

Executive Summary

Cold wave conditions prevailed over some parts Chhattisgarh, Orissa, Jharkhand, East Uttar Pradesh, East Madhya Pradesh and Bihar. Minimum temperatures were reported below 4⁰C over some parts of Punjab, Haryana, Uttar Pradesh and Bihar. Ground frost would occur over some parts of Punjab, Haryana, Delhi, north Rajasthan and west Uttar Pradesh during next 48 hours. Cold wave conditions would continue over many parts of Orissa, Jharkhand and Chhattisgarh and also develop over Punjab, north Rajasthan, Haryana Delhi and west Uttar Pradesh from tomorrow onwards. Frost injury is likely in mustard in Delhi, young fruit crops in Punjab, Haryana, mustard, sugarcane and potato in Uttar Pradesh and mustard, gram, coriander, fruit crops and nursery plants in Rajasthan. Cold day conditions would continue to prevail over some parts of east Uttar Pradesh and Bihar during next 24 hours and abate thereafter. Farmers are advised to provide light and frequent irrigation as well as arrange for smoking around the fields in these regions to protect standing crops from cold / frost injury and also to protect the animals from cold wave.

Dense to very dense fog has been observed over many parts of east Uttar Pradesh and in isolated pockets of Punjab, Haryana, west Uttar Pradesh, Bihar and Assam and fog over some parts of Delhi and Sub Himalayan West Bengal. Dense to very dense fog would continue to prevail over some parts of east Uttar Pradesh and Bihar during next 24 hours. Shallow fog would occur over some parts of Punjab, north Rajasthan, Haryana, Delhi and west Uttar Pradesh in morning hours during next 24 hours. Due to prevailing continuous foggy conditions in the morning hours, incidences of late blight in potato are reported in pockets and also growth of *rabi* maize may be affected in Bihar. Due to fog conditions along with high humidity prevailing over Uttar Pradesh, incidence of powdery mildew in pea and late blight of potato are observed. Cool and humid conditions prevailing over Jharkhand led to the incidence of aphids in toria, mustard and rai crops, early and late blight of potato. Farmers are advised to monitor the crops for the pest and disease incidences and apply Wettable Sulphur @ 2.5 g / litre of water to control powdery mildew in pea, Mancozeb @ 2.5 ml / litre of water to control late blight of potato and Dimethoate @ 250 ml / ha to control aphids in toria, mustard and rai, if required.

As mainly dry weather prevailed over most parts of the country except some districts of Tamil Nadu and mainly dry or dry weather is likely over most parts of the country, farmers are advised to apply irrigation to the standing crops.

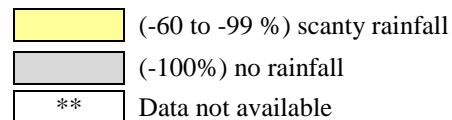
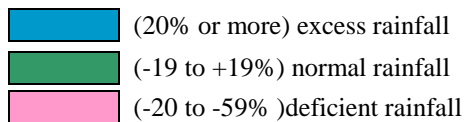
Farmers are advised to complete sowing of lentil in Punjab, sowing of pea, late varieties of wheat in Himachal Pradesh, complete sowing of late varieties of wheat in Uttar Pradesh, complete sowing of wheat, barley, cumin, mustard, gram and lentil in Rajasthan, summer rice (nursery sowing), summer groundnut and *rabi* sunflower in Konkan, wheat (late varieties) in Madhya Pradesh, wheat, mustard and groundnut in Orissa, lentil, gram and sunflower in West Bengal and wheat in Assam.

Due to prevailing weather, incidences of saw fly and *Alternaria* blight in mustard and toria in Chhattisgarh, *Spodoptera* in groundnut, *Heliothis* in Bengal gram and red gram in Andhra Pradesh and *Heliothis* in Bengal gram in Orissa are noticed below economic threshold level. Farmers are advised to undertake appropriate plant protection measures to control the pests and diseases.

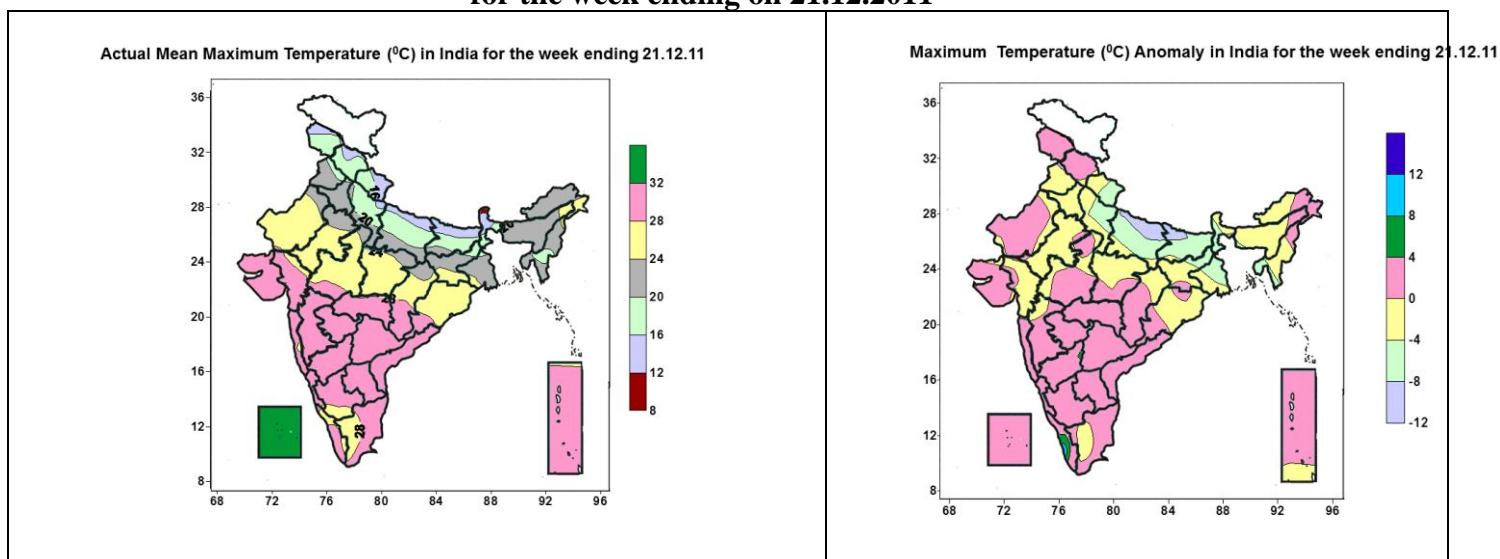
Distribution of rainfall of the country during week ending on 21.12.11

State/Districts	Actual (mm)	% Dep.
Jammu & Kashmir		
Anantnag	5.2	-55
Badgam	1.8	-73
Bandipore		
Baramula	5	-90
Doda	2	-91
Ganderwal	37.4	386
Jammu	0	-100
Kargil	0	-100
Kathua	0	-100
Kistwar	**	**
Kulgam	3.2	-72
Kupwara	17.5	94
Ladakh(Leh)	0	-100
Poonch	0	-100
Pulwama	1.3	-84
Rajouri	0	-100
Ramban	2.3	-90
Reasi	0.2	-98
Samba	0	-100
Shopian	0	-100
Srinagar	4.3	-44
Udhampur	0	-100
Tamil Nadu		
Chennai	57.8	209
Coimbatore	0.7	-90
Cuddalore	15	-45

State/Districts	Actual (mm)	% Dep.
Dharmapuri	5.6	-7
Dindigul	1.7	-90
Erode	0.7	-87
Kanchipuram	25.1	49
Kanyakumari	4.1	-64
Karur	1	-86
Krishnagiri	0.9	-86
Madurai	0.5	-95
Nagapattinam	42.1	-6
Namakkal	0.7	-87
Nilgiris	1.8	-85
Perambalur	1.8	-87
Puducherry	27.9	-29
Pudukottai	9.5	-36
Ramanathapuram	46.3	111
Salem	3.9	-54
Sivaganga	1.3	-91
Thanjavur	12.2	-41
Theni	0.5	-96
Tirunelveli	7.9	-64
Tiruvallur	8.7	-46
Tiruvannamalai	22	94
Tiruvarur	49	58
Toothukudi	7.6	-57
Trichy	0.9	-92
Vellore	2.4	-64
Villupuram	24	43
Virudhunagar	1.5	-89



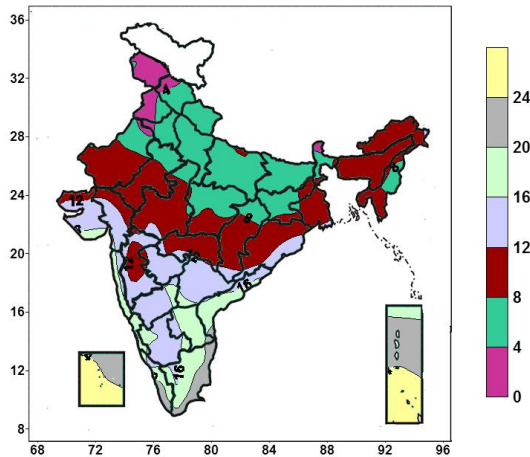
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 21.12.2011



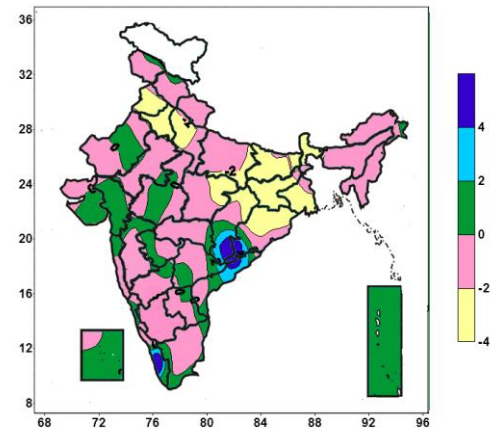
Actual Mean Maximum temperature ranged between 32⁰C and above over most parts of Lakshdweep Islands, 24-28⁰C over most parts of Rajasthan, Madhya Pradesh, and Orissa, some parts of Arunachal Pradesh, Assam, Jharkhand, Gangetic West Bengal, Chhattisgarh, Konkan, South Interior Karnataka, Kerala, Tamilnadu , 20 to 24⁰C over most Punjab, Haryana, Delhi, Jharkhand, Gangetic West Bengal, Northeast India, some parts of Uttar Pradesh, Bihar, Rajasthan, Madhya Pradesh, Chhattisgarh, 16 to 20⁰C over most parts of Himachal Pradesh, Uttar Pradesh, some parts of Jammu & Kashmir, Uttarakhand, Punjab, Sub-Himalayan West Bengal, Manipur, Mizoram, 12 to 16⁰C over some parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal, Sikkim, 8 to 12 ⁰C over some parts of Sikkim, 28 to 32⁰C over remaining parts of the country.

