



Significant weather and realized rainfall during last week:

- No significant rainfall occurred over the country during last week.
- During the last week cold wave/cold day conditions prevailed over some parts of Vidarbha, Madhya Pradesh, Chhattisgarh, Bihar, Uttar Pradesh, Punjab, Haryana and isolated pockets of North Rajasthan and sub-Himalayan West Bengal.

South India

- Farmers in Kerala are advised to harvest the matured rice crop and undertake nursery sowing of punja rice.
- Farmers in Karnataka are advised to complete harvesting of rice and maize crop 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 crops like wheat, jowar and chickpea. They are also advised to avoid picking of cotton in early hours of morning as the kapas will be wet due to morning dew.
- Farmers in Andhra Pradesh are advised to undertake sowing of rice fallow maize, rabi cowpea, sunflower and pulses till January and nursery preparation of rabi rice. Farmers are also advised to undertake picking of cotton after 8 am in the morning as the kapas will be wet due to morning dew. Farmers in Telangana are advised to protect rabi rice nurseries from cold injury due to low temperature.
- Farmers in Tamilnadu are advised to undertake foliar application of 1% KCl in rainfed rice, maize, groundnut and cotton to mitigate to water stress for 7-10 days. As there are chances of rainfall in many places, it will be useful for standing crop. As high wind speed is expected in the coming days in the South zone of Tamil Nadu, farmers are advised undertake propping for sugarcane and provide stacking for banana.

Northwest India

- Fall in minimum temperature has been observed in many parts of Punjab, Haryana, east Uttar Pradesh and isolated pockets of North Rajasthan. 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 Delhi are advised to undertake sowing of late wheat varieties. Transplanting of onion, tomato, cauliflower, cabbage, knol-khol and broccoli in raised beds can be carried out.
- Continue sowing of late sown varieties of wheat and sunflower during the month in the state of Punjab.
- Farmers in the state of Haryana are advised to avoid chemical spray during foggy weather.
- Farmers in Himachal Pradesh are advised to complete direct sowing of root crops.
- Farmers in East Rajasthan are advised to complete sowing of wheat with late sown varieties.
- Farmers in Jammu & Kashmir are advised to continue sowing of late sown wheat varieties and vegetables. As there is chances of rainfall in many places during next three days it will be useful for standing crops.
- Farmers in Uttarakhand are advised to harvest timely sown toria crop and threshing of matured crop..
- Farmers in Uttar Pradesh are advised to undertake land preparation and sowing of wheat under late sown condition.

Northeast India

- Farmers in Assam are advised to complete nursery bed preparation and sowing of boro rice and wheat. Undertake transplanting of boro rice to the main fields.
- Farmers in the state of Arunachal Pradesh are advised to complete sowing of pea and harvest matured tomato, ginger/turmeric crops.
- Farmers in Mizoram are advised to continue sowing of pea, lentil and transplanting of cole crops and tomato.
- Farmers in Meghalaya are advised to undertake nursery preparation for boro rice and sowing of toria and tomato.
- Farmers in Nagaland are advised to continue harvesting of wetland rice.
- Farmers in Manipur are advised to continue land preparation and sowing of rabi maize, pea, potato and rapeseed. Undertake nursery raising for cucurbits crops.
- Farmers in Tripura are advised to continue sowing of short duration, high yielding and cold tolerant variety of rice.

(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)

East India

- Fall in minimum temperature has been observed in Bihar and isolated pockets of sub-Himalayan 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 land preparation for transplanting the seedlings of boro rice. Farmers are also advised to undertake sowing of pulses viz. lentil, mung, urad and planting of potato.
- Farmers in Bihar are advised complete sowing of late sown wheat.
- Farmers in Jharkhand are advised to undertake sowing of rabi crops viz gram, lentil, linseed, toria, mustard, pea etc. with assured irrigation facility.
- Farmers in Orissa are advised to complete sowing of wheat and transplanting of rabi vegetables

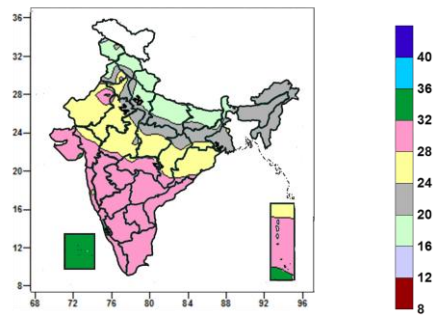
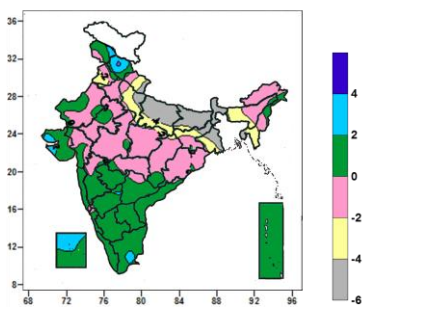
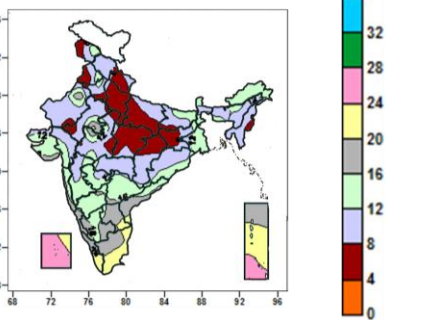
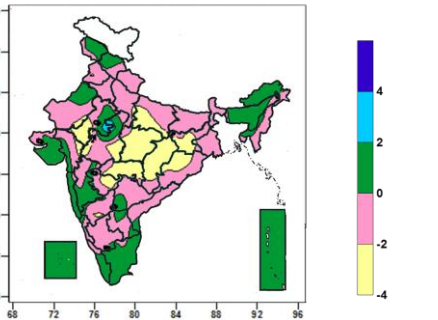
Central India

- Fall in minimum temperature has been observed in some parts of Madhya Pradesh and Chhattisgarh. 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

West India

- Fall in minimum temperature has been observed in some parts of Vidarbha. Farmers in Vidarbha region are advised to apply light and frequent irrigation/sprinkling and arrange for smoking to protect the crops from cold/frost injury.
- Farmers in Maharashtra are advised to undertake nursery sowing of summer rice, mustard and pearl millet.
- Farmers in Gujarat are advised to undertake land preparation for sowing of bajra, groundnut and green gram.

