

## Significant weather and realized rainfall during last week:

- Significant rainfall occurred in Kanyakumari, Nagapattinam and Ramanathapuram districts in Tamil Nadu and Dibang Valley in Arunachal Pradesh during last week. Mainly dry / dry weather prevailed over rest of the country.
- During the last week cold wave/cold day conditions prevailed over many parts of Punjab, Haryana, Chandigarh, Delhi Uttar Pradesh, north Rajasthan, Madhya Pradesh, Chhattisgarh and isolated pockets of rest Rajasthan, Bihar, Jharkhand, North Odisha, West Bengal, West Assam, Meghalaya and Tripura.

## South India

- Farmers in Kerala are advised to sow vegetable crops like cabbage, cauliflower, bhindi and Amaranthus utilizing the realized rainfall and keep regular watch over paddy field as weather condition is favourable for thrips in Punja rice.
- Taking the advantage of dry and sunny condition farmers in Karnataka are advised to complete harvesting of rice and maize crops and undertake land preparation for sowing of pulse crops viz. black gram, green gram, horse gram, cowpea and sunflower. They are also advised to irrigate October sown wheat, jowar and chickpea crops.
- Weather is congenial for incidence of tikka leaf spot in groundnut in many parts of the Andhra Pradesh. Farmers are advised to spray Dimethoate @ 2 ml / litre of water to control it.
- In view of dry spell, farmers in Tamil Nadu are advised to give irrigation to rice, irrigated maize, groundnut and red gram crop.

## Northwest India

- Low temperature conditions prevailed over East Uttar Pradesh during the week ending 9th January. Cold wave conditions prevailed over many parts of Uttar Pradesh and also likely to prevail over some parts of East Uttar Pradesh during next 24 hours. Farmers are advised to apply light and frequent irrigation / sprinkling to the standing crops and arrange for smoking around the field to safeguard from cold / frost injury.
- In Sub-tropical and Intermediate Zone of Jammu & Kashmir, farmers are advised to cover the young evergreen plants with thatches prepared from Sarkanda or any other material, Give light irrigation or smoking to protect orchards against cold injury.
- In Hilly Zone of Uttarakhand farmers are advised to apply light and frequent irrigation / sprinkling to the standing crops and arrange for smoking around the field to safeguard from cold / frost injury and also due to prevailing dry weather condition in Barbar & Tarai Region, farmers are advised to harvest matured and toria crop.
- In Mid Hills Sub-humid Zone of Himachal Pradesh, farmers are advised to start pruning and training and apply Bordeaux or Chaubhatia paste on the pruning cuts in apple/stone fruit plants which are at dormancy due to low temperature conditions. Protect fruits crops like mango and papaya of 4-5 years age from low temperature by covering with dry Sarkanda grass.
- Farmers in Delhi are advised to apply first irrigation to late sown wheat crop if it is 21-25 days old and second irrigation if the crop is at tillering stage. Weather is favourable for transplanting of seedlings of late varieties of cabbage, cauliflower, knol khol and sowing of spinach, coriander, fenugreek. Transplanting of onion should be done at the earliest as further delay will reduce the yield and causes severe infestation of thrips.
- Farmers in Punjab are advised to apply second irrigation to timely sown wheat and first irrigation to late sown wheat.
- Farmers in Haryana are advised to apply irrigation to wheat crop. Give irrigation to late maturing varieties of sugarcane.
- Farmers in Arid Western Plain Zone in Rajasthan are advised to apply irrigation in wheat at CRI stage (21 DAS). Apply irrigation in gram and mustard at 65 DAS and intercultural operations in winter maize with urea top dressing and irrigation.

(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)**

### **Northeast India**

- In view of low minimum temperature in some parts of the States of the region and likely cold wave conditions over Tripura during next 48 hours, farmers are advised to apply light and frequent irrigation to the standing crops to avoid cold injury.
- As there is no significant rain during last few weeks in Arunachal Pradesh, farmers are advised mulching with locally available weeds, rice straws etc. to conserve the soil moisture and to prevent the effect of low temperature.
- Due to mainly dry weather conditions in Nagaland, farmers are advised for mulching in pea to conserve soil moisture. Farmers in Kohima, Phek, Wokha and Zinho Districts are advised to apply light irrigation in pea, as even slight freezing may injure or destroy the blossoms and pods of pea.
- In Mild Tropical Plain Zone of Tripura, farmers are advised to undertake nursery raising of boro rice. Nursery bed may be covered during night to protect the seedlings from diseases due to cold.

### **East India**

- Cold wave conditions prevailing over many parts of Bihar and some parts of West Bengal, farmers in these regions are advised to apply light and frequent irrigation/ sprinkling and arrange for smoking to protect the crops from cold/frost injury.
- Farmers in West Bengal are advised to start nursery bed preparation and sowing of *boro* rice and also undertake land preparation for planting of late sown paddy. Farmers are also advised to complete land preparation for planting of potato and chilli.
- Farmers in Bihar are advised to apply irrigation in tobacco, rajmah, vegetable crops and timely sown wheat as per moisture status of the soil. Farmers are also advised to start transplanting of *boro* rice and give light irrigation to potato and tomato crop.
- Farmers in Central and North Eastern Plateau Zone of Jharkhand are advised to prepare nursery for sowing of onion and prepare field for sowing of long gourd, round gourd, bitter melon, sponge gourd, cucumber, water melon and musk melon.
- Farmers in Odisha are advised to undertake nursery sowing of summer rice.

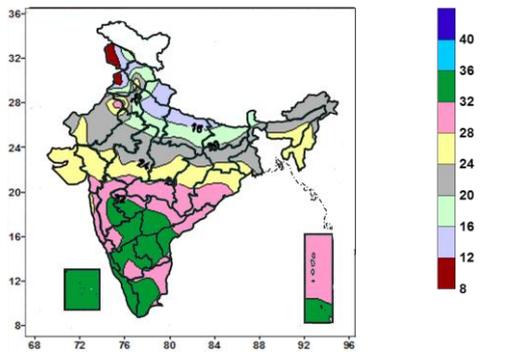
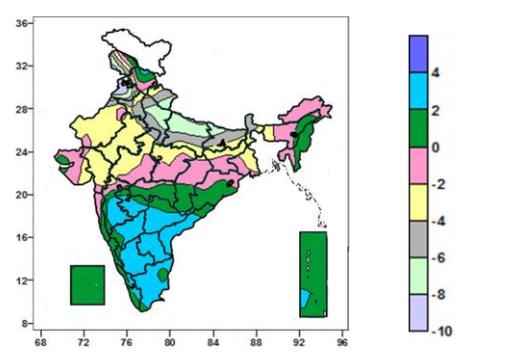
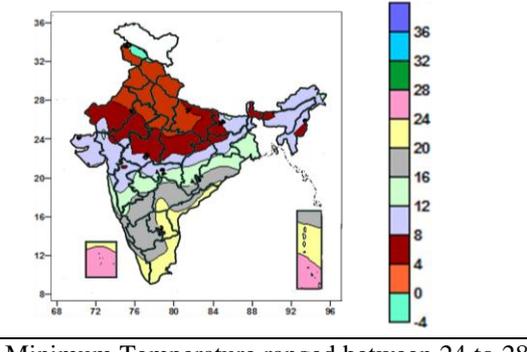
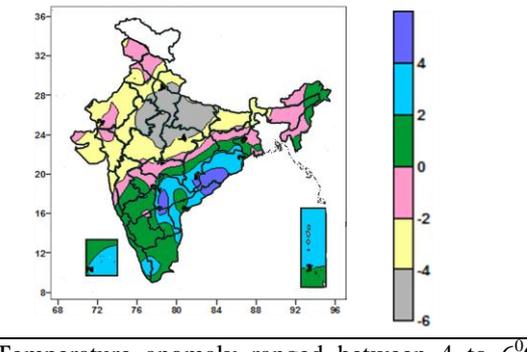
### **Central India**