Actual Mean Maximum temperature anomaly ranged between 4⁰C above over some parts of Kerala, below -4⁰C over most parts of Uttarakhand, Uttar Pradesh, Bihar, West Bengal, Tripura, some parts of Jharkhand, Mizoram, -4 to 0⁰C over most parts of most parts of Uttarakhand, Punjab, Haryana, Delhi, East Rajasthan, Jharkhand, Orissa, Northeast India, Gujarat, some parts of West Rajasthan, Uttar Pradesh, Bihar, West Bengal & Sikkim, Madhya Pradesh, Chattisgarh, Madhya Maharashtra, Saurashtra & Kutch, Andaman & Nicobar Islands, Tamil Nadu, 0 to 4⁰C over remaining parts of the country.

Actual Mean Minimum Temperature (°C) in India for the week ending 21.12.11



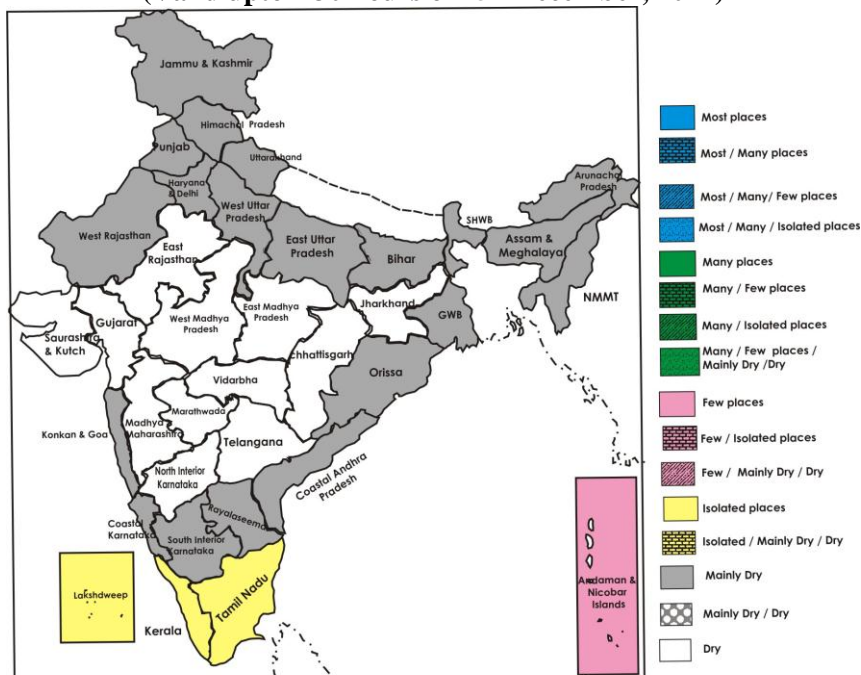
Minimum Temperature (°C) Anomaly in India for the week ending 21.12.11



Actual Mean Minimum Temperature ranged between 24⁰C and above over most parts of Lakshadweep, Andaman & Nicobar Islands, 20 to 24⁰C over most parts of Coastal Tamil Nadu, Kerala, Andaman & Nicobar Islands, some parts of Coastal Andhra Pradesh, Rayalaseema, Lakshadweep Islands, 16 to 20⁰C over most parts of Konkan & Goa, Coastal Andhra Pradesh, Rayalseema, Tamil Nadu, Coastal Karnataka, some parts of Kutch, Telengana, Interior Karnataka, Kerala, Andaman & Nicobar Islands, 12 to 16⁰C over most parts of Interior Karnataka, Telangana, Madhya Maharashtra, MArathwada, Gujarat, Saurashtra & Kutch, some parts of Orissa, Chhattisgarh, Coastal Andhra Pradesh, Rayalaseema, West Madhya Pradesh, Vidarbha, 8 to 12 ⁰C over most parts of Rajasthan, Central India, Gangetic West Bengal, Orissa and North East India, Gujarat, some parts of Saurashtra, Madhya Maharashtra, MArathwada, 0 to 4 ⁰C over most parts of Jammu & Kashmir, Punjab, Sikkim, some parts of Himachal Pradesh, Haryana, West Rajasthan East Uttar Pradesh, 4 to 8⁰C over remaining parts of the country.

Minimum Temperature anomaly ranged 4⁰C and above over some parts of parts of Chattisgarh, Coastal Andhra Pradesh, Kerala, 2 to 4⁰C over some parts of Orissa, Chhattisgarh, Coastal Andhra Pradesh, Kerala, 0 to 2⁰C over most parts of Gujarat, Saurashtra & Kutch, West Madhya Pradesh, Lakshdweep, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Himachal Pradesh, Rajasthan, Orissa, Chhattisgarh, Maharashtra, Andhra Pradesh, Coastal Karnataka, North Interior Karnataka, Tamil Nadu, Kerala, -4 to -2 ⁰C over most parts of Punjab, Haryana, Delhi, East India, some parts of Uttar Pradesh, Madhya Pradesh, Chhattisgarh, -2 to 0⁰C over remaining parts of the Country.

Weather Forecast (Valid upto 1430 hours of 25th December, 2011)



Major Feature of Weather Forecast upto 1430 hours IST of 25th December, 2011

- Dense to very dense fog (Visibility reducing to 100 m or less) would continue to prevail over some parts of east Uttar Pradesh and Bihar during next 24 hours. Intensity and duration of dense fog would decrease from 24 December onwards.
- Shallow fog would occur over some parts of Punjab, north Rajasthan, Haryana, Delhi and west Uttar Pradesh in morning hours during next 24 hours and no fog conditions would prevail thereafter.
- Cold day conditions would continue to prevail over some parts of east Uttar Pradesh and Bihar during next 24 hours and abate thereafter.
- Fall in minimum temperature by 2-3°C over northwest adjoining central India during next 2 days.
- Mainly dry weather would prevail over most parts of the country.

Weather Warning

- Dense fog conditions (Visibility reduce to 100 m or less in morning hours) and cold day conditions would occur over some parts of east Uttar Pradesh and Bihar during next 24 hours.
- Ground frost would occur over some parts of Punjab, Haryana, Delhi, north Rajasthan and west Uttar Pradesh during next 48 hours.
- Cold wave conditions would continue over many parts of Orissa, Jharkhand and chhattisgarh and also develop over Punjab, north Rajasthan, Haryana Delhi and west Uttar Pradesh from tomorrow onwards.

Weather Outlook up to 1430 hours IST of 27th December, 2011

- Cold weather condition would continue over Indo-Gangetic plains and adjoining central and east India.
- Rain/thundershowers would occur at a few places over extreme south peninsular India.
- Mainly dry weather would prevail over rest parts of the country.

Zonewise Agromet Advisories

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

- **Realised Rainfall:** Dry weather prevailed over the States of the region during last week.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the region during the period.
- **Advisories**
 - As there was no significant rain during last few weeks in most of the districts of the States of the region and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.
 - In Assam, farmers are advised to complete sowing of potato, onion, garlic, tomato, radish, *rabi* pulses, niger, wheat etc.
 - Farmers in Assam are advised to continue preparation of nursery beds for *boro* rice after harvesting of *sali* rice.
 - In the Hill Zone of Assam, farmers are advised to complete planting of potato after harvesting of *sali* rice.
 - Farmers in Upper Bramhaputra Valley Zone of Assam are advised to continue preparation of nursery beds for *boro* rice and complete sowing of tomato and planting of potato. Farmers are also advised to complete sowing of *rabi* pulses like lentil, rajmah, pea, lathyrus etc.
 - Farmers in Lower Bramhaputra Valley Zone of Assam are advised to complete sowing of wheat.
 - Farmers in Arunachal Pradesh are advised to complete sowing of *rabi* crops like pea and transplanting of vegetables like cabbage, cauliflower, knolkhol and other cole crops.
 - Farmers in Mid Tropical Plain Zone of Tripura are advised to complete planting of potato. In view of prevailing dry weather, farmers are advised to apply light irrigation to pulse crop at flowering stage and sugarcane crop.
 - Farmers in Temperate Sub Alpine Zone of Meghalaya are advised to complete planting of potato, *rabi* onion etc. and undertake nursery bed preparation and sowing of *boro* rice. Also undertake planting of cashew, apricot and banana.
 - Farmers of Sub tropical Plain Zone of Manipur are advised to complete transplanting of tomato, onion, cabbage, cauliflower, broccoli etc. and sowing of pea. Also complete planting of potato and undertake sowing of cucurbits like water-melon, cucumber and sponge gourd.
 - Farmers in Mizoram are advised to continue transplanting of cole crops and tomato.
 - In Mild Tropical Hill Zone of Nagaland, in view of prevailing dry weather, farmers are advised to apply light irrigation to pea at flowering / pod formation stage and also to cabbage. Mulch with rice straw or plastic sheet to prevent weed growth and to conserve soil moisture. Intercropping may also be carried out with onion, garlic, tomato, marigold or other crops to minimize insect pests.
 - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
 - In Mid Tropical Plain Zone of Tripura, due to prevailing foggy condition, there is chance of infestation of fungal disease like early blight in potato. Farmers are advised to spray Mancozeb @ 2.5 g per litre of water. Also there is chance of leaf curl disease in early sown tomato and brinjal. Spray Monocrotophos @ 3 ml per litre of water or Imidacloprid @ 2 g per litre of water to manage the attack.