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 26.12.2012






<p>Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 26.12.2012</p> 	<p>Mean Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 26.12.2012</p> 
<p>Actual Mean Maximum temperature ranged between 32 to 36$^{\circ}\text{C}$ over many parts of Lakshadweep Islands, some parts of Coastal Karnataka, Andaman & Nicobar Islands, 20 to 24$^{\circ}\text{C}$ over many parts of Jharkhand, North East India, Gangetic West Bengal, some parts of Himachal Pradesh, Jammu & Kashmir, Uttarakhand, Haryana, Punjab, Uttar Pradesh, Bihar, 16 to 20$^{\circ}\text{C}$ over Jammu & Kashmir and Himachal Pradesh, Uttarkhand, Uttar Pradesh, Bihar, Sub_Himalyan West Bengal & Sikkim, some parts of Haryana, 24 to 32$^{\circ}\text{C}$ over remaining parts of the country.</p>	<p>Actual Mean Maximum temperature anomaly ranged above 2$^{\circ}\text{C}$ over many parts of Himachal Pradesh, some parts of North Jammu & Kashmir, Kutch, Tamil Nadu, Lakshadweep Islands, -4 to -2$^{\circ}\text{C}$ over many parts of Tripura, some parts of Uttarakhand, Punjab, Uttar Pradesh, Gangetic West Bengal, Bihar, Bihar, Jharkhand, Assam, Mizoram, -2 to 2$^{\circ}\text{C}$ over rest of the country.</p>
<p>Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 26.12.2012</p> 	<p>Mean Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 26.12.2012</p> 
<p>Actual Mean Minimum Temperature ranged between 24 to 28$^{\circ}\text{C}$ and above over most parts of Lakshadweep, some parts of Andaman & Nicobar Islands, 20 to 24$^{\circ}\text{C}$ over many parts of Andaman & Nicobar Islands, some parts of Kerala, Coastal Andhra Pradesh, Rayalaseema, Tamil Nadu, Lakshadweep Islands, 4 to 8$^{\circ}\text{C}$ over most parts of Himachal Pradesh, Uttarakhand, Punjab, Uttar Pradesh, Jharkhand, West Bengal, some parts of Jammu & Kashmir, Haryana, Delhi, Bihar, Chattisgarh, Rajasthan, West Madhya Pradesh, 12 to 20$^{\circ}\text{C}$ over remaining parts of the country.</p>	<p>Minimum Temperature anomaly ranged above 2$^{\circ}\text{C}$ over some parts East Rajasthan, West Madhya Pradesh, -4 to -2$^{\circ}\text{C}$ and above over most parts of East Rajasthan, East Madhya Pradesh, Chattisgarh, Jharkhand, Vidarbha, some parts of West Rajasthan, East Uttar Pradesh, East Madhya Pradesh, Orissa, Gujarat, Marathwada, -2 to 2$^{\circ}\text{C}$ over remaining parts of the country.</p>

Distribution of rainfall of the country during week ending on 26.12.2012

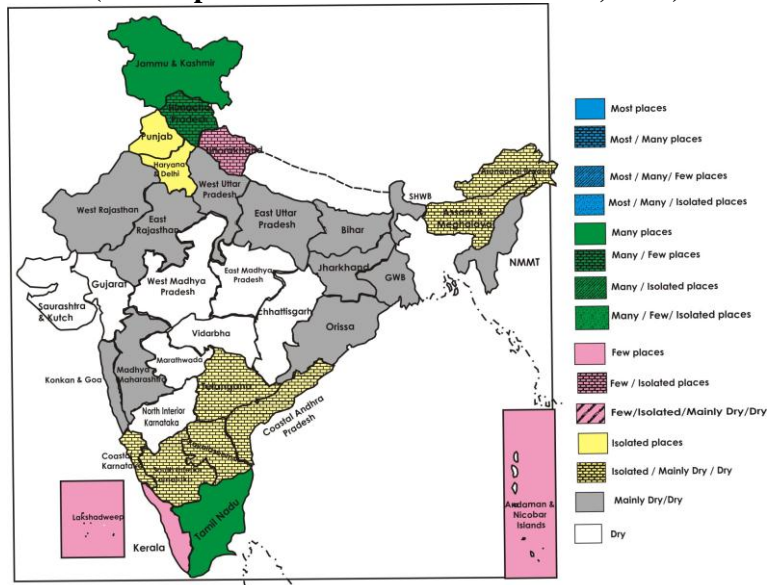
State/Districts	Actual (mm)	% Dep.
Karnataka		
Coastal Karnataka		
Dakshin Kannada	0.0	-100
Udupi	0.0	-100
Uttar Kannada	0.0	-100
North Interior Karnataka		
Bagalkote	0.0	-100
Belgaum	0.0	-100
Bidar	0.0	-100
Bijapur	0.0	-100
Dharwad	0.0	-100
Gadag	0.0	-100
Gulbarga	0.0	-100
Haveri	0.0	-100
Koppal	0.0	-100
Raichur	0.0	-100
Yadgir	0.0	-100
South Interior Karnataka		
Bangalore Rural	0.0	-100
Bangalore Urban	0.0	-100
Bellary	0.0	-100
Chamarajnaragar	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
Kerala		
Alappuzha	0.0	-100
Kannur	0.0	-100
Ernakulam	0.0	-100
Idukki	0.0	-100
Kasaragod	0.0	-100
Kollam	0.0	-100
Kottayam	0.0	-100
Kozhikode	0.0	-100
Malappuram	0.0	-100
Palakkad	0.0	-100
Pathanamthitta	0.0	-100
Thiruvananthapuram	0.0	-100
Thrissur	0.0	-100
Wyanad	0.0	-100
Tamil Nadu		
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	0.1	-99
Karur	0.0	-100
Krishnagiri	0.0	-100
Madurai	0.0	-100
Nagapattinam	1.5	-97
Namakkal	0.0	-100
Nilgiris	0.0	-100
Perambalur	0.0	-100
Puducherry	0.0	-100
Pudukottai	0.0	-100
Ramanathapuram	3.7	-83
Salem	0.0	-100
Sivaganga	0.0	-100
Thanjavur	0.0	-99
Theni	0.0	-100
Tirunelveli	4.2	-70
Tirupur	0.0	-100
Tiruvallur	0.0	-100
Tiruvannamalai	0.0	-100
Tiruvarur	0.0	-100
Toothukudi	2.4	-81
Trichy	0.0	-100
Vellore	0.2	-98
Villupuram	0.0	-100
Virudhunagar	0.0	-100
Andhra Pradesh		
Coastal Andhra Pradesh		
East Godavari	0.0	-100
Guntur	0.0	-100
Krishna	0.0	-100
Nellore	0.0	-100
Prakasam	0.0	-100
Sirkakulam	0.0	-100
Visakhapatnam	0.0	-100
Vizianagram	0.0	-100
West Godavari	0.0	-100
Telangana		
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
Rayalaseema		
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 30th December, 2012)



Major Feature of Weather Forecast up to 0830 hours IST of 30th December, 2012

- Meteorological conditions suggest that fog/dense fog conditions would not occur over Punjab, Haryana, Delhi, Rajasthan and west Uttar Pradesh during next 3 days.
- Rise in minimum & maximum temperatures by 2-3°C over plains of northwest India during next 2 days, leading to abatement of cold day conditions.
- Minimum temperatures would also rise by 2-3°C over central and adjoining east India during next 3 days, leading to abatement of prevailing cold wave conditions over Chhattisgarh, Vidarbha and east Madhya Pradesh from tomorrow.
- Rain/snow would occur at many places over Jammu & Kashmir. Rain/snow would also occur at a few places over Himachal Pradesh and at one or two places over Uttarakhand during next 24 hours and increase thereafter.
- Light rain/thundershowers would occur at one or two places over Punjab, north Haryana & Chandigarh during next 48 hours.
- Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at many places over coastal Tamilnadu and at a few places over interior Tamilnadu, Kerala and Lakshadweep.
- Rain/thundershower would occur at one or two places over south Andhra Pradesh and south Karnataka from tomorrow onwards.
- Mainly dry weather would prevail over rest parts of the country.