- Dry weather conditions prevailed during last week and likely to prevail over Madhya Pradesh. Farmers are advised to apply irrigation to wheat, potato, pea, mustard and vegetable crops. Taking the advantage of dry weather undertake intercultural operations in tomato, chilli and brinjal fields.
- As dry weather is prevailing and likely to prevail in Chhattisgarh Plain Zone, farmers are advised to apply irrigation and undertake intercultural operations in December-sown wheat. Present weather conditions are favourable for infestation of thrips in groundnut and *lathyrus*. Farmers are advised to spray Metasystox 25 EC or Dimethoate 30 EC @ 1.5-2 ml / litre of water.

### **West India**

- As dry weather prevailed during last few weeks and is expected to continue during next 5 days, farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to apply irrigation to the rabi jowar, wheat, safflower, sugarcane, vegetables and orchard crops.
- As temperature is congenial, farmers are advised to complete transplanting of summer rice and finger millet seedlings in South Konkan and undertake planting of suru sugarcane in Madhya Maharashtra.
- Taking the advantage of prevailing dry weather, farmers are advised to continue harvesting of already matured red grams in Maharashtra.
- As dry weather is prevailing during last few weeks and is expected to prevail, farmers in Gujarat are advised to apply irrigation to wheat, gram, cumin, potato, vegetables like chilli, brinjal and tomato and orchard crops.
- As dry weather is prevailing, farmers in Middle Gujarat Zone are advised to harvest matured castor capsule bunches.

## Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 09.01.2013

<p><b>Actual Mean Maximum Temperature (°C) in India for the week ending 09.01.2013</b></p> 	<p><b>Mean Maximum Temperature (°C) Anomaly in India for the week ending 09.01.2013</b></p> 
<p>Actual Mean Maximum temperature ranged between 32 to 36<sup>0</sup>C over many parts of Madhya Maharashtra, Marathwada, Karnataka, Andhra Pradesh, Kerala, Tamil Nadu, Lakshadweep Islands, some parts of Andaman &amp; Nicobar Islands, 16 to 20<sup>0</sup>C over many parts of Bihar, Sikkim, some places of Jammu &amp; Kashmir, Himachal Pradesh, Uttarkhand, Punjab, Haryana, Delhi, Uttar Pradesh, Sub-Himalayan West Bengal, 12 to 16<sup>0</sup>C over many parts of Uttarakhand, West Uttar Pradesh, some parts of Jammu &amp; Kashmir, Punjab, Himachal Pradesh, East Uttar Pradesh, Bihar, 8 to 12<sup>0</sup>C over some parts of Jammu &amp; Kashmir, Punjab, 20 to 32<sup>0</sup>C over remaining parts of the country.</p>	<p>Actual Mean Maximum temperature anomaly ranged between 2 to 4<sup>0</sup>C over many parts of Andhra Pradesh, South &amp; North Interior Karnataka, Tamil Nadu, Madhya Maharashtra, Marathwada, some parts of Kerala, Andaman &amp; Nicobar Islands, -6 to -4<sup>0</sup>C over many parts of Haryana, Delhi, Sikkim, some parts of Jammu &amp; Kashmir, Uttarakhand, Punjab, Rajasthan, Uttar Pradesh, Sub-Himalayan West Bengal, -10 to -8<sup>0</sup>C over many parts of Punjab, some parts of Jammu &amp; Kashmir, -2 to 2<sup>0</sup>C over rest of the country.</p>
<p><b>Actual Mean Minimum Temperature (°C) in India for the week ending 09.01.2013</b></p> 	<p><b>Mean Minimum Temperature (°C) Anomaly in India for the week ending 09.01.2013</b></p> 
<p>Actual Mean Minimum Temperature ranged between 24 to 28<sup>0</sup>C over most parts of Lakshadweep, some parts of Andaman &amp; Nicobar Islands, 20 to 24<sup>0</sup>C over many parts of Tamil Nadu, Kerala, Coastal Andhra Pradesh, Raylaseema, Andaman &amp; Nicobar Islands, some parts of Coastal Odisha, Telanagna, Lakshadweep Islands, 0 to 4<sup>0</sup>C over many parts of Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh, some parts of Jammu &amp; Kashmir, Rajasthan, Madhya Pradesh, -4 to 0<sup>0</sup>C over some parts of Jammu &amp; Kashmir, Himachal Pradesh, 4 to 20<sup>0</sup>C over remaining parts of the country.</p>	<p>Minimum Temperature anomaly ranged between 4 to 6<sup>0</sup>C over Some parts of Odisha, Andhra Pradesh, 2 to 4<sup>0</sup>C many parts of Odisha, Andhra Pradesh Andaman &amp; Nicobar, Lakshadweep Islands, some parts Tamil Nadu, Kerala, Jharkhand. -6 to -4<sup>0</sup>C over most parts of Uttar Pradesh, East Rajasthan, North Madhya Pradesh, some parts of Uttarkhand, Haryana, -4 to 2<sup>0</sup>C over remaining parts of the country.</p>