- Weather is congenial for late blight disease in potato in Sub Tropical Hill Zone of Arunachal Pradesh; farmers are advised to spray Mancozeb @ 2 g per 4 litres of water against late blight disease.
- In Kolasib region of Mizoram, decrease in sunshine hours with fluctuation of humidity is congenial for attack of cut worm, diamond back moth, aphids and thrips in cole crops and tomato; farmers are advised to spray 5% neem extract or spray Endosulphan (35%) @ 12 ml or Dimethoate (30%) @ 10 ml in 10 litres of water to control the attack.
- In Mild Tropical Hill Zone of Nagaland, prevailing dry weather may favour the spread of powdery mildew on pea at flowering stage. Farmers are advised to monitor the crop and take appropriate plant protection measures.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - Farmers in Lower, Central and Upper Brahmaputra Valley Zone of Assam are advised to vaccinate poultry birds against ranikhet disease. Provide artificial heating through lighting by electric bulb at poultry house during night time to protect the birds from cold and reduce the incidence of mortality.
 - The farmers in Kolasib region of Mizoram are advised to deworm the calves. Provide warm shed to poultry birds and pigs against cold.
 - In Manipur, cattle farmers are advised to deworm and vaccinate cattle against B.Q. and H.S. and apply 2 ml of Butox in 1 litre of water while brushing against skin diseases and Ectoparasite; vaccinate poultry birds against Ranikhet, IBD / Gumboro disease; deworm and vaccinate pigs and goats against Endoparasites, Ectoparasites etc.
 - The farmers in Arunachal Pradesh are advised to provide wooden sleeping box or wooden dry floor at night for cattles as wet bedding and cold weather may cause pneumonia. Farmers are also advised to deworm goats.
 - The poultry farmers in Nagaland are advised to provide ample quantity of clean drinking water, avoid feeding of mouldy feed and overcrowding and carry out regular deworming to control worms.
 - Farmers in Tripura are advised to keep poultry and shed of pigs warm and maintain proper sanitation to keep the cattle and pigs disease-free.

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

- **Realised Rainfall:** Dry weather prevailed over the States of the region during last week.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the region during the period.
- **Advisories:**
 - As there was no significant rain during last few weeks in most of the districts of the States of the region and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.
 - Complete sowing of oilseed crops like groundnut in Western Undulating Zone, East and South Eastern Coastal Plain Zone and North Central Plateau Zone of Orissa.
 - Farmers in Western Undulating Zone of Orissa are advised to undertake transplanting of onion. In view of prevailing dry weather condition, farmers are also advised to apply irrigation to oilseed crops.
 - Farmers in North Central Plateau Zone of Orissa are advised to complete the sowing of wheat, groundnut and pea. Farmers are also advised to undertake sowing of linseed, gram, coriander, cauliflower, cabbage, onion, garlic and planting of potato after harvesting of low land rice.

- Farmers in North Eastern Coastal Plain Zone of Orissa are advised to undertake sowing of tomato, cauliflower, cabbage, knol-khol, broccoli, radish, marigold, groundnut etc.
- Farmers in East and South Eastern Coastal Plain Zone of Orissa are advised to complete sowing of pluses, fodder oat, coriander, sunflower and planting of potato and banana.
- To protect the crops from cold injury in North West Alluvial Plain Zone of Bihar, apply light irrigation in the standing *rabi* crops especially maize, potato and peas. Low temperature may affect the growth of oyster mushroom. Arrange artificial warming in the mushroom culture room.
- Farmers in the districts of North Bihar are advised to undertake sowing of *rabi* maize and irrigated wheat and transplanting of late varieties of cauliflower and late and medium varieties of cabbage. As dry weather is prevailing, farmers are advised to apply irrigation in wheat wherever crops are at crown root initiation stage and light irrigation in potato crops, which are at 10-20 days stage for better crop growth and yield.
- Farmers in the districts of South Bihar Alluvial Zone are advised to complete planting of potato and sowing of irrigated wheat, other *rabi* crops and green fodder. Vegetable crops like cauliflower, cabbage, chilies, tomato, palak, carrot, radish, knol-khol, turnip, beet, garlic and spice crops such as coriander, fenugreek etc. should also be sown as early as possible. Also sow the seeds of onion in prepared nursery.
- Farmers in Central, Western and North Eastern Plateau Zone of Jharkhand are advised to complete sowing of wheat, barley, linseed, gram, pea, lentil and planting of potato.
- Farmers in Central and North Eastern Plateau Zone of Jharkhand are also advised to sow onion, African marigold or French marigold and prepare the field for vegetables like long gourd, round gourd, bitter gourd, sponge gourd, cucumber, water melon and musk melon.
- In Western Plateau Zone of Jharkhand, farmers are advised to sow mustard after harvesting of *kharif* crops. It is also the time for sowing of winter vegetables like cauliflower, cabbage, chilli, tomato etc.
- Farmers in South Eastern Plateau Zone of Jharkhand are advised to complete sowing of wheat, pigeon pea, chick pea and planting of winter vegetables like onion, brinjal, cabbage, cauliflower, tomato, capsicum etc.
- As dry weather is prevailing, farmers in New Alluvial Zone of West Bengal are advised to complete sowing of wheat crop and irrigate wheat wherever the crops are at CRI stage and. To protect the seedlings of *boro* rice from cold, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially at night-time.
- Taking the advantage of dry weather, farmers in Old Alluvial Zone of West Bengal are advised to undertake earthing up in potato and thinning in wheat at 21 days after sowing.
- Undertake sowing of Potato in Hill Zone of West Bengal.
- Farmers in Coastal Saline Zone of West Bengal are advised to undertake nursery sowing of *boro* rice and complete sowing of lentil, gram, sunflower etc. Protect the young seedlings from cold injury by covering the seed bed by straw ash.
- Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
- There is chance of attack of aphids in oilseeds and pulses in South Bihar Alluvial Zone due to present weather condition; spray Imidachlorprid @ 1 ml in 4 litres of water or Metacystox @ 2 ml / litre of water.

- Prevailing foggy condition is conducive for the attack of late blight disease in potato in Bihar and Jharkhand; spray Mancozeb @ 2.5 g per litre of water to manage late blight disease in potato.
- Cool, humid and foggy weather in the morning and later on clear sunny weather are favourable for the attack of aphids in toria in South Eastern Plateau Zone of Jharkhand; spray Rogar (Dimethoate) @ 2 ml or Monochrotophos @ 1 ml per litre of water.
- Due to cool and humid weather, infestation of leaf eating insects and powdery mildew in pea is noticed in South Eastern Plateau Zone of Jharkhand; spray concentrated neem or tobacco leaf extract diluted in the ratio of 1:10 liters or neem oil @ 5 ml per liter of water and alternately spray Karathen @ 1 ml or sulfex @ 3 ml per litre of water. In potato infestation of early and late blight is noticed; spray Krilaksil or Ridomil MZ @ 1.5 g per litre of water.
- Due to cool and lower temperature, pigeon pea may be attacked by leaf eating and sucking pests in South Eastern Plateau Zone of Jharkhand; spray Monochrotophos @ 1 ml per litre of water during day time at flowering stage and Indoxacarb at pod formation stage @ 0.5 – 1 ml per litre of water.
- In North Eastern Plateau Zone of Orissa (Sundergarh district), Helicoverpa is noticed in Bengal gram. Apply Quinolphos @ 2 ml or Acephate @ 1 g per liter of water to control the insect.
- Cutworm is found in rice in Kendrapara district of Orissa; spray 2 ml Chloropyriphos in 1 litre water during afternoon. Apply Chloropyriphos dust around the bund to prevent the entry of caterpillar to the unaffected fields in early morning.
- The weather is conducive for powdery mildew disease in green pea in North Eastern Plateau Zone and North Central Plateau Zone of Orissa; spray Karathen @ 1 ml per litre of water or Sulfex @ 3 g per litre of water to control the disease.
- In Cuttack district in Orissa, pod borer infestation is noticed in medium duration arhar crop; spray 400 ml Endosulphan or 800 ml neem based pesticides or 250 LE NPV in 200 litres water per acre.
- Infestation of aphids is noticed in mustard in East and South Eastern Coastal Plane Zone of Kendrapara district in Orissa; spray 400 ml Dimethoate in 200 litres of water per acre for controlling aphids.
- Due to no rainfall and clear sky in Laterite and Red Soil Zone of West Bengal, diamond back moth may infest cabbage and cauliflower. Apply Cypermthrin 10% @ 1 ml per litre of water.
- Due to lower night temperature in Old Alluvial Zone and Terai Zone of West Bengal, late bight infestation may occur in potato. To control, apply the mixture of Metalaxyl 8% and Mancozeb 64% @ 1 to 1 ½ g per litre of water alternately at 12-15 days interval by completely wetting the leaves. There is also infestation of aphids in mustard and tomato in Old Alluvial Zone of West Bengal. To control, spray Imidachlorpid @ 1 ml / 5 litres of water or Dimethoate @ 2 ml / litre of water at 10-15 days interval.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - To prevent goat from pneumonia in Central & North Eastern Plateau Zone of Jharkhand, kids should be given tetracycline medicine in water and vaccinated as per recommendation of Veterinary Doctor.
 - Newly born baby goat should be prevented from morning and evening cold in South Eastern Plateau Zone of Jharkhand. Deworming should be done to all animals and

birds. Supplementary minerals should be added to feed of lactating animals for healthy offsprings and better yielding of milk.

- The weather is favourable for attack of F.M.D. in milch animals in Western Plateau Zone of Jharkhand; farmers are advised to take preventive measures to control this disease and animals should be vaccinated twice in a year.
- In the present weather conditions ticks and mites may affect the animals in North Central Plateau Zone of Orissa; spray Butox @ 2 ml / litre of water at skin.
- In North Eastern Plateau Zone of Orissa, in the present weather conditions, there is likely attack of F.M.D in milch animals. Vaccinate the animals.
- Low temperature and cold wave condition in North West Alluvial Plain Zone of Bihar may adversely affect the milk production and performance of domestic animals. Farmers are advised to give protein enriched diet to the animals. Do not keep the animal in the open. Administer calcium in the animal feed.

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

- **Realised Rainfall** : Some districts of Jammu & Kashmir received rainfall. Mainly dry weather prevailed over rest of the region.
- **Rainfall Forecast**: Mainly dry weather is likely over the region. Ground frost would occur over some parts of Punjab, Haryana, Delhi, north Rajasthan and west Uttar Pradesh during next 48 hours. Cold wave conditions would develop over Punjab, north Rajasthan, Haryana, Delhi and west Uttar Pradesh from tomorrow onwards. Cold day conditions would continue to prevail over some parts of east Uttar Pradesh and Bihar during next 24 hours and abate thereafter.
- **Advisory**:
 - Cold wave conditions prevailed over some parts East Uttar Pradesh. Ground frost would occur over some parts of Punjab, Haryana, Delhi, north Rajasthan and west Uttar Pradesh during next 48 hours. Cold wave conditions would develop over Punjab, north Rajasthan, Haryana, Delhi and west Uttar Pradesh from tomorrow onwards. Cold day conditions would continue to prevail over some parts of east Uttar Pradesh and Bihar during next 24 hours and abate thereafter. Dry weather is likely in North West region during next three days. Farmers are advised to provide light and frequent irrigation as well as arrange for smoking around the field in these regions to protect standing crops from cold / frost injury and also to protect the animals from cold wave.
 - Keeping in view of fall in temperature, farmers in Delhi are advised to give light irrigation at evening time to tomato, chilli, capsicum, marigold, potato, and other field crops to protect the crops from possible frost injury. Also light irrigation is advised in pea and gram crop at flowering stage. Sow late wheat and give irrigation to timely sown wheat which is about 21-25 days old and are in CRI stage. Apply second dose of fertilizer 3-4 days after irrigation. Transplant mature seedlings of onion, tomato, cauliflower, cabbage, knolkhol and broccoli in the raised beds.
 - Farmers in Punjab and Haryana are advised to apply irrigation to timely sown wheat and barley crop which is in CRI stage. Complete transplanting of seedlings of tomato. Cover the young fruit plants and irrigate bearing litchi orchards to protect it from frost injury. The harvesting of toria should be completed to avoid losses due to shattering. Complete sowing of lentil crop. Apply irrigation to normal sown gram crop and standing sugarcane crop. In raya, if necessary, second irrigation at flowering stage may be given to save the crop from frost.