Weather Warning during next 3 days

- Heavy rain/snowfall (3 cm or more) would occur at one or two places over Jammu & Kashmir and Himachal Pradesh during next 48 hours.
- Dense fog (Visibility < 200 m) would occur over some parts of east Uttar Pradesh, Bihar, West Bengal and Assam during next 24 hours.
- Cold day conditions would continue to prevail over east Uttar Pradesh and Bihar during next 24 hours.

Weather Outlook for subsequent 4 days up to 0830 hours IST of 3rd January, 2013

- Decrease in precipitation over northwest India.
- Fall in minimum temperatures by 2-4°C over northwest India.
- Rain/thundershowers would occur at a few places over Tamilnadu, Kerala, Lakshadweep and Andaman & Nicobar Islands.
- Light rain/thundershower would occur at one or two places over Maharashtra, south Madhya Pradesh and Chhattisgarh.

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 in the region during last week.
 - **Rainfall Forecast:** Mainly dry weather would prevail over Arunachal Pradesh, NMM&T and Meghalaya.
 - Weather forecast: Dense fog (Visibility < 200 m) would occur over some parts of Assam.
 - **Advisories:**
 - As there was no significant rain over most of the districts of the States of the region during last week and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.
 - Farmers in North Bank Plain Zone of Assam are advised to continue 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 *boro* rice, cauliflower, cabbage, potato and tomato and harvesting of black gram and rice.
 - Farmers in Central Brahmaputra Valley Zone and North Bank Plain Zone of Assam are advised to undertake transplanting of *boro* rice. Intercultural operations like thinning and weeding may be done in *rabi* crops, rapeseed and mustard after 15-20 days after sowing.
 - Farmers in Sub Tropical Hill Zone of Arunachal Pradesh are advised to complete sowing of pea at the earliest and harvest matured tomato, ginger/turmeric crop.
 - In Mild Tropical Hill Zone of Mizoram, farmers are advised to continue 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. Farmers are also advised to continue transplanting of 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.
 - 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. Undertake nursery preparation for *boro* rice and sowing of toria, tomato.
 - In Mild Tropical Plain Zone of Tripura, farmers are advised to continue sowing of short duration rice with high yielding and cold tolerant variety.
 - Suitable varieties of the crops are mentioned in Annexure II.
 - Due to favorable weather conditions, there is chance of attack of aphid and saw fly on rapeseed and mustard. Farmers in North Bank Plain Zone of Assam 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.
 - Due to favourable weather conditions, there is chance of attack of late blight on tomato and potato, farmers in Hill Zone, North Bank Plain Zone, Lower Brahmaputra and Upper Brahmaputra Valley Zone of Assam are advised to monitor the crop and to prevent the disease apply Mancozeb 75 WP (2 g/l), Dithane Z-78 @ 0.25% or Ridomil MZ-72 (2g/ lit) and Indofil M-45 2.5g / litre.
 - 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.
 - Stages of major crops are mentioned in Annexure I.
 - **Animal Husbandry**
 - 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) to prevent Coryza disease.
 - Due to prevailing weather conditions in Sub Tropical Hill Zone of Arunachal Pradesh, farmers are advised to protect the poultry from cold by using gunny bags / plastic sheets around the poultry shed during night, provide heat by lighting 100W bulb @ 1 bulb per 20 newly born chicks. Maintain warm conditions in the shed of pig and cattle.
 - Farmers in Mild Tropical Hill Zone of Mizoram are advised to provide good shelter to avoid cool temperature by providing additional bulbs in poultry, heating system to cattle shed or tie gunny bag on back.
- In Mild Tropical Plain Zone of Tripura, farmers are advised to protect poultry birds and pig from cold by keeping shed warm.

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

- **Realised rainfall:** Weather was mainly dry over the region.
- **Rainfall Forecast:** Mainly dry weather would prevail over the region.
- **Weather Warning:** Dense fog would occur over some parts of Bihar and West Bengal and cold day conditions would continue to prevail over Bihar during next 48 hours.
- **Advisories:**
 - Due to fall in minimum temperatures in some parts of Sub-Himalayan West Bengal, Bihar, Jharkhand and cold day conditions would prevail over isolated pockets of Bihar during next 24 hours, apply light and frequent irrigation/sprinkling and arrange for smoking to protect the crops from cold injury.
 - 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 to prevail during next three days.
 - Due to low temperature in North West Alluvial Plain Zone of Bihar during day time, normal growth of maize and potato crops may be affected, farmers are advised to apply light irrigation in the fields. To minimize the impacts of cold wave condition on the crops farmers are advised to apply light irrigation to banana, papaya and standing rabi crops particularly maize, potato and peas.
 - In South Bihar Alluvial Zone, farmers are advised to undertake sowing of late sown wheat. Give irrigation to gram, chilli and potato. Harvest fodder crop.
 - In North East Alluvial Zone of Bihar, farmers are advised to complete sowing of late potato, lentil, and yellow mustard, late variety of wheat crop. Complete harvesting of rice crop and early season sugarcane. Apply lifesaving irrigation to standing crops due to prevailing continuous dry weather conditions. Undertake nursery sowing of boro rice.
 - No rain is expected upto 29.12.12 and sky will remain clear during this period. Farmers in Western Undulating Zone of Orissa are advised to undertake harvesting of paddy and picking of cotton. Observing moisture conditions of soil and plant, irrigation should be given to vegetable crops. Stop irrigation to late transplanted paddy as it is at harvesting stage and drain out water from the field.
 - Farmers in Western Undulating Zone of Orissa are advised to complete sowing of sunflower by first week of January in rice fallows. In irrigated belts sowing may be extended upto last week of January but not beyond that to avoid high temperature above 38°C which coincides with flowering and seed filling.
 - The farmers of East and South Eastern Coastal Plain Zone of Orissa are advised to give irrigation to potato crop to avoid low temperature effect. Cover the vegetable nursery with straw or by polythene to avoid cold injury and recently planted seedlings with paper packets to avoid cold wave.
 - Farmers in East and South Eastern Coastal Plain Zone of Orissa are advised to undertake land preparation and sowing of summer groundnut and sunflower.
 - According to medium range weather forecast, there will be no rainfall during the coming five days. Looking to sufficient soil moisture condition farmers in North Eastern Plateau Zone of Orissa are advised to prepare the field for sowing of rabi crops.
 - Farmers in Eastern Ghat High Land Zone are advised that the early shown crop is at flowering condition. One light irrigation at flowering condition will be beneficial.
 - 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 with assured irrigation facility. They are also advised to undertake sowing of rabi crops like gram, lentil, linseed, toria, mustard, potato, pea etc. utilizing available moisture in the soil and irrigation facility, undertake transplanting of winter vegetables like cauliflower, cabbage, chilly, tomato and brinjal and prepare nursery for onion, long gourd, round gourd, bitter gourd, sponge gourd, cucumber, water melon and muskmelon.
 - In Coastal Saline Zone of West Bengal, farmers are advised to undertake sowing of pulses and planting of potato. Farmers are also advised to undertake land preparation for sowing of sunflower.
 - In New Alluvial Zone and Laterite and Red soil Zone of West Bengal, farmers are advised to start land preparation for transplanting of boro rice and protect the seedling from cold by covering the nursery bed with polythene or maintain 2-3 cm stagnant water during night-time. Farmers are advised to apply irrigation and top dressing in wheat crop which is in CRI stage.
 - Farmers in Old Alluvial Zone of West Bengal are advised to start seed treatment for boro rice. As there is no chance of rain, farmers are advised to give irrigation to the timely sown wheat crop and apply first topdressing of urea.