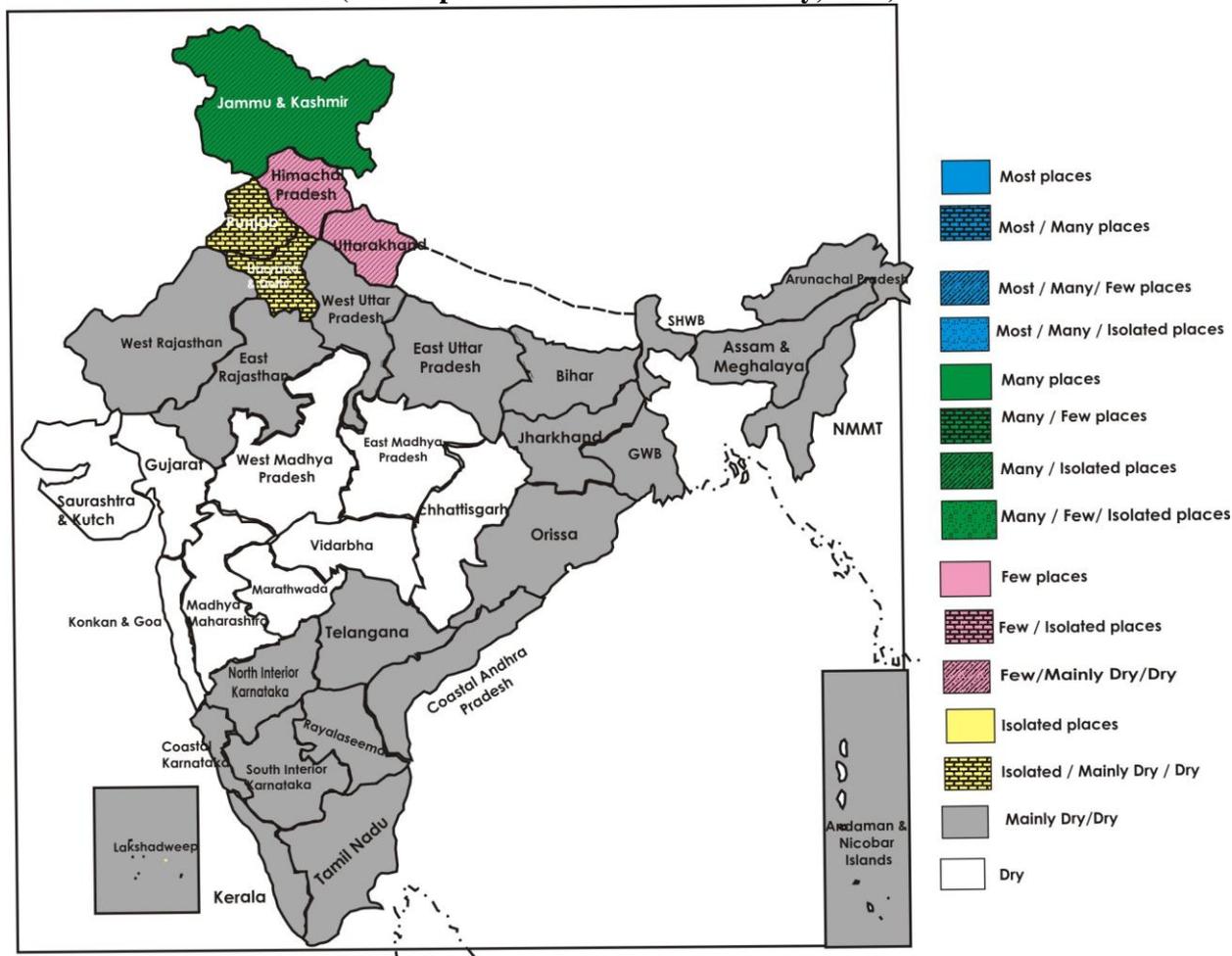
## Distribution of rainfall of the country during week ending on 09.01.2013

State/Districts	Actual (mm)	% Dep.			
<b>Arunachal Pradesh</b>			Hassan	0.0	-100
Anjaw	**	**	Kodagu	0.0	-100
Changlang	0.1	-99	Kolar	0.0	-100
Dibang Valley	35.0	116	Mandya	0.0	-100
East Kameng	0.0	-100	Mysore	0.0	-100
East Siang	5.8	12	Ramnagara	0.0	-100
Kurung Kumey	**	**	Shimoga	0.0	-100
Lohit	17.1	248	Tumkur	0.0	-100
Lower Dibang Valley	**	**	<b>Kerala</b>		
Lower Subansari	**	**	Alappuzha	4.5	2
Papumpara	10.3	3	Kannur	0.0	-100
Tawang	0.0	-100	Ernakulam	0.0	-100
Tirap	1.8	-80	Idukki	0.4	-87
Upper Siang	15.6	11	Kasaragod	0.0	-100
Upper Subansari	10.2	343	Kollam	6.6	29
West Kameng	0.5	-92	Kottayam	7.7	141
West Siang	17.0	204	Kozhikode	0.0	-100
<b>Karnataka</b>			Malappuram	0.0	-100
<b>Coastal Karnataka</b>			Palakkad	0.0	-100
Dakshin Kannada	0.0	-100	Pathanamthitta	3.0	3
Udupi	0.0	-100	Thiruvananthapuram	12.8	482
Uttar Kannada	0.1	-43	Thrissur	0.0	-100
<b>North Interior Karnataka</b>			Wyanad	0.0	-100
Bagalkote	0.0	-100	<b>Tamil Nadu</b>		
Belgaum	0.2	200	Ariyalur	0.0	-100
Bidar	0.9	-31	Chennai	0.0	-100
Bijapur	0.0	-100	Coimbatore	0.0	-100
Dharwad	0.0	-100	Cuddalore	0.0	-100
Gadag	0.0	-100	Dharmapuri	0.0	-100
Gulbarga	0.0	-100	Dindigul	0.0	-100
Haveri	0.0	-100	Erode	0.0	-100
Koppal	0.0	-100	Kanchipuram	0.0	-100
Raichur	0.0	-100	Kanyakumari	24.6	749
Yadgir	0.0	-100	Karikal	10.2	-48
<b>South Interior Karnataka</b>			Karur	0.0	-100
Bangalore Rural	0.0	-100	Krishnagiri	0.0	-100
Bangalore Urban	0.0	-100	Madurai	1.1	-82
Bellary	0.0	-100	Nagapattinam	31.0	67
Chamarajnar	0.0	-100	Namakkal	0.0	-100
Chichballapur	0.0	-100	Nilgiris	0.0	-100
Chickmagalur	0.0	-100	Perambalur	0.6	-89
Chitradurga	0.0	-100	Puducherry	0.0	-100
Davangere	0.0	-100	Pudukottai	15.1	22
			Ramanathapuram	26.8	129
			Salem	0.0	-100
			Sivaganga	15.0	118
			Thanjavur	13.5	35
			Theni	0.0	-100
			Tirunelveli	1.7	-84
			Tirupur	0.0	-100
			Tiruvallur	0.0	-100
			Tiruvannamalai	0.0	-100
			Tiruvarur	12.2	-16
			Toothukudi	10.1	37
			Trichy	0.9	-85
			Vellore	0.0	-100
			Villupuram	0.0	-100
			Virudhunagar	1.9	-75
			<b>Andhra Pradesh</b>		
			<b>Coastal Andhra Pradesh</b>		
			East Godavari	2.2	170
			Guntur	0.0	-100
			Krishna	0.0	-100
			Nellore	0.0	-100
			Prakasam	0.0	-100
			Sirkakulam	0.0	-100
			Visakhapatnam	4.2	177
			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	2.5	127
			Nalgonda	0.0	-100
			Nizamabad	3.4	124
			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 14<sup>th</sup> January, 2013)



### Major Feature of Weather Forecast up to 0830 hours IST of 14<sup>th</sup> January, 2013

- Conditions are becoming favorable for withdrawal of northeast monsoon from south peninsular India during next 24 hours.
- No dense fog would occur over most parts of Indo-Gangetic plains during next 48 hours.
- Cold day conditions would not occur over Indo-Gangetic plains during next 3 days.
- Maximum and minimum temperatures would further rise by 2°C over northwest, central and east India during next 48 hours.
- Rain/snow would occur at one or two places over Jammu & Kashmir on today and increase thereafter.
- Rain/snow would also occur at a few places over Himachal Pradesh and Uttarakhand from 12<sup>th</sup>.
- Rain/thundershowers would occur at one or two places over Punjab and north Haryana from 12<sup>th</sup>.
- Mainly dry weather would prevail over rest parts of the country.