- Farmers in Jammu and Kashmir are advised to apply 2nd dose of urea (25%) as top dressing followed by irrigation. Irrigate normal sown wheat crop if crop is 21-25 days old. Continue the sowing of late sown varieties of wheat and undertake late sowing of barley crop without any further delay. Due to decrease in minimum temperature protect the mustard crop from cold injury by creating smoke around the field of mustard. Transplant onion and knoll khol during this period. Irrigate the mustard crop if it 35-40 days old under irrigated condition and apply 1st dose of nitrogen fertilizer as top dressing after irrigation.
- In temperate zone of Srinagar, farmers are advised to continue transplanting of onion and planting of bulbs of onion and seedlings of carrot, radish and turnip for seed production. Replant cabbage, knol khol and kale for seed production. Sowing of spinach and methi may be continued.
- Farmers in Leh region are advised to top dress with nitrogenous fertilizers during hoeing to one month old cabbage, beet leaf, lettuce, kale and Chinese cabbage for proper vegetative growth followed by irrigation if not done. Harvest Chinese cabbage, lettuce, beet leaf var. Mongol.
- Farmers in Himachal Pradesh are advised to complete late sowing of wheat, vegetables (raddish, turnip, coriander, cabbage, knol khol, broccoli, parsley, lettuce, fennel, cauliflower, onion, potato) and sarson. It is optimum time for raising the nursery of winter flowers like Calendula, arctotis, dog flowers, sweet pea, dianthus, petunia, stock and flox in fields. Farmers in Mid Hills and Sub Humid region of Himachal Pradesh are advised to complete the sowing peas and cabbage. Apply light irrigation to vegetable crops.
- In Uttar Pradesh, farmers are advised to complete sowing of late varieties of wheat as early as possible, sowing of fenugreek, palak, coriander, of onion, radish, carrot, turnip, beet, jai (fodder) and transplanting of onion, cauliflower, cabbage, tomato, brinjal, etc. Undertake 1st cutting of berseem (fodder),
- Farmers in Uttar Pradesh are advised to give 1st irrigation in already sown, normal wheat after 20-25 DAS. To protect mustard, sugarcane, potato crops from low temperature/frost injury, they are advised to give light and frequent irrigation and arrange for smoke near the crops in the evening.
- Farmers in Uttarakhand state are advised to go for first irrigation to wheat crop at CRI stage. After 4-5 days top dress @35 kg Urea per care and do weeding by hand hoe for better crop growth. Irrigate sugarcane crop planted in October. Continue harvesting of Ratoon sugarcane crop during this week. Transplant onion seedlings.
- Due to expected dry weather condition and fall in temperature in Sub humid sub tropic zone of Uttarakhand, farmers are advised not to go for sowing of lentil from this week. Farmers are advised to weeding in early sown garlic crop & onion nursery and give irrigation as no rainfall is expected during this week.
- Farmers in Rajasthan are advised to complete sowing of wheat, barley, potato, cumin, isabgol, ajwain, mustard, gram, lentil, oat, fenugreek, berseem, lucerne, toria, taramira, linseed (alsi), opium poppy, coriander and vegetables viz. tomato, brinjal, radish, chilli etc., and transplanting cauliflower, cabbage, *rabi* onion.
- Farmers in Rajasthan are advised to give light irrigation to timely sown wheat crop, which are about 21-25 days old and are in the CRI stage. Farmers are advised to give 1st irrigation to mustard, gram, cumin and barley crop.
- Due to drop in minimum temperature, farmers in Rajasthan are advised to be careful against frost attack in mustard, gram, coriander, brinjal, tomato, pea and small fruit plants especially aonla and palm. Following advisory is suggested against frost.

- **Spray of chemicals:** Spray dilute HCl @ 0.1% (i.e. 1 litre HCl in 1000 litre water) or thiourea @ 500 ppm (500 gm in 1000 litre water) at an interval of 15 days on frost sensitive crops like mustard, rajmash, coriander etc. at flowering stage or spray the same chemical on the evening of forecast of frost occurrence.
 - **Smoke:** On the event of forecast of frost, create, smoke by burning waste materials.
 - **Light irrigation:** Give light irrigation to sensitive crops in the event of forecast of frost.
 - To protect small fruit plants and nursery from frost cover their north side with thatch (Sarkanda sticks).
- Weather condition is favorable for collar and root rot in gram crop in Kathua district of Jammu and Kashmir ,farmers are advised to rogue out the affected plants and drench the affected patches of the field with thiram or captan @ 2g/litre of water.
 - Under expected fog and low temperature conditions over Udhampur district of Uttarakhand, there are chances of alternaria blight and white rust diseases in timely sown mustard crop. It is advised to spray 2.5 g Redomil-MZ or 2 g Mancozeb dissolved in per litres of water. Also weather conditions are favourable for attack of mealy bug insects to damage mango trees. Hence it is advised to broadcast 250 g of 2 % Folidol dust on stems of mango trees for effective control from these insects.
 - There is a possibility of pod borer infestation in gram crop in Sub-Humid Southern Plain and Aravali Hill Zone of Udaipur in Rajasthan, to control farmers are advised to spray of Monocrotophos 36 SL 1.0 litre per hectare.
 - In Eastern Plain Zone of Uttar Pradesh, there are chances of stem borer pea, farmers are advised to spray Imidachlorprid 17.8% 0.5 ml or Dimethoate 30 EC 1 ml in one liter water, at the interval of 10 days. Due to decrease in temperature, there are also chances of downey mildew in pea. Farmers are advised to spray 2 Kg. Mancozeb 75% Wettable powder in 800 lit. of water per hectare.
 - Due to high relative humidity, infection of early blight may occur in potato and tomato in Delhi. Farmers are advised to monitor the crop and take proper plant protection measures. Also weather is favourable for attack of painted bug on mustard crop, spray Carbaryl (Sevin) @ 2g per litre of water. In present weather condition constant monitoring of aphid is advised in all *rabi* crops.
 - Farmers in Himachal Pradesh are advised to do pruning in apple orchard, preparation of basins and fertilizer application only when moisture is there, otherwise wait for rains or apply in February-March when snow melts. Also advised to spray Isoproturon@80g in 30-32 litres of water per kanal for the control of weeds in early sown wheat and spray celfex@25 g per 10 litres of water of karathane@5 ml per 10 litres of water for control of powdery mildew in peas.
 - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandary**
 - In semi-arid western plain zone of Rajasthan and Himachal Pradesh, in view of falling night temperature, livestock farmers are advised to protect their infant animals from pink cold. They are also suggested for deworming of animals except pregnant animals and deworming medicines like Albendazol, Fenbendazol may be given to animals under the guidance.
 - Due to decrease in temperatures in Jammu and Kashmir protect the pregnant and milch animals from cold and feed them mineral mixture regularly. Cover the poultry shed with gunny bags in order to protect the birds from cold weather.

- In Bhabar & Terai zone of Uttarakhand, due to expected cold conditions during this week in the night, farmers are advised to keep all types of animals inside the shed during night time. Put rice straw at the place of sitting of animals for their better comfort. Keep down curtains in poultry farm in the night for safety of birds from these cold weather conditions. Vaccinate the animals for various diseases as they are more prone to diseases in this weather. For the control of cough use piperazine citrate @50-30 ml/animal.
- Farmers in Uttar Pradesh, bundelkhand zone (Bharari) and also in western plain zone (Modipuram), it is advised to tie young cattle in closed shelter and feed them with big cardamom, ajwain and jaggery, keep cattle shelter clean and take special care of young ones to protect from cold in this season.

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

- **Realised Rainfall:** Chennai, Nagapattinam, Ramanathapuram and Thiruvarur districts in Tamil Nadu received sufficient rainfall. No significant rainfall occurred in the remaining states of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at one or two places over Tamil Nadu and Kerala. Mainly dry weather would prevail over remaining parts of the region.
- **Advisories:**
 - As there was sufficient rainfall in Chennai, Nagapattinam, Ramanathapuram and Thiruvarur districts in Tamil Nadu, postpone irrigation to the crops. Apply irrigation to the standing crops in the remaining states of the region, as there was no significant rainfall during last week.
 - Farmers in the North Eastern Zone of Tamil Nadu are advised to carry out weeding operations in groundnut and nursery preparation for paddy cultivation.
 - Farmers in the Southern Telangana Zone of Andhra Pradesh are advised to raise irrigated dry crops like maize and sunflower as an alternative to irrigated rice due to water scarcity, take up sowing of rabi crops like maize and sunflower under irrigated dry conditions and take up sowing of *Rabi* groundnut in Rayalaseema. Since, low temperatures are prevailing in Telangana districts and to overcome cold injury and better nursery growth, farmers are advised to cover the nursery beds with polythene sheet during night and remove in the morning, irrigate the nursery bed every day in the evening, let out the water in the morning and apply urea @ 2 kg to the nursery sufficient for one acre main field for 10-15 days after sowing.
 - Since peg formation stage and kernel formation stage are critical in groundnut, farmers in the Scarce Rainfall Zone of Rayalaseema in Andhra Pradesh are advised to protect groundnut from drought by slight irrigation and harvest paddy crop, since the present weather conditions is favourable for harvest.
 - Farmers in the North Transition Zone of Karnataka are advised to irrigate wheat, jowar, Bengal gram and maize to avoid moisture stress due to dry weather
 - Farmers in the Central Dry Zone of Karnataka are advised to continue the harvesting and threshing of late sown paddy, as there is no chance of occurrence of rains in the coming days. In the area where the paddy harvesting is completed, farmers are advised to take up the sowing of pulses like black gram, green gram and also the green manure crop sun hemp to utilize residue moisture after harvest of the paddy in paddy field. In paddy fields where there is no residual moisture, in such fields farmers can take up deep ploughing, so that the soil pathogens will die and it will help to reduce pest incidence for the next paddy crop.