- Farmers in Terai Zone of West Bengal are advised to irrigate the wheat and mustard crop if moisture content is low.
- 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*.
- Incidence of fruit and shoot borer in brinjal is noticed in Mid Central Table Land Zone of Orissa. Farmers are advised to spray 4 g Sevin WP or 2 ml Malathion in 1 litre of water.
- The recent weather will aggravate aphid problems in french bean and country bean. Farmers in North Eastern Coastal Plain Zone of Orissa are advised to spray Methyl demeton @ 2ml/lit of water to control it.
- The temperature is conducive for aphid infestation on mustard. Hence farmers in Western Undulating Zone of Orissa are advised to keep watch on the crop and if it occurs, spray Roger/ Metasystox @ 2ml/lit of water or Imidacloprid @ 1ml/4 lit of water.

Animal Husbandry

- The farmers of North Eastern Plateau Zone of Orissa are advised to protect the animals from cold by covering the sheds.
- As minimum temperature will be low till Saturday, farmers in North Eastern Coastal Plain Zone and North Central Zone of Orissa are advised to provide warm and comfortable housing to animals. Vaccinate the animals against FMD.
- The farmers of Jharkhand are advised to take proper care and management in winter. Vaccinate animals against FMD. For domestic animals and birds take preventive measures to protect from cold.
- 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 Central Plateau Zone of Orissa are advised to apply ‘Cifax’ @ 400 ml mixed with 40 litre of water in one acre pond area.
- Stages of major crops are mentioned in Annexure I.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Dry weather prevailed over Gujarat, Maharashtra and Goa State.
- **Rainfall Forecast:** Mainly dry weather would prevail over Gujarat, Maharashtra and Goa.
- **Advisories:**
 - As cold wave conditions prevailed over East Vidarbha on 23rd December and cold weather is prevailing over North Madhya Maharashtra, farmers are advised to apply light and frequent irrigation to protect the crops from cold injury.
 - 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.
 - 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.
 - As dry weather is expected to continue during next 5 days, farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to apply irrigation to the sugarcane, *rabi* jowar, wheat, vegetables and orchard crops.
 - As prevailing weather is favourable, farmers in Western Ghat region are advised to complete preparatory tillage for sowing of summer pearl millet. They are also advised to raise seedlings for summer paddy.

- Farmers in Marathwada region are advised to protect banana bunch from cold by covering banana bunch and apply regular irrigation. They are also advised to apply irrigation in the evening to banana orchards planted in September.
 - Under prevailing weather conditions, farmers in East Vidarbha are advised to undertake nursery sowing of improved variety of summer rice.
 - Farmers in Madhya Maharashtra and Marathwada are advised to complete preparatory tillage for planting of *suru* sugarcane.
 - As dry weather is prevailing, farmers are advised to start harvesting of already matured red gram in Maharashtra.
 - As cold and dry weather is expected particularly during night in North Gujarat Zone, farmers are advised to irrigate the crops to minimize the cold effect. Under clear weather conditions, carry out hand weeding, intercultural operations and fertilizer application in standing crops. Carry out sowing operations for watermelon by selecting recommended cultivars.
 - In Middle Gujarat Zone, apply irrigation in timely sown wheat at booting stage. Harvest mature brinjal in early morning and pluck aged leaves of bidi tobacco. As weather was dry and likely to prevail, irrigate potato crop.
 - Apply third light irrigation in cumin after 21 to 25 days of second irrigation in Bhal and Coastal Zone of Gujarat.
 - In view of cold and dry weather conditions, irrigate the crops in North West Zone of Saurashtra and Kutch region. Carry out hand weeding, inter-cultural operations and apply fertilizers in crops.
 - Apply irrigation at an interval of 6-7 days in sugarcane and carry out harvesting of cotton in South Saurashtra Zone of Gujarat.
 - Taking advantage of prevailing dry weather in South Gujarat Heavy Rainfall Zone, farmers are advised to carry out weeding, intercultural operations in earlier sown crops and provide irrigation in standing crops. Carry out planting of sugarcane.
 - Varieties of *rabi* crops are mentioned in Annexure II.
 - Due to fall in minimum temperature there may be infestation of powdery mildew in grapes in Pune region, spray Dinocap @5 ml in 10 litres of water. Prevailing weather is also congenial for more infestation of rust in fig, spray Carbendazim @100g plus Chlorothalonil @ 200g in 100 litres of water at 15 days interval.
 - Under prevailing weather, there may be incidence of rust in wheat in Kolhapur region, spray Dithane M-45 @ 25g / 10 litres of water.
 - Prevailing weather is favourable for attack of thrips in onion in Western Maharashtra Scarcity Zone, spray Fipronil @ 15 ml plus sticker 10 ml in 10 litres of water.
 - There may be attack of pod borer in red gram in East Vidarbha region, spray Quinolphos 25 % @16 ml or Monocrotophos 36% @11 ml in 10 litres of water.
 - Due to dew formation, there are chances of downey mildew in cucurbits in South Gujarat Heavy Rainfall Zone. Farmers are advised to dust 20 kg/ha 300 mesh Sulphur or wettable Suphur (80%) @ 25 gram or spray Dinocap (48%) 5 ml in 10 liter water to manage the disease.
 - Under prevailing weather, there may be incidence of powdery mildew and blight infestation in cumin in Middle Gujarat Zone. Arrange for smoke / fumigation in evening to avoid it.
 - Weather conditions are favorable for outbreak of blight disease in potato, cumin in North Gujarat Zone. Spray Mancozeb 0.2% @ 30 gram plus 25 ml of concentrated *desi* soap solution in 10 litre of water. Spray next three doses at the interval of 10 days.
 - Due to possibility of dry weather condition and dew during next 5 days in North West Zone of Gujarat, take preventive measures against early blight in early sown potato / tomato. Spray Mancozeb @ 30g adding in 10 litres of water.
 - Stages of the crops are mentioned in Annexure I.
- Animal Husbandry**
- Cover the poultry house with cloth / plastic sheets to protect the poultry birds from cold wind in Middle Gujarat Zone.