### Weather Warning during next 3 days

- Cold wave conditions would prevail over some parts of east Uttar Pradesh, Bihar, West Bengal and Tripura during next 24 hours.

### Weather Outlook for subsequent 4 days from 13<sup>th</sup> to 18<sup>th</sup> January, 2013

- Light precipitation would occur at one or two places over western Himalayan region on 13<sup>th</sup>.
- A fresh western disturbance would approach western Himalayan region from 15<sup>th</sup> onwards.
- Minimum temperature would fall by 2-3°C over northwest India on 14<sup>th</sup> & 15<sup>th</sup>.

## Zonewise Agromet Advisories

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

- **Realised Rainfall:** There was no significant rain in most of the districts of the States of the region during the period.
- **Weather Forecast:** Mainly dry weather would prevail over the region.
- **Weather Warning:** Cold wave conditions would prevail over Tripura during next 48 hours.
- **Advisories:**
  - In view of low minimum temperature in some parts of the States of the region and likely cold wave conditions over Tripura during next 48 hours, farmers are advised to apply light and frequent irrigation to the standing crops to avoid cold injury.
  - As there was no significant rain during last few weeks in Arunachal Pradesh, farmers are advised mulching with locally available weeds, rice straws etc. to conserve the soil moisture and to prevent the effect of low temperature.
  - Due to mainly dry weather conditions in Nagaland, farmers are advised for mulching in pea to conserve soil moisture. Farmers in Kohima, Phek, Wokha and Zheboti districts are advised to apply light irrigation in pea, as even slight freezing may injure or destroy the blossoms and pods of pea.
  - In Mild Tropical Plain Zone of Tripura, farmers are advised to undertake nursery raising of *bororice*. Nursery bed may be covered during night to protect the seedlings from diseases due to dew.
  - Due to favourable weather conditions, there is chance of attack of aphids and saw fly on rapeseed and mustard in North Bank Plain Zone of Assam; farmers are advised to apply Dimethoate 30EC or Chloropyrifos @ 2ml/litre of water.
  - Due to favourable weather conditions, there is chance of attack of saw fly in toria in Upper Brahmaputra Valley Zone of Assam; farmers are advised to apply Endosulfan @ 2ml per litre of water during evening hours to control saw fly.
  - In Mild Tropical Plain Zone of Tripura, infestation of pseudo stem weevils is reported in banana; farmers are advised for killing of weevils and removal of dry and diseased leaves.
  - Due to foggy weather conditions in Mild Tropical Plain Zone of Tripura, there is chance of attack of aphids in toria at flowering stage; farmers are advised to spray Monocrotophos @ 2 ml per litre of water. Due to prevailing foggy condition fungal diseases like early blight in potato may occur in Mild Tropical Plain Zone of Tripura; Mancozeb (Indofil M-45) @ 2.5 g per liter of water may be sprayed in potato field at least twice at an interval of 15 days as precautionary measures.
  - Other advisories are mentioned in Annexure - I
  - Stages of major crops are mentioned in Annexure II.
- **Animal Husbandry**
  - In Upper Brahmaputra Valley Zone, North Bank Plain Zone, Lower Brahmaputra Valley 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 100 W bulb @ 1 bulb per 20 newly born chicks.
  - Farmers in Mild Tropical Hill Zone of Mizoram are advised to provide additional bulbs in poultry, heating system in cattle shed or tie gunny bags on the back of cattle to protect against cold conditions.
  - In Mild Tropical Plain Zone of Tripura, farmers are advised to protect poultry birds and pig from cold by keeping shed warm.
- **Pisci culture**
  - Farmers in Central Brahmaputra Valley Zone, Upper 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 litre per bigha of water, and Lime to protect the fish population against various bacterial diseases prevalent in winter season.

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

- **Realised Rainfall:** Mainly dry weather prevailed over the region.
- **Weather Forecast:** Mainly dry weather would prevail over the region.

No dense fog would occur over most parts of Indo-Gangetic plains during next 48 hours. However, shallow fog may occur in morning hours over Bihar, Sub-Himalayan West Bengal during next 24 hours. Cold day conditions would not occur over Indo-Gangetic plains during next 3 days. Maximum and minimum temperatures would further rise by 2-4°C over the region during next 48 hours.

- **Weather Warning:** Cold wave conditions would prevail over some parts of Bihar, West Bengal during next 24 hours.
- **Advisories:**
  - Cold wave conditions prevailing over many parts of Bihar and some parts of West Bengal, farmers in these regions are advised to apply light and frequent irrigation/ sprinkling and arrange for smoking to protect the crops from cold/frost injury.
  - Farmers are advised to apply irrigation to the standing crops in Jharkhand and Orissa as there was no significant rainfall in these States and no significant rainfall is likely to occur during next three days.
  - As dry weather is prevailing in North Central Plateau Zone of Odisha, apply irrigation for better pod formation and grain filling as groundnut crop is at flowering stage to pod development stage and mustard crop is at grain filling stage
  - Due to decrease in maximum and minimum temperature in New Alluvial Zone and Old Alluvial Zone of West Bengal, protect the seedling of *boro* rice from cold by covering the nursery bed with polythene. In view of dry weather conditions apply light irrigation to mustard crop in Old Alluvial Zone of West Bengal.
  - Due to very low temperature in *Terai* Zone of West Bengal, protect the seedbed of *boro* rice from cold injury, drag the rope in the early morning to drop down the dew from leaf canopy. Irrigate the field at night and drain out in the next morning. Irrigate the field of wheat crop as there is no forecast of significant rainfall.
  - Infestation of stem borer has been found on maize in Cuttack and Khurda districts of East and South Eastern Coastal Plain Zone of Odisha. Release 2000 eggs of *Trycogramma chilonies* twice at 10 days interval. If not controlled by the above method, go for spraying of 2 ml Chloropyriphos or Monocrotophos or Quinalphos in 1 litre water.
  - Due to prevailing foggy weather condition in New Alluvial Zone of West Bengal, early blight may be observed in potato and tomato. To control apply 2 g Mancozeb per litre of water or Blitox (3 g / litre of water). White streak disease may be observed in pea, masur and Bengal gram, apply Sulphex or Dinocap (2.5 gm) per litre of water.
  - Due to possibility of low temperature and fog in *Terai* Zone of West Bengal, there may be chance of late blight attack in potato, spray Mancozeb (2 g / litre of water) and Blitox (4 g / litre of water) alternately at 10-12 days interval by completely wetting the leaves.
  - In North West Alluvial Plain Zone of Bihar, early and late blight disease may intensify in potato crop due to foggy weather condition during last week, spray Endophil M-45 or mixture of Synomaxi and Mancozeb @ 2.0 g per litre of water. Spraying should be done in clear sunshine day.
  - Other crop advisories are mentioned in Annexure I.
  - Stages of major crops are mentioned in Annexure II.
- **Animal Husbandry**
  - As low minimum temperature is expected in North Eastern Coastal Plain Zone of Odisha, provide warm and comfortable housing to animals as calf and kids are susceptible to respiratory infection, mostly pneumonia. Weather is favourable for attack of FMD in milch animals in North Eastern Plateau Zone of Odisha, take preventive measures to control this disease and animals are to be vaccinated.
  - 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.

#### WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Dry weather prevailed over States of the region during last week.
- **Rainfall Forecast:** Dry weather would prevail over the region.
- **Advisories:**
  - As temperature is congenial in South Konkan, famers are advised to complete transplanting of summer rice and finger millet seedlings.
  - As dry weather prevailed during last few weeks and is expected to continue during next 5 days, farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to apply irrigation to the *rabi* jowar, wheat, safflower, sugarcane, vegetables and orchard crops.
  - As temperature is favourable, farmers are advised to undertake planting of *suru* sugarcane in Madhya Maharashtra.
  - As dry weather is prevailing during last few weeks and is expected to prevail, farmers in Gujarat are advised to apply irrigation to wheat, gram, cumin, potato, vegetables viz. chilli, brinjal and tomato and orchard crops.
  - Due to prevailing cold and dry weather, there may be increase in infestation of downy mildew in cabbage, cauliflower, broccoli and cucumber in Pune region; spray Metalaxyl 8 % plus Mancozeb 64% (2 g) or Cymoxanil 8% plus Mancozeb 64% (3 g), alternately at 15 days interval.

- Due to lower temperatures, there is a chance of incidence of blast disease in summer rice in South Gujarat Heavy Rainfall Zone of Gujarat, farmers are advised to spray the nursery with Triazophos @ 6 g or Carbendazim @ 10 g / 10 litres of water.
- Due to prevailing weather, there may be incidence of blight & powdery mildew in cumin in North Saurashtra Zone. To prevent it spray 10 ml Hexaconazole 5 EC in 10 litres of water.
- There are chances of incidence of blight disease in potato, tomato, fennel and cumin due to night cold weather conditions in North Gujarat Zone, farmers are advised to take control measures. There is a possibility of occurrence of powdery mildew in cucurbitaceous vegetables. Spray wettable Sulphur (0.2%) to control it.
- Under prevailing weather conditions, there are chances of incidence of whitefly in orchard crops in North West Zone and North Gujarat Zone. Spray Canthrine 10 ml by dissolving in 10 litres of water to control it.
- Other advisories are mentioned in Annexure - I
- Stages of the crops are mentioned in Annexure II.
- **Animal Husbandry**
  - Keep animals in sheds for protection against cold in Gujarat and take special care of young calves during morning hours. Cover poultry house by gunny bags or cloth / plastic sheets for protection against cold in North Saurashtra Zone and North West Zone of Gujarat.

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

- **Realised Rainfall:** Mainly dry / dry weather prevailed over the region.
- **Weather Forecast:** Rain / snow would occur at one or two places over Jammu & Kashmir on today and at many places thereafter. Rain / snow would also occur at a few places over Himachal Pradesh and Uttarakhand from 12<sup>th</sup>. Rain / thundershowers would occur at one or two places over Punjab and north Haryana from 12<sup>th</sup>. Mainly dry weather would prevail over rest of the region.  
No dense fog would occur over most parts of Indo Gangetic plains during next 48 hours. Cold day conditions would not occur over Indo Gangetic plains during next 3 days. Maximum and minimum temperatures would further rise by 2<sup>0</sup>C over northwest during next 48 hours.
- **Warning:** Cold wave conditions would prevail over some parts of east Uttar Pradesh during next 24 hours.
  - Low temperature conditions prevailed over East Uttar Pradesh during the week ending 9<sup>th</sup> January. Cold wave conditions prevailed over many parts of Uttar Pradesh and also likely to prevail over some parts of East Uttar Pradesh during next 24 hours. Farmers are advised to apply light and frequent irrigation / sprinkling to the standing crops and arrange for smoking around the field to safeguard from cold / frost injury.
  - As there are chances of rainfall at many places over Jammu & Kashmir from 12<sup>th</sup> onwards, farmers are advised to postpone irrigation and intercultural operations in standing crops.
  - In Hilly Zone of Uttarakhand farmers are advised to apply light and frequent irrigation / sprinkling to the standing crops and arrange for smoking around the field to safeguard from cold / frost injury.
  - In Mid Hills Sub-humid Zone of Himachal Pradesh, farmers are advised to start pruning and training and apply Bordeaux or Chobiatia paste on the pruning cuts in apple/stone fruit plants which are at dormancy due to low temperature conditions. Protect fruits crops like mango and papaya of 4-5 years age from low temperature by covering with dry Sarkanda grass.
  - Farmers in Haryana are advised to apply 1<sup>st</sup> irrigation to late sown wheat crop and 2<sup>nd</sup> irrigation to timely sown wheat crop.
  - Due to favorable weather conditions in Central Plain Zone of Uttar Pradesh, there is chance of attack of aphid and saw fly on rapeseed and mustard. Farmers are advised to apply Dimethoate 30EC or Chloropyriphos @ 2ml / litre with a spray volume of 500-700 litre/ha for hand sprayer & 200-250 litre / ha for power sprayer. Also there is chance of attack of powdery mildew in pea at reproductive stage. Apply wettable Sulphur to control powdery mildew.
  - In the Mid Hills Sub humid Zone of Himachal Pradesh due to prevailing weather conditions chances of emergence of downy mildew in cauliflower has increased. Farmers are advised to apply Redomil-MZ (25g/100 litre water). The occurrence of frost may cause black rot disease in cauliflower which has also been noticed in some areas of Solan. To control it spray Mancozeb (25 g) with Streptocycline (1 g/10 litre of water).
  - Other advisories are mentioned in Annexure - I
- **Animal Husbandry**
  - In Central & Plain zone of Uttar Pradesh, farmers are advised to keep all animals inside the shed due to expected cold in the night. Maintain proper light and temperature inside shed and also advised to vaccinate animals against FMD.