- Farmers in the North East Dry Zone of Karnataka are advised to undertake inter cultivation in all *rabi* crops which are at vegetative stage for weed removal and soil mulch for soil conservation, continue land preparation for paddy, hand picking of cotton and harvesting of red gram.
- Farmers in the Central Zone of Kerala are advised to give propping to bunched rain fed banana, since speed of easterly winds is increasing. Priority should be given for propping for banana which faces the easterly side.
- Rice thrips are noticed in the Problem Area Zone of Kerala. Farmers are advised to keep watch and undertake plant protection measures.
- Spodoptera is noticed in groundnut and helicoverpa in the fields of Bengal gram in in the Scarce Rainfall Zone of Rayalaseema in Andhra Pradesh. Farmers are advised to spray Chloripyriphos @2 ml or Moocrotophos @ 1.6 ml per liter of water or if matured larvas are observed, apply larval baits prepared by mixing 5 kgs of paddy straw+ jaggery 500g.+ monocrotophos 500ml into small tablets and to be distributed in the field evenly in evening hours. Application of Qunolphos @ 2 ml or Acephate @ 1 g. per liter of water is recommended to control helicoverpa. They are also advised to undertake plant protection measures.
- Incidence of Helicoverpa is observed in red gram and Bengal gram, tikka leaf spot and rust in groundnut, aphids in beans, powdery mildew is noticed in gourds, mites and gummosis is noticed in sweet orange in the Southern Telangana Zone of Andhra Pradesh. Prevailing weather conditions and low night temperatures are congenial for the incidence of various pests and diseases. Farmers are advised to undertake plant protection measures to prevent attack of these pests and diseases.
- Due to fog and low temperatures, conditions are favourable for attack of pests on major crops in the Krishna Godavari Zone of Andhra Pradesh. Farmers are advised to undertake proper measures to prevent it.
- Blast incidence and brown leaf spot disease is noticed in paddy field in the Western Zone of Tamil Nadu. Farmers are advised to spray edifenphos 50 EC @ 500 ml/ha to control blast incidence, edifenphos at the ratio of 1 ml/litre to control brown leaf spot disease and undertake plant protection measures.
- Blast incidences and green leaf hopper infestation are observed in paddy fields in the Southern Zone of Tamil Nadu. Farmers are advised to spray Edifenphos 50 EC @ 200 ml/acre to control blast incidence, profenophos at 2 ml/liter depending upon the ETL to control green leaf hopper and use andpheromone traps and light traps to observe the incidence of the pest in the paddy fields
- Farmers in the High Altitude Hilly Zone of Tamil Nadu are advised to control leaf miner in peas and beans and thrips in garlic and adopt measures to manage blister blight in tea.
- Incidences of pod borer were noticed in pigeon pea in the North East Transition Zone of Karnataka. Farmers are advised to spray 1 ml methyl parathion or 2 ml Quinolphos or 1g Acephate per litre of water to control pod borer and undertake plant protection measures.
- In early sown crop, powdery mildew has been noticed in sunflower in the Hill Zone of Karnataka. Farmers are advised to spray 1 g. Carbandizeme dissolved in one liter of water to control it. Due to low temperature during night followed by morning dew pod borer incidence was noticed in the pigeon pea crop. Spray NPV 0.75 ml per liter of water, if the pod borer is in big size and 0.3 ml Indoxicarb or 0.1 ml Spinosad per litre of water, if there is no control of the pest.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Dry weather prevailed over the States of the region during last week.
- **Rainfall Forecast:** Dry or mainly dry weather is likely to prevail over the States during the period.
- **Advisories:**
 - As there was no significant rain during last few weeks and mainly dry weather is likely during the period over the States, farmers are advised to apply irrigation to the standing crops.
 - Taking the advantage of dry weather, farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to continue picking of fully opened cotton bolls. Avoid irrigation at the time of boll bursting. Farmers are also advised to undertake harvesting of old *adsali* and pre-seasonal sugarcane and matured red gram crop.
 - Farmers in Madhya Maharashtra are advised to apply irrigation to wheat at CRI stage and gram crop at flowering and grain filling stage. Prepare land for summer groundnut and water melon. Complete the preparatory tillage operations and keep the field ready for planting of *suru* sugarcane.
 - As mainly dry weather would prevail, farmers in North Konkan region of Maharashtra are advised to apply second dose of nitrogenous fertilizer to snake gourd, ridge gourd, sponge gourd, bottle gourd, pumpkin crops @ 73 kg urea per hectare and cucumber crop @ 98 kg urea per hectare after one month of sowing followed by irrigation.
 - Farmers in South Konkan region of Maharashtra are advised to complete sowing of *rabi* rice as early as possible. Complete sowing of short duration crops like cowpea, wal and kulthi in the harvested rice field. Complete the sowing of groundnut, sunflower and mustard as early as possible. Give light irrigation to groundnut crop three days after sowing. Also irrigate the sunflower and mustard crops.
 - Farmers in Middle Gujarat Zone are advised to complete sowing of late varieties of wheat, *rabi* maize and planting of potato. Undertake picking of cotton during morning hours. In view of prevailing dry weather, farmers are advised to apply irrigation to timely sown wheat at crown root initiation stage and to gram at branching stage.
 - Farmers in Middle Gujarat Zone are advised to apply irrigation to potato crop and to wheat crop at booting stage. Harvest matured brinjal in early morning and pluck aged leaves of bidi tobacco.
 - Taking the advantage of dry weather, in Bhal and Coastal Zone and North Gujarat Zone of Gujarat, farmers are advised to undertake picking of cotton during late morning hours.
 - As dry weather is prevailing, in Bhal and Coastal Zone of Gujarat, farmers are advised to carry out intercropping operation in fennel and vegetables and apply irrigation to cotton and castor.
 - Farmers in South Gujarat Heavy Rainfall Zone are advised to carry out intercropping operation in fenugreek, *rabi* jowar and vegetables like brinjal, chilli, tomato, cabbage and cauliflower. Apply irrigation to timely sown wheat and castor.
 - Farmers in South Saurashtra Zone of Gujarat are advised to apply irrigation to gram, castor and also to garlic at bulb formation stage. Undertake picking of cotton.
 - As dry weather is prevailing, farmers in South Gujarat Zone are advised to apply 40 kg nitrogen per hectare in late wheat varieties and to spray 1 to 2 % urea solution in papaya at the time of flowering stage.

- Farmers in North Gujarat Zone are advised to carry out the intercultural operations in castor, wheat, cumin, *rabi* fennel and mustard. After irrigation, apply split dose of nitrogen.
- Farmers in North Saurashtra Zone of Gujarat are advised to complete sowing of wheat, coriander, cumin and isabgul.
- Suitable varieties of the crops for sowing are mentioned in Annexure II.
- Weather is favourable for incidence of thrips and blight on onion in Madhya Maharashtra. Spray Profenophos @ 100 ml or Imidocloprid 200SL @ 50 ml + Mancozeb @ 300 g per 100 litres of water. Weather is also favourable for incidence of powdery mildew on pea. Spray 80% Sulphur @ 20 g or Dinocap @ 5 ml per 10 litres of water. Due to fall in minimum temperature there may be incidence of powdery mildew on grapes. Spray Dinocap @ 5 ml per 10 litres of water.
- Weather is favourable for incidence of hopper and thrips on mango in Konkan region of Maharashtra; spray Acephate @ 1.5 g per litre of water. There is also possibility of incidence of tea mosquito and thrips on new vegetative shoots as well as inflorescence of cashew; spray Monocrotophos 36% @ 15 ml in 10 litres of water or Profenophos 15% @ 10 ml in 10 litres of water or Lambda Cyhellowthrin 5% @ 6 ml in 10 litres of water.
- There is a chance of attack of powdery mildew disease and aphids in mustard in South Gujarat Heavy Rainfall Zone and in Bhal and Coastal Zone. To control powdery mildew farmers are advised to spray Mancozeb (75%) @ 25 g / 10 litres of water. To control the aphids, spray Phosphamidon (100 %) @ 3 ml or Dimethoate (30%) @ 10 ml in 10 litres of water.
- Stages of major crops are mentioned in Annexure I.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Dry weather prevailed over the region.
- **Rainfall Forecast:** Sky remain mainly clear over the region.
- **Advisories:**
 - Farmers in Satpura Plateau Zones of Madhya Pradesh are advised that temperatures are favorable for sowing of late sown wheat crop in irrigated conditions, especially in areas where pea and potato harvesting is completed. They are also advised to do intercultural operations and hand weeding after 20-25 days after sowing in chickpea, mustard and lentil.
 - Farmers in Jhabua Hills Zone of Madhya Pradesh are advised for weed control in wheat and gram crops. Cotton crop is at boll opening stage so irrigate the crop depending upon the soil moisture conditions.
 - Farmers in Gird Zone regions of Madhya Pradesh are advised to irrigate crops as per requirement.
 - Farmers in Vindhyan Plateau of Madhya Pradesh are advised to transplant chilli, brinjal, tomato, onion and cauliflower and give irrigation to fruit plants.
 - Farmers in Central Narmada Valley Zone of Madhya Pradesh are advised for sowing of late wheat and gram and provide first irrigation after 21 days of sowing for the timely sown wheat crop. Farmers are also advised to plant sugarcane. Weed control may be done in *rabi* crops like chickpea, lentil, linseed, tomato, brinjal, chilly, garlic, carrot and radish crop. They are also advised to do intercultural operations and give irrigation to coriander, vegetable pea and fenugreek. Earthing in potato field may be done after 30 to 35 days of planting.

- In view of dry weather conditions and minimum temperature will be around 5°C during next 5 days, farmers in Bundelkhand region of Madhya Pradesh are advised to irrigate the crops. Apply remaining dose of fertilizer after irrigation.
- Farmers in Nimar Valley region of Madhya Pradesh are advised for sowing of high yield varieties of wheat and gram. Sowing of wheat should be done up to 3-4cm depth.
- Farmers in Chattisgarh Plain Zone are advised for the sowing of *rabi* crops specially wheat, gram, pea, *rabi* moong, sunflower, mustard due to favourable weather conditions for sowing of potato and autumn sugarcane.
- Farmers in Bastar Plateau Zone of Chhattisgarh are advised to prepare field for sowing of wheat, gram, mustard, linseed, safflower and lentil crops and sowing should be completed as early as possible. Sugarcane planting should be completed at the earliest and earlier planted sugarcane should be irrigated. Mustard sowing should be completed at the earliest.
- Farmers in Gird zone of Madhya Pradesh are advised that weather is favourable for attack of early blight disease in tomato and potato; for its control prays of 2.5g mencozeb per litre of water at the interval of ten days.
- Farmers in Bundelkhand region of Madhya Pradesh are advised that chickpea is being damaged by the caterpillar, monitor the chickpea crop and when pest reaches at ETL level spray quinalphos 20E.C @ 2.0 ml. per liter of water. It is also advised to monitor pea crop against attack of semi looper, for control measure spray malathion 50 E.C. @ 2ml/L of water. Also there is attack of rat in few crops, as a control measure put poison feed (zinc phosphide 8.0gm, wheat flour 50.0gm, Sugar 1 spoon and 1 spoon mustard oil) in their hole. There is attack of aphids observed in mustard crop in few places, to control spray methyl demeton 25 E.C. or dimethoate 30 E.C. @ 2.0 ml. per liter of water.
- Due to large difference in maximum and minimum temperature there may be attack of insects mainly aphids and other sucking type of insects in Malwa Plateau region of Madhya Pradesh. For its control apply Rogor @ 1ml/lit of water if infestation is very high than apply Imidachlopride @ 1ml/3lit of water.
- Due to cloudy conditions attack of powdery mildew in lathyrus and peas. For its control any sulphur based fungicide can be used in Bastar Plateau Zone of Chhattisgarh.
- In cashew leaves, the attack of Tea Mosquito Bug is being observed. For its control, Quinolphos @ 2 ml/ litre of water in Bastar plateau zone of Chhattisgarh.
- In the Kulthi crop (horsegram), alternaria blight and thrips attack is being observed. For its control Copper Oxychloride and Monocrotophos spray should be made.
- In the mustard and toria crops, caterpillars of black saw fly are being observed. For its control, Endosulfan should be sprayed @ 2 ml/ litre of water. In case of aphid attack in mustard/sarson crop, Monocrotophos should be sprayed @ 1 ml/ litre of water.
- Due to the partial cloudy weather during the last few days in Chattisgarh Plain Zone infestation of pod borer may occur. Farmers are advised to keep keen watch on the crop and if the infestation is above ETL spray Polytrin C @ 1 l/ha or Endoxacarb @ 300 ml/ha.
- **Animal Husbandry & Poultry**
 - Humid weather condition will prevail in Kymore Plateau and Satpura hills, Central Narmada Valley regions of Madhya Pradesh hence farmers are advised to keep cattles in dry and clean place. Create neem leaves smoke at night to save them from mosquitoes and bees.
 - In view of fall in sunshine duration, farmers in Central Narmada and Bundelkhand zones of Madhya Pradesh are advised to provide six hours light in poultry houses during night otherwise, insufficient light may affect egg production.

Annexure I

Major Crops

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

- Sugarcane (elongation), *bororice* (nursery preparation / sowing), wheat (sowing / CRI / vegetative), tomato (transplanting / vegetative / flowering / fruiting), *rabi* pulses (sowing / seedling / vegetative), cauliflower, cabbage and knoll khol (transplanting / vegetative / head formation), brinjal (vegetative/ flowering / fruiting / harvesting), country bean (vegetative / flowering), winter vegetables, pea (sowing / transplanting / vegetative), onion, garlic (sowing / seedling/vegetative), khasi mandarin (fruit maturity / harvesting), lentil (sowing / seedling / vegetative), potato (planting / vegetative / stolon formation), rapeseed and mustard (vegetative / flowering) and cole crops (transplanting / vegetative) in Assam.
- Rice (Mipun cultivar) (harvesting), cabbage, cauliflower, knolkhol etc. (transplanting / vegetative / head formation), maize (vegetative), mustard (vegetative / flowering / pod formation), potato (vegetative) and pea (sowing / vegetative) in Arunachal Pradesh.
- Cucurbits (sowing), rapeseed / mustard (vegetative), tomato (transplanting / vegetative), potato (planting / vegetative), cauliflower and cabbage (transplanting / vegetative / head formation), pea (sowing / vegetative), onion (transplanting), broccoli (transplanting / vegetative) in Manipur.
- *Boro* rice (nursery sowing / seedling), wheat (germination / seedling / CRI), pea, garlic and lettuce (germination / seedling / vegetative), *toria* (vegetative / pod formation / maturity), potato (planting / vegetative / tuber formation), tomato (vegetative / flowering / fruiting / maturity), Khasi mandarin (flowering / fruiting), lentil, rapeseed (vegetative / flowering), *rabi* onion (vegetative), winter vegetable (vegetative / flowering / fruiting), Bengal gram (vegetative), mustard (flowering / pod formation), peach (vegetative / fruiting / maturity), cashew, apricot (planting / vegetative) in Meghalaya.
- Ginger and turmeric (rhizome formation / maturity / harvesting), khasi mandarin (vegetative / fruiting / harvesting), banana (vegetative / fruiting / maturity / harvesting), cole crops and tomato (transplanting / vegetative) and pea, bean (vegetative / flowering) in Mizoram.
- Banana (vegetative / fruiting), cabbage (vegetative / head formation), pea (early sown) (vegetative / flowering / pod formation), pea (germination / vegetative / flowering), pigeon pea (pod filling), rapeseed, mustard (vegetative / flowering), French bean (germination / seedling / vegetative), potato (vegetative), brinjal (fruiting / harvesting), maize (vegetative) and broccoli (vegetative) in Nagaland.
- *Boro* rice (nursery sowing), cucurbits and other vegetables (flowering / fruiting), pulse crop (vegetative / flowering), ginger and turmeric (rhizome formation / harvesting), tomato (vegetative / flowering), *toria* (vegetative / flowering), cole crops (vegetative), potato (planting / vegetative), pea, beans (vegetative / flowering) in Tripura.

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

- Sugarcane (vegetative), *khariif* arhar (pod formation / seed formation), lobia for green fodder (sowing), mishrikand (vegetative), onion, radish (sowing / vegetative), cauliflower, cabbage (sowing / transplanting / vegetative), fruit trees (transplanting),

potato, sweet potato (planting / vegetative), rapeseed, mustard (vegetative), wheat, vegetables, maize, pulses (sowing / vegetative) in Bihar.

- Pigeon pea (pod formation / seed formation), turmeric and ginger (vegetative / rhizome formation), elephant foot yam (tuber elongation), potato (planting / vegetative / tuber formation), sweet potato (vegetative / stem elongation / tuber elongation / maturity / harvesting), mustard, linseed (sowing / vegetative), toria (flowering / pod formation), green pea (sowing / vegetative), cauliflower, cabbage, chilli, tomato (transplanting / vegetative), wheat (sowing / CRI), niger (vegetative), papaya (transplanting), gram, onion, African or French marigold (sowing / vegetative) in Jharkhand.
- Arhar (pod formation / seed formation), mustard (vegetative), sugarcane (vegetative), turmeric and ginger (early vegetative / vegetative), Bengal gram, lentil, linseed, green pea (sowing / vegetative), wheat (sowing / CRI), banana, potato and marigold (planting), sunflower, garlic, groundnut (sowing / vegetative), tomato, cauliflower, cabbage, knol-khol, onion (transplanting / vegetative) in Orissa.
- *Boro* rice (nursery preparation), winter vegetables (transplanting / vegetative), mustard (vegetative), wheat, lentil, gram, sunflower (sowing / vegetative), potato (planting / vegetative) in West Bengal.
- Large cardamom (new) (transplanting of suckers from nursery), *rabi* vegetables (vegetative / late Vegetative), orange (harvesting), ginger (harvesting), wheat (sowing / seedling / CRI), mustard (sowing / germination / vegetative), *rabi* potato (vegetative / tuber formation) in Sikkim.

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

- Wheat (sowing of late varieties), lentil (pod formation), sugarcane (planting), *rabi* onion, cauliflower, cabbage, broccoli, tomato, knolkhol (transplanting), radish, spinach and coriander (vegetative/fruited) in Delhi
- Wheat (sowing/emergence), vegetables (sowing), garlic, ginger (planting), bhindi, cucurbits (sowing), Khira, summer squash, bitter gourd, tur, brinjal, Shimla mirch, and tomato (sowing / transplanting), Apple (harvesting), arbi, amaranthus, turmeric, rice, maize, barley, radish, onion, pea, garlic, coriander, cabbage, knol khol, parsley, lettuce, fennel, cauliflower, broccoli (sowing / planting) in Himachal Pradesh.
- Wheat (sowing / emergence / tillering), early/normal sown barley (CRI stage), late sown barley (sowing / emergence), onion (transplanting), winter vegetable crops viz. potato, radish, carrot, turnip, garlic, spinach, methi (various stages i.e. sowing / vegetative), cole crops viz. early cauliflower, cabbage, knoll khol, broccoli (transplanting/emergence), Rabi oilseeds i.e. toria (maturity), gobi sarson, mustard normal sown (vegetative) and early sown mustard (pod formation), late sown mustard (vegetative), brown sarson (rosette stage), rabi pulses i.e. lentil (sowing / emergence-(germination)/ vegetative), gram (vegetative), pea (sowing / emergence (germination) / vegetative)], fodder crops like oats (emergence / tillering), berseem (vegetative (1st cutting)), Apricot, Apple (nursery sowing), in Jammu & Kashmir.
- Chilli, capsicum, cauliflower, broccoli (transplanting), lahi (flowering / fruited), sugarcane (planting), litchi, loquat, peach, citrus (flowering / fruited), mango (early varieties) (flowering), foxtail millet, okhra, bottle gourd, bitter gourd, ginger, turmeric, (germination / vegetative), mustard, toria (pod formation/maturity), papaya (planting), sorghum, pigeon pea (vegetative), vegetable pea (harvesting), urd, potato, and pearl millets (germination), barley, fodder berseem, sarson (germination/

vegetative), onion (nursery sowing), wheat (germination/crown root initiation), lentil (sowing) in Uttarakhand.