- To avoid skin diseases in animals in South Gujarat Heavy Rainfall Zone during winter season, wash the animals weekly and apply the neem or pongamia oil on skin of animals.
- Provide ad lib warm water to lactating animals. Keep young calves indoors during night time to avoid cold stress in North Gujarat Zone and North West Zone of Gujarat.

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

- **Realised Rainfall:** No significant rainfall occurred over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh & Rajasthan during last week.
- **Rainfall Forecast:** Light rain/thundershowers would occur at one or two places over Punjab, north Haryana & Chandigarh during next 48 hours. Rain/snow would occur at many places over Jammu & Kashmir. Rain/snow would also occur at a few places over Himachal Pradesh and at one or two places over Uttarakhand during next 24 hours and increase thereafter. Fog/dense fog conditions would not occur over Punjab, Haryana, Delhi, Rajasthan and west Uttar Pradesh during next 3 days. Rise in minimum & maximum temperatures by 2-3°C over plains of northwest India during next 2 days, leading to abatement of cold day conditions. Cold day conditions would continue to prevail over east Uttar Pradesh during next 24 hours.
- Dense fog (visibility < 200 m) would occur over some parts of east Uttar Pradesh during next 24 hours. Minimum temperatures would rise by 2-3°C over the plains of northwest India during next 3 days. Rain/snow would occur at one or two places over Jammu & Kashmir during next 24 hours and at many places thereafter and at a few places over Himachal Pradesh and Uttarakhand from tomorrow onwards. Light rain/thundershowers would occur at one or two places over Punjab from tomorrow and over Haryana, Chandigarh & Delhi on 28th & 29th.
- **Warning:** Heavy rain/snowfall (3 cm or more) would occur at one or two places over Jammu & Kashmir and Himachal Pradesh during next 48 hours. Cold day conditions would continue to prevail over east Uttar Pradesh during next 24 hours. Dense fog (visibility < 200 m) would occur over some parts of east Uttar Pradesh during next 24 hours.
- **Advisory:**
 - Fall in minimum temperatures in some parts of Punjab, Haryana, Uttar Pradesh and Jammu & Kashmir, Himachal Pradesh and Uttarakhand has been observed. Cold day conditions would continue to prevail over East Uttar Pradesh during next 24 hours. 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.
 - As rain/snow would occur at many places over Jammu & Kashmir, postpone irrigation to the standing crops. Heavy rain/snowfall (3 cm or more) would occur at one or two places over Jammu & Kashmir and Himachal Pradesh during next 48 hours. Farmers are advised to provide adequate drainage facilities to avoid waterlogging in these States.
 - 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 Arid Western Plain Zone of West Rajasthan, farmers are advised to apply irrigation to timely sown wheat, barley and gram. Apply second irrigation if, mustard is in pod formation stage.
 - In flood prone zone of east Rajasthan, carry out regular weeding and intercropping in wheat.
 - In irrigated north western plain zone of west Rajasthan, give the second irrigation to mustard crop at the time of flowering, and first irrigation to the wheat, gram and barley. Before and after irrigation do the hoeing and weeding in the field.
 - In Sub- Tropical zone of Jammu & Kashmir, farmers are advised to continue the sowing of late sown wheat. Hoeing, weeding and thinning operation in late sown mustard crop in order to keep the crop free from weed. Continue the direct sowing of Radish and Spinach beet.
 - In intermediate zone of Jammu & Kashmir, farmers are advised to continue the sowing of late sown wheat, also go for hoeing, weeding and thinning in mustard and pulses crops. Continue the sowing of vegetables.
 - 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 Barbar & Tarai region of Uttarakhand, farmers are advised to harvest timely sown toria crop and threshing of matured crop during this week. If earlier sown sugarcane crop is of 50 days duration then give irrigation and apply 50 kg Urea per acre land area and also weeding may be done in chickpea, lentil and rajmash crops. Undertake light and frequent irrigation/sprinkling and arrange for smoking to protect the standing crops from cold injury.
- In Hill zone of Uttarakhand, farmers are advised to give light and frequent irrigation in wheat crop and arrange for smoking to protect the standing crops from cold injury.
- In East Uttar Pradesh, farmers are advised to apply light irrigation to already sown crops like vegetables, pea, and masoor. 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 and also top dressing with urea in wheat, barley, also it is advised to harvest of short duration pigeon pea, toria and nipping in gram.
- 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.
- Farmers in Delhi are advised to give irrigation to timely sown wheat crop which are about 21-25 days old and are in the CRI stage. Farmers can take sowing of late wheat varieties. 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. Light irrigation is advised in mustard, potato, pea and gram crop at flowering stage. Keeping in view of fall in temperature light irrigation at evening time is advised in all vegetables and other field crops.
- In Punjab and Haryana, farmers are advised to irrigate standing vegetable crops to save it from frost. To save plants from frost use polythene sheet/ Sarkanda/Kahi or rice straw. Continue sowing of late sown varieties of wheat like PBW 590, PBW 373 and PBW 509 during this month. Give irrigation to timely sown wheat crop.
- In Central Plain Zone of Punjab, December is the optimum time for sowing of sunflower in the region. In Western Zone of Punjab restrict irrigation to potato crop and later with-held completely so that the haulms wilt and fall over before the aphid population build up.
- Farmers in Eastern Zone of Haryana are advised to avoid chemical spray during foggy weather conditions. Harvest the mature sugarcane crop. Give irrigation to late maturing varieties of sugarcane. Undertake cutting of barseem for fodder.
- In intermediate zone of Jammu & Kashmir farmers are advised to control downy mildew in onion, treat the seed with metalaxyl + mancozeb (combination) @ 2.5g/kg.
- 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 mancozeb 2 gm per litre of water. To control stem rot spray fungicide bavistin @ 1.0 gm per litre water.
- In flood prone zone of east Rajasthan, farmers are advised that weather conditions are conducive for Sclerotinia stem rot in mustard. Destroy infested plants. Farmers are advised to notice the leaves for white rust appearance (yellowish on upper side while white circular or irregular blisters on lower side of the leaves). Spray Mancozeb or Ridomil MZ 72 WP @ 2.0 Kg in 800 litre water/ha. Spray dimethoate 30 EC @ 1 litre/ha when at least 10% plants are infested with 26-28 aphid per 10 cm top shoot. In vegetables spray Dimethoate 30 EC @ 2 ml/litre or Imidacloprid 17.8 SL @ 0.5 ml/litre water to control sucking pests. To control cutworm attack in gram, dust methyl parathion 2% dust using duster.
- In Arid Western Plain Zone of West Rajasthan, farmers are advised control the termite in wheat and barley spray chloropyriphos (20 EC) @ 2400 ml per ha and to control Heliothis in gram dusting of quinolphos (1.5 %) on methyl parathion (2.0%) @ 24 kg/ha.
- In semi arid eastern plain zone of east Rajasthan, farmers are advised to control aphid insects attack in mustard, barley, cauliflower & radish, spray Dimethoate 30 EC @ 1 litre /ha.

- **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. Get all the animals vaccinated against foot and mouth disease.
- In Intermediate zone of Jammu & Kashmir, protect the pregnant and milch animals from cold and feed them mineral mixture regularly.
- In east Rajasthan, farmers are advised to keep milch animals indoors and use curtains to avoid cold stress. Supplement hay with berseem, alfa-alfa or mustard leaves. Keep litter dry everyday. Keep animals in sun light.
- In Arid Western Plain Zone of West Rajasthan farmers are advised to protect milch animals from cold keeping them in shed or covered area during night.

- **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.
- In intermediate zone of Jammu & Kashmir, farmers are advised to control of leaf curl and Stigmata blight on peach/plum/apricot/almond, spray copper oxychloride (0.3%) or captan (0.2%) before leaf fall. For canker control in apple and other fruits, prune the affected portion and apply bordeaux paste.
- In flood prone zone of east Rajasthan, farmers are advised that there are chances of white dust formation on young shoots in fruit trees. Spray 0.5% Karathane solution on affected trees. To protect ber crop from fruit fly attack, farmers are advised to spray dimethoate 30 EC @ 1.5 ml per litre water. Repeat spray after 15-20 days.
- In Arid Western Plain Zone of West Rajasthan, farmers are advised to give timely irrigate ber and pomegranate.

- **Apiculture**

- Provide sealed brood to weak colonies for proper bee strength. Queenless and weak colonies should be united with strong ones. Packing should be provided for protection against cold. Feeding sugar syrup (1:1 ratio) may be provided on need by checking colonies on sunny day. For proper ventilation, make hole in the center of inner cover fitted with wire gauge. Screen should be cleaned so that excess moisture is dissipated. Keep colonies at a place where sunlight is properly received in Intermediate Zone of Jammu & Kashmir.

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 many places over Tamil Nadu and at a few places over Kerala. Either isolated rain/thundershower or dry weather would occur over remaining regions.
- **Advisories:**
 - Postpone irrigation and intercultural operations in Tamil Nadu as there are chances of rainfall at many places during next three days. As there are no chances of rainfall over remaining region, apply irrigation to the standing crops.
 - Farmers in the North Transition zone of Karnataka are advised to irrigate wheat, chickpea 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 Cauvery Delta zone of Tamil Nadu are advised to undertake foliar application of 1% KCl on rainfed rice, maize, groundnut and cotton to mitigate to water stress for 7-10 days, top dressing with 35 kg urea + 10 kg MOP / acre to samba paddy at tillering stage, foliar spray of 1% KCl to mitigate the water stress in standing samba paddy for 7-10 days, where there is no irrigation facility.

- Though maximum temperature and minimum temperature are favorable for top dressing, considering the cloud cover, farmers in the Western zone of Tamil Nadu are advised not to give top dressing to plants, especially nitrogen and potassium.
- Farmers in the Scarce Rainfall zone of Andhra Pradesh are advised to continue nursery sowing of rabi rice. Farmers are also advised to apply irrigation to standing maize crop at grain filling stage.
- Low temperatures during the past week may cause cold injury in rice nurseries in the Southern Telangana Zone of Andhra Pradesh 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 m² 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. Maize growing farmers are advised to apply 62 kg of N as top dressing as it is at knee high stage.
- Farmers in the South Coastal zone of Andhra Pradesh are advised to undertake sowing of rice fallow maize where two to three irrigation can be provided and rice fallow pulses. Farmers are also advised to select irrigated dry crops instead of paddy in rabi due to scarce ground water level. Farmers are also advised to take up picking of cotton after 8 am in the morning to avoid fog.
- Farmers in the Southern zone of Andhra Pradesh are advised to continue nursery sowing of rice. Due to low temperature and high relative humidity during nighttime there is a chance of zinc deficiency to occur in the rice nurseries. Farmers are advised to spray 2gm/liter water of zinc sulphate on the rice nurseries.
- The soil acidity is high due to inadequate rainfall in the Problem Area zone of Kerala in case of punja rice. Farmers are advised to control the acidity by applying liming (100 Kg lime or dolomite) along with ploughing and proper water management measures.
- Farmers in the Southern zone of Kerala are advised to keep the rice field in a saturation point of water level where water shortage is noticed, irrigate the plot when hair cracks on soil surface are seen (5 cm depth) and provide irrigation to coconut palms.
- Farmers of Eastern Dry zone of Karnataka are advised to take up control measures for the occurrence of powdery mildew on grapes and mango as low temperature and high humidity (RH) is observed in the morning hours which is congenial weather condition.
- Farmers of North Eastern Dry zone of Karnataka are advised to spray wettable sulphur @3g/liter of water as weather is congenial for powdery mildew disease on mango.
- Prevailing low minimum temperature and high morning and evening relative humidity favours crop disease initiation sugarcane in the Western zone of Tamil Nadu. Farmers are advised to monitor for disease incidence in crops and undertake plant protection measures.
- Incidence of stem borer on maize and wilt and Helicoverpa on Bengal gram is noticed in some areas of Southern Telangana zone of Andhra Pradesh. Farmers are advised to spray Monocrotophos @ 1.6 ml per litre of water or apply Carbofuron 3G @ 3 kgs per acre in the whorls of maize and drench the soil around the infested area with Carbendazim @ 1g per litre of water for control of wilt and spray 5 % NSKE to kill the eggs and early instar larvae for control of Helicoverpa.
- Farmers in the High Altitude zone of Kerala are advised to keep vigilance against red palm weevil attack. in young coconut palms and azhukal disease in cardamom and undertake precautionary measures if noticed. Incidence of pseudostem weevil is noticed widely in 3-4 months old banana. Farmers are advised to remove the dry outer sheathes of the pseudostem of all infested and un-infested plants and spray Carbaryl 50 WP 4gm/litre of water on pseudostem.
- Farmers in the Central zone of Kerala are advised to monitor the attack of mosaic disease in cowpea, sigatoka disease in banana and rice bug in paddy field and undertake plant protection measures, if noticed.

