. Sowing of urad, niger, kulthi crops may be completed at the earliest.
 - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised that infestation of caterpillar is seen in medium planted pigeon pea, which is in a pod formation stage. Apply recommended insecticide for its control.

- Farmers in Malwa Plateau Zone of Madhya Pradesh are advised to spray the dimethoate in garlic to control the thrips.
- **Animal Husbandry & Poultry**
 - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised that temperature is decreasing therefore 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 Malwa Plateau and 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 (elongation / harvesting), *boro* rice (nursery raising / transplanting), cole crops (sowing / transplanting / vegetative), winter vegetables (sowing / transplanting / vegetative), wheat (sowing / germination / CRI), rapeseed, mustard (sowing / vegetative), potato (planting / vegetative), tomato (transplanting / vegetative / flowering / fruiting), *rabi* pulses like lentil, rajmah, pea, lathyrus (sowing / vegetative) in Assam.
- *Rabi* maize (vegetative), cauliflower, cabbage (transplanting / vegetative / head formation), brinjal (fruiting / maturity), tomato (transplanting / vegetative / flowering / fruiting), potato (vegetative), pea (sowing / vegetative) in Arunachal Pradesh.
- Potato (planting / vegetative), pea (sowing / vegetative), tomato (seedling / transplanting), cauliflower, cabbage (transplanting / vegetative), rapeseed (sowing / vegetative), *rabi* maize (sowing), onion (transplanting / vegetative) in Manipur.
- *Rabi* maize (sowing / vegetative), cole crops (transplanting / vegetative), groundnut (harvesting), turmeric, ginger (vegetative / rhizome formation), pea, mustard, garlic (sowing), toria (sowing / vegetative) in Meghalaya.
- Cole crop like cauliflower, cabbage, broccoli, knolkhol (nursery preparation / transplanting), tomato (nursery preparation / transplanting), groundnut, soybean (vegetative / flowering), beans (vegetative / flowering), pea, lentil (sowing) in Mizoram.
- *Jhum* and wetland rice (harvesting), cabbage (vegetative / head formation), pea (vegetative / flowering / fruiting), mustard (vegetative / flowering) in Nagaland.
- *Aman* rice (harvesting), *rabi* maize (sowing), *rabi* legumes, rapeseed, mustard etc. (sowing), toria (flowering), turmeric, ginger (rhizome formation / harvesting), tomato (vegetative), banana (vegetative / harvesting) in Tripura.

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

- Gram, peas, sunflower, maize (sowing), sugarcane (harvesting), potato, lentil, yellow mustard (sowing), *kharif* rice (harvesting), urad, arhar, bajra etc. (grain formation), mango, litchi, guava (early vegetative / vegetative), winter vegetables, wheat (sowing) and toria (vegetative) 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.
- *Boro* rice (seedbed preparation/sowing), wheat (land preparation/sowing), cauliflower (sowing / transplanting), marigold, Gladiolus (planting), potato (sowing to emergence stage), tomato (seedbed preparation), lentil, mungbean, uradbean (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* (cane maturity / harvesting), sugarcane-pre seasonal (elongation / cane maturity / harvesting), sugarcane (new *adsali*) (early tillering), sugarcane (new pre seasonal) (sprouting), cotton (maturity / picking), red gram (pod formation / pod maturity), *rabi* jowar (vegetative / flag leaf initiation in Madhya Maharashtra and Marathwada), safflower (vegetative / floral bud initiation in Madhya Maharashtra and Marathwada), maize (early vegetative / vegetative in Marathwada and Madhya Maharashtra), gram (branching / flowering), wheat (germination / crown root initiation / tillering) in Maharashtra.
- Wheat (sowing / germinating / crown root initiation), gram (sowing / branching), cumin (vegetative / branching), cotton (boll maturity / picking), sugarcane (maturity / harvesting), new sugarcane (early vegetative), castor (spike development / spike maturity), winter vegetables (onion, cauliflower, potato) (transplanting / emergence / vegetative), chilli, brinjal (vegetative / flowering / fruiting / reproductive), mustard (vegetative), fodder jowar (vegetative), *rabi* fennel (vegetative / flowering), fenugreek (vegetative), maize (vegetative / tasseling) in Gujarat.

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

- Wheat (late sowing/seedling/CRI), apple (harvesting/new planting), pea, raddish, turnip, coriander, cabbage, Knol khol, broccoli, parsley, lettuce, fennel and cauliflower (sowing), in Himachal Pradesh.
- Cauliflower, cabbage, broccoli and tomato (vegetative), carrot, pea(vegetative), sarson saag, bathua, radish, spinach, fenugreek, coriander and turnip (vegetative), mustard(vegetative), onion(vegetative), wheat(CRI stage) in Delhi.
- [Rabi Cereal (Wheat), pulses (pea and lentil), brown sarson, Fodder(oat) (in dormant stage valley temperate zone (Srinagar)], 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 / vegetative), gram (vegetative), toria (maturity / harvesting), vegetables {Methi early bunching and kasuri methi, spinach, radish, (sowing), tomato, brinjal, chillies (nursery sowing) }, *rabi* oilseeds [normal (6th leaf stage / vegetative), Early sown (early flowering / flowering)] Wheat [normal sown (CRI), late sown(sowing / emergence)], barley (sowing / emergence / CRI), Berseem (vegetative / 1st cutting) in Jammu & Kashmir.
- Wheat (sowing/CRI), arhar and ginger (vegetative), autumn sugarcane, mustard, yellow sarson, karan rai, brinjal, chilli, lady's finger, barley, oat, pea, chick pea, potato, lentil and vegetable (vegetative/flowering) in Uttarakhand.
- Wheat (sowing/CRI), sugarcane (vegetative growth/ripening), chana, pea, masoor, alsii, barseem, jai(sowing), vegetables like onion, garlic, radish, carrot, coriander (vegetative/flowering), mustard, pea, lentil & gram, maize(sowing/germination) 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 (vegetative / maturity), 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 (fruit maturity / picking), oilseeds (sowing/emergence), early sown mustard (growth / flowering) , wheat, barley (sowing / germination to CRI), mustard (sowing / vegetative / flowering initiation), gram (sowing / vegetative growth), potato (sowing / tuberization), fruits and vegetables (maturity / plucking) in Rajasthan.

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

- Sugarcane (maturation/ripening), late planted paddy (harvest), sunflower (flowering), cowpea (vegetative), pigeon pea (pod filling/harvesting), pearl millet (harvest), desi cotton (vegetative), June sown cotton (boll opening / picking), July sown cotton (peak boll formation/ initial boll opening), chilli (fruiting), October sown wheat (late tillering/flag leaf initiation), jowar (flowering), safflower (sowing), red gram (flowering), groundnut (harvest), vegetables (fruit maturity) in Karnataka.
- Sugarcane (June planted) (cane formation/cane maturity/harvesting), vegetables (vegetative), early sown rice (harvest), late sown rice (flowering), castor (picking stage), late sown groundnut (pod formation/pod filling), *rabi* groundnut(sowing/ early vegetative), *rabi* maize, sunflower, pulses (sowing), early sown jowar (grain filling stage), *rabi* jowar (sowing/early vegetative), Bengal gram (vegetative/ flowering/pod formation), red gram (pod formation), Bt. cotton (flowering/boll development/boll bursting) and *rabi* paddy (nursery sowing) in Andhra Pradesh.
- Coconut (flowering / nut development), punja rice (transplanting/tillering), cardamom (harvesting), rubber (tapping), vegetables (harvesting), mundakan paddy (tillering/panicle initiation), cardamom/vegetables (new planting) in Kerala.
- Late samba rice (tillering), samba rice (panicle initiation), thaladi (transplanting), rainfed maize (flowering), sorghum (vegetative), cowpea (vegetative), rainfed groundnut (flowering), pulses (pod development), cotton (all stages), maize crop (vegetative), groundnut and gram (seed and field preparation/sowing), vegetables (pod formation) in Tamil Nadu.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Ladies finger, cucurbits (flowering/fruiting), pigeon pea (pod formation), pea, potato, sugarcane (sowing/planting), *rabi* vegetables (transplanting), wheat (sowing/crown root/tillering), maize, gram (branching stage), fodder crops (sowing), chickpea, lentil, mustard, linseed (germination/early vegetative) in Madhya Pradesh.
- Rice (grain maturity/ 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 niger, kulthi (land preparation/sowing) 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.

Toria: TS-36, TS-46, M-27.

Pea: Arkel, Prabash.

Tripura:

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

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

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

Broccoli: Everest, Ayeswaria.

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

Cowpea: Kashi Kanchan.

Lentil: WBL – 58.

Gujarat:

Gram: Gujarat Gram-1, 2, 3, Dahod Yellow, ICC- 4 or Fulegi- 5.

Wheat: GW- 496, GW -503, GW -273, GW -322, GW-366.

Lok-1, GW-120, GW-173, GW-405 (for late sown wheat).

Mustard: Varuna or Gujarat Mustard-1, 2, 3.

Potato: Kufri Badshah, Kufri Bahar, Laukar.

Isabgul: GI-3

Maharashtra

Irrigated Wheat (for east Vidarbha): AKW-381, AKW-4627, NIAW-34, HD-2501 and HI-977.

Mustard: Varuna, Pusa Bold.

Sunflower: Modern, S.S.56 and B.S.H – 1.

Rabi groundnut: Konkan Gaurav, Konkan Tapora, Phule Pragati, TG-26, SB-11 and TAG-24.

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, Punjab Selection

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

For Direct sowing: Radish (Pusa Himani, Japanese White and Minowase), Spinach beet (All Green) and Spinach (prickly seeded).

For Nursery sowing: Tomato (Punjab Chuhara, DVRT-2, Pusa Ruby, Hisar Arun & Hisar Lalit) ; Chillies (NP-46A, Pusa Sadabahar, Punjab Surakh, Punjab Guchedar and Pusa Jawala) and Brinjal (Pusa Purple Round, Pusa Kranti, Pusa Purple long).

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).

late sown wheat varieties (Raj 3077, PBW-226, PBW-373, PBW-435 and Raj- 3765).

Barley: RD-2052, RD-2552, RD-2035, RD-2503, RD-2508, Ratna, Jyoti and Sonu 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 & Haryana

Wheat(Late sown): PBW 590, PBW 373 and PBW 509.

Delhi

Late wheat varieties: P.B.W.373, WR-544, U.P.2338, U.P.2425.

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 (NRCD-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, 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 Matar-7, Vivek Matar-10, Pant Subjee Matar-3, Azad Matar-3

Toria: PT-303, PT-507.

Vegetable pea : VL Ageti Matar-7, Vivel Matar-10, Pant Subjee Matar-3, Azad Matar-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, UP – 2572, UP – 2384, UP- 2795 and HS – 420 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.

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

Orissa

Cowpea: SEB-2, Pusa Barsati.

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

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

Mustard: Parbhata, 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.
Coriander: CO-1, CO-2, CO-3, Swati, Sadhana, Ram Selction and Udi.
Bengal gram- Gourav, Annegiri, Radhey, Pea- Rachana, Arkel,
Lentil- Asha, Pant-L-4, Pant-L-6,
Green gram- TARM-1, Samrat, OUM-11-5, PDM-54,
Black gram- Pant-U-19, Pant-U-30, T-9, B-3-8-8,

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,Satabdi (IET-4786), Kitish (I.E.T.-4094), Ratna, Bikash etc.
Potato : Chandramukhi, Joyti.
Pulses(Lentil, gram) :- Mahamaya-1, Mahamaya-2, Anuradha.

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.
Sunflower: Morden, Surya, Paradovic, KBSH 1, 44.
Maize: DHM117, Saktiman 1, 2, 3, 4; Laxmi, Rajendra Shankar Makka 1 and 2.
Oyster mushroom: Sejour Kaju, Florida.
Wheat:C306, HD2733, K9107.
Sarson: Rajendra Sarson-1, Swarna etc.
Potato: Kufri Lalima, Kufri Kuber, Kufri Alankaar, Khufri Jyoti, Khufri Chandramukhi, Ranjendra Aloo1, 2 And 3, Khufri Badshah.

Annexure III

Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 12.12.2012