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

- **Realised Rainfall:** No significant rainfall occurred over the region except in Kanyakumari, Nagapattinam and Ramanathapuram districts in Tamil Nadu which received significant rainfall during last week.
- **Rainfall Forecast:** Mainly dry weather would prevail over the region.
- **Advisories:**
  - As no significant rainfall occurred over most parts of the region, apply irrigation to the standing crops. Postpone irrigation to the standing crops in Kanyakumari, Nagapattinam and Ramanathapuram in Tamil Nadu, since these districts received significant rainfall last week.
  - Anticipating the dry spell, farmers in Western Zone of Tamil Nadu advised to give irrigation to rice, irrigated maize, groundnut and red gram.
  - As dry weather is expected in the next 3 days in the High Altitude Hilly Zone of Tamil Nadu, farmers are advised to adopt mulching to conserve moisture in the standing crops.
  - Farmers in the High Altitude Zone and North Coastal Zone of Andhra Pradesh are advised to continue transplanting of *rabi* rice in the main field as mainly dry weather is likely during next few days. They are also advised to maintain 2-5 cm of water in the already transplanted rice fields.
  - In the Northern Zone of Kerala, the season is ideal for cultivating vegetables as intercrops in coconut gardens. Farmers are advised to mulch the soil to prevent evaporation loss of water. It is the right time for raising cool season vegetables like cabbage and cauliflower etc.
  - Farmers in the North Dry Zone of Karnataka are advised to undertake mulching with dried leaves in between the rows in *rabi* sorghum to conserve the soil moisture.
  - Prevailing temperature in the Western zone of Tamil Nadu is conducive for the attack of leaf caterpillar in Bengal gram. Farmers are advised to dust Malathion @ 25 Kg/ha in the early morning hours to control the attack.
  - In Southern Zone of Tamil Nadu, incidence of sucking pests viz. mites, whitefly and thrips in chillies and sheath blight in rice may occur due to cloudy conditions and low temperature with high relative humidity. Farmers are advised to undertake plant protection measures.
  - Incidence of leaf miner in groundnut is noticed in some parts of North Coastal zone and Southern zone of Andhra Pradesh and weather is congenial for incidence of Tikka leaf spot also in groundnut. Farmers are advised to spray Dimethoate @2ml/l to control leaf miner.
  - Incidence of *Helicoverpa armigera* in Bengal gram and Red gram and leaf miner in groundnut was noticed in some parts of scarce rainfall zone of Andhra Pradesh. Prevailing weather is congenial for the incidence of Tikka leaf spot in groundnut in the region. Farmers are advised to spray Chlorpyrifos 2ml + Dichlorovos 1ml per one liter of water for control of leaf miner in groundnut and Quinalphos @2.0 ml or Acephate@ 1.5 gm per litre of water for control of pod borer.
  - Incidence of stem borer is noticed on maize in some parts of southern Telangana zone of Andhra Pradesh. To control, spray Monocrotophos @ 1.6 ml per litre of water or apply Carbofuron 3G @ 3 kgs per acre in the whorls.
  - In the High Altitude Zone of Kerala, farmers are advised to keep vigilance against red palm weevil attack in coconut palms 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. Against Sigatoka leaf spot disease in banana, spray 1% Bordeaux mixture after cutting the severely affected leaves and burning it. Four to five sprayings at fortnightly intervals are to be given depending on the severity of the disease.
  - In the Problem Area Zone of Kerala, weather condition is favourable for thrips in *Punja* rice. Farmers are advised to keep regular watch over the fields and if the attack is found, they are advised to drain out the field completely. In the fields where dry condition has occurred, it is favourable for the attack of army worms in *Punja* rice. Ensure standing water of at least 1.5 cm in the field in order to prevent the larval migration from one field to another. Apply Cartap 10 kg/acre to control the army worms if the populations are very high. It may be applied along with fertilizers. In the prevailing climatic condition, coconut palms of all the age are vulnerable to attack by bud rot disease, but young palms are more susceptible to this disease. In the early stages, cut and remove the affected tissues of the crown and burn them. Spray Bordeaux mixture 1% on spindle leaves and crown of disease affected as well as neighbouring palms.
  - In the Southern Zone of Kerala, incidence of aphid attack is noted in bhindi, cowpea, brinjal etc. which can be controlled by spraying *Beauveria bassiana*.
  - Other advisories are mentioned in Annexure - I

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

- **Realised Rainfall:** Mainly dry weather prevailed over the region.
- **Weather forecast:** Weather would be mainly dry over the region. Maximum and minimum temperatures would further rise by 2°C during next 48 hours.
- **Advisories:**
  - As mainly dry weather is expected and maximum and minimum temperatures would further rise by 2°C over Madhya Pradesh, farmers are advised to apply irrigation to field crops.
  - Dry weather is expected in Jhabua Hills Zone of Madhya Pradesh, farmers are advised to give second irrigation to semi irrigated wheat crop at 60-70 DAS. 4-6 irrigation and timely sown wheat crop give third irrigation at 45-50 DAS. They are also advised to give irrigation at 12-15 days interval in maize crop. Use sprinkler/rain gun for irrigation.
  - Dry weather is expected in Central Narmada Zone of Madhya Pradesh, farmers are advised to give second irrigation to wheat crop and top dressing may be done; also give first irrigation in gram crop (35-40 DAS). Irrigate the sugarcane after 18 to 20 days of interval. Irrigate the vegetable and fruits crops and apply remaining dose of fertilizer.
  - Present weather condition is favourable for infestation of thrips in groundnut and lathyrus in Chhattisgarh Plain Zone. Farmers are advised to spray Metasystox 25 EC or Dimethoate 30 EC @ 1.5-2 ml/l water.
  - Other advisories are mentioned in Annexure - I

## Annexure I

### Other Advisories

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

- Farmers in Hill Zone of Assam are advised to prepare the main field for transplanting of *boro* rice. Farmers are also advised to undertake nursery raising of coconut.
- Farmers in Upper Brahmaputra Valley Zone of Assam are advised to undertake land preparation and sowing of *rabi* pulses viz. lentil, rajmah, pea, lathyrus.
- In Lower Brahmaputra Valley Zone of Assam farmers are advised to transplant the seedling of *boro* rice. Standing water of 3-7cm depth may be maintained after 2-3 days of transplanting.
- In North bank plain Zone of Assam farmers are advised to undertake sowing of *boro* rice and transplanting of early sown rice.
- In Mild Tropical Hill Zone of Mizoram, farmers are advised to continue transplanting the seedlings of cabbage, cauliflower, tomato, broccoli and knol khol.
- Farmers in Sub Tropical Plain Zone of Manipur are advised to continue transplanting of seedlings of cabbage, cauliflower and raising of nursery of cucurbits viz. sponge gourd, bitter gourd, pumpkin etc.
- In Temperate Sub Alpine Zone of Meghalaya, farmers are advised to continue transplanting of cole crops and other winter vegetables. Farmers are also advised to undertake nursery preparation for *boro* rice in East Khasi Hill Zone.

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

- In North East Alluvial Zone of Bihar, farmers are advised to complete nursery sowing of *boro* rice and start final transplanting of *boro* rice.
- As dry weather is expected to prevail in Western Undulating Zone of Odisha farmers are advised to carry out threshing of paddy and harvesting of cotton.
- The farmers in Western Undulating Zone of Odisha are advised to undertake land preparation for planting of sugarcane. After deep ploughing collect the stubbles from field and destroy by burning.
- The farmers in East and South Eastern Coastal Plain Zone of Odisha are advised to undertake land preparation for sowing of summer groundnut (except in Kendrapara) and sunflower. Complete nursery sowing of summer rice in this week if not sown earlier.
- Farmers in Central and North Eastern Plateau Zone of Jharkhand are advised to prepare nursery for sowing of onion and prepare field for sowing of long gourd, round gourd, bitter guard, sponge gourd, cucumber, water melon and musk melon. For timely sown wheat, farmers are advised to undertake intercultural operation to control weed and apply rest dose of urea @ 52 kg per acre after irrigation
- Undertake first weeding and intercultural operation in 25 days after sowing for green pea as no significant rainfall is likely during next three days.
- Farmers in Coastal Saline Zone of West Bengal are advised to complete the land preparation for planting of potato, transplanting of chilli and to undertake land preparation for transplanting of late sown paddy.

#### **WEST INDIA [GOA, MAHARASHTRA, GUJARAT]**

- As dry weather is prevailing, farmers in Middle Gujarat Zone are advised to harvest matured castor capsules.
- Taking the advantage of prevailing dry sunny weather, farmers are advised to continue harvesting of already matured red grams in Maharashtra.

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

- In Subtropical and Intermediate Zone of Jammu & Kashmir, farmers are advised to continue sowing of late varieties of wheat, vegetables viz. radish, beans-bush type and planting of potato. Undertake nursery sowing of tomato, brinjal and transplanting of onion and knol-khol.\
- Farmers in Low Hills Subtropical Zone of Himachal Pradesh are advised to continue planting of potato, onion and radish (Pusa Himani).
- Farmers in Low Hills Subtropical Zone of Himachal Pradesh are advised to spray Isoproturon @80g in 30-32 litres of water per canal to control weeds the early / timely sown wheat.
- Farmers in Delhi are advised to continue transplanting of healthy seedlings of late varieties of cabbage, onion, cauliflower, knol khol etc. and sowing of spinach, coriander, fenugreek in the field under present weather conditions.
- Farmers in Western Plain Zone in Punjab are advised to transplant 4-6 weeks old seedlings of onion in the field.

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

- Farmers in South Zone of Tamil Nadu are advised to undertake sowing of groundnut under irrigated conditions.
- Farmers in the Northern Telangana zone of Andhra Pradesh are advised to continue sowing of sesame, sunflower and cowpea.
- Farmers in the Scarce Rainfall zone of Andhra Pradesh are advised to continue nursery sowing of rice.
- In High Altitude Zone of Kerala, farmers are advised to drain the water from the paddy field two weeks prior to harvest.
- Farmers in Problem area zone in Kerala are advised to sow vegetable crops like cabbage, cauliflower, bhindi and amaranthus utilizing the realized rainfall.
- Farmers in the Coastal Zone and Southern Transition Zone of Karnataka are advised to undertake sowing of rice fallow pulses like cowpea, green gram, black gram with short duration varieties using residual moisture. Farmers in Southern transition zone are also advised to prepare nursery and undertake sowing of summer rice. Farmers in the Coastal Zone are also advised to raise nursery bed for brinjal, tomato and other solanaceous crops.
- Farmers in the Southern Dry Zone of Karnataka are advised to drain out water from rice field before 15 days of harvesting and undertake harvesting on sunny days.
- Farmers in the Central Dry Zone of Karnataka are advised to undertake the sowing of pulses like black gram, green gram and also the green manure crop like sunhemp to utilizing residue moisture
- Farmers in North East Transition Zone of Karnataka are advised to undertake planting of sugarcane by taking 9 months old sugarcane setts.

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

- Farmers in Malwa Plateau Zone of Madhya Pradesh, are specially advised to undertake intercultural operations in tomato, chilli and brinjal and give the remaining fertilizer to the crops.
- Dry weather is expected in Malwa Plateau Zone of Madhya Pradesh, farmers are advised to undertake land preparation to transplant the main season onion crop in the field.
- Present weather conditions are favourable for planting of onion during this week in Chhattisgarh Plain Zone; farmers are advised to complete planting of onion.
- In Chhattisgarh Plain Zone, farmers are advised to undertake field preparation for transplanting of summer rice.

## Annexure II

### Major Crops

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

- Sugarcane (grand growth / harvesting), *boro* rice (nursery raising / transplanting), cole crops (vegetative / head formation / maturity/ harvesting), wheat (CRI /tillering), rapeseed, mustard (flowering/siliquea formation), potato(vegetative/ tuber formation),tomato (flowering / fruiting), *rabi* pulses like lentil, rajmah, pea, *lathyrus* (vegetative/ flowering/pod formation), *rabi* maize (vegetative)in Assam.
- *Rabi* maize (vegetative), cauliflower, cabbage (vegetative / head formation /maturity), brinjal (fruiting / maturity), tomato (flowering / fruiting/maturity), potato (vegetative / tuber formation), pea (vegetative), mustard (flowering / pod formation) in Arunachal Pradesh.
- Potato (vegetative), pea (vegetative / flowering), cauliflower, cabbage (transplanting /vegetative), rapeseed (vegetative),onion, garlic (vegetative), cucurbits (nursery raising), Citrus (Orange, Lemon, Lime) (nursery) in Manipur.
- *Rabi* maize (vegetative), *boro* rice (nursery preparation), cole crops (transplanting /vegetative / head formation), turmeric, ginger (rhizome maturity/ harvesting), pea, mustard (vegetative / flowering), toria (flowering / pod formation), *Dolichos* / French bean (flowering/ pod formation) in Meghalaya.
- Cole crop (transplanting / vegetative), beans (flowering/pod formation),pea (sowing/vegetative) in Mizoram.
- Cabbage (head formation), mustard (flowering/ siliquea formation), tomato (vegetative/flowering), potato (vegetative / tuber formation) in Nagaland.
- *Boro* rice (nursery sowing), toria (flowering/ pod formation), tomato (flowering/fruiting/ harvesting), potato (vegetative / tuber formation),cole crops (vegetative),banana (vegetative / harvesting) in Tripura.

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

- Gram, peas, sunflower, maize (vegetative/flowering), sugarcane (planting), potato, lentil, mustard (vegetative), urad, arhar, bajra etc. (grain formation), mango, litchi, guava (early vegetative / vegetative), winter vegetables (sowing), wheat (crown root initiation) and toria (vegetative), pigeon pea (flowering / pod formation) in Bihar.
- Wheat (CRI / tillering), potato (vegetative to harvesting), pigeon pea (flowering / pod formation), onion (transplanting), vegetables (vegetative / flowering / harvesting), mustard, gram and linseed, lentil, pea (vegetative) in Jharkhand.
- Sugarcane (grand growth), banana (vegetative), rice (maturity/harvesting), mustard, sunflower, sesame, cowpea (sowing/vegetative), groundnut (sowing/vegetative/pod formation), fruit crops (planting / seedling), rice (land preparation), wheat (CRI), maize (vegetative) in Odisha.
- *Boro* rice (seedbed preparation/sowing/seedling), wheat (sowing/CRI), vegetable (vegetative/flowering), sunflower (sowing), potato (sowing to emergence stage), tomato (flowering/fruiting), mustard (flowering/pod initiation stage) in West Bengal.
- Ginger (sprouting / 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 / elongation in Madhya Maharashtra and Marathwada), sugarcane *adsali* (cane maturity / harvesting), sugarcane (new *adsali*) (early tillering), sugarcane (new pre seasonal) (early tillering), new *suru* sugarcane (planting), *rabi* jowar (flowering / grain formation in Madhya Maharashtra and Marathwada), safflower (flowering / head formation in Madhya Maharashtra and Marathwada), maize (vegetative / tasseling and silking in Marathwada and Madhya Maharashtra), gram (flowering / pod formation), wheat (crown root initiation / tillering), summer rice (seedling / transplanting in South Konkan and germination / seedling in Western Ghat region and East Vidarbha in Maharashtra).
- Summer rice (nursery sowing / seedling), wheat (tillering / booting / flowering), gram (vegetative / pod formation), cumin (branching / flowering), cotton (boll maturity / picking), sugarcane (planting / early vegetative), castor (spike maturity / harvesting), winter vegetables (vegetative / flowering / fruiting), chilli, brinjal (fruiting / harvesting), cauliflower (vegetative / head formation), potato (vegetative / tuber formation), mustard (vegetative / flowering), jowar (flowering), *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 (early tillering), apple (new planting), pea, radish (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), sunflower (early vegetative / vegetative), garlic, cucurbits, okra (seedling / early vegetative), potato (sowing), radish, spinach (sowing), carrot, turnip (sowing), onion, cole crops (nursery sowing / transplanting), mustard (late sown- flowering, normal / early sown- pod formation), brown sarson (rosette stage), wheat (late sown- emergence / CRI stage / jointing, normal/early sown- tillering / jointing stage), barley (CRI / jointing stage), pulses (pea, lentil, gram) (vegetative) in Jammu & Kashmir.
- Wheat (CRI/tillering), arhar and ginger (vegetative), autumn sugarcane (vegetative), mustard, yellow sarson, rai, brinjal, chilli, lady's finger, barley, oat, chick pea, lentil (vegetative / flowering), toria (maturity/ harvesting) in Uttarakhand.
- Wheat (CRI/tillering), late sown wheat (sowing/germination), barley (emergence/ CRI/tillering), sugarcane (vegetative / ripening), masoor, alsi, jai (vegetative), fodder barseem (vegetative/1<sup>st</sup> cutting), vegetable crops - radish, carrot, onion, garlic (vegetative), rapeseed, mustard, pea, lentil & gram, maize (vegetative) in Uttar Pradesh.
- Wheat (tillering / jointing), sugarcane (harvesting), mustard (flowering) in Punjab.
- Wheat (tillering), sugarcane (harvesting), mustard (flowering / seed formation), barseem (sowing/vegetative) in Haryana.
- Cauliflower, cabbage, onion (transplanting / early vegetative), sugarcane (maturity), maize (maturity), mirch, Shimla mirch, guar, vegetable (tinda, water melon, pumpkin, cucumber, coriander, bhendi, ridge gourd) (sowing / germination / seedling), potato (tuberization), green gram (vegetative / flowering), moong (vegetative), early sown mustard (vegetative / flowering), wheat (late sowing / germination/ CRI ), fruits and vegetables (picking / harvesting), barley (vegetative) in Rajasthan.

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

- Sunflower (flowering), cowpea (vegetative), pigeon pea (pod filling/harvesting), cotton (boll opening to picking), chilli (fruiting/picking), October sown wheat (late jointing to flowering), jowar (flowering to ear head emergence), safflower (flowering/seed filling), bengal gram (pod filling), vegetables (fruiting/harvesting), sugarcane(planting) in Karnataka.
- Vegetables (fruiting/maturity), late sown groundnut (pod formation / pod filling), *rabi* groundnut (vegetative/flowering), *rabi* maize (knee high stage), sunflower (vegetative /flowering), pulses (sowing/vegetative/flowering), *rabi* jowar (early vegetative/vegetative), Bengal gram (pod formation/pod maturity), red gram (pod formation/ pod maturity), Bt. cotton (boll bursting/picking) and *rabi* paddy ( nursery sowing/transplanting ) in Andhra Pradesh.
- Coconut (flowering / nut development), *punja* rice (early vegetative), cardamom (harvesting), rubber (tapping), vegetables (harvesting), mundakan paddy (maturity/harvesting), cardamom/ vegetables (new planting) in Kerala.
- Late samba rice (tillering), *samba* rice (panicle initiation/flowering/maturity), *thaladi* rice (tillering/panicle initiation), sorghum (vegetative), cowpea (pod formation), black gram(pod formation), rainfed groundnut (flowering), cotton (boll maturity), maize (tasseling/flowering), irrigated maize (taselling/silking), redgram (flowering), sugarcane (planting), rice (nursery), Irrigated groundnut (sowing), vegetables (fruiting) in Tamil Nadu.

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

- Ladies finger, cucurbits (flowering/fruiting), pigeon pea (pod formation), potato (early vegetative), sugarcane (planting), *rabi* vegetables (transplanting/early vegetative), wheat (crown root initiation / tillering/ booting stage), maize (vegetative), fodder crops (sowing), chickpea, lentil, mustard, linseed (pod / seed formation) in Madhya Pradesh.
- Sugarcane (planting/vegetative), pigeon pea, groundnut (pod filling), sesame (late vegetative), ginger, turmeric, papaya, mango and guava (vegetative), onion (planting), vegetables (transplanting / vegetative), millet (vegetative), wheat (crown root initiation), niger, kulthi (land preparation / sowing) in Chhattisgarh.

### **Annexure III**

#### **List of Varieties**

##### **Assam**

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

##### **Manipur**

**Cauliflower:** White Shot.

**Papaya:** Coorg Honey, Ranchi, Dwarf and AmitSagar.

##### **Meghalaya:**

**Cabbage:** H-139 and Pride of India.

**Cauliflower:** PusaMekhna, PusaSharad and Meghalaya Local.

**Broccoli:** Puspa, Aiswarya and Fiesta.

##### **Tripura:**

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

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

**Broccoli:** Everest, Ayeshwaria.

##### **Odisha**

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

**Sunflower:** Morden, Sunrise, Surya, TNAUSUF-7, DRSF 108,DRSF 113 and Hybrid varieties like Jwalamukhi, KBSH-1, KBSH-3, Sungene 85 and MSFH 1, MSFH 8, MFSH 17, PAC 36, DRSH 1, Pro.Sun 09.

**Coriander:** CO-1, CO-2, CO-3, Swati, Sadhana, Ram Selction and Udi.

**Rice:** Lalat, MTU-1010, MTU-100,Parijat, Khandagiri, Naveen.

**Sugarcane:** CO 740, CO 6304, CO7219, COT 8201,Neelamadhaba and Sabita.

##### **West Bengal:**

**Boro Rice :** Supriya, Jamini, Bhupen, IET-2233,Satabdi (IET-4786), Kitish (I.E.T.-4094), Ratna, Bikash etc.

**Potato :** Chandramukhi, Joyti.

##### **Jharkhand:**

**Onion :** Pusa Red,Pusa Ratnar,N-53,Arka Nikatan,Arka kalyan,Agrifound Dark Red.

##### **Bihar**

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

##### **Maharashtra**

**Suru Sugarcane:** CO-419, COM-7125, CO-860032, CO-94012 and COM-0265.

##### **Himachal Pradesh:**

**Pea:** Ageta – 6 or Arkal pea

**Radish :** Japani white and early mino white

##### **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 .

##### **Uttarakhand**

**Chilly:** Pusa Sadabahar, Jwala, Pant C-1 etc.

**AP**

Sesame: Rajeshwari, Swetha thil, Chandana, Gauri, Madhavi & Hima

**Karnataka**

Pulses: Green gram: PS-16, Cow pea: C-152, TVX-944, Black gram: T-9, TAU-Horse gram: PHG-9  
Field bean: Hebbal Avare-3 and 4

**Tamil Nadu**

Rice fallow pulses: Black gram- ADT 3 and Green gram - ADT 3

**Madhya Pradesh**

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

**Lentil:** RVL-31, JL-2

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

**Chattisgarh**

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

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

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

### Annexure IV

### Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 09.01.2013