- **Livestock**

- Farmers in the North East Dry zone of Karnataka are advised to keep the animals in warm condition as respiratory problem is noticed in animals due to low temperature in the morning.
- Outbreak of FMD is expected in this weather in the Problem Area zone of Kerala. Farmers are advised to vaccinate the animals.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Mainly dry weather prevailed over the region.
- **Rainfall forecast:** Dry weather is likely to prevail over the region.
- **Advisories:**
 - Fall in minimum temperature has been observed in some parts of Madhya Pradesh and Chhattisgarh. 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 Malwa Plateau Zone of Madhya Pradesh are advised to complete late sowing of *rabi* crops. Farmers are specially advised that to save the vegetable crops from the cold / frost injury do the following practices: 1. Irrigate the field 2. If temperature is less than 8⁰C then smoking on bunds of the field should be done. 3. Spray 1% of potash in the crop.
 - As minimum temperature is decreasing farmers in Gird Zone of Madhya Pradesh are advised to keep close watch on infestation of diseases in crops, if observed spray recommended pesticide for its control.
 - Farmers in Jhabua hills region of Madhya Pradesh are advised to undertake sowing of late sown of wheat crop. Give irrigation in early sown wheat crop at 21 DAS for proper moisture.
 - In Chhattisgarh Plain Zone, wheat crop sown during the mid-November is at crown root initiation stage which is the most critical stage of the crop. Looking to the clear weather condition in coming days farmers are advised to apply irrigation.
 - 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.
 - During the last week, there was rainless situation and due to this reason now, irrigation arrangement should be done in the coconut crop at an interval of 7-10 days and *rabi* vegetable nursery should be prepared and vegetable seed should be treated before sowing. In case the winter vegetables are to be taken like brinjal and chillies, then field preparation and transplanting should be completed for Dantewada and Bijapur districts.
 - Farmers in Bundelkhand region of Madhya Pradesh are advised that there is possibility of leaf blight disease in the tomato and chilli crops, if found, spray mancozeb @ 2.5 g/litre of water for their control.
 - In Chhattisgarh Plain Zone, farmers who have sown chickpea are advised to keep keen watch on the crop for the infestation of gram caterpillar. Looking to the past cloudy weather condition the incidence of aphids in mustard, radish and beans is likely to increase, so farmers are advised to keep keen watch on the crop and if the infestation is above ETL spray Carbaril @ 2 kg/ha.
 - In Chhattisgarh, the partly cloudy weather conditions during the past few days are favourable for the infestation of insect in vegetable crops. At present the pigeon pea is at pod formation stage and due to the partial cloudy weather during the last few days the infestation of pod borer may occur. Farmers are advised for the continuous monitoring of the crop and undertake preventive measures.
 - Farmers in Chhattisgarh who have sown the linseed in the end of October are advised to keep keen watch on the crop for the infestation of linseed bud fly. Spraying of Propanophos @ 800 ml/ha at anthesis will be beneficial to the crop.

Animal Husbandry & Poultry

- Farmers in Kymore Plateau and Satpura Hills region and Central Narmada 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 (grand growth / harvesting), *boro* rice (nursery raising / transplanting), cole crops (transplanting / vegetative), winter vegetables (sowing / transplanting / vegetative), wheat (germination / CRI / vegetative), rapeseed, mustard (vegetative/flowering/siliquea formation), potato (vegetative/ tuber formation/harvesting), tomato (flowering / fruiting), *rabi* pulses like lentil, rajmah, pea, lathyrus (sowing / vegetative) in Assam.
- *Rabi* maize (vegetative), cauliflower, cabbage (head formation / harvesting), brinjal (fruiting / maturity), tomato (fruiting/maturity), potato (vegetative), pea (sowing / vegetative), ginger/ turmeric (maturity), mustard (flowering) in Arunachal Pradesh.
- Potato (planting / vegetative), pea (sowing / vegetative), tomato (seedling / transplanting), cauliflower, cabbage (transplanting / vegetative), rapeseed (vegetative), ginger/turmeric (harvesting), *rabi* maize (sowing), onion (transplanting / vegetative), cucurbits (nursery raising) in Manipur.
- *Rabi* maize (sowing / vegetative), *boro* rice (nursery preparation), cole crops (transplanting / vegetative), turmeric, ginger (rhizome formation/ harvesting), pea, mustard (sowing), garlic (planting), toria (sowing / vegetative), Dolichos / French bean (flowering/pod formation), tomato (sowing) 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.
- Wetland rice (harvesting), cabbage (vegetative / head formation), pea (vegetative / flowering / fruiting), mustard (vegetative / flowering), tomato (vegetative) in Nagaland.
- Rice (sowing), *rabi* maize (sowing), *rabi* legumes, rapeseed, mustard (sowing), toria (flowering), turmeric, ginger (rhizome formation / harvesting), tomato (flowering/fruiting/ harvesting), cole crops (vegetative), pea/bean (vegetative/flowering), 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 (vegetative to harvesting stage), gram (vegetative), rapeseed, linseed and mustard (vegetative) radish, turnip, spinach, carrot (vegetative and flowering and harvesting stage), wheat (sowing/ CRI stage) 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 (floral bud initiation / flowering in Madhya Maharashtra and Marathwada), maize (early vegetative / vegetative in Marathwada and Madhya Maharashtra), gram (branching / flowering), wheat (crown root initiation / tillering) in Maharashtra.
- Wheat (tillering / booting), gram (sowing / early vegetative), cumin (vegetative / branching / flowering), cotton (boll maturity / picking), sugarcane (planting/early vegetative), castor (spike development / spike maturity), winter vegetables (onion, cauliflower, potato) (vegetative), chilli, brinjal (vegetative / flowering / fruiting / harvesting), 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), papaya (planting), sunflower (early vegetative / vegetative), garlic, cucurbits, okra (seedling), potato (sowing), radish, spinach (sowing), cabbage, cauliflower (nursery sowing), carrot, turnip (sowing), onion, knol khol, cole crops (transplanting), mustard(vegetative/flowering, normal sown-flowering, early sown- pod formation), brown sarson (rosette stage), wheat – (late sown- sowing/emergence, normal sown- CRI), barley (emergence/CRI), pulses (pea, lentil, gram) (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 (vegetative), groundnut (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 (boll formation), June sown cotton (picking), chilli (fruiting), October sown wheat (late tillering/flag leaf initiation), jowar (flowering), safflower (branching), red gram (pod filling), bengal gram (pod filling), groundnut (harvest), vegetables (fruit maturity), chick pea (flowering to pod formation) in Karnataka.
- Vegetables (vegetative/fruit development), late sown groundnut (pod formation / pod filling), *rabi* groundnut (vegetative/flowering), *rabi* maize (knee high stage), sunflower (vegetative /flowering), pulses (sowing), *rabi* jowar (early vegetative/vegetative), Bengal gram (flowering/pod formation), red gram (pod formation), Bt. cotton (boll bursting/picking) 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), cardamom/ vegetables (harvesting/new planting) in Kerala.
- Late samba rice (tillering), samba rice (panicle initiation), thaladi rice (tillering), sorghum (grain filling), cowpea (vegetative), rainfed groundnut (flowering), pulses (pod development), cotton (boll formation), maize (flowering), sugarcane (maturity), new groundnut and gram (weeding), vegetables (flowering/ fruiting) in Tamil Nadu.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Ladies finger, cucurbits (flowering/fruited), pigeon pea (pod formation), pea, potato, sugarcane (planting), *rabi* vegetables (transplanting), wheat (crown root initiation / tillering), maize (vegetative), fodder crops (planting), chickpea, lentil, mustard, linseed (pod / seed formation) 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 Bhagiroti (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. HD-2643(ganga),HUW-234 and K-9107

Potato: Kufri Pushkar, Kufri Lalima and Kufri kanchan .

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

Tomato: Pusa Ruby, Swarna Sampda, Swarn Lalima.

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

Cauliflower: Pusa Depali, Patna Early, Hazipur Extra Early, Pusa Ketki.

Mustard: Shivani, Pusa Jaikisan, Pusa Bold, Vardan.

Rapeseed: Panchali, Bhawani, P.T.-303.

Linseed: Sweta, Shubhra, T-397.

Gram: KAK-2, ICC-2, HK94-134(Kabuli) and Pusa 256, Pusa 372, Pant G-114, KWR 108, ICC 37.

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

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

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

Bihar

Gram: Rajendra Chana, Uday, Pusa 256, RAU 52, SG2.

Peas: Ratna, Aparna, Harbhajan, Malbai, Malviya mator 15, Harbhajan, Arpana and Pusa Prabhat.

Lentil: BR 25, Pant L 406, 639, Malika, Arun.

Cauliflower: Aghani, Early Snowball, Patna Main and Pusa Shuvra.

Rai: Baruna, Pusa Bold and Kranti.

Carrot: Pusa Keser, Pusa Meghali, Pusa Yamdagini, Desi Lal, Desi Kali, American beauty and Kalyanpur Yellow.

Sunflower: Morden, Surya, Paradovic, KBSH 1, 44.

Maize: DHM117, Saktiman 1, 2, 3, 4; Laxmi, Rajendra Shankar Makka 1 and 2.

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 & Harvana

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

Late sown: JG-14

Lentil: RVL-31, JL-2

Maize: JVM -421, JM-16, Sweet corn, Popcorn and HQPM-1.

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

Gujarat:

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

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

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

Potato: Kufri Badshah, Kufri Bahar, Laukar.

Isabgul: GI-3

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

Watermelon: Sugar bebi, Ashahi pameto, Madhu, Jyoti, Pusa Bedana (Seedless).

Maharashtra

Mustard: Varuna, Pusa Bold.

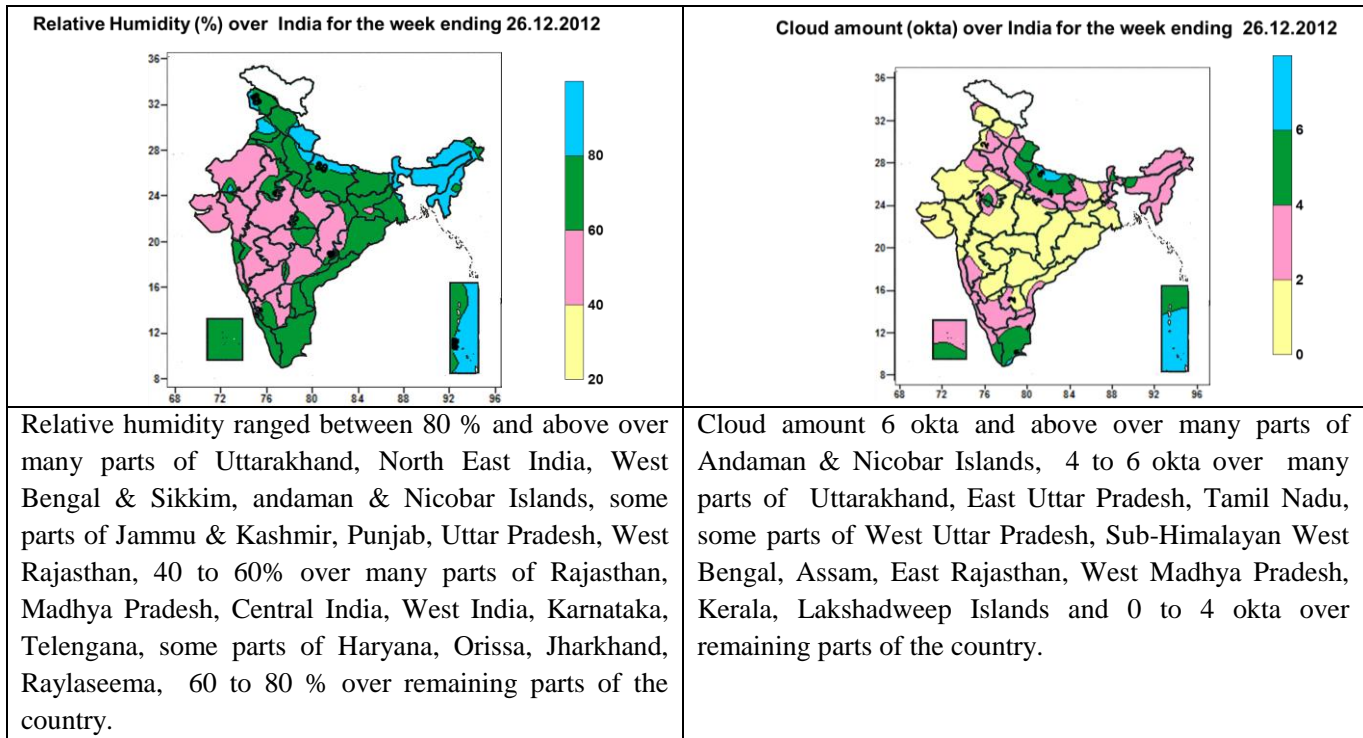
Rabi groundnut: Konkan Gaurav, Konkan Tapora, Phule Pragati, TG-26, SB-11 and TAG-24.

Tamil Nadu

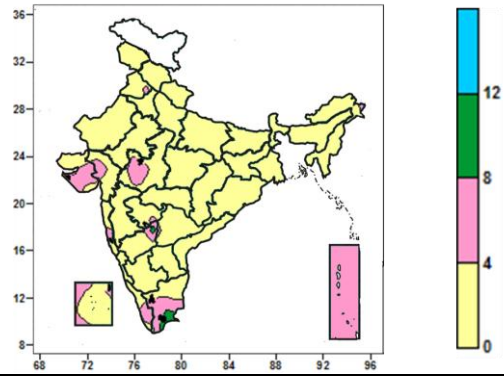
Sesame: TMV-7 and SVPR-1

Annexure III

Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 26.12.2012



Wind speed (knots) over India for the week ending 26.12.2012



Wind speed ranged between 4 to 8 knots over many parts of Saurashtra & Kutch, Tamil Nadu, Andaman & Nicobar Islands, some parts of West Madhya Pradesh, Konkan, North Interior Karnataka, Marathwada, Kerala, Lakshadweep, Tamil Nadu, 0 to 4 knots over remaining parts of country.