- Wheat (sowing/emergence/crown root initiation/ vegetative growth), winter sugarcane (vegetative growth), summer sugarcane (grand growth / maturity), cucurbits like gourd, bitter gourd, cucumber, etc. and another vegetables like lady's finger, tomato, brinjal, chilli, bhindi etc. (vegetative / flowering / fruiting), arhar, toria (seed maturity/harvesting), cabbage, garlic, cauliflower (flowering / fruiting / maturity), onion (transplanting), barley, jai, gram, alsi, maize, rai, mustard, sarson, masoor, pea and chick pea (sowing/ germination / vegetative growth), berseem (vegetative growth / 1st cutting), potato (vegetative growth / tuber formation) in Uttar Pradesh.
- Spring sugarcane (sprouting), berseem (vegetative), sugarcane (maturity / harvesting), sugarcane autumn (planting), cotton (boll maturity/picking), gram, lentil, mustard, rape seed (branching/flowering), radish, carrot, turnip, onion, cauliflower (sowing/transplanting), barley (CRI/tillering), wheat (sowing of late varieties, CRI/tillering in timely sown) in Punjab.
- Sugarcane (spring season) (planting/emergence/early vegetative), barseem (vegetative), pulses, moong, mash, pigeon pea (vegetative), cauliflower, cabbage, carrot, potato (transplanting), mustard (sowing / vegetative), sarson, raya, radish, turnip (sowing), wheat (sowing) in Haryana.
- Wheat (sowing / germination / CRI stage), sweet potato, chilli and cluster bean (vegetative), mustard (vegetative growth / flowering), gram, coriander (germination), barley, oats, lentil, lucerne, taramira, linseed (alsi), opium poppy, vegetables (potato, fenugreek, tomato, brinjal, radish, chilli, carrot, palak, berseem, cumin, isabgol, ajwain, garlic (vegetative growth), green pea (vegetative growth / pod formation), cauliflower, cabbage, *rabi* onion (transplanting) in Rajasthan.

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

- Sugarcane (vegetative), cotton (boll opening), maize (harvesting), ragi, sunflower (heading/sowing), Bengal gram (pod formation), red gram (pod filling/harvesting), *rabi* jowar (sowing/vegetative), late planted paddy (harvest), wheat (vegetative) and safflower (vegetative) and horticultural crops (vegetative growth/ flowering/ fruit development) in Karnataka.
- Groundnut (vegetative), *rabi* paddy (tillering/panicle initiation), *rabi* pulses (vegetative/ flowering/ pod formation), Bengal gram (flowering), red gram (pod development), castor (development of third spikelet), sunflower (vegetative), cotton (boll initiation/boll development), tomato (vegetative / flowering /fruiting), chilli and bhendi (vegetative/flowering/fruiting), field bean (vegetative/ flowering) in Andhra Pradesh.
- Rice (flowering/grain filling/harvesting), arecanut (harvesting), pepper (maturity/ harvesting), ginger (early harvest), cardamom (harvesting), nutmeg (maturity), sugarcane (harvesting/planting), vegetables (planting/seedling/harvesting), banana (planting/harvesting), mundakan paddy (panicle initiation) in Kerala.
- Rice - Samba (tillering / panicle initiation), cotton (boll formation), vegetables (vegetative/ harvest), sugarcane (vegetative/ grand growth/maturity), maize (cob formation), millets (vegetative/ harvest), sorghum (vegetative/ harvest), Bengal gram (sowing), pulses (flowering/pod formation / maturity), groundnut (flowering/harvest) in Tamil Nadu.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- Sugarcane (*Adsali*) (grand growth / cane maturity), sugarcane pre-seasonal (elongation / cane maturity), sugarcane (*suru*) (elongation), sugarcane (new *adsali*) (early vegetative), sugarcane (new pre-seasonal) (sprouting / early tillering), cotton (boll maturity / picking), red gram (pod development / pod maturity), *rabi* jowar (flag leaf initiation / ear head emergence / flowering), safflower (vegetative / flowering), irrigated gram (branching / flowering / pod formation), irrigated wheat (crown root initiation / early tillering), sunflower, maize (vegetative) in Maharashtra.
- Wheat (sowing / crown root initiation / booting), gram (flowering / pod formation), *rabi* maize (sowing / vegetative), Isabgul (sowing), sugarcane (vegetative), jowar (seedling / vegetative), cotton (picking), castor (spike initiation / capsule formation), mustard (vegetative / floral bud initiation), cluster bean, cauliflower, cabbage, sweet corn (sowing / vegetative), potato (planting / emergence / vegetative), spices (sowing) and onion (transplanting) in Gujarat.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Sugarcane (planting), vegetables (fruiting), Mustard (branching/ flowering), wheat (crown root initiation stage), maize (tillering), onion, garlic, tomato, brinjal, chilli (sowing/transplanting), cotton (maturity), gram (flowering/pod formation) in Madhya Pradesh.
- Rice (Harvesting), sugarcane (planting), groundnut, arhar, green gram and sesame (vegetative), ginger, turmeric, papaya, mango and guava (vegetative) cauliflower, pigeon pea (pod filling), potato (sowing), tomato, brinjal, chilli, niger, horsegram, ramtil, toria, cauliflower, cabbage, niger, kulthi and wheat (sowing) in Chhattisgarh.

Annexure II

List of Varieties

Assam

Boro rice: Boro 1, Boro 2, Mashuri, Proagro-6444, KRH-2, IR-50, Bishnuprasad, Jyotiprasad, Kanaklata, Cauvery, Banglami, Joymati and Dinanath.

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

Lentil: B-77, L-9-12, PL 406 and PL 81-4.

Tomato: Punjab Suhara, Avinash, Pusa Ruby, Arka Alok, Sioux, Punjab Keshri, Arka Abhijit, BT-1.

Onion: Pusa Red, Pusa Ratnar, Pusa White, N-53.

Garlic: Eknalio, T-56-4 and other local varieties.

Potato: Kufri Chandramukhi, Kufri Jyoti, Kufri Sindhuri.

Manipur

Pea: Arkel, Azad, Rachana.

Potato: Kufri Megha, Kufri Jyoti.

water melon :

for small type: Water Baby.

for big type: Madhavi-10.

Mizoram

Cabbage: Golden Acre, Ryozekei, Harnil; **late varieties** – Pusa Drumhead, Drumhead Late.

Broccoli: Pushpa, Pusa Broccoli, Aishwarya and Fiesta.

Cauliflower: Snowball -16, Pusa Early Synthetic-1 and 2, Pusa Shubhra, Pant Gobhi – 2 and Patna Ageti.

Meghalaya

Boro rice: NEH Megha Rice-1, NEH Megha Rice-2.

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

Cashew: Ullal-3, Ullal-4, Venguria-1, Venguria-4 and Venguria-7.

Apricot: New castle, Kaisha, Nugget, Shipley, Suffaidda.

Orissa

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

Groundnut: Smruti, TAG-27, TAG – 24, JL-24, AK-12-24 and TMV-2.

Wheat: Sonalika, Kalyansona, UP-262, HD 2733, HD 2824, PBW 343, PBW 443, UP 262, RW 346, HP 1761, HP 1731, K 9107.

Green pea: Rachana, Arkel, T-163.

Banana: Cavendish and Robusta.

Potato: Kufri Chandramukhi, Chamatkar, Kufri Jyoti, Kufri Sinduri and Kufri Alankar.

Bengal gram: Gourav, Annegiri, Radhey.

West Bengal

Cauliflower: Pusa Dipali, Pusa Chetaki.

Tomato: Baisali, Indam 1116, Akash.

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

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

Potato: Kufri Jyoti.

Sunflower: Morden, Sidhesor (80-85 days), Pack-36 (104 Days), M.F.S.H.-17 (104 Days), Sungin-85 (80-90 days), B.S.H.-1 (85-90 days).

Lentil: B-77 (Asha), B-256 (Ranjan), Subrata, L-4076 (Mallicka) etc.

Gram: Mahamaya-1, Mahamaya-2, Anuradha etc.

Jharkhand

Green Pea: Swarn Rekha, Arkel, Azad Pea, Kashi Nandini, PE-6, Birsa Matar, Rachna, D.D.R. etc.

Potato:

Short duration: Kufri Ashoka and Kufri Pukhraj.

Long duration: Kufri Surya and Kufri Puskar.

Tomato: Pusa Ruby, Swarna Sampda, Swarn Lalima.

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

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

Papaya: Pusa Giant, Pusa Dwarf, Honey Dew, Pusa Majesty.

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

African marigold: Pusa Narangi, Pusa Basanti.

French marigold: Petite Orange, Petite Yellow, Rusty Red, Lemmon Drop.

Onion: Pusa Red, Pusa Ratnar, N-53, Arka Niketan, Arka Kalyan, Agrifound Dark Red.

Gram: Birsa Chana – 3, B.G. – 372, B.G. – 256, K.W.R. – 108, Pant G. – 108, 114 and Kabuli type varieties like B.G. 1053, 1003, H.K.-94-134 and Kak 2.

Linseed: Shubhra, T. – 397, Sweta.

Wheat:

Irrigated varieties: K-9107, HUW-468, HD-2733 and Birsa Genhu-3.

Unirrigated varieties: H.D.R.-77, K.-8027, C.-306, K.-8962, K.-8027etc.

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

Bihar

Cauliflower: Aghani, Pusa Dipali, Pusi, Patna Main, Pusa Shuvra, **Late variety** - Maghi, Snow King, Pusa Snow King 1, Pusa 2, Pusa Snow ball 16.

Cabbage: Late Drum Head and Pusa Drum Head.

Rapeseed: RAUTS-17, PT-303, Panchali and Bhawani.

Potato: Kufri Lalima, Kufri Kuber, Kufri Alankaar, Kufri Jyoti, Kufri Chandramukhi, Ranjendra Aloo 1, 2 and 3, Kufri Badshah.

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

Lentil: BR 25, Pant L406, 639, Malika, Arun.

Peas: Ratna, Arpana, Harbhajan, Malbai, Malviyamator 15, Pusa Prabhat.

Maize: Saktiman 1, 2, 3, 4; Laxmi, Rajendra Shankar Makka 1 and 2, Ganga 11, Deoki, Safed Laxmi, Suwan Peela.

Delhi

Wheat (Late sown): P.B.W.373, WR-544, U.P.2338, U.P.2425.

Himachal Pradesh

Lettuce: Iceberg

Brinjal : Arka Nidhi, PPC

Ageti bhindi : P-8, Prabhini kranti, Arka anamika

Frenchbean : Contender

Pepper : Surjmukhi

Broccoli: Palam Samridhi

Rajmash : Triloki, Jwala, baspa Kailash

Raddish : japani white and early mino white.

Turnip : PTWG-1.

Cabbage, coriander: Snow ball K-1 Palam uphar, golden acre.

Knol khol : White Bina.

Cauliflower : Pride of India

Jammu & Kashmir

Wheat: late sown wheat varieties Raj 3077, PBW-226, PBW-373, PBW-435 and Raj-3765,

Barley : var. Ratna, Jyoti and Sonu

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

Vegetable crop like **radish** (var. Pusa chetki, Japanese white & Pusa reshmi), **carrot** (var. Pusa kesar), **turnip** (var PTWG), **garlic** (var. local, large segmented), **spinach** (prickly seeded) and **methi** (P.E.B.K methi), **Cauliflower** (var. Pusa Dipali), **knoll khol** (White Vienna), **Broccoli** (Early green).

Punjab

Wheat: PBW 621, DBW 17, PBW 550, PBW 502, PBW 343, WH 542, PDW 291, PDW 274 and PDW 233

Radish: Japanese White, white Icicle,

Turnip: Golden Ball,

Raya: PBR-210 and PBR 91 for South Western regions only. 23

Haryana

Wheat: PBW 621, DBW 17, PBW 550, PBW 502, PBW 343, WH 542, PDW 291, PDW 274 and PDW 233.

Raya: PBR-210 and PBR 91 for South Western regions only.

Radish: Japanese White, white Icicle,

Turnip: L-1, Carrot: Selection 21 and PC-34

Sugarcane: CoJ85.CoJ64, CoJ83

Uttarkhand:

Barley: Jyoti, Vijaya, or Jagrati and Oat varieties like UPO-50, UPO-212, JHO-822, Kent etc.

Potato: Kufri Bahar, Kufri Jawahar, Kufri Ashok, Kufri Anand.

Wheat: UP-2338, UP-2425, UP-2526, PBW-373, UP-2565, UP2572, UP2584, UP1109, PBW343

Sarson: Jai 56, 85, 01, Pant masoor 4, 5, BL masoor 125, 126.

Pea : BL matter 3, 7, Vivek matter 6, varun kanti.

Uttar Pradesh:

Wheat: Malviya – 234, UP-2338, PVW-373, UP-2425, Narendra wheat-2036, 1014, K-9533, K-9162, HD-2428, HD-2189, HD -2733, UP.-2425, PBW-343, HD-2428, Raj-3765, HI-1077, UP-2425, PBW-435

Cumin : RS1,NC43

Rajasthan

Wheat: Raj-3765, Raj-3777, Raj-3077, & Lok-1, HI-8498, PBW-373

Barley: RD-2052, RD-2503, RD-2035, RD 2668,

Onion: Pusa Red, Pusa Madhavi, Arka, Niketan, Local Red and Pusa white.

Autumn vegetables : **Tomato:** Pusa Rubi, Pusa Earli and Vihar, **Brinjal:** Pusa Summer Prolific Round, Pusa Summer Prolific Long, Meghdoot and Arka Bahar, **Cauliflower:** Pusa Snowball 1 and Hissar 1, **Cabbage:** Pusa Drum Head and Hybrid 10, **Radish:** Japanese White and Hill Queen

Karnataka

Green gram: PS-16

Black gram: T-9, TAU-1

Cow pea: C-152, TVX-944

Horse gram: PHG-9

Bengal gram: Annigeri 1 and JG-11, ICCV-10, GBS-964, ICCV-2(Kabuli)

Sunflower : KBSH-1, KBSH-42, KBSH-44.

Groundnut : ICGS-11, K-134, Chinthamani-2

Andhra Pradesh

Red gram: LRG-38,LRG-41,WRG-27,ICPL-84031,PRG-100,PRG-158

Green gram:LGG-407, LGG-410, LGG-450,TM-92,PU-31

Black gram: LBG-752, LBG-623, LBG-20,T-9

Bengal gram: JG-11, Annegiri, Jyothi, ICCV-2(Svetha), 10, 37, JG-130 and JAKI- 9218

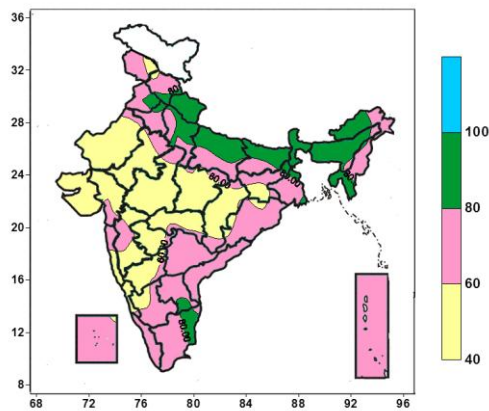
Groundnut: Kadiri-3,4,5,6; Tirupati-4, Narayani, Vemana and Greeshma Kadiri-3,4,5,6; tirupati-4,Narayani, Vemana and Greeshma

Paddy: BPT-5204

Gujarat:**Wheat (late sown):** Lok-1, GW-120, GW-173, GW-405.**Rabi Maize:** Ganga Safed-2.**Cluster bean:** GC-1, 2.**Cauliflower:** Pusa Early, Pusa Dipali , Pusa Kartiki, Early Kuvvari, Pusa sythetic, Early Snowball, Jayayant Snowball, Pusa Snowball, Super Snowball, Snowball-13.**Cabbage:** Kranti, Golden Acre, Pride of India, Coppen Market.**Onion:** Pusa Red, Nashik Lal, N 53 and H 48.**Potato:** Kufri Badsaha, Kufri Pokhraj, Kufri Lokar.**Spices:** Methi Kasuri or Pusa Early Branching (Fenugreek), Guj. Coriander 1 or 2 (Coriander), Guj. Cumin 1, 2, 3, 4 (Cumin).**Isabgul:** Isabgul 1, Isabgul 2.**Maharashtra:****Suru sugarcane :** Co 86032, Co 67, Co 8014 and Co 265.**Rabi sunflower:** Modern, S.S. 56, B.S.H-1 in Konkan.**Rabi groundnut:** TG-26, TAG-24, TPG-41, Konkan Gaurav, Konkan Tapora.**Mustard:** Pusa Bold, Varuna.**Madhya Pradesh****Wheat- Early sown varieties:** Sujatha, HW 2004 or HI 1500 HI -1500, HI-1531 and HD 2004, JWS-17, HD-4672. Jaki 9218 MP-1142, MP-4010, MP-1201, MP-1202**Wheat- Late sown varieties:** GW -173, DL-788-2**Garlic-G-283, G-1, G-41 or G-323****Linseed-PKDL-21, JL-1, JL-3, Mallika, JLS-1, IPL-81****Lentil-JLS-03****Maize-JVM -421, JM-16****Pea- Jawahar pea 1 and 2****Gram-Late sown variety: JG-14****Sugarcane- CoJN 86032, CoJN 86582****Chattisgarh****Wheat-GW-273****Potato-Kufari Lalima, Kufari Pukhra****Sugarcane- Co 86032, Co 86141**

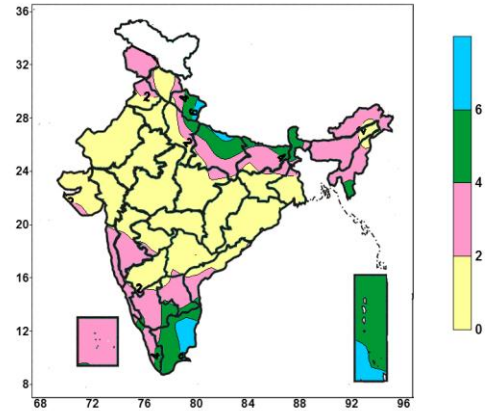
Annexure III
Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 21.12.2011

Relative Humidity (%) over India for the week ending 21.12.11



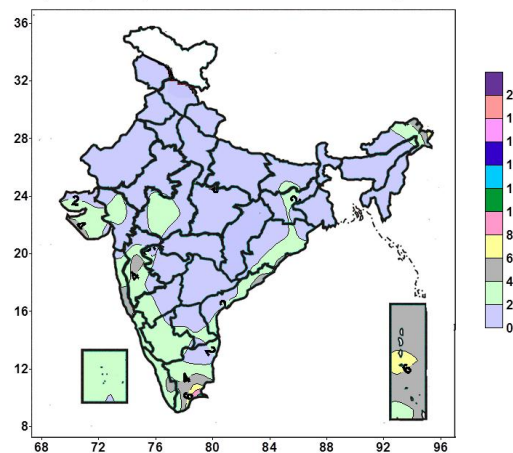
Relative humidity ranged between 80% and above over most parts of Uttarakhand, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal, Northeast India, some parts of Himachal Pradesh, Punjab, Haryana, Jharkhand, Gangetic West Bengal, Rayalaseema, Tamil Nadu, 40 to 60% over most parts of Rajasthan, Central India, Maharashtra, North Interior Karnataka, Coastal Karnataka, some parts of Jammu & Kashmir, Jharkhand, Orissa, South Interior Karnataka, 60 to 80% over remaining parts of the country.

Cloud amount (okta) over India for the week ending 21.12.11



Cloud amount 6 okta and above over some parts of Uttarakhand, East Uttar Pradesh, Tamil Nadu, Andaman & Nicobar Islands, 4 to 6 okta over most parts of East Uttar Pradesh, Sub-Himalayan West Bengal, Sikkim, Tamil Nadu, Andaman & Nicobar Islands, some parts of Uttarakhand, West Uttar Pradesh, Mizoram, Coastal Andhra Pradesh, Rayalaseema, South Interior Karnataka, Coastal Karnataka, Kerala, 2 to 4 okta over most parts Jammu & Kashmir, East Uttar Pradesh, Bihar, Northeast India, Konkan & Goa, Madhya Maharashtra, Rayalaseema, Coastal Karnataka, South Interior Karnataka, Kerala, Lakshdweep Islands, some parts Himachal Pradesh, Punjab, West Uttar Pradesh, Jharkhand, West Bengal, East Madhya Pradesh, Kutch, Marathwada, Coastal Andhra Pradesh, Telengana, Tamil Nadu, 0 to 2 okta over remaining parts of the country.

Wind speed (knots) over India for the week ending 21.12.11



Wind speed ranged between 8 knots and above over some parts of Tamil Nadu, Andaman & Nicobar Islands, 6 to 8 knots over some parts Tamil Nadu, 4 to 6 knots over most parts of Andaman & Nicobar Islands, some parts of Arunachal Pradesh, Konkan & Goa, Madhya Maharashtra, Coastal Andhra Pradesh, Kerala, Tamil Nadu, 2 to 4 knots over most parts of Saurashtra & Kutch, Coastal Orissa, West Madhya Pradesh, Madhya Maharashtra, Karnataka, Kerala, Lakshdweep Islands, some parts of Arunachal Pradesh, Bihar Jharkhand, Gujarat, MArathwada, Coastal Andhra Pradesh, Rayalaseema, Tamil Nadu, Andaman & Nicobar Islands, 0 to 2 knots over remaining parts of the country.