

## Significant weather and realized rainfall during last week:

No significant rainfall occurred in South India. Significant rainfall occurred at Chamba, Kangra, Kullu, Lahaul and Spiti and Una districts in Himachal Pradesh, most of the districts in Jammu & Kashmir (except Pulwama, Ladakh and Badgam), Gurdaspur in Punjab, Bageshwar, Chamoli, Rudraprayag districts in Uttarakhand, Umari district in East Madhya Pradesh, Upper Siang, East Siang and Dibang valley of Arunachal Pradesh. Mainly dry weather prevailed over the rest of the country during last week.

### South India

- During the week minimum temperature was below normal by 2°C in most parts of Karnataka, some parts of, Telangana, Raylaseema, North Tamil Nadu, Kerala, and near normal to above normal over rest of the regions.
- No significant rainfall occurred over the region.
- **Tamil Nadu:** Due to prevailing dry weather in the State, farmers in the Cauvery Delta zone of Tamil Nadu are advised to undertake foliar application of pink pigmented facultative Methylo-trophs (PPFM) at 200 ml/acre to mitigate the water stress in standing Samba rice for 10-12 days, in places where there is no irrigation facility.
- **Kerala:** In Mundakan rice, weeding, top dressing of fertilizers and water management may be continued. Basin mulching to be continued in coconut, banana and arecanut. Pink disease in rubber to be controlled by chiseling out the affected bark and applying Bordeaux paste.

- **Karnataka**
- **Coastal Karnataka:** Farmers are advised to complete harvesting of rice crop. Farmers who have already harvested rice can undertake land preparation for sowing of pulse crops viz. black gram, green gram, horse gram and cowpea.
- **South Interior Karnataka:** Farmers are advised to harvest kharif crops.
- **North Interior Karnataka:** Farmers are advised to do intercultivation in late sown wheat and sunflower to conserve soil moisture.
- **Andhra Pradesh**
- **Coastal Andhra Pradesh:** Farmers are advised for sowing of rice fallow maize till January.
- **Rayalaseema:** Farmers are advised to undertake nursery preparation of *rabi* rice.
- **Telangana:** Farmers are advised to undertake sowing of *rabi* cowpea, sunflower and land preparation for sesame. Farmers are advised to protect *rabi* rice nurseries from cold injury due to low temperature

### West India

- During the week minimum temperature was above normal in some parts of Saurashtra & Kutch, West Gujarat, below normal over Konkan & Goa, Madhya Maharashtra, Marathwada and above normal by 2 to 4°C in rest of the region.
- Mainly dry weather prevailed over the States in the region.
- **Advisory:**
- Farmers in Gujarat are advised to complete sowing of *rabi* crops. As dry weather prevailed and is likely to prevail, farmers are advised to carry out weeding and apply irrigation to the standing crops viz. wheat, gram, cumin, fennel, vegetables (viz. brinjal, chilli, tomato, cabbage, cauliflower) and earthing up in transplanted fennel.
- As dry weather is expected to continue with fall in minimum temperatures by 2 -3°C during next 3 days, farmers of Madhya Maharashtra and Marathwada are advised to apply irrigation to sugarcane, *rabi* jowar, wheat, vegetables and orchard crops in the evening.
- As gram is at branching/ flowering stage and dry weather is expected during next 5 days, farmers are advised to nip the tip of tender leaves for improving further branching in late sown crop and apply irrigation in Vidarbha.
- Farmers of Konkan are advised to undertake sowing of short duration crops viz. cowpea, wal, kulthi using residual moisture. Farmers of South Konkan are advised to prepare nursery bed and undertake sowing of improved and certified summer rice seeds.
- Undertake sowing of mustard in North Konkan.

(Continued on Page 2)



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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)

### **Northwest India**

#### **Advisories for cold/frost injuries**

Due to fall in minimum the temperatures in Sub- Montane Undulating Zone in Punjab, Mid Hill Sub humid Zone in H.P and Valley Temperate Zone in Jammu & Kashmir, undertake light and frequent irrigation/sprinkling and arrange for smoking to protect the crops from cold injury.

- During the week ending 19.12.2012, the minimum temperatures was above normal by 2<sup>0</sup>C in some parts of Punjab, Haryana, parts of Uttar Pradesh and near normal over Jammu & Kashmir, Himachal Pradesh and Uttarakhand.
- Significant rainfall occurred at Chamba, Kangra, Kullu, Lahaul and Spiti, Una districts in Himachal Pradesh, most of the districts in Jammu & Kashmir (except Pulwama, Ladakh(Leh), Badgam), Gurdaspur in Punjab, Bageshwar, Chamoli, Rudraprayag districts in Uttarakhand and mainly dry weather prevailed over rest of the regions during last week.
- **Advisory:**
- Farmers in Delhi are advised to undertake sowing of late wheat varieties. Irrigate timely sown wheat crop which is about 21-25 days old (at CRI stage). Irrigate timely sown potato crop. Transplanting of onion, tomato, cauliflower, cabbage, knol-khol and broccoli in raised beds can be carried out.
- In Western Zone of Punjab give light and frequent irrigation due to fall in temperature to normal sown gram, mustard and to ber trees (as the fruits are in developing stage).
- In Eastern zone in Haryana in view of clear weather condition, harvest the mature sugarcane crop and irrigate late maturing varieties of sugarcane. Apply frequent light irrigations to vegetables and horticultural crops. Cover vegetable and other horticultural crops with polythene sheet / sarkanda / straw to protect from low temperature.
- In Himachal Pradesh, complete sowing of early variety of pea and direct sowing of root crops. Complete sowing of winter fodder crops viz. berseem, oats and lucerne during this fortnight. Give light and frequent irrigation to standing crops due to fall in temperature.
- In the flood prone Eastern Plain zone of Rajasthan farmers are advised to complete sowing of wheat (late varieties). Apply first irrigation in timely sown wheat crop (at CRI stage, 25-30 days old), mustard and gram crops.
- In Jammu & Kashmir, farmers are advised to go for sowing of late sown wheat varieties and vegetables, transplanting of onion and knol-khol.
- In Valley Temperate zone of Jammu & Kashmir, farmers are advised to apply light and frequent irrigation due to fall in temperature to standing crops.
- In Uttarakhand, farmers are advised to apply light irrigation in early sown wheat crop which is at (CRI stage). Continue weeding from onion nursery and put straw as mulch in between rows for moisture conservation.
- In East Uttar Pradesh farmers are advised to undertake land preparation and sowing of wheat under late sown condition, first irrigation in timely sown wheat, digging of early sown potato, intercultural operations in chickpea, field pea.
- Due to favourable weather conditions, there are chances of incidence of aphids in mustard and blight in potato and tomato in Western Semi arid zone (New Delhi). Farmers are advised to monitor the crops for the pest and disease and undertake plant protection measures if the damage population crosses ETL.

### **Northeast India**

- During the week, minimum temperature was below normal by 2<sup>0</sup>C over some parts of Arunachal Pradesh, Meghalaya, Nagaland and near normal to above normal by 2<sup>0</sup>C over rest part of the region.
- Rainfall occurred in Upper Siang, East Siang and Dibang Valley district of Arunachal Pradesh. Mainly dry weather prevailed over the remaining States of the region during last week.
- **Advisory:**
- Farmers in Assam are advised to complete nursery bed preparation and sowing of *boro* rice and sowing of wheat. Also complete land preparation and sowing of rapeseed, mustard, *rabi* pulses, planting of potato and transplanting of winter vegetables viz. cauliflower, radish, tomato, brinjal, knol-khol, carrot and spinach in the main field.
- Farmers in Mizoram are advised to undertake sowing of pea, lentil and transplanting of cole crops (viz. cabbage, cauliflower, broccoli, knol-khol) and tomato.

- Farmers in Nagaland are advised to complete transplanting of tomato, cabbage and apply irrigation in mustard, which is at flowering stage.
- Farmers in Manipur are advised to continue land preparation and sowing of *rabi* maize, pea, potato and rapeseed (with zero tillage) and transplanting of cabbage, cauliflower and land preparation for sowing of carrot and radish.
- In Mild Tropical Plain zone of Tripura, farmers are advised to undertake sowing of short duration, high yielding and cold tolerant variety of rice.

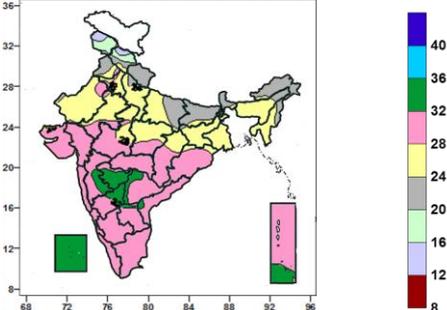
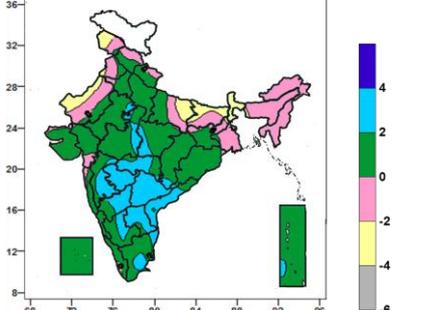
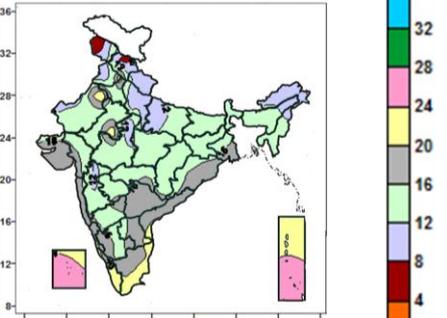
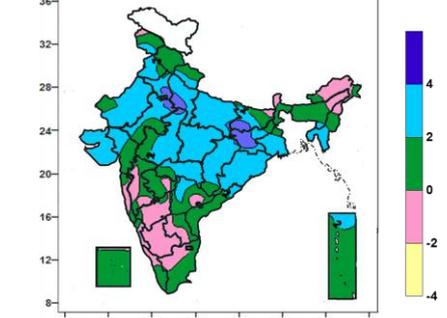
#### **East India**

- During the week minimum temperature was below normal by 2°C in some parts of sub-Himalayan West Bengal, Bihar, Jharkhand and near normal to above normal in remaining parts of the region.
- Mainly dry weather prevailed over the States of the region.
- **Advisory:**
- Farmers in West Bengal are advised to start seedbed preparation of *boro* rice and give light irrigation to wheat and mustard crop. Protect rice nursery from fall in temperature with polythene sheet or by keeping light stagnant water during night time. Farmers are also advised to undertake sowing of pulses viz. lentil, mung, urad and complete sowing of potato.
- In Bihar, farmers are advised to irrigate the timely sown wheat crop which is in the CRI stage, gram, chilli and marigold. Complete sowing of wheat and green pea.
- Farmers of Jharkhand are advised to sow different *rabi* crops viz gram, lentil, linseed, toria, mustard, pea etc. with assured irrigation facility.
- Farmers in Odisha are advised to complete sowing of wheat and planting of *rabi* vegetables. Apply irrigation in early sown wheat which is at CRI stage and in vegetable crops.

#### **Central India**

- During the week the minimum temperature was above normal by 2 to 4°C in the region.
- Significant rainfall occurred in Umaria district of East Madhya Pradesh. Dry weather prevailed over rest of the region.
- **Advisory:**
- Farmers in Madhya Pradesh are advised to complete sowing of late sown varieties of wheat. Apply irrigation in gram, wheat and vegetable crops. Apply fertilizer in wheat crop after 20-25 DAS.
- In Chhattisgarh, farmers are advised to complete sowing of late sown wheat, cabbage, tomato, brinjal, niger, horse gram, lobia, chilli, pea and linseed. Undertake transplanting of vegetables.

## Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 19.12.2012

<p><b>Actual Mean Maximum Temperature (<math>^{\circ}\text{C}</math>) in India for the week ending 19.12.2012</b></p> 	<p><b>Maximum Temperature (<math>^{\circ}\text{C}</math>) Anomaly in India for the week ending 19.12.2012</b></p> 
<p>Actual Mean Maximum temperature ranged between <math>32</math> to <math>36^{\circ}\text{C}</math> over many parts of Marathwada, Lakshadweep Islands, some parts of Madhya Maharashtra, Andhra Pradesh, South Interior Karnataka, Andaman &amp; Nicobar Islands, <math>20</math> to <math>24^{\circ}\text{C}</math> over of many parts of Uttarakhand, Punjab, East Uttar Pradesh, Bihar, Arunachal Pradesh, Sub-Himalayan West Bengal &amp; Sikkim, some parts of Himachal Pradesh, West Uttar Pradesh, Meghalaya, Nagaland, Manipur, <math>20</math> to <math>12^{\circ}\text{C}</math> over Jammu &amp; Kashmir and Himachal Pradesh, <math>24</math> to <math>32^{\circ}\text{C}</math> over remaining parts of the country.</p>	<p>Actual Mean Maximum temperature anomaly ranged above <math>2^{\circ}\text{C}</math> over many parts of Madhya Maharashtra, Marathwada, Vidarbha, Andhra Pradesh, South Interior Karnataka, some parts of East Rajasthan, Madhya Pradesh, Tamil Nadu, North Interior Karnataka, Tamil Nadu, <math>-2</math> to <math>0^{\circ}\text{C}</math> over many parts of Punjab, Gangetic West Bengal, North East India, some parts of Jammu &amp; Kashmir, Himachal Pradesh, Uttarkhand, Haryana, East Uttar Pradesh, West Rajasthan, Gujarat, Saurashtra &amp; Kutch, <math>-4</math> to <math>-2^{\circ}\text{C}</math> over most parts of Sub-Himalyan West Bengal, Sikkim, some parts of Jammu &amp; Kashmir, West Rajasthan, Bihar, East Uttar Pradesh, <math>0</math> to <math>2^{\circ}\text{C}</math> over rest of the country.</p>
<p><b>Actual Mean Minimum Temperature (<math>^{\circ}\text{C}</math>) in India for the week ending 19.12.2012</b></p> 	<p><b>Minimum Temperature (<math>^{\circ}\text{C}</math>) Anomaly in India for the week ending 19.12.2012</b></p> 
<p>Actual Mean Minimum Temperature ranged between <math>24</math> to <math>28^{\circ}\text{C}</math> and above over most parts of Lakshadweep, Andhaman &amp; Nicobar Islands, <math>20</math> to <math>24^{\circ}\text{C}</math> over many parts of Kerala, Andhaman &amp; Nicobar Islands, some parts of Coastal Andhra Pradesh, Rayalaseema, Tamil Nadu, Lakshadweep Islands, <math>4</math> to <math>8^{\circ}\text{C}</math> over of most parts of Jammu &amp; Kashmir, some parts of Uttarakhand, <math>8</math> to <math>12^{\circ}\text{C}</math> over most parts of Himachal Pradesh, Uttarakhand, Punjab, Uttar Pradesh, Arunachal Pradesh, some parts of Jammu &amp; Kashmir, East Rajasthan, West Madhya Pradesh, Haryana, <math>12</math> to <math>20^{\circ}\text{C}</math> over remaining parts of the country.</p>	<p>Minimum Temperature anomaly ranged above <math>4^{\circ}\text{C}</math> over some parts Delhi, East Rajasthan, Uttar Pradesh, Bihar, Jharkhand, <math>2</math> to <math>4^{\circ}\text{C}</math> and above over most parts of West Rajasthan, Saurashtra &amp; Kutch, Madhya Pradesh, Punjab, Haryana, Uttar Pradesh, Orissa, Chhattisgarh, Vidarbha, Gangetic West Bengal, Tripura, some parts of Gujarat, Bihar Jharkhand, Assam, Mizoram, Andaman &amp; nicobar Islands, <math>-2</math> to <math>0^{\circ}\text{C}</math> over many parts Konkan &amp; Goa, Sikkim, Arunachal Pradesh, Konkan &amp; Goa, Karnataka, some parts of Jharkhand, Telangana, Raylaseema, Tamil Nadu, Kerala, <math>0</math> to <math>2^{\circ}\text{C}</math> over remaining parts of the country.</p>

## Distribution of rainfall of the country during week ending on 19.12.2012

State/Districts	Actual	% dep.
<b>Arunachal Pradesh</b>		
Changlang	18.6	-31
Dibang Valley	52.0	191
East Kameng	0.0	-100
East Siang	21.4	146
Kurung Kumey	**	**
Lohit	13.3	56
Papumpara	14.3	333
Tawang	1.0	-90
Tirap	7.8	160
Upper Siang	66.0	95
Upper Subansari	6.2	35
West Kameng	7.6	-27
West Siang	18.5	101
<b>Himachal Pradesh</b>		
Bilaspur	8.9	89
Chamba	35.8	244
Hamirpur	15.1	140
Kangra	26.1	234
Kinnaur	14.5	109
Kullu	56.4	571
Lahaul and Spiti	20.6	47
Mandi	14.7	163
Shimla	10.5	139
Sirmaur	12.8	100
Solan	14.1	114
Una	20.9	534
<b>Punjab</b>		
Amritsar	9.7	185
Barnala	5.3	310
Bhatinda	3.2	215
Faridkot	15.0	614
Fatehgarh Sahib	7.0	159
Ferozpur	1.7	-6
Gurdaspur	22.2	226
Hoshiarpur	8.7	170
Jalandhar	6.2	128
Kapurthala	7.3	152
Ludhiana	6.0	199
Mansa	2.0	186
Moga	2.0	82
Muktesar	7.0	438
Nawashahar	8.1	77
Patiala	7.8	201
Ropar	8.7	148
Sangrur	6.9	214
Mohali	0.0	-100
Tarn Taran	10.7	723
<b>Haryana</b>		
Ambala	6.2	42
Bhiwani	5.2	1203
Chandigarh	9.3	67
Faridabad	0.0	-100
Fatehabad	2.3	233
Gurgaon	0.0	-100
Hissar	3.1	348
Jhajar	3.7	307
Jind	3.8	283
Katihah	1.8	260
Karnal	5.9	389
Kurukshetra	2.4	243
Mahendragarh	0.0	-100
Mewat	0.0	-100
Palwal	0.0	-100
Panchkula	1.0	-64
Panipat	9.2	1436
Rewari	0.0	-100
Rohtak	1.0	-23
Sirsa	0.0	-100
Sonepat	19.6	2351
Yamunanagar	7.6	116
New Delhi	3.2	98
<b>Jammu &amp; Kashmir</b>		
Anantnag	39.3	164
Badgam	14.7	107
Bandipore	**	**

Baramula	53.9	3
Doda	79.6	237
Ganderwal	44.2	295
Jammu	32.6	165
Kargil	17.2	291
Kathua	22.9	324
Kistwar	**	**
Kulgam	84.8	469
Kupwara	58.2	362
Ladakh(Leh)	0.3	-74
Poonch	30.0	71
Pulwama	18.9	108
Rajouri	41.1	434
Ramban	97.4	313
Reasi	66.2	421
Samba	35.9	192
Shopian	20.0	120
Srinagar	21.6	92
Udhampur	27.5	117
<b>Uttarakhand</b>		
Almora	18.4	410
Bageshwar	23.3	547
Chamoli	28.6	309
Champawat	5.0	-12
Dehradun	10.5	207
Garhwal Pauri	7.9	147
Garhwal Tehri	19.3	310
Haridwar	9.0	429
Nainital	11.7	305
Pithoragarh	11.7	120
Rudraprayag	27.2	404
Udham Sing Nagar	2.3	18
Uttarkashi	14.6	124
<b>Karnataka</b>		
<b>Coastal Karnataka</b>		
Dakshin Kannada	0.0	-100
Udupi	0.0	-100
Uttar Kannada	0.0	-100
<b>North Interior Karnataka</b>		
Bagalkote	0.0	-100
Belgaum	0.0	-100
Bidar	0.0	-100
Bijapur	0.0	-100
Dharwad	0.0	-100
Gadag	0.0	-100
Gulbarga	0.0	-100
Haveri	0.0	-100
Koppal	0.0	-100
Raichur	0.0	-100
Yadgir	0.0	-100
<b>South Interior Karnataka</b>		
Bangalore Rural	0.0	-100
Bangalore Urban	0.0	-100
Bellary	0.0	-100
Chamarajanager	0.0	-100
Chichballapur	0.0	-100
Chickmagalur	0.0	-100
Chitradurga	0.0	-100
Davangere	0.0	-100
Hassan	0.0	-100
Kodagu	0.0	-100
Kolar	0.0	-100
Mandya	0.0	-100
Mysore	0.0	-100
Ramnagara	0.0	-100
Shimoga	0.0	-100
Tumkur	0.0	-100
<b>Kerala</b>		
Alappuzha	0.0	-100
Kannur	0.0	-100
Ernakulam	0.0	-100
Idukki	0.0	-100
Kasaragod	0.0	-100
Kollam	2.2	-81
Kottayam	0.0	-100
Kozhikode	0.0	-100
Malappuram	0.0	-100

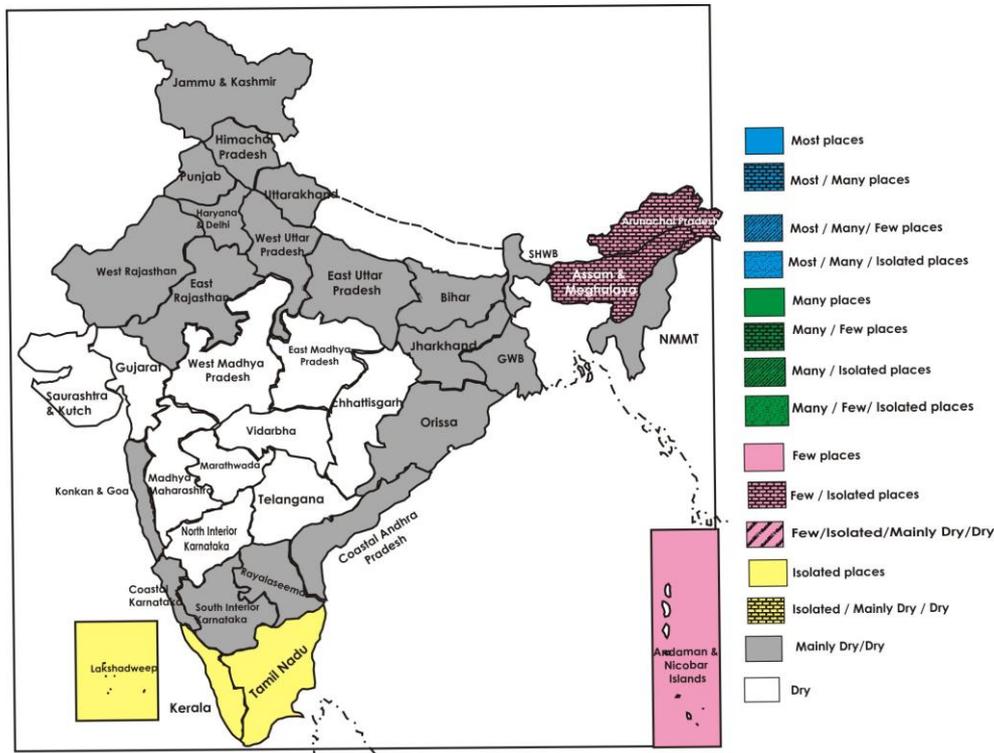
Palakkad	0.0	-100
Pathanamthitta	1.0	-89
Thiruvananthapuram	0.2	-98
Thrissur	0.0	-100
Wyanad	0.0	-100
<b>Tamil Nadu</b>		
Ariyalur	0.0	-100
Chennai	0.0	-100
Coimbatore	0.0	-100
Cuddalore	0.0	-100
Dharmapuri	0.0	-100
Dindigul	0.0	-100
Erode	0.0	-100
Kanchipuram	0.0	-100
Kanyakumari	0.0	-100
Karikal	0.0	-100
Karur	0.0	-100
Krishnagiri	0.0	-100
Madurai	0.0	-100
Nagapattinam	0.0	-100
Namakkal	0.0	-100
Nilgiris	0.0	-100
Perambalur	0.0	-100
Puducherry	0.0	-100
Pudukottai	0.0	-100
Ramanathapuram	0.6	-97
Salem	0.0	-100
Sivaganga	0.0	-100
Thanjavur	0.0	-100
Theni	0.0	-100
Tirunelveli	2.0	-91
Tirupur	0.0	-100
Tiruvallur	0.0	-100
Tiruvannamalai	0.0	-100
Tiruvarur	0.0	-100
Toothukudi	0.7	-97
Trichy	0.0	-100
Vellore	0.0	-100
Villupuram	0.0	-100
Virudhunagar	0.0	-100
<b>Andhra Pradesh</b>		
<b>Coastal Andhra Pradesh</b>		
East Godavari	0.0	-100
Guntur	0.0	-100
Krishna	0.0	-100
Nellore	0.1	-99
Prakasam	0.0	-100
Sirkakulam	0.0	-100
Visakhapatnam	0.0	-100
Vizianagram	0.0	-100
West Godavari	0.0	-100
<b>Telangana</b>		
Adilabad	0.0	-100
Hyderabad	0.0	-100
Karimnagar	0.0	-100
Khammam	0.0	-100
Mehabubnagar	0.0	-100
Medak	0.0	-100
Nalgonda	0.0	-100
Nizamabad	0.0	-100
Rangareddy	0.0	-100
Warangal	0.0	-100
<b>Rayalaseema</b>		
Anantapur	0.0	-100
Chittoor	0.0	-100
Cuddapah	0.0	-100
Kurnool	0.0	-100

### 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 23<sup>rd</sup> December, 2012)



### Major Feature of Weather Forecast up to 0830 hours IST of 23<sup>rd</sup> December, 2012

- Fog/dense fog would occur over parts of Sub-Himalayan West Bengal, Bihar and northeast Uttar Pradesh during next 3 days. Meteorological conditions are becoming favorable for westwards extension of this fog over some more parts of Uttar Pradesh and parts of Haryana and Delhi from 23<sup>rd</sup> onwards.
- Fall in minimum temperatures by about 2°C over northwest, central and west India during next 24 hours.
- Rain/thundershowers would occur at a few places over Assam and Arunachal Pradesh during next 24 hours and decrease thereafter.
- Rain/thundershowers would occur at one or two places over south Tamilnadu, Kerala, Lakshadweep and Andaman & Nicobar Islands.
- Mainly dry weather will prevail over rest parts of the country.

### Weather Warning during next 3 days

- Visibility may reduce to 200 M or below in dense fog in morning hours over some parts of Bihar and Sub-Himalayan West Bengal during next 48 hours.

### Weather Outlook for subsequent 4 days up to 0830 hours IST of 27<sup>th</sup> December, 2012

- A fresh western disturbance may affect western Himalayan region.
- Rain/thundershowers would occur at one or two places over extreme south peninsular India and 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 in East Siang, Upper Siang and Dibang valley districts of Arunachal Pradesh.
- **Rainfall Forecast:** Rain/thundershowers would occur at a few places over Assam and Arunachal Pradesh during next 24 hours and decrease thereafter.
- **Advisories:**
  - As there was no significant rain over most of the districts of the States of the region during last week except in East Siang, Upper Siang and Dibang valley districts of Arunachal Pradesh 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 complete sowing of *boro* rice and wheat during this week. Farmers are also advised to undertake land preparation and sowing of *rabi* pulses like lentil, rajmah, pea and lathyrus.
  - Farmers in Lower Brahmaputra Valley Zone of Assam are advised for transplanting of *boro* rice in the main field when they are about 45 days old or with 5-6 leave stage. Earthing up may be done in potato at 25 days after planting (stolon formation stage), just before first irrigation.
  - Farmers in Upper Brahmaputra Valley Zone of Assam are advised to continue transplanting the seedlings of cauliflower, cabbage, potato and tomato and harvesting of black gram and rice. Farmers are also advised to complete land preparation and sowing of rapeseed and mustard and start thinning operation to maintain optimum plant population.
  - Farmers in Central Brahmaputra Valley Zone of Assam are advised to complete the nursery bed preparation and sowing of *boro* rice during this month. Intercultural operation like thinning and weeding may be done in *rabi* crops, rapeseed and mustard after 15-20 days after sowing.
  - In Mild Tropical Hill Zone of Mizoram, farmers are advised to undertake sowing of pea and lentil and transplanting the seedling of cabbage, cauliflower, tomato, broccoli and knolkhol.
  - In Mild Tropical Hill Zone of Nagaland, farmers are advised to continue harvesting of wetland rice.
  - Farmers in Sub Tropical Plain Zone of Manipur are advised to continue land preparation and sowing of *rabi* maize, pea, potato and rapeseed in zero tillage. Farmers are also advised to continue transplanting of the seedlings of cabbage, cauliflower and land preparation for sowing of carrot and radish. 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 sowing of short duration rice of high yielding and cold tolerant variety.
  - 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 and potato, farmers of Hill Zone and Lower Brahmaputra and Upper Brahmaputra Valley Zone of Assam are advised to monitor the crop and to prevent the disease 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 Mizoram, due to prevailing weather conditions, there is chance of attack of powdery mildew in bean at reproductive stage. Use wettable sulphur to control powdery mildew.
  - 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. Due to prevailing foggy condition fungal diseases like early blight in potato and tomato may occur. Mancozeb (Indofil M-45) @ 2.5gm per litter of water may be sprayed to avoid early blight.
  - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
  - In North Bank Plain Zone and Upper Brahmaputra Valley Zone of Assam, farmers are advised to vaccinate poultry against Ranikhet disease.
  - In Central Brahmaputra Valley Zone of Assam, farmers are advised to protect poultry birds from cold by using electric bulb (300Watt for 100 sq.feet).
  - 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% KMNO<sub>4</sub>, 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.
- **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:** Weather was mainly dry over the region.
- **Rainfall Forecast:** Weather will be mainly dry over the region during the period. Fog/dense fog would occur over parts of Sub Himalayan West Bengal and Bihar during next 3 days.

#### 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 these States and mainly dry weather is likely during next three days.
- In South Bihar Alluvial Zone, farmers are advised to irrigate the timely sown wheat crop, which is about 21-25 days old and are in CRI stage. Undertake sowing of late sown wheat. Give irrigation to gram and chilli if required. Harvest fodder crop.
- In North West Alluvial Plain Zone of Bihar, farmers are advised to apply irrigation in wheat crop which is in crown root initiation stage. As there is low temperature during day time, the normal growth of maize and potato crops may be affected, farmers are advised to apply light irrigation in the fields. Complete sowing of late sown varieties of green pea crop. Apply irrigation to green chilli and marigold.
- 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. Apply life saving irrigation to standing crops due to prevailing continuous dry weather conditions in the State. Apply irrigation to early wheat and maize crop. Start nursery sowing of *boro* rice. Complete sowing of late variety of wheat.
- Farmers of Western Undulating Zone of Orissa are advised to harvest matured rice crop, picking of cotton and give irrigation to vegetable crops as per requirement.
- Farmers of Mid Central Table Land Zone of Orissa are advised to complete sowing of groundnut.
- Farmers of North Central Plateau Zone of Orissa are advised to complete sowing of mustard and groundnut immediately. Weather is optimum for sowing of sunflower, onion and garlic in irrigated upland and medium land.
- 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 of Jharkhand are advised to sow different *rabi* crops like gram, lentil, linseed, toria, mustard, potato, pea etc. utilizing available moisture in the soil and irrigation facility. Farmers having 2-3 irrigation facility may sow potato and green pea, farmers having 1-2 irrigation facility may sow gram, lentil, pea, linseed etc. Seeds of pulse crop may be treated before seeding.
- Farmers in Jharkhand are advised for transplanting of winter vegetables like cauliflower, cabbage, chilly, tomato and brinjal. Farmers may directly sow the seeds of radish, carrot, turnip, spinach etc. Farmers are advised to prepare nursery for sowing of onion.
- In Coastal Saline Zone of West Bengal, farmers are advised to undertake sowing of potato and pulses.
- In New Alluvial Zone of West Bengal, farmers are advised to protect the seedlings of *boro rice* from cold by covering the nursery bed with polythene or maintain stagnant water in the nursery bed especially during night-time.
- Farmers in Laterite and Red Soil Zone of West Bengal are advised to complete the sowing of potato and apply light irrigation in wheat after sowing depending upon the available soil moisture and nursery bed preparation of *boro* rice. Farmers are also advised for sowing of pulses like lentil, mung and urad.
- Farmers in Old Alluvial Zone of West Bengal are advised to start seedbed 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. 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 give light irrigation to wheat and mustard crop due to prevailing weather condition.

- Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
- Mustard crop is found to be affected by *Crociodollema* and aphids in Khurda district of East and South Eastern Coastal Plain Zone of Orissa, 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 *Crociodollema*.
- Farmers of North Eastern Coastal Plain Zone of Orissa are advised that prevailing weather will may aggravate aphid in mustard and rapeseed. This can be controlled by spraying Methyl demeton@2ml/l. To control the sucking pests like aphid and white fly on vegetables, spray Imidacloprid @ 2ml/10 lit of water.
- 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 Triazophos or profenofos @2ml/lit. of water as preventive measure. Repeat the spray after 15 days 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/lit of water.
- In Old Alluvial zone of West Bengal, there may be chance of late blight attack in potato due to the possibility of lower temperature and fog. To prevent late blight, spraying of Mancozeb (2 gm /lit of water) and Blitox (4 gm/lit of water) alternately at 7-10 days interval by completely wetting the leaves are necessary.

#### • **Animal Husbandry**

- Farmers in North Eastern Coastal Plain Zone of Orissa are advised that animals may 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.
- Farmers of North Eastern Plateau Zone (Keirei) of Orissa are advised that do not leave the animals before the Sun rise to avoid excess cold. Protect the animals from cold by covering the sheds with gunny bags.
- Low temperature condition may adversely affect the milk production and performance of domestic animals. Farmers in Bihar are advised to give protein enriched diet to the animals and keep them in shed. Their bed should be dry and should be changed regularly.

#### **Pisciculture**

- As the winter is in the starting phase, there is a possibility of “EUS” disease in fish. Farmers in 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:** Mainly dry weather would prevail over Konkan and dry weather over rest of the States in the region. Fall in minimum temperatures by 2-3 °C over the region during next 48 hrs.
- **Advisories:**
  - As dry weather expected to continue with fall in minimum temperatures by 2 -3°C during next 3 days, farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to apply irrigation to the sugarcane, *rabi jowar*, wheat, vegetables and orchard crops in the evening.
  - As harvesting of *kharif rice* has been completed in Konkan, farmers are advised to undertake sowing of short duration crops like cowpea, wal, kulthi using residual moisture. Farmers in South Konkan region are advised to prepare nursery bed and undertake sowing of improved and certified summer rice seeds. Prevailing weather is favourable for sowing of mustard in North Konkan. Farmers in this region are also advised to continue land preparation and undertake sowing of groundnut.
  - As gram is at branching/ flowering stage and dry weather is expected during next 5 days, farmers are advised to nip the tender leaves for improving further branching in late sown crop. Apply irrigation to the crop in Madhya Maharashtra, Marathwada and Vidarbha region.
  - As dry weather is expected to continue, farmers in Madhya Maharashtra and Marathwada are advised to undertake hoeing and weeding in late sown *rabi jowar*. Apply mulching using crop residues and other plant waste products to preserve moisture in the field.

- Farmers in Madhya Maharashtra and Marathwada are advised to continue preparatory tillage for planting of *suru* sugarcane.
- As weather conditions are favourable, farmers in North Gujarat Zone are advised to carry out intercultural operation in vegetables and fennel. Apply irrigation in wheat 21 days after sowing. Complete sowing of remaining *rabi* crops.
- In Middle Gujarat Zone, light irrigation is recommended in the evening for isabgul and cumin to avoid powdery mildew and blight infestation.
- In Bhal and Coastal Zone of Gujarat, apply irrigation and split dose of nitrogen fertilizer in wheat, gram, mustard and cumin. Carry out the hand weeding and intercultural operations in early sown crops and vegetables.
- Farmers in South Gujarat Zone are advised to undertake planting of sugarcane.
- In South Gujarat Heavy Rainfall Zone taking advantage of prevailing dry weather, farmers are advised to carry out weeding, intercultural operations and provide irrigation in standing crops.
- Varieties of *rabi* crops are mentioned in Annexure II.
- As minimum temperature is likely to fall by 2 -3°C in Madhya Maharashtra during next 5 days, there is possibility of incidence of powdery mildew in chilli, papaya, grapes and vine vegetables. Farmers are advised to apply proper plant protection measures.
- Due to cloudy weather and temperature fluctuation in Western Maharashtra Scarcity Zone, there may be incidence of blight and fruit borer in tomato, spray Mancozeb @ 25g and Tebuconazole @ 5 ml in 10 litres of water.
- Under prevailing weather, there may be incidence of powdery mildew on cucumber in Western Maharashtra Ghat region, spray sulphur @ 2g per litres of water.
- Prevailing cold weather is favourable for incidence of thrips and blight in onion in Pune region, spray Propinophos @ 100 ml or Imidachloprid 200 SL @ 50 ml + Mancozeb 300g + 50 ml sticker in 100 litres of water. Due to fall in temperature there may be infestation of powdery mildew in grapes, spray Dinocap @ 5 ml in 10 litres of water.
- In North Saurashtra Zone of Gujarat to prevent blight in cumin, spray 25g Mencozeb 75% WP g in 10 litres of water.
- In South Gujarat Heavy Rainfall Zone, for the control of *Heliothis* in gram, spray Monocrotophos 36 EC. 12 ml. or Quinalphos 25 EC 20 ml. or D.D.V.P 85 EC 5 ml in 10 litres of water.
- Stages of the crops are mentioned in Annexure I.

#### **Animal Husbandry**

In South Gujarat Heavy Rainfall Zone provide 6-8 kg good quality dry roughage with 15-20 kg green fodder and pure drinking water to the animals.

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

- **Realised Rainfall:** Significant rainfall received over all the districts in Jammu & Kashmir (except Pulwama, Ladakh, Badgam), Chamba, Kangra, Kullu, Lahaul spiti and Una in Himachal Pradesh, Gurdaspur in Punjab, Bageshwar, Chamoli, Rudraprayag in Uttarakhand and Una in Himachal Pradesh. Weather was mainly dry over rest of the region during last week. No significant rainfall occurred in many districts in Punjab and Haryana.
- **Rainfall Forecast:** Mainly dry weather would prevail over region. Fall in minimum temperatures by about 2°C over northwest India during next 24 hours.
- **Advisory:**
  - Due to fall in minimum the temperatures in Sub- Montane Undulating Zone in Punjab, Mid Hill Sub humid Zone in H.P and Valley Temperate Zone in Jammu & Kashmir, undertake light and frequent irrigation/sprinkling and arrange for smoking to protect the crops from cold injury.
  - In Arid Western Plain Zone of West Rajasthan, farmers are advised to continue late sowing of barley and wheat. Apply irrigation and top dressing of urea to timely sown wheat and barley. Also irrigate the cumin crop at every 3-4 days after sowing for better germination. In mustard crop apply irrigation as and when required.
  - In Southern Humid plain zone of Rajasthan, farmers are advised to complete sowing of *rabi* crops like late sown wheat. Do the intercultural operations in maize with top dressing of urea and apply irrigation to mustard and gram crop.
  - In Sub- Tropical zone of Jammu & Kashmir, farmers are advised to go for sowing of late sown wheat. Undertake the transplanting of onion and knol-knol.
  - In Valley Temperate Zone of Jammu & Kashmir, farmers are advised to avoid water stagnation after snow melt. Sowing of spinach and methi may be continued. Planting of garlic, transplanting of onion seedlings in well prepared land may be done.
  - In Hill zone of Uttarakhand, farmers are advised to complete sowing of wheat if not yet done. Due to expected dry weather conditions, it is advised to give irrigation in wheat crop of 20 to 25 days duration.

- In East Uttar Pradesh, farmers are advised to apply light irrigation to already sown crops like vegetables, pea and masoor. Apply irrigation in potato up to 2/3<sup>rd</sup> height of ridges only, otherwise excess water may have adverse effect on the process of tuberization. Land preparation and sowing of wheat under late sown condition, first irrigation in timely sown wheat, digging of early sown potato, intercultural operations in chickpea, field pea may be continued.
- In Western Uttar Pradesh, farmers are advised to provide irrigation to already sown *rabi* crops like pea, toria and lahi, normal sown wheat.
- Farmers of Mid hill sub humid zone in Himachal Pradesh are advised to protect the nursery plants from cold / frost injury by covering with grass or leaves. Irrigation may also be provided to protect from cold injury. Transplant the seedling of cabbage and cauliflower. Direct sowing of root crops may be carried out. Cultivation of winter fodder crops like berseem, oats and lucerne must be completed in this fortnight.
- As mainly dry weather would prevailed in Delhi, farmers are advised to give irrigation to timely sown wheat crop, which are about 21-25 days old and are in the CRI stage is advised. The average temperature of last week and forecasted temperature for next week will be below the optimum temperature required for the wheat germination, therefore farmers can take late sowing of wheat. Undertake transplanting of onion 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. Irrigate the wheat crop after four weeks of sowing.
- Due to humid weather in Western Zone of Haryana, there is possibility of white rust and Alternaria blight in the mustard crop. Farmers are advised to spray the recommended fungicide.
- In Semi Arid Plain zone of east Rajasthan, there is chance of attack of white rust and stem rot in Mustard. To control white rust spray Mencozeb 2 gm per litre of water. To control stem rot spray fungicide Bavistin @ 1.0 gm per litre water.
- **Animal Husbandry**
- Farmers in Punjab and Haryana are advised to keep the animals in dry place and change the bedding material as and when required. New born calves need special care from cold weather, so provide them dry bedding and clothing (Jhull). The energy content of the concentrate mixture should be increased by 5-10 % in ration. Cover the animals with Jhull (Jute cloth) in extreme cold. Provide curtains at the windows in the poultry sheds. Keep poultry sheds clean, dry and warm. Poultry ration should have more energy.
- In Intermediate zone of Jammu & Kashmir, protect the pregnant and milch animals from cold and feed them mineral mixture regularly.
- **Horticulture**
- In Sub-Tropical zone of Jammu & Kashmir, young evergreen plants should be provided with thatches prepared from Sarkanda or any other material to protect from snow, however, it should be kept open on eastern side to allow sufficient sun shine and air for the plant.

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

- **Realised Rainfall:** Dry weather prevailed over the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at one or two places over Tamil Nadu and Kerala. Mainly dry weather will prevail over rest parts of the region.
- **Advisories:**
- As dry weather prevailed over most parts of the region, apply irrigation to the standing crops.
- Due to prevailing dry weather conditions in Tamil Nadu, farmers in the Cauvery Delta Zone of Tamil Nadu are advised to undertake foliar application of Pink Pigmented Facultative Methylotrophs (PPFM) at 200 ml/acre to mitigate the water stress in standing *samba* rice for 10-12 days, in places where there is no irrigation facility.
- 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 detrashing may be taken up in sugarcane.
- 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 after harvesting, undertake sowing of pulse crops.
- Since the temperature is highly favorable for high response in paddy in the Western Zone of Tamil Nadu, farmers are advised to split application of nitrogen fertilizer.
- As light rainfall is expected in the coming days, farmers in the South Zone of Tamil Nadu are advised to undertake topdressing of fertilizers to rainfed cotton.

- Due to low availability of water, farmers in the South Zone of Tamil Nadu are advised to cultivate sesame with short duration (80-85 days) varieties.
- Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to undertake nursery sowing of *rabi* rice.
- 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. Low temperatures during the *rabi* season may cause cold injury in rice nurseries in the zone. To overcome cold injury and for better nursery growth cover the nursery beds with polythene sheet during night and remove in the morning, or irrigate the nursery bed every day in the evening and let out the water in the morning and apply 2 kg urea for 200 m<sup>2</sup> nursery area at 10-15 days after sowing.
- Farmers in the High Altitude Zone of Andhra Pradesh are advised to complete 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 cowpea, sunflower and land preparation for sesame. Farmers are advised to irrigate the groundnut and Bengal gram crop as they are in pod formation stage.
- Farmers in the South Coastal zone of Andhra Pradesh are advised to take up sowing of rice fallow maize where two to three irrigation can be provided 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 continue nursery sowing of rice.
- 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. Cover the bunches of Nendran banana using thin polythene sheet to protect the bunches against bird attack. Propping of the banana may be done.
- Based on morning high relative humidity, low minimum temperature and prevalence of cloudiness, there is possibility of disease incidences in paddy, sorghum, maize, black gram and sugarcane in the Western Zone of Tamil Nadu. Farmers are advised to spray carbendazim @ 2g/lit of water, especially proactive chemical application.
- Due to dry weather and increase in the temperature there is a chance of occurrence of *Spodoptra litura* in groundnut and necrosis in gram in the Southern Zone of Andhra Pradesh. Farmers are advised to take appropriate plant protection methods
- In the Problem Areas Zone of Kerala, present weather condition is highly favorable for the incidence of leaf thrips in already sown punja rice, viral diseases mostly in cucurbitaceous vegetables. Hence, farmers are requested to undertake strict field surveillance.
- In the southern zone of Kerala fungal disease severely affects leaves of young budded rubber plants. In order to control fungal diseases spray copper oxy chloride or Bordeaux mixture. Pink disease can be controlled by chiseling out the affected bark and apply Bordeaux paste.
- **Livestock**
- Due to reduced duration of day light, vitamin D3 deficiency is likely to occur in layer chicken in the North Western Zone of Tamil Nadu. Farmers are advised to reduce egg breakage by the addition of vitamin D3 and sodium bicarbonate (1kg/ton) in the feed.

#### CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Significant rainfall occurred in Umaria district of East Madhya Pradesh. Weather was mainly dry in rest part of Central India.
- **Rainfall Forecast:** Dry weather will prevail over the region.
- Fall in minimum temperatures by about 2°C over Central India during next 24 hours.
- **Advisories:**
- Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh (except Umaria district) are advised that wheat crop is at 20-25 days, so apply urea and irrigate the field. Weed control may be done in the fields 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 and harvest the mature fruits.
- Farmers in Malwa Plateau Zone of Madhya Pradesh are advised to complete sowing of *rabi* crops. 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.
- As temperatures is favourable farmers in Satpura plateau zone of Madhya Pradesh are advised for sowing of late sown wheat under irrigated conditions. They are also advised for intercultural operations and hand weeding after 20-25 days after sowing in chickpea, mustard and lentil. Apply fertilizer and do weeding in tomato, chilly, bringal etc.

- Farmers in Gird Zone of Madhya Pradesh are advised to undertake sowing of late varieties of wheat. Due to no rain forecast apply urea and give irrigation in 21 days old wheat crop. Apply fertilizer and give irrigation in potato, gram and vegetable crops.
- Farmers in Central Narmada Zone of Madhya Pradesh are advised to undertake sowing of late sown varieties of wheat. Planting of winter sugarcane may be done. Farmers are advised to undertake weeding in gram, lentil and linseed crop at 20 to 30 days after the sowing. Apply irrigation in cabbage and cauliflower field.
- As there is possibility of dry weather during next five days, farmers in Bundelkhand region of Madhya Pradesh are advised to irrigate wheat crop, which is about 40-45 days old and is in the tillering stage. Apply remaining dose of fertilizer after irrigation (3-4 days). Farmers are also advised to undertake earthing up in potato crop, which is about 40 days old. Irrigate the vegetable and orchard crops.
- In Chhattisgarh Plain Zone, at present mean temperature is most suitable for proper germination of wheat. Although the optimum time of sowing of wheat is over even then the farmers who have not yet sown the wheat crop are advised to complete the sowing at the earliest.
- Farmers in Bastar Plateau Zone in Chhattisgarh are advised that immediately after harvesting of rice, undertake field preparation and sowing crops like wheat, gram, mustard, linseed and lentil. Winter season vegetables may be sown in the main field. Leafy vegetables like spinach, methi, amaranthus 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 pigeon pea, which is in pod formation stage. Apply recommended insecticide for its control.

### **Animal Husbandry & Poultry**

- Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised that as temperature is decreasing maintain proper temperature conditions in the poultry and cattle sheds.

## 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 (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.
- *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 (sowing), wheat (crown initiation) and toria (vegetative) in Bihar.
- Kulthi, African marigold, French marigold (sowing/early vegetative), urad, potato, green pea, toria, tomato, cauliflower, cabbage and bell pepper (sowing), gram (sowing), rapeseed, linseed and mustard (sowing) radish, turnip, spinach, carrot (sowing), wheat (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 (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 (flag leaf initiation / flowering 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 (crown root initiation/ tillering), gram (sowing/early vegetative), cumin (vegetative / branching), cotton (boll maturity / picking), sugarcane (planting/early vegetative), castor (spike development / spike maturity), winter vegetables (onion, cauliflower, potato) (transplanting / vegetative), chilli, brinjal (vegetative / flowering / fruiting), mustard (vegetative/flowering), 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 (CRI), apple (new planting), pea, radish, 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 in Valley Temperate zone (Srinagar), sugarcane (planting), papaya (planting), sunflower (early vegetative / vegetative), maize (normal sown –cob 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), onion, knol khol, cole crops (transplanting), mustard (emergence), brown sarson (rosette stage), barley, pulses (pea, lentil) (sowing / germination / vegetative) in Jammu & Kashmir.
- Wheat (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 (CRI), late sown wheat (sowing/germination), sugarcane (vegetative growth/ripening), chana, pea, masoor, alsi, barseem, jai (vegetative), vegetables like onion, garlic, radish, carrot, coriander (vegetative/flowering/fruting), mustard, pea, lentil & gram, maize(germination/vegetative) in Uttar Pradesh.
- Wheat (tillering), sugarcane (harvesting), toria (harvesting), mustard (flowering) in Punjab.
- Wheat (tillering), sugarcane (harvesting), toria (harvesting), mustard (flowering), barseem (sowing/vegetative), 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), oilseeds (sowing/emergence), early sown mustard (vegetative / flowering) , wheat, ( late sowing /germination/ CRI), fruits and vegetables (plucking/sorting/grading) barley (vegetative) in Rajasthan.

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

- Sunflower (flowering), cowpea (vegetative), pigeon pea (pod filling/harvesting), pearl millet (harvest), desi cotton (vegetative), June sown cotton (boll development/picking), chilli (fruiting), October sown wheat (late tillering/flag leaf initiation), jowar (flowering), safflower (sowing), red gram (pod filling), Bengal gram (pod filling), groundnut (harvest), vegetables (fruit maturity) in Karnataka.
- Vegetables (vegetative/fruit development), castor (picking), late sown groundnut (pod formation / pod filling), *rabi* groundnut (early vegetative), *rabi* maize, sunflower, pulses (sowing), *rabi* jowar (early vegetative/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 (tillering), cardamom (harvesting), rubber (tapping), vegetables (harvesting), *mundakan* paddy (panicle initiation/flowering), cardamom/vegetables (new planting) in Kerala.
- Late *samba* rice (tillering/vegetative), *samba* rice (panicle initiation), *thaladi* rice (tillering), sorghum (grain filling), cowpea (vegetative), rainfed groundnut (flowering), pulses (pod development), cotton (boll formation), maize crop (vegetative), sugarcane (tillering), new groundnut and gram (sowing), vegetables (flowering/ fruiting) 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 (vegetative), fodder crops (sowing), chickpea, lentil, mustard, linseed (vegetative) in Madhya Pradesh.
- Sugarcane (planting/vegetative), groundnut (pod filling), sesame (late vegetative), ginger, turmeric, papaya, mango and guava (vegetative), onion (planting), vegetables (transplanting / vegetative), millet (vegetative), wheat (late sown), 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, Ayeshwaria.

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

**Cowpea:** Kashi Kanchan.

**Lentil:** WBL – 58.

#### **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:** 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.

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

**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.

**Sunflower :-** Kaberi, Abinash-2, Ganga.

### **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, ICCC-2, HK94-134(Kabuli) and Pusa 256, Pusa 372, Pant G-114, KWR 108, ICCC 37.

**Pea:** Arkel, Kashi Nandini, PE - 6 and Birsa Matar.

**Lentil:** P.L.-406, P.L.-639, K.L.S-218 and K- 75.

### **Gujarat:**

**Gram:** Gujarat Gram-1, 2, 3, Dahod Yellow, ICCC- 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).

**Potato:** Kufri Badshah, Kufri Bahar, Laukar.

**Isabgul:** GI-3

**Sugarcane:** Co-740, Co-1219, Co-1145, Co-5714, and Co-86032

### **Maharashtra**

**Mustard:** Varuna, Pusa Bold.

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

### **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.

**Wheat:** C306, HD2733, K9107. Late sown wheat varieties: HUW234, PBW373, HW2045, H.D.-2643, H.P.-1744, DBW14, H.D.-2285,

**Sarson:** Rajendra Sarson-1, Swarna etc.

**Potato:** Kufri Lalima, Kufri Kuber, Kufri Alankaar, Khufri Jyoti, Khufri Chandramukhi, Ranjendra Aloo1, 2 And 3, Khufri Badshah.

### **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.

**Peas**: Bonnevillea, AP-1, AP-3

**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

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 & Harvaya**

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,

**Potato**: Kufri Ashok and Kufri Chandramukhi, Kufri Anand, Chipsona-1, 2, Jyoti and Pukhraj.

**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.

**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, 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

Late sown: MP-1142, MP-4010, MP-1201, LOK-1.

**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**

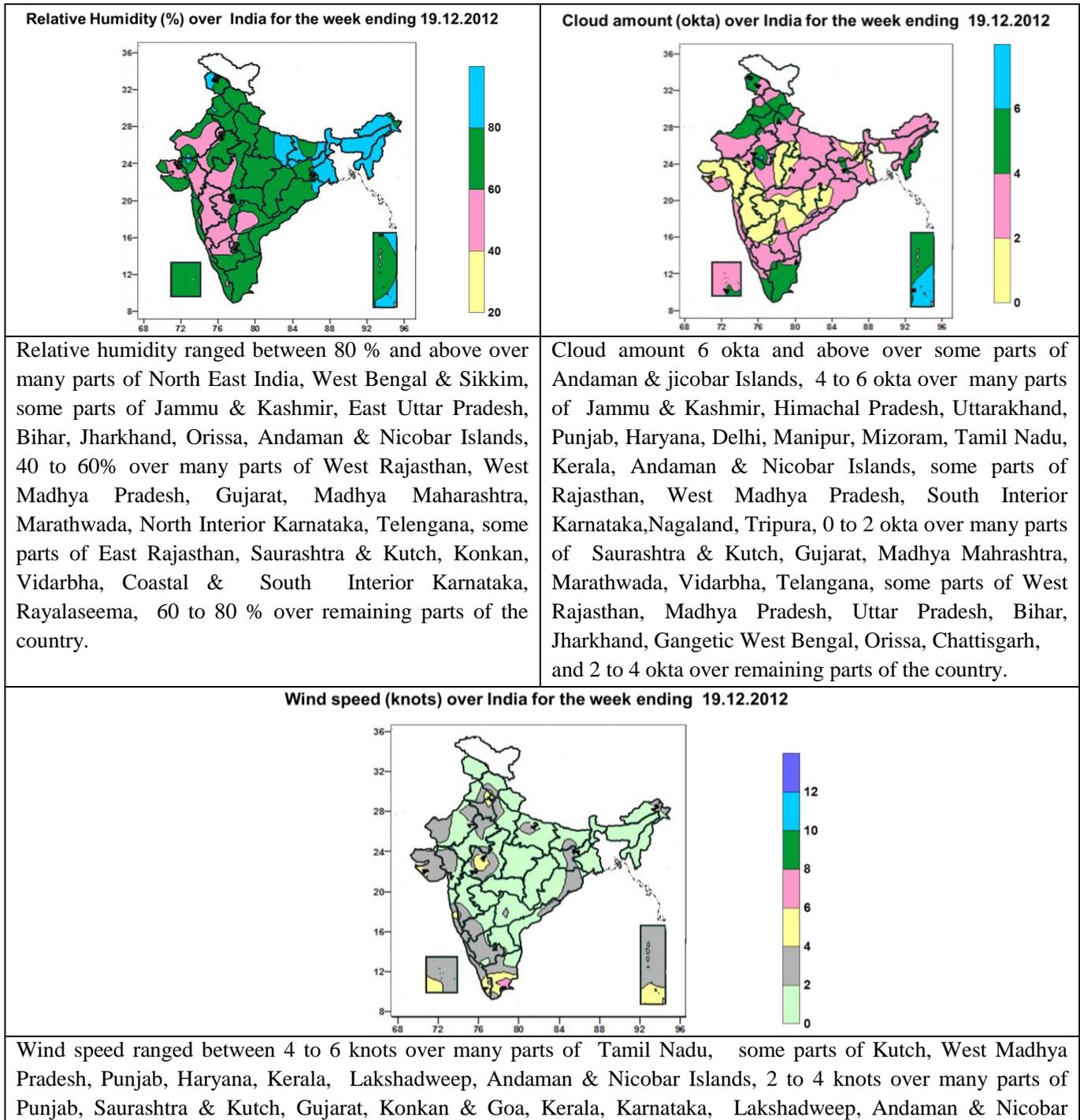
**Wheat :** GW-273, Kanchan, GW-173, Amar, Lok-1, Ratan and HD-2329  
**Gram :** Vaibhav, JG-74, JG-11, TG-315, ICC-2 (Kabuli)  
**Maize:** Proagro-4640, 4212, Pusa Hybrid -42, MH-10, MH-11, Navjyot, HM-9.  
**Niger:** JNC-1, JNC-6, JNC-9, GA-10, Ootakmund, KGN-2  
**Kulthi:** AK-21, Ak-42, Bastar Kulthi, Birsa Kulthi and VLG-9

**Tamil Nadu**

**Sesame:** TMV-7 and SVPR-1

**Annexure III**

**Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 19.12.2012**



Islands, some parts of Himachal Pradesh, Haryana, Uttar Pradesh, Bihar, Jharkhand, Orissa, West Madhya Pradesh, West Rajasthan, Madhya Maharashtra, North Interior Karnataka, Tamil Nadu, 0 to 2 knots over remaining parts of country.