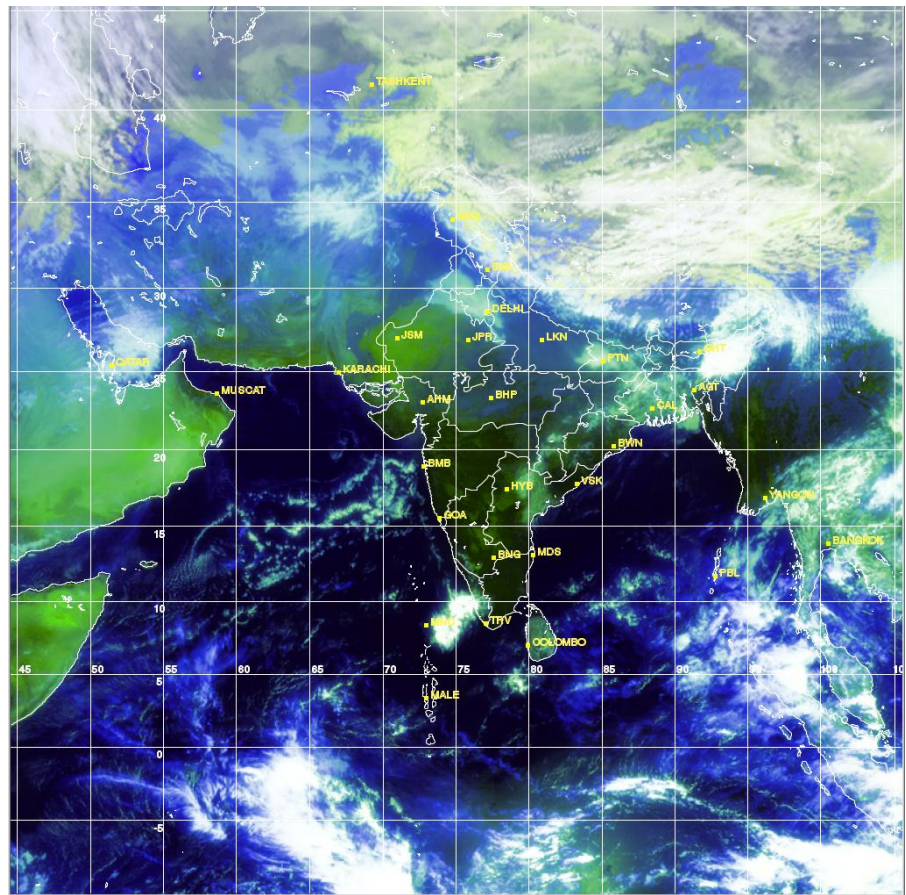




# National Agromet Advisory Bulletin

Thursday, 19<sup>th</sup> January, 2012

(For the period 19<sup>th</sup> to 23<sup>rd</sup> January, 2012)



Satellite image 0600 UTC dated 20<sup>th</sup> January, 2012

Issued by

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

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

## Executive Summary

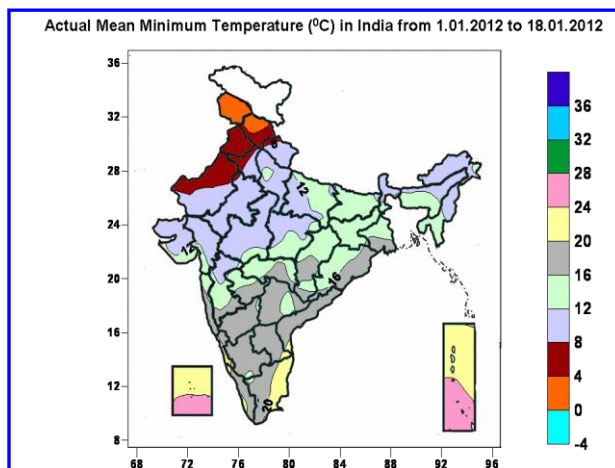
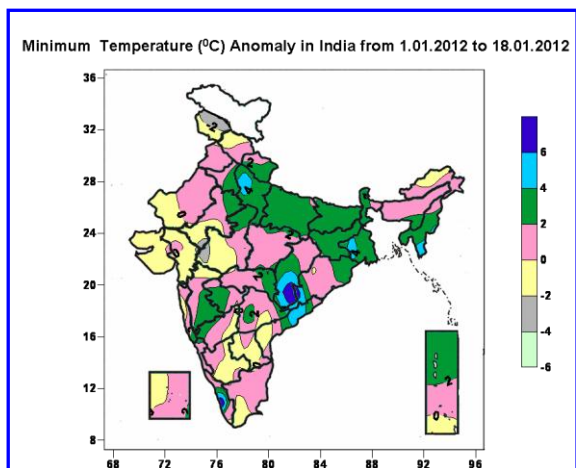
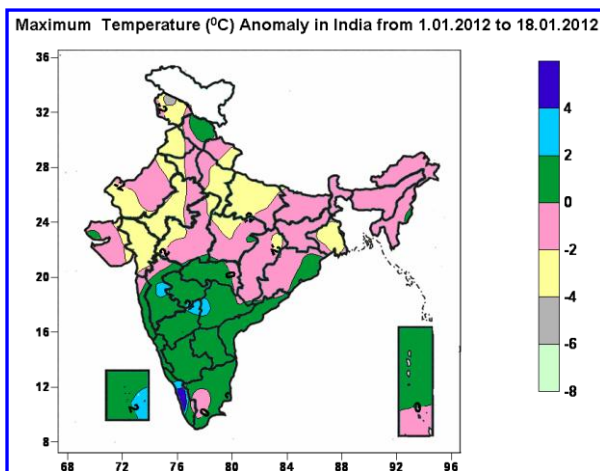
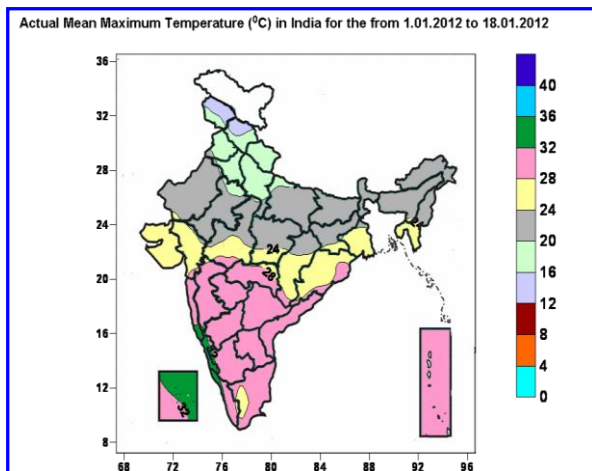
Cold wave along with ground frost conditions are prevailing over isolated pockets of Haryana, Rajasthan and west Madhya Pradesh. Minimum temperatures would fall by 2-3°C over parts of northwest and adjoining central & east India, leading to cold wave condition over some parts of above regions during next 2 days. This temperature is conducive for the growth and development of wheat during this season. Minimum temperatures were reported 4°C or less over isolated pockets of northwest Rajasthan, Central Haryana and West Madhya Pradesh. Farmers in these regions are advised to provide light and frequent irrigation and arrange for smoking around the fields to protect standing crops from frost / cold injury.

Rain / snowfall occurred at many places over Himachal Pradesh and Jammu & Kashmir. Rain / thundershowers occurred at a few places over Punjab and Uttarakhand during last week. Rain / snowfall also occurred at many places over Himachal Pradesh and Jammu & Kashmir during last 24 hours. Damage of apple, peach and plum trees in budding stage is observed in the higher reaches of Lahul & Spiti, Chamba, Kinnaur and Kangra districts in Himachal Pradesh due to heavy snowfall. Farmers in these regions are advised to undertake measures to prevent the crop damage due to snowfall and arrange for disposal of snowfall from the fields. Mainly dry weather prevailed over most of the remaining parts of the country and either isolated rainfall or dry / mainly dry weather is likely to occur. Farmers are advised to apply irrigation to the standing crops in these regions.

Farmers are advised to undertake transplanting of tomato, brinjal and chilli and sowing of water melon and musk melon in Manipur, planting of sugarcane and nursery sowing of *summer* rice in Orissa, land preparation for transplanting of *boro* rice in West Bengal, sowing of pulses like black gram and green gram, irrigated groundnut, fodder jowar / maize and planting of sugarcane in Karnataka, sowing of *summer* crops like groundnut, moong and pearl millet in Gujarat and sowing of water melon and planting of sugarcane in Maharashtra.

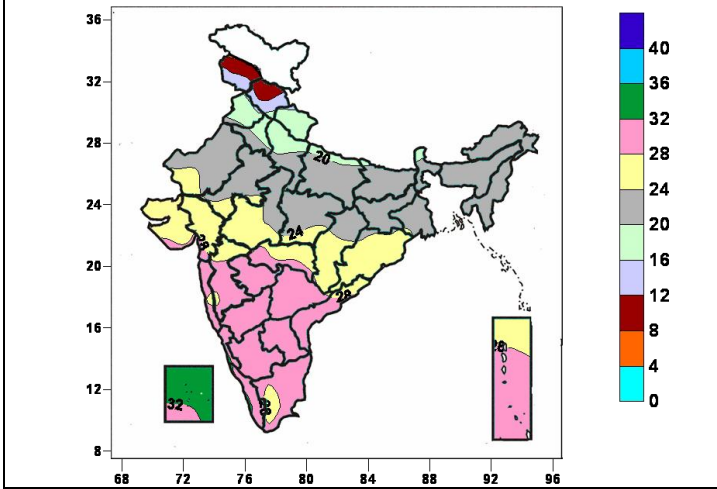
Due to prevailing weather, incidences of aphids in potato in Orissa, aphids in mustard in West Bengal, *Alternaria* leaf post in cotton and fruit borer in chilli in Tamil Nadu, hoppers in mango and aphids in safflower in Karnataka, aphids in bhindi, cowpea, brinjal etc. in Kerala are noticed below economic threshold level (ETL). Farmers are advised to undertake appropriate plant protection measures to control the pests and diseases, if their population goes beyond ETL.

### Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the period from 01.01.2012 to 18.01.2012

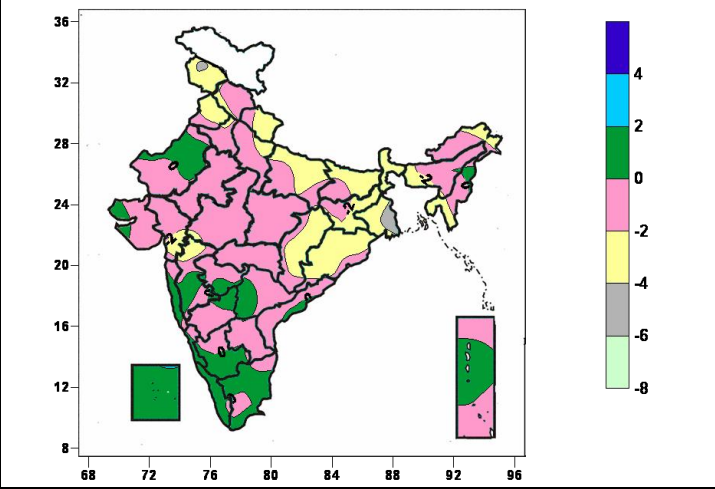


### Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 18.01.2012

Actual Mean Maximum Temperature ( $^{\circ}\text{C}$ ) in India for the week ending 18.01.2012



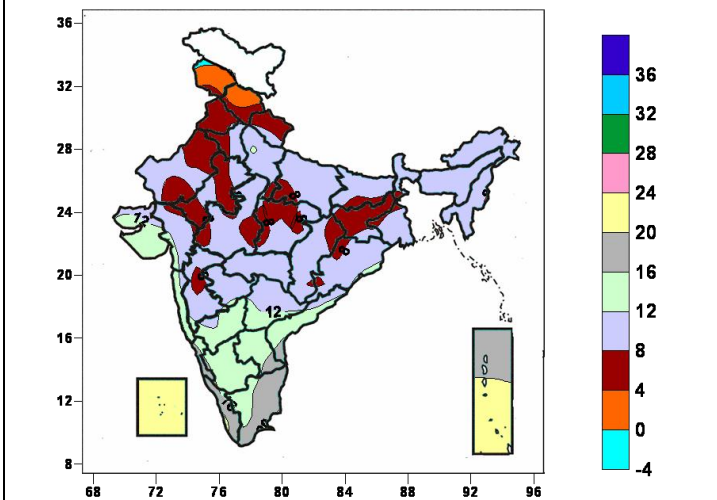
Maximum Temperature ( $^{\circ}\text{C}$ ) Anomaly in India for the week ending 18.01.2012



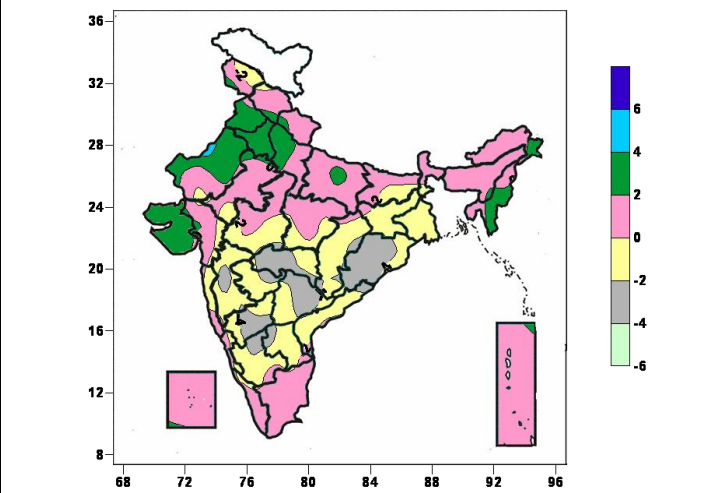
Actual Mean Maximum temperature ranged between  $32^{\circ}\text{C}$  and above over most parts of Lakshadweep Islands,  $28$  to  $32^{\circ}\text{C}$  over most parts of Maharashtra, South India (except Lakshadweep Islands),  $8$  to  $12^{\circ}\text{C}$  and  $12$  to  $16^{\circ}\text{C}$  over most parts of Jammu & Kashmir, Himachal Pradesh,  $16$  to  $20^{\circ}\text{C}$  over most parts of Uttarakhand, Punjab, Sikkim, some parts of Haryana, Delhi, Uttar Pradesh,  $20$  and  $28^{\circ}\text{C}$  over remaining parts of the country.

Actual Mean Maximum temperature anomaly ranged between  $0^{\circ}\text{C}$  above over most parts of Konkan & Goa, Coastal & South Interior Karnataka, Kerala, Tamil Nadu, Lakshadweep Islands, some parts of West Rajasthan, Nagaland, Saurashtra & Kutch, Madhya Maharashtra, Marathwada, Coastal Andhra Pradesh, Telanagana, North Interior Karnataka, Andaman & Nicobar Islands,  $-6$  to  $-4^{\circ}\text{C}$  over some parts of Jammu & Kashmir, Gangetic West Bengal, between  $-4$  and  $4^{\circ}\text{C}$  over remaining parts of the country.

Actual Mean Minimum Temperature ( $^{\circ}\text{C}$ ) in India for the week ending 18.01.2012



Minimum Temperature ( $^{\circ}\text{C}$ ) Anomaly in India for the week ending 18.01.2012



Actual Mean Minimum Temperature ranged between  $20^{\circ}\text{C}$  and above over most parts of Lakshadweep, Andaman Nicobar Islands,  $0$  to  $4^{\circ}\text{C}$  over most parts of Jammu & Kashmir, Himachal Pradesh,  $4$  to  $8^{\circ}\text{C}$  over most parts of Himachal Pradesh, Uttarakhand, Punjab, Rajasthan, Jharkhand, some parts of Haryana, Uttar Pradesh, Bihar, West Bengal, Orissa, Madhya Pradesh, Chhattisgarh, Madhya Maharashtra, Gujarat, between  $8^{\circ}\text{C}$  and  $20^{\circ}\text{C}$  over remaining parts of the country.

Minimum Temperature anomaly ranged between  $4^{\circ}\text{C}$  and above over some parts of West Rajasthan,  $2$  to  $4^{\circ}\text{C}$  over most parts of Punjab, Haryana, Delhi, West Rajasthan, Manipur, Mizoram, Saurashtra & Kutch, some parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh, East Rajasthan, Arunachal Pradesh, Gujarat,  $-4$  to  $-2^{\circ}\text{C}$  over most parts of Orissa, Vidarbha, Telangana, North Interior Karnataka, some parts of Chattisgarh, Madhya Maharashtra, Marathwada, South Interior Karnataka, Coastal Andhra Pradesh, Rayalaseema, between  $-2$  to  $2^{\circ}\text{C}$  over remaining parts of the Country.

### Distribution of rainfall of the country during week ending on 18.01.2012

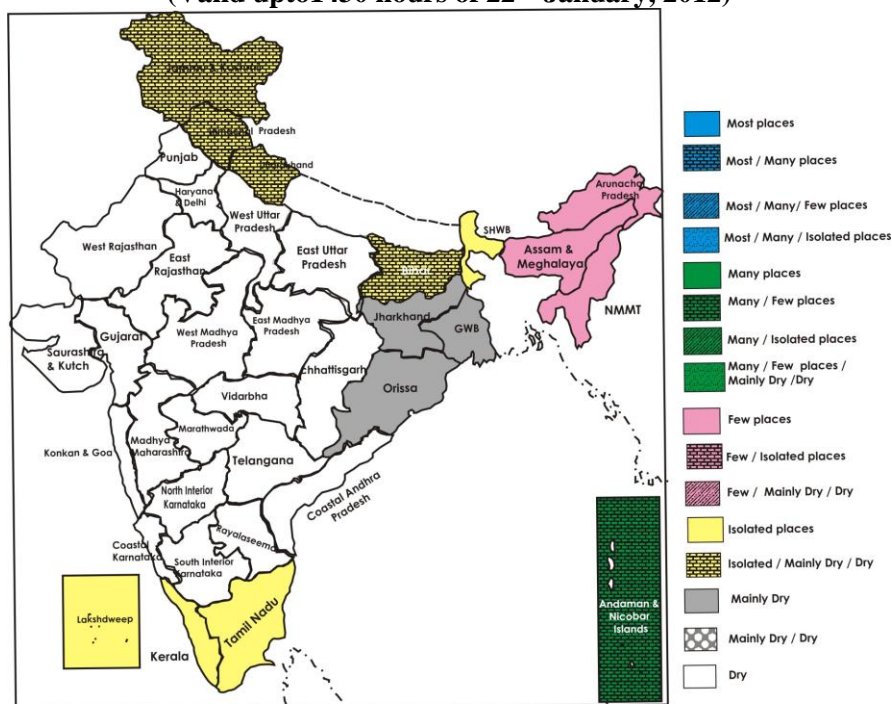
State/Districts	Actual	18.01.12
<b>Himachal Pradesh</b>		
Bilaspur	53.4	99
Chamba	50.0	136
Hamirpur	75.5	509
Kangra	97.8	544
Kinnaur	44.1	175
Kullu	81.1	605
Lahaul and Spiti	26.9	1
Mandi	59.5	354
Shimla	57.5	323
Sirmaur	26.0	138
Solan	42.1	199
Una	70.3	698
<b>Punjab</b>		
Amritsar	28.9	407
Barnala	4.6	48
Bhatinda	13.7	756
Faridkot	12.0	380
Fatehgarh Saheb	0.0	-100
Ferozpur	0.4	-90
Gurdaspur	64.0	711
Hoshiarpur	43.2	508

State/Districts	Actual	18.01.12
Jalandhar	52.7	953
Kapurthala	23.3	1196
Ludhiana	16.5	303
Mansa	1.4	-22
Moga	0.0	-100
Muktesar	5.0	47
Nawashahar	39.3	577
Patiala	9.3	153
Ropar	41.8	391
Sangrur	8.9	186
Mohali	14.5	292
TarnTaran	27.2	377
<b>Jammu &amp; Kashmir</b>		
Anantnag	36.4	198
Badgam	12.8	75
Baramula	16.6	-34
Doda	72.4	243
Ganderwal	56.8	610
Jammu	67.1	522
Kargil	0	-100
Kathua	62.2	307
Kulgam	39.6	225
Kupwara	74.4	410
Ladakh(Leh)	2.4	48

State/Districts	Actual	18.01.12
Poonch	90	293
Pulwama	29.8	507
Rajouri	27	58
Ramban	84.7	301
Reasi	91.4	494
Samba	58.3	439
Shopian	3	-39
Srinagar	16.7	108
Udhampur	70.2	356
<b>Uttarakhand</b>		
Almora	9.1	40
Bageshwar	16.7	157
Chamoli	30.2	180
Champawat	6.5	-8
Dehradun	19.7	116
Garhwal Pauri	12.2	87
Garhwal Tehri	25	274
Haridwar	4.8	-17
Nainital	11.2	51
Pithoragarh	28.3	225
Rudraprayag	50	400
Udham Sing Nagar	5.7	71
Uttarkashi	55.3	316



## Weather Forecast (Valid upto 1430 hours of 22<sup>nd</sup> January, 2012)



**Major Feature of Weather Forecast upto 1430 hours IST of 22<sup>nd</sup> January, 2012**

- Fog/dense fog would occur in morning hours over some parts of northwest and adjoining central and east India during next 2-3 days.
- Rain/snow would occur at one or two places over western Himalayan region.
- Rain/thundershowers would occur at a few places over northeastern states.
- Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at one or two places over east India, Tamilnadu, Kerala and Lakshadweep.
- Weather would be mainly dry over remaining parts of the country.
- Minimum temperatures would fall by 2-3°C over parts of northwest and adjoining central & east India, leading to cold wave condition over some parts of above regions during next 2 days.
- Maximum temperatures would rise by 2-5°C over many parts of northwest and adjoining central India during next 2-3 days and cold day condition would abate.

**Weather Warning**

- Visibility in dense fog would reduce to 200 m or below over parts of Punjab, Haryana, Delhi, north Rajasthan, north Madhya Pradesh, Uttar Pradesh and Bihar during next 48 hours.

**Weather Outlook up to 1430 hours IST of 24<sup>th</sup> January, 2012**

- Rain/thundershowers would occur at many places over Andaman & Nicobar Islands and at one or two places over northeastern states.
- Weather would be mainly dry over most parts of the rest country.

## Zonewise Agromet Advisories

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

- **Realised Rainfall:** No significant rain occurred in most of the districts of the States of the region except Upper Siang district of Arunachal Pradesh during last week.
- **Rainfall Forecast:** Rain / thundershower would occur at a few places over the States of the region during next three days.
- **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, farmers are advised to apply irrigation to the standing crops.
  - Farmers in Assam are advised to continue preparation of nursery bed / transplanting for *boro* rice.
  - Farmers in Hill Zone of Assam are advised to harvest matured bolls of cotton, preferably in morning hours to get good quality cotton.
  - Farmers of Lower Brahmaputra Valley Zone of Assam are advised to undertake land preparation and start sowing of *ahu* rice, sugarcane, pointed gourd, musk melon, water melon, pumpkin etc.
  - Farmers in Barak Valley Zone of Assam are advised to harvest the sugarcane crop.
  - Farmers in Mid Tropical Plain Zone of Tripura are advised to continue sowing of *boro* rice in lowland. As dry weather is prevailing during last few weeks and there is less possibility of significant rainfall, farmers are advised to apply light irrigation to pulse crops at flowering / pod formation stage and also to sugarcane.
  - Farmers in Temperate Sub Alpine Zone of Meghalaya are advised to complete planting of potato, *rabi* onion etc. and continue nursery bed preparation and sowing of *boro* rice. Continue sowing of tomato, cabbage, knol-khol. Prepare land for sowing of ladies finger, pumpkin and French bean. As there is moisture stress in top soil, irrigation may be given immediately to wheat crop.
  - Farmers of Sub tropical Plain Zone of Manipur are advised to complete sowing of pea. Also continue sowing of cucurbits like water-melon, cucumber and sponge gourd and for early transplanted cucurbits give light irrigation in the morning hours may be followed to protect the crop from harm caused by the fog. Also, go for smoking in the surrounding area during evening hours. Undertake land preparation for transplanting of tomato/brinjal/ chilli.
  - Farmers in Mild Tropical Hill Zone Mizoram are advised to complete transplanting of cole crops and tomato. At tasseling and silking stage, maize crops are more critical to moisture and nutrients. Hence, in view of occurrence of less rainfall, farmers of Kolasib region of Mizoram are advised to apply irrigation and undertake nutrient management for high yield and attain full length of cob with grains.
  - 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.
  - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
  - There is attack of wilt disease and aphids on lentil and khesari crops at vegetative stages in Central Brahmaputra Valley Zone of Assam. Farmers are advised to drench the soil with Bavistin @ 1 ml / litre of water to protect the crop from wilt and apply Malathion 50 EC @ 2 ml / litre of water. Attack of saw fly, cut worm and aphids at vegetative and flowering stages of toria is observed in different places of Nagaon and Marigaon districts; farmers are advised to apply Dimethoate 30 EC or Chloropyrifos 20 EC @ 1

ml per litre of water in toria during afternoon hours to control saw fly and aphids. Present weather condition is congenial for appearance and spread of leaf blight disease in potato. Spray with mancozeb 75% a.i. @ 2.5 g/lit of water against late blight.

- Prevailing weather is favourable for the incidence of early blight in tomato and chilly crops in Mid Tropical Plain Zone of Tripura. Prophylactic spray of Mancozeb @ 1 g per liter of water may be sprayed. There is chance of attack of borer in cabbage. Apply 5% neem extract or Dimethoate (30%) @ 10 ml in 10 litres of water.
- Prevailing weather is favourable for the incidence of Leaf Curl disease in tomato and brinjal crops in Mid Tropical Plain Zone of Tripura. Spray Rogor 2ml per liter of water or Monocrotophos @ 3ml per liter of water or Imidacloprid @ 2gm per liter of water to manage the attack at an interval of 15 days. Cabbage Curd Formation Cabbage Borer/ Diamond Back Moth/ Aphids & Thrips.
- In Mild Tropical Hill Zone of Mizoram, due to prevailing weather conditions, there is chance of infestation of leaf miner in khasi mandarin; spray with Imidacloprid @ 0.05% to control the attack. Low night temperatures are also favourable for the incidence of early blight in tomato and chilli crops; spray Mancozeb @ 1 g per litre of water. Due to prevailing weather conditions, fruit borer are congenial the green caterpillar roles over leaves at cole crops and Tomato at fruit setting, head formation stage Spray 5% neem seed kernel extract to kill larvae or spray NPV@250-500 LE/ha with teepol 100 ml. For cabbage borer, use 5 % neem extract or spray endosulphan (35%) 12 ml or dimethoate (30%) 10 ml in 10 lit. water.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
  - Farmers in North Bank Plain Zone, Lower, Central and Upper Brahmaputra Valley Zone of Assam are advised to apply Potash @ 4-5 mg/lit of water, Sukrena WS @ 1 lit per bigha of water against various bacterial diseases.
  - Wet bedding and cold weather are prerequisite for pneumonia; farmers in Arunachal Pradesh are advised to provide dry bedding material to pig / piglets and deworm pig / piglets and goat.
  - Prevailing cold weather is favourable for chances of pneumonia in newly born calves; Mild Tropical Plain Zone of Tripura are advised to take special care to avoid cold weather. Provide warm shed to poultry birds and pigs against cold.
  - The farmers in Mild Tropical Hill Zone of Mizoram are advised to deworm against Ascariasis/ Malap and vaccinate cattle against FMD.
  - The poultry farmers in Nagaland are advised to take precautions against Bacillary white diarrhoea. It can be treated with Furaltadone @ 0.5 – 1 g / litre of water for 7 days. Deworm and vaccinate pigs / piglets.

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

- **Realised Rainfall:** Mainly dry weather prevailed over the region during last week.
- **Rainfall Forecast:** Either isolated rain / thundershowers would occur or dry or mainly dry weather will prevail over the States of the region during the period.
- **Advisories:**
  - As there was significant rain in most of the districts of Orissa except Bolangir, Boudh, Gajapati, Jagatsingpur, Koraput, Malkangiri, Nawapara, Nawarangpur and Puri and in most of the districts of Gangetic West Bengal except Birbhum, Murshidabad and nadia districts during last week, farmers are advised to postpone irrigation to the standing crops in these districts. As there was no significant rain during last week in most of the districts of the remaining region and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.



- Undertake sowing of oilseed crops like summer 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 planting of onion. In view of prevailing dry weather condition, farmers are also advised to apply irrigation to oilseed crops.
- Farmers in Western Undulating Zone of Orissa are advised for planting of Sugarcane, prepare nursery bed for summer paddy and undertake harvesting of cotton on sunny days. Apply irrigation to mustard crop as it is at grain maturity stage.
- Farmers of North Eastern Plateau Zone of Orissa are advised to complete nursery sowing of summer rice.
- In view of prevailing dry weather, farmers in North Eastern Plateau Zone of Orissa are advised to irrigate the mustard field at the time of flowering (for late sown crop) or pod initiation (for early sown crop).
- Farmers in North Eastern Plateau Zone of Orissa are advised to undertake inter culturing operations in sunflower, groundnut and potato crop.
- Farmers in East and South Eastern Coastal Plain Zone of Orissa are advised to transplant summer rice, as it is recommended for high yield, less water use and low vulnerability to adverse weather at grain filling stage.
- Farmers in East and South Eastern Coastal plain zone of Orissa are advised to undertake sowing of the crops like summer sunflower and groundnut.
- The farmers of East and South Eastern Coastal plain zone of Orissa are advised to give irrigation to *rabi* sunflower as it is at flowering stage.
- Farmers in North central Plateau Zone of Orissa are advised to complete transplanting of summer rice and give irrigation to wheat crop.
- Farmers in North Eastern Coastal plain zone of Orissa are advised to maintain water depth upto the base of the plant in rice nursery, give irrigation to mustard.
- As light drizzle across several places of the districts of north Bihar. Farmers are advised to take precaution in the harvesting of matured tobacco crops.
- As dry weather is prevailing, farmers in the districts of North Bihar are advised to apply irrigation in wheat wherever crops are at crown root initiation stage and light irrigation in potato crops for better crop growth and yield.
- As dry weather is prevailing during last few weeks, farmers in the districts of South Bihar Alluvial Zone are advised to apply irrigation to timely sown wheat, mustard, potato and vegetables. Undertake intercultural operations in vegetables and apply optimum dose of fertilizers. It is also advised to apply light irrigation and burn stubbles, grasses around standing potato, pulses and oilseeds crop fields to save from cold conditions.
- Apply second irrigation and urea as nutrients in timely sown wheat crop and intercultural operation to maize crop in South Bihar Alluvial Zone.
- Farmers in Western, Central and North Eastern Plateau Zone of Jharkhand are also advised to plant / 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.
- Farmers in Central and North Eastern Plateau Zone of Jharkhand are advised to undertake intercultural operations in timely sown wheat, gram and pigeon pea.
- Farmers in Old Alluvial Zone of West Bengal are advised to start land preparation for transplanting of matured seedling. Cover the nursery bed with polythene or keep 2 to 3 cm stagnant water in the nursery bed especially for the night-time to protect the seedlings from cold and drain out the water in the morning. Irrigate the nursery bed regularly

- Farmers in Laterite and Red soil zone of West Bengal are advised to transplant of *boro* rice upto 4-5 weeks and maintain 2-3 cm of standing water. Farmers can also go for the field preparation for groundnut or any pulse seed.
- Farmers in new Alluvial Zone of West Bengal are advised to transplant of *boro* rice and maintain 5 cm standing water.
- Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
- Due to cool, humid and foggy conditions in the morning and later on clear sunny weather in South Eastern Plateau Zone of Jharkhand, attack of aphid is seen in toria; spray Rogar (Dimethoate) @ 2 ml or Monochrotophos @ 1 ml per litre of water.
- Weather is favourable for the attack of late blight in potato in Western Plateau Zone of Jharkhand, spray fungicide like Mankojeb (@2.5 gm per litre of water), Saaf or Intop (@ 2 gm per litre of water) or Redomyl (@ 1.5 gm per litre of water) during clear weather.
- Cold and cloudy weather may favour the infestation of powdery mildew in green gram, black gram and pea in East and South Eastern Coastal Plain Zone and North Eastern Plateau Zone of Orissa. To control powdery mildew, spray 1 kg Sulfex WP in 200 litres of water per acre.
- Current weather is favourable for infestation of leaf eating caterpillar in groundnut in East and South Eastern Coastal Plain Zone. Apply 10 Kg of 2 % Methyl Parathion dust around the bund. Thrips infestation may be found due to current weather. Spray 400 ml Dimethoate or 50 ml Imidachloprid in 200 litre water per acre. The current temperature may also aggravate the infestation of downy mildew in mustard. Spray 2 g Redomil-MZ / litre water.
- Aphid infestation has been found in potato crop in North Eastern Plateau Zone and North Central Plateau Zone of Orissa farmers are advised to spray 4 ml neem based pesticides or 2 ml Metacystox or 2 ml Rogor per litre water. Also alternaria leaf spot infestation in potato has been found spray 2 g Saaf or sixer or companion in each litre water. Repeat the spraying after 12 days.
- Farmers in Western Undulating Zone of Orissa are advised to spray Indofil –M 45 @2.5g/lt. of water to control tikka and rust disease in groundnut and thrips in onion. For control of aphids in groundnut and onion purple blotch spray Imidacloprid @1ml/04lt of water. To control the leaf eating caterpillar in Tomato spray Chloropyriphous 2ml/lt of water and for Control of wilt disease in tomato drench the root zone with solution of Carbendazim @1.5g and Plantomycin 1g per one litre of water.
- Cold and cloudy weather may favour the infestation of powdery mildew in green gram, black gram and pea in East and South Eastern Coastal Plain Zone and North central Plateau Zone of Orissa. To control powdery mildew, spray 1 kg Sulfex WP in 200 litres of water per acre.
- Current weather favours the infestation of aphids and leaf eating caterpillars in pulses in North Eastern Coastal Plain Zone of Orissa; Spray Methyl demeton @400ml per acre to control these insects.
- There is infestation of aphids in mustard in Old Alluvial Zone and Hill 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. There is also possibility of downy mildew in cucumber in Terai Zone of West Bengal. To control the disease, spray Mancozeb @ 2 g / litre or Metalaxyl 8% and Mancozeb 64% @ 1-1.5 g / litre of water.
- Infestation of fungus in onion in New Alluvial zone of West Bengal. Black spot may be seen on onion leaf and leaf fall may occur. To protect apply 2 gm Mancozeb or 2 gm zyrum per lt of water.
- Due to lower temperature and foggy weather in Terai Zone and Old Alluvial Zone of West Bengal, potato may be attack of late blight. To prevent the attack of late blight,

spraying of Mancozeb (2 gm /lt of water) and Blitox (4gm/lt of water) alternately at 10-12 days interval by completely wetting the leaves are necessary. If attacked by late blight spray the mixture of Metalaxyl 8% and Mancozeb 64% @ 1 to 1 ½ gm per litre of water alternately at 12-15 days interval by completely wetting the leaves.

- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
  - In North Central Plateau Zone and North Eastern Plateau Zone of Orissa, protect the animals from cold condition. In the present conditions there is likely attack of F.M.D to the milch animals. Vaccinate the animals.
  - Due to low atmospheric temperature, calf and kids are susceptible to respiratory infection mostly pneumonia. Farmers in North Eastern Coastal Plain Zone of Orissa are advised to provide warm and comfortable housing and good ventilation to animals and birds. Vaccination for FMD (Foot and Mouth Disease) of animals is to be taken up. In case of disease outbreak, strict isolation of affected animals should be done.
- **Pisciculture**
  - Farmers in North Eastern Plateau Zone of Orissa are advised to prevent the fishes from diseases, adopt prophylactic measures like use of lime @ 50-100kg/acre (in two installments after 15 days interval) and potassium permanganate @ 400-500 g/acre during winter months. Keep the water depth more than 5 feet (as bottom layer is warmer than the surface layer and fish prefers to stay at pond bottom during winter) and add freshwater to increase the water temperature.
  - Farmers in North Central Plateau Zone and North Eastern Coastal Plain Zone of Orissa are advised to prevent the EUS disease in fish during winter, apply Cifax @ 400 ml per a pond of 1 acre area and 1 meter depth of water

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

- **Realised Rainfall:** Most of the districts of Jammu & Kashmir, Himachal Pradesh and few districts of Uttarakhand and Punjab received rainfall. There was no significant rainfall in Uttar Pradesh, Haryana and Delhi. Mainly Dry weather prevailed over rest part of the region during last week.
- **Rainfall Forecast:** Rain/snow would occur at isolated places over Jammu & Kashmir, Himachal Pradesh and Uttarakhand. Mainly dry / dry weather is likely to occur over remaining parts of the region.
- **Advisory:**
  - Cold wave along with ground frost conditions are prevailing over isolated pockets of Haryana and Rajasthan. Minimum temperatures would fall by 2-3°C over parts of northwest India, leading to cold wave condition over some parts of above regions during next 2 days. This temperature is conducive for the growth and development of wheat during this season. Minimum temperatures were reported 4°C or less over isolated pockets of northwest Rajasthan and Central Haryana. Farmers in these regions are advised to provide light and frequent irrigation and arrange for smoking around the fields to protect standing crops from frost / cold injury.
  - Rain / snowfall occurred at many places over Himachal Pradesh and Jammu & Kashmir. Rain / thundershowers occurred at a few places over Punjab and Uttarakhand during last week. Rain / snowfall also occurred at many places over Himachal Pradesh and Jammu & Kashmir during last 24 hours. Damage of apple, peach and plum trees in budding stage is observed in the higher reaches of Lahul & Spiti, Chamba, Kinnaur and Kangra districts in Himachal Pradesh due to heavy snowfall. Farmers in these regions are advised to

undertake measures to prevent the crop damage due to snowfall and arrange for disposal of snowfall from the fields.

- Farmers in New Delhi are advised to give light irrigation at evening in tomato, chilli, capsicum, marigold, peas and other field crops to protect the crops from possible frost injury. In timely sown wheat crop, second irrigation may be given. First irrigation should be given to late sown wheat crop if it is 25 days old. After 3-4 days of irrigation last dose of nitrogenous fertilizer is advised. Also transplant onion, late cauliflower (snowball), cabbage and knolkhol, prepare nursery bed for chilli, tomato and brinjal crops in poly house.
- Farmers in Central Plain Zone of Punjab, are advised to apply second dose of N with first irrigation in late sown wheat. Start crushing/ harvesting mid-season and late maturing variety, which matures at the end of January. Protect the seed crop against frost by giving frequent irrigations. Frost injury results in low germination of sugarcane and complete sowing of spring potato.
- In Sub Tropical Zone of Jammu and Kashmir, farmers are advised to transplant tomato & onion crop, postpone the sowing of radish, beans, potato when soil is in batter condition and sowing of very late sown wheat varieties. Due to decrease in minimum temperature, they are advised to protect the mustard crop from frost by burning farm waste for creating smoke around the field and also to protect young evergreen plants by providing with thatches prepared from Sarkanda or any other material and to keep open on eastern side to allow sufficient sun shine and air for the plant. Farmers can plan for plantation of new orchards during these days. Due to continue rainfall, farmers are advised to drain out excess water from vegetable, rape seed and mustard under water stagnation condition in irrigated areas.
- In Valley Temperate zone of Srinagar, cereal (wheat), oilseeds (brown sarson), pulses (pea, lentil), fodder (oat) are in dormant stage, farmers are advised to stop all agronomic activities in the field. Farmers are also advised to maintain orchard sanitation and in case of heavy rainfall / snow, drainage channels should be dug so as to avoid water stagnation. In favourable weather, farmers are also advised to continue transplanting of onion, planting of garlic, sowing of leafy vegetables (orach, spinach and methi) in poly house. In high frost conditions, farmers are advised to mulch seed crops of Knol Khol, cabbage and root crops. Due to freezing temperature, farmers are advised to stop pruning activities in fruit crops and not to go for new planting.
- Farmers in Leh region are advised to harvest Chinese cabbage, lettuce, beet leaf var. Mongol at weekly interval. In view of more excepted snowfall and temperature fall below subzero ( $^{\circ}\text{C}$ ), it is advised to clear the snow from the poly houses and trenches to avoid excessive weight on the UV film and cover the polythene of green houses with black polythene in the night for proper growth of crops. They are also advised to give one light irrigation to garlic crop germinated in the low tunnel during day time.
- In High Hill Temperate Dry Zone of Himachal Pradesh, treat the apple plants damaged by snow with chowbatia paste / fungicides and remove heavy snow from branches particularly in orchards where pruning is yet to be done.
- In Uttar Pradesh, farmers are advised to complete sowing of cumin. Undertake 1<sup>st</sup> cutting of berseem (fodder), digging of matured carrot, raddish, turnip and harvesting of early maturing arhar.
- Farmers in Uttar Pradesh are advised to give light and frequent irrigation and arrange for smoke near the crops in the evening in normal wheat, *rabi* pulses, *rabi* oilseeds, sugarcane, potato, already transplanted vegetable crops to protect from low temperature/frost injury. Also advised to go for topdressing of Urea for enhancing the growth of rajmaha and other crops.

- Due to cold waves and drop in minimum temperature, farmers in Rajasthan are advised to protect sensitive crops like mustard, rajmah, potato, gram from frost attack, spray dilute sulphuric acid @ 0.1% (1 litre H<sub>2</sub>SO<sub>4</sub> in 1000 litre water) or thiourea @ 500 ppm (500 gm thiourea in 1000 litre water) at flowering stage of these crops or on the day of forecast of frost or give light irrigation to these crops.
- In Bhabar and Tarai Zone of Uttarakhand, due to rainfall and snowfall received during last few days was very useful for wheat crop of all growth stages. Due to this there has been sufficient moisture in soil and the timely sown wheat crop is at ear head emergence stage, hence if the farmers have not applied Urea, then they are advised to top dress Urea @ one kg per Nali to boost the ear head emergence. Keep crop free from weeds. Also continue transplanting of earlier sown Cocksfoot & Perennial grasses during this week on the bunds. Complete harvesting & threshing operations of matured Toria and mustard crop. Continue sowing of Tomato, Capsicum, French bean and sunflower under optimum soil moisture in nursery. If pods of Vegetable pea are ready then plug them.
- Farmers in Central Plain Zone are advised to spray 40 g Actara 25 WG or 400 ml of metasystox 25 EC or Rogor 30 EC or Ekalux 25 EC/Malathion 50 EC or 600 ml Dursban/Coroban 20 EC in 80-125 litres of water per acre when aphid infestation reaches 40-50% in *raya*. Rogor and Metasystox can also be used to control leaf miner. Aphids attack can be reduced by spraying 300 ml Rogor 30 EC or Metasystox 25 EC in 100 litres of water per acre. Do not spray these insecticides within 3 weeks of harvest. Protect the vegetable crops from cold wave by covering it with low tunnel/ Sarkanda/ shelter belts and by applying light irrigation at frequent intervals.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandary**
  - In Himachal Pradesh, in view of falling night temperature, it is advised to protect newly born calves from the cold as weather is conducive for white scour, naval ill and pneumonia. Ensure cleanliness in cows having advanced pregnancy to avoid mastitis and Feed pregnant and lactating cows and buffaloes with balance feed including mineral mixture.
  - In Semi-Arid Eastern Plain Zone of Rajasthan, it is advised to protect milch and infant animals from cold, cover the door of animal house and wrap jute bag around animal back and keep litter dry everyday.
  - Newly born calves need special care during cold weather as they are susceptible to attack of pneumonia. Keep them warm by providing clean & dry bedding in Punjab and Haryana.
  - Farmers in Bundelkhand zone and in western plain zone in Uttar Pradesh are 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:** No significant rainfall occurred in most states of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at one or two places over Tamil Nadu, Kerala and Lakshadweep. Weather would be mainly dry over remaining parts of the region.
- **Advisories:**
  - As no significant rainfall occurred in most states of the region, apply irrigation to the standing crops.

- Farmers in the North East Transition Zone of Karnataka are advised to apply irrigation to wheat crop, as there will be no rainfall for next five days and harvest red gram as early as possible.
- Farmers in the North Dry Zone of Karnataka are advised to continue sowing of groundnut and transplanting of onion under irrigated conditions and complete harvesting of chickpea, sorghum and sunflower as early as possible, since clear sky with bright sunshine is forecasted during the next five days.
- Farmers in the Coastal Zone of Karnataka are advised to provide irrigation to arecanut, as and when irrigation facilities are available.
- Farmers in the Southern Transition Zone of Karnataka are advised to undertake sowing of pulses like black gram, green gram and also use green manure crop sun hemp to utilize residue moisture after harvest of the paddy in the paddy field. In paddy fields where there is no residue moisture, farmers are advised to take up deep ploughing, so that the soil pathogens will die and in turn it will help to reduce pest incidence for the next paddy crop, remove ripened areca nut for making chali preparation and start irrigating the arecanut, coconut and pepper gardens.
- Farmers in the North East Dry Zone of Karnataka are advised to continue land preparation and transplanting of paddy, picking up of cotton, harvesting of red gram, deep ploughing of red gram in deep black soils, sowing of fodder jowar/ maize wherever irrigation facility is available and harvest onion/chilli.
- Farmers in the High Altitude Zone of Kerala are advised to irrigate the crops as dry weather is expected in the coming week and also select short-medium duration varieties for summer paddy crop.
- Farmers in the Northern Zone of Kerala are advised to take necessary measures to cope with the ill effects of coming summer season, start giving irrigation to the crops, mulch the soil to prevent evaporation loss of water, cultivate pulses/leguminous cover crops also as intercrops in places where irrigation facilities are available and plant vegetables as intercrops in coconut gardens with irrigation facilities.
- Helicoverpa is noticed in Bengal gram in the Scarce Rainfall Zone of Rayalseema in Andhra Pradesh. Farmers are advised to apply Qunolphos @ 2 ml or Acephate @ 1 g. per liter of water to control it. The present weather conditions are conducive for powdery mildew disease in coriander and mango, spodoptera and sucking pests in groundnut and bacterial blight in pomegranate. Farmers are advised to undertake plant protection measures.
- Farmers in the Krishna Godavari Zone of Andhra Pradesh are advised to undertake plant protection measures, since present weather conditions are conducive for seedling rot, bacteria leaf spot and canophora blight in chilli, powdery mildew, cercospora and leaf spot in rabi pulses, smut disease in paddy, sucking pest, kamma rogam, rust and blight in rice fallow maize.
- As dry weather is expected in the coming days, farmers in the South Zone of Tamil Nadu are advised to irrigate the crops.
- Farmers in the Western Zone of Tamil Nadu are advised to take proper plant protection measures for managing leaf folder incidence and brown leaf spot disease in paddy.
- Alternaria leaf spot is noticed in cotton and fruit borer attack is seen in chillies in the Southern Zone of Tamil Nadu. Farmers are advised to spray mancozeb @ 2.5g per litre of water to control Alternaria leaf spot and chlorpyrifos (20EC) 3ml/litre of water to control fruit borer and undertake plant protection measures.
- Farmers in the South Zone of Tamil Nadu are advised to are advised to spray dimethoate 30 EC 2 ml/ 1 to control thrips in chilli, chlorpyrifos 20 EC 3 ml/ 1 for fruit borer and copper oxy chloride 2.5 g/ l using hand sprayer for die back and fruit rot.

- Farmers in the High Altitude Hilly Zone of Tamil Nadu are advised to monitor mites infestation in tea.
  - Mango plant is affected with hoppers before flowering and fruit setting stage in the Coastal Zone of Karnataka. Farmers are advised to spray of Carbaryl 50 W.P. @ 4g/litre of water and protect cashew nuts from T-mosquito bug.
  - Due to low temperature in the North East Transition Zone of Karnataka, hoppers were noticed in mango crop. Farmers are advised to spray 4 gm Carbaryl 50WP or 2 ml Malathion 50EC or 1.5 ml Monocrotophos 36SL or 0.5 ml Phosphamidon 40EC in one litre of water to control hoppers and undertake plant protection measures.
  - Farmers in the Coastal Zone of Karnataka are advised to undertake plant protection measures, since low temperature is an ideal condition for insect attacks.
  - Due to partial cloudy weather, sucking pest problem is noticed in cotton, black rot on cabbage and necrosis problem in sunflower in the North Transition Zone of Karnataka Farmers are advised to spray one month old cotton crop with 1.7 ml Dimethioate 30 EC or 2.0 ml methyl demeton in one liter of water to protect against sucking insects, 0.25 ml Imidachloprid 17.8 S.L or 1.5 ml Oxidematon methyl 25 EC per liter of water to solve necrosis problem and tetra cycline hydroxide @ 10 mg or Agrimycin -100 @ 10 mg per litre to control black rot .
  - Due to continuous dry weather, aphids were noticed in safflower crop in the North East Dry Zone of Karnataka. Farmers are advised to spray Dimethioate 30 EC @ 1.7ml/liter of water for effective control of aphids. Because of continuous dry weather the thrips activity has increased in vegetables like onion/brinjal/bhendi . To control them, farmers are advised to spray oxydemeton methyl (1.5 ml) or dimethoate (1.7 ml) with one liter of water.
  - Present weather is conducive for the incidence of powdery mildews in cucurbits, aphid attack in bhindi, cowpea, brinjal etc. bugs and leaf thrips in paddy for the areas where emergence of panicle is already occurred in the in the Problem Area Zone of Kerala. Farmers are advised to undertake plant protection measures to prevent the attack of those pests.
  - Aphid attack is noticed in bhindi, cowpea, brinjal etc.in the Southern Zone of Kerala. Farmers are advised to spray Beauveria bassiana to control it and adopt plant protection measures if required.
- **Animal Husbandry:**
    - Farmers in the North East Dry Zone of Karnataka are advised to vaccinate the animals against Foot and Mouth disease and Anthrax disease as January month is congenial for disease occurrence.

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

- **Realised Rainfall:** Dry weather prevailed over the region during last week.
- **Rainfall Forecast:** Dry weather is likely to prevail over the region during the period.
- **Advisories:**
  - As cold condition is expected during night hours due to fall in minimum temperature in South Gujarat Heavy Rainfall Zone, farmers are advised to apply irrigation to standing *rabi* crops.
  - As low temperature conditions prevailed over isolated places over Vidarbha and likely to continue during next 2-3 days, farmers are advised to apply frequent irrigation to orchards crop.

- As low temperature conditions are prevailing over the parts of North Madhya Maharashtra, farmers are advised to protect the grapes from cold by giving light irrigation. They also advised to tie gunny bags or any cloths around the orchards.
- Prevailing cold weather may affect growth of banana in Marathwada, farmers are advised to apply frequent irrigation at night and make smoke in the orchards. They are also advised to cover banana bunch with banana leaves or news paper. Farmers of Pune region are advised to apply irrigation in the evening to banana orchards to avoid effect of cold condition. They also advised to make an arrangement for mulching of organic matter and spray 0.5 % Potassium Di Hydrogen Phosphate plus 1 % Urea on banana bunch.
- Taking the advantage of dry weather, farmers are advised to continue harvesting of already matured tur in Madhya Maharashtra, Marathwada and Vidarbha and sugarcane in Madhya Maharashtra and Marathwada.
- Under prevailing weather farmers of Madhya Maharashtra and Marathwada are advised undertake planting sugarcane.
- Prevailing weather is favourable for planting of water melon in Pune division.
- In view of prevailing dry weather, farmers of South Konkan and East Vidarbha region in Maharashtra are advised to maintain water level 2 to 3 cm for first 8 to 10 days and increase up to 5 cm after that in transplanted rice field.
- Farmers in South Saurashtra Zone of Gujarat State are advised to prepare land for summer crops like groundnut, moong and pearl millet. Apply irrigation to wheat, chickpea/gram, castor and garlic. Undertake picking of cotton.
- In Bhal and Coastal Zone, farmers are advised to apply irrigation in castor and cumin. Picking of capsules in castor be carried out during early morning hours. Smoking / fumigation in evening in cumin is advised to avoid powdery mildew and blight infestation.
- Farmers in South Gujarat Heavy Rainfall Zone are advised to apply irrigation and fertilizer to the crops. Carry out hand weeding and other intercultural operations in castor, chickpea crops.
- Farmers in North Gujarat Zone are advised to apply light irrigation in wheat, castor and mustard. Apply supplementary dose of Nitrogen @ 30 kg N/ha to maize and 15 kg N/ha to isabgol. Carryout the hand weeding and interculturing operations in the crops.
- As dry weather is prevailing, farmers in Middle Gujarat Zone are advised to pluck aged leaves of bidi tobacco and dry them under shade. Sowing of summer groundnut may be carried out after seed treatment with Thirum @ 3 gm/ kg seed.
- Farmers in North West Zone of Gujarat are advised to apply light irrigation to cumin crop.
- Farmers in North Saurashtra Zone of Gujarat are advised to complete sowing of isabgul. Apply irrigation to gram and pigeon pea.
- Suitable varieties of the crops for sowing are mentioned in Annexure II.
- Prevailing cold and dry weather is favourable for the infestation of powdery mildew in pea, chilli and tomato in Madhya Maharashtra, spray Sulphur 80% WS@25 g in 10 litres water.
- Due to prevailing cold weather, there may be attack of aphids in jowar in western Maharashtra scarcity zone, spray Methyl Dimeton 10ml or Dimethoate 10 ml in 10 lit of water.
- Prevailing weather is favourable for incidence of tea mosquito bug thrips on newly vegetative shoots as well as inflorescence of cashew in South Konkan, spray Monocrotophos 36% @15 ml or Profenophos 15% @10 ml or lambda Cyhellowthrin 5%



@6 ml in 10 litres of water. Prevailing weather is also congenial for attack leaf eating beetles and leaf miner in water melon in South Konkan, spray 50% Malathion @ 20ml/10litres and Dimethoate @ 10 ml/10 litres water respectively.

- Weather condition in South Gujarat Zone is congenial for outbreak of powdery mildew in pea field. Farmers are advised to spray the crop with wettable Sulphur @ 0.25% or Dinocap @ 0.05%, in clear weather.
- Weather conditions are favorable for attack of insect / pests in South Gujarat Heavy Rainfall Zone. Farmers are advised to follow protection measures for it.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry:**
  - Give dry fodder to poultry birds in Middle Gujarat Zone to maintain body heat during cold period. Put curtains to protect poultry from chilling injury.
  - Udder of milking animals must be properly cleaned with insecticide; Zinc Oxide or Boric powder should be used. The beaks of birds in the poultry under age of 15 Weeks should be cut. Entry of visitors of poultry should be prevented. Rats in the poultry should be destroyed in South Gujarat Heavy Rainfall Zone.
  - Provide warm water to lactating animals in North Gujarat Zone. Supplement concentrate with 15 gram Sodium Bicarbonate to high yielder animals. Vaccinate animals for diseases in consultation with local veterinarian.

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

- **Realised Rainfall:** Mainly dry weather prevailed over the region.
- **Rainfall Forecast:** Possibility of dry weather and clear sky condition over the region.
- **Advisories:**
  - In view of average temperature will be around 30°C farmers in Bundelkhand region of Madhya Pradesh are advised to irrigate the crops and do the hoeing and weeding in the crops.
  - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised that presently night temperature is very low which may lead to frost, hence farmer are advised to create smoke near the bunds of the field and give light irrigation in a field. They are also advised to do hand weeding and intercultural operations 20-25 days after sowing in wheat, chickpea, mustard and lentil.
  - Farmers in Jhabua Hills region of Madhya Pradesh are advised to give second irrigation in full irrigated wheat and maize crops 40-45 DAS, also give recommended dose of fertilizer. They are also advised to arrange seed of summer vegetables i.e. cucurbit family, water melon, musk melon, okra, cilli, tomato, brinjal etc. and when temperature increase and fallow field available then sown these crops.
  - Due to dry weather forecast farmers in Nimar Valley region of Madhya Pradesh are advised to irrigate wheat and gram crop; also start planting of sugarcane and prepare nursery of chilli, brinjal and tomato.
  - Farmers in Vindhyan Plateau region of Madhya Pradesh are advised that presently night temperature is very low which may lead to frost, hence farmer are advised to create smoke and give light irrigation in a field (Similar to Kymore Plateau and Satpura Hills region).
  - In view of dry weather conditions and minimum temperature will be around 9°C farmers in Central Narmada Zone of Madhya Pradesh are advised to irrigate the crops. Farmers are also advised to do for intercultural operations and irrigation in Lentil, Linseed, Coriander and Fenugreek.

- Wheat sown during the first week of December 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 irrigate the crop and apply N at CRI stage. CRI?
- Present weather conditions are favourable for planting of onion during this week in Chattisgarh Plain Zone hence it is advised to complete the planting of onion seedlings.
- Inter-culture, fertilizer application, earthing followed by irrigation is advised in sugarcane crop wherever the crop is at knee height stage. Sugarcane sown in the month of November is advised for the intercultural operations. Also, where the crop is at knee height stage farmers are advised for topdressing of nitrogen followed by earthing and irrigation in Chattisgarh Plain Zone
- Farmers in Bastar Plateau Zone of Chhatisgarh are advised to complete sugarcane planting at the earliest and earlier planted sugarcane should be irrigated.
- Looking to the present weather conditions, farmers are advised for sowing of cucurbitaceous crop in the polythenes. Also, sowing of leafy vegetables and land preparation for the summer vegetables is advised in Chattisgarh Plain Zone.
- Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised that weather is congenial for insect attack in pigeon pea therefore; spray Indoxacarb or Quinalphas @ 2.0 ml. per liter. Pheromone or light traps may be used to monitor it.
- Farmers in Bundelkhand and Central Narmada Zone regions of Madhya Pradesh are advised that there is attack of semi looper in cauliflower and cabbage crops, for control measure spray Malathion 50E.C. @ 2ml/L of water. Do not pick up cuds within one week of the spray.
- Farmers in Jhabua hills region of Madhya Pradesh are advised that weather conditions are favourable for increasing attack of gram pod borer in gram, watch crop continuously if increasing attack spray quinolphos 25 EC @ 1.5 lit/ha or Profenophos 35EC @ 40 ml/15lit of water.
- Farmers in Gird region of Madhya Pradesh are advised that weather is favorable for attack of blight disease in tomato and potato crops. For its control spray 2.5gm mancozeb per liter of water in the interval of 10 days.
- Incidence of *Heliothis* in gram is reported from many places and it is likely to increase in Chattisgarh Plain Zone. After the cold wave like situation ends and maximum and minimum temperature will slightly increases. Hence, farmers are advised to keep keen watch over the crops and adopt integrated pest management practices like light trap, pheromone trap, bird prech etc. for initial control. If necessary spray recommended insecticides like Spinoshed @ 300 ml/ha or Aciphat WP @ 250 g/ha (250 ml/ha) or HNPV @ 250 LE/ha or Polytrin C @ 1 litre/ha.
- Incidence of stem borer is seen in the nursery of summer rice in Chattisgarh Plain Zone. Hence the farmers are advised to use light trap to control it. In case of heavy infestation of stem borer, apply Carbofuron @ 33 kg/ha.
- **Animal Husbandry & Poultry**
  - Farmers in Bundelkhand region are advised that the minimum temperature will be around 8°C, hence do not leave the goat in open sky conditions and also do the vaccination against P.P.R to goats.
  - Farmers in Jhabua hills region of Madhya Pradesh are advised to vaccinate their animals to FMD, BQ, and HS via Raksha Triback vaccine. For control of Ranikhet disease in chicks vaccinate with F-1 or Lasota or R2B Strain vaccine.

## Annexure I

### Major Crops

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

- Sugarcane (old) (harvesting), sugarcane (new) (land preparation / planting), *boro* rice (seedling/ tillering), *ahu* rice (sowing), wheat (tillering/ vegetative), tomato (vegetative/ flowering / fruiting), cauliflower, cabbage, brinjal, country bean, knoll khol (vegetative/ head formation / harvesting), *rabi* pulses like pea, lentil (flowering / pod formation/ harvesting), onion, garlic (vegetative), khasi mandarin (fruit maturity / harvesting), potato (stolon formation / tuber development/ harvesting), rapeseed and mustard (flowering / siliqua formation/ development), *rabi* maize (vegetative), okra, pointed gourd, musk melon, water melon, pumpkin, sunflower, ridge gourd, sponge gourd (sowing) in Assam.
- Cabbage, cauliflower, knolkhol etc. (vegetative / head formation / maturity / harvesting), maize (vegetative / tasseling / silking/maturity/ harvesting), mustard (siliqua formation), potato (vegetative / tuber formation/ harvesting) and pea (sowing / vegetative / flowering / pod formation/ maturity/ harvesting), turmeric, ginger (maturity) in Arunachal Pradesh.
- Cucurbits (sowing/ transplanting), rapeseed / mustard (siliqua formation), tomato/brinjal/chilli (transplanting), potato (vegetative / tuber formation), cauliflower and cabbage (vegetative / head formation), pea (flowering / fruiting), *rabi* maize as inter-crop (sowing) in Manipur.
- *Boro* rice (tillering/ vegetative/ panicle initiation), wheat (vegetative/ panicle initiation), garlic and lettuce (seedling / vegetative), toria, mustard, rapeseed (siliqua formation / maturity), potato (tuber formation), Khasi mandarin (flowering / fruiting), lentil, Bengal gram, pea (vegetative / flowering / fruiting), *rabi* onion (vegetative / bulb formation), mustard-late varieties (sowing), cashew, apricot (planting / vegetative/maturity), tomato-late varieties, cabbage and knol-khol (head formation / maturity) in Meghalaya.
- Ginger and turmeric (rhizome formation / maturity / harvesting), khasi mandarin (vegetative), banana (vegetative / fruiting / maturity / harvesting), cole crops (vegetative / head formation/ harvesting) and tomato (vegetative / flowering / fruiting/ harvesting) and pea, bean (vegetative / flowering/ harvesting), maize (tasseling / silking) in Mizoram.
- Cabbage (vegetative / head formation), pea (flowering / pod formation), rapeseed, mustard (flowering / siliqua formation), French bean (vegetative / flowering), potato (vegetative / tuber initiation), brinjal (flowering / fruiting / harvesting), maize (vegetative / tasseling / silking) and broccoli (vegetative / flowering) in Nagaland.
- *Boro* rice (nursery sowing), pulse crop- pea, beans, toria (vegetative/ flowering / pod formation), ginger and turmeric (rhizome formation / harvesting), mustard (siliqua formation), tomato (vegetative / flowering/ fruiting), cucurbits and other vegetables (flowering / fruiting), potato (vegetative / tuber formation), banana (vegetative / flowering) in Tripura.

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

- Sugarcane (vegetative), lobia for green fodder (vegetative), mishrikand (vegetative), onion, radish (vegetative), cauliflower, cabbage (vegetative / head formation), pigeon pea (pod formation / seed formation), fruit trees (transplanting), potato, sweet potato (vegetative / tuber formation), rapeseed, mustard (flowering / pod formation), wheat (CRI / tillering / booting), vegetables, maize, pulses (vegetative / flowering) in Bihar.

- Pigeon pea (flowering / pod formation), turmeric and ginger (vegetative / rhizome formation), elephant foot yam (tuber elongation), potato (tuber formation / maturity), sweet potato (stem elongation / tuber elongation / maturity / harvesting), mustard (flowering / pod formation), linseed (flowering / pod formation), toria (pod formation), green pea (pod formation), cauliflower, cabbage (vegetative / head formation), chilli, tomato (vegetative / flowering), wheat (CRI / tillering), niger (vegetative), papaya (transplanting), gram (vegetative / flowering / pod formation), onion, African or French marigold (sowing / vegetative) in Jharkhand.
- Summer rice (Nursery sowing), Summer groundnut, sunflower(land preparation for sowing), Arhar (pod formation), mustard (flowering / pod formation), sugarcane (maturity / harvesting), sugarcane (new) (planting), Bengal gram, lentil, linseed, green pea (vegetative / flowering / pod formation), wheat (CRI / tillering), banana and marigold (vegetative), potato (late vegetative / tuber formation), sunflower, garlic, groundnut (sowing / vegetative), tomato (vegetative / flowering), cauliflower, cabbage, knol-khol (vegetative / head formation), onion (vegetative) in Orissa.
- *Boro* rice (transplanting), winter vegetables (vegetative / flowering / fruiting), mustard (flowering / siliqua development), wheat (tillering), lentil, gram, sunflower (vegetative / flowering / pod formation), potato (flowering / tuberisation) in West Bengal.
- *Rabi* vegetables (harvesting), orange (harvesting), ginger (harvesting), wheat (CRI / active tillering), mustard (flowering / siliqua formation), *rabi* potato (tuberisation), paddy (harvesting) in Sikkim.

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

- Wheat (early varieties – vegetative (tillering) stage and germination of late varieties), mustard (siliqua formation), sugarcane (planting), *rabi* onion (transplanting), cauliflower, cabbage, broccoli, knolkhol (vegetative / fruiting), carrot, turnip, early sown tomato radish, spinach and coriander (vegetative/fruiting), pea, gram (vegetative / flowering), Chilli, tomato, brinjal, cucurbits (nursery preparation in polyhouse) in Delhi.
- Wheat (emergence/ early vegetative/ vegetative), vegetables (bhindi, cucurbits), potato (sowing), mirch, brinjal (nursery sowing in polyhouses), Khira, summer squash, bitter gourd, tur, brinjal, Shimla mirch, and tomato (sowing / transplanting), Apple and other temperate fruits (dormant stage in High Hill Temperate Dry Zone), arbi, amaranthus, turmeric, rice, maize, barley, radish, onion, pea, garlic, coriander, cabbage, knol khol, parsley, lettuce, fennel, cauliflower, broccoli (sowing / planting) in Himachal Pradesh.
- Very late sown Wheat (sowing / emergence), early/normal sown wheat (CRI stage / vegetative), early/normal sown barley (jointing / tillering), late sown barley (CRI stage), onion (transplanting), winter vegetable crops viz. potato, radish, carrot, turnip, garlic, spinach, methi, onion (sowing / transplanting / vegetative / fruiting etc. ), cole crops viz. early cauliflower, cabbage, knoll khol, broccoli (vegetative), *rabi* oilseeds i.e. toria (maturity/ harvesting), gobi sarson(bud formation), mustard (pod formation/ reproductive stage), late sown mustard (flowering), brown sarson (rosette stage), *rabi* pulses i.e. lentil, gram, pea (vegetative)], fodder crops like oats (tillering), berseem (vegetative), Horticultural crops viz. [Apricot, Apple (nursery sowing), orange & guava (fruiting), citrus fruits (harvesting)] in Jammu & Kashmir. Cereal (wheat), Oilseed (*Brown Sarson*), pulse (pea), pulse (lentil) and fodder (Oat) are in dormant stage in Srinagar.
- Chilli, capsicum, cauliflower, broccolli (transplanting), sugarcane (planting), litchi, loquat, peach, citrus (flowering / fruiting), mango (early varieties) (flowering), foxtail millet, okhra, bottle gourd, bitter gourd, ginger, turmeric (germination / vegetative), mustard (Siliqua formation), toria (maturity/ harvesting), papaya (planting), sorghum,

pigeon pea (vegetative), urd, and pearl millets (germination), potato (maturity / digging), barley, sarson (germination/ vegetative), fodder barseem, (vegetative/ 1<sup>st</sup> cutting), onion (transplanting/germination), wheat ( late tillering/ear head emergence), lentil (sowing) in Uttarakhand.

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

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

- Sugarcane (planting), cotton (flowering/square formation), maize (vegetative/ harvesting), sunflower (heading), Bengal gram (pod formation), red gram (maturity), rabi jowar (ear head emergence/boot leaf/grain filling), late planted paddy (harvest), wheat (pod filling/grain formation), safflower (seed setting), finger millet (harvest), black gram (sowing), green gram (sowing), mango (flowering), chilli (flowering), ginger (vegetative), vegetable (nursery) and horticultural crops (vegetative growth/ flowering/ fruit development) in Karnataka.
- Groundnut (vegetative/flowering/pegging), rabi paddy (pre harvest/harvesting), maize (vegetative), sunflower (heading/flowering), jowar (panicle formation/ grain setting), green gram (pod formation), rabi pulses (vegetative/flowering), rice fallow maize (seedling), rice fallow jowar (seedling), rice fallow pulses(seedling), bengal gram (flowering), red gram (maturity/harvesting), castor (vegetative/ flowering), tomato (various stages), chilli (flowering/fruiting) and bhendi (various stages), field bean (various stages), mango(flowering) in Andhra Pradesh.
- Rice (tillering / panicle emergence/flowering), arecanut (harvesting), pepper (harvesting), ginger (harvesting), cardamom (harvesting), nutmeg (maturity), sugarcane (harvesting/ planting), vegetables (sowing/vegetative/flowering), banana rainfed (maturity), banana irrigated (planting/harvesting), mundakan paddy (harvesting), virippu paddy (nursery sowing), coconut (harvesting) in Kerala.

- Rice - Samba (maturity), Thaladi (flowering), Rice fallow Pulses (sowing), cotton (boll formation), vegetables (vegetative/ harvest), sugarcane (various stages), maize (various stages), millets like sorghum (vegetative), pulses (vegetative), groundnut (various stages), chilli (flowering) in Tamil Nadu.

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

- Sugarcane (old *adsali* and old pre-seasonal) (cane maturity / harvesting), sugarcane (old *suru*) (elongation / cane maturity), sugarcane (new *adsali*) (early vegetative), sugarcane (new pre-seasonal) (sprouting / early tillering), *Kharif* red gram (pod maturity / harvesting), *rabi* jowar (flowering / grain formation), safflower (floral bud formation / flowering), irrigated gram (pod development), irrigated wheat (active tillering / ear head emergence), sunflower (flowering / head formation), maize (vegetative growth / tasseling and silking), summer rice (seedling / transplanting in South Konkan and East Vidarbha), summer groundnut (sowing / germination) in Maharashtra.
- Wheat (tillering / booting), late sown wheat (crown root initiation), gram (flowering / pod formation), *rabi* maize (vegetative), Isabgol (sowing / branching / flowering), sugarcane (planting / early vegetative), jowar (seedling / vegetative), cotton (picking), castor (spike initiation / capsule formation / maturity), mustard (flowering / siliqua formation), vegetables (vegetative / flowering / fruiting), cluster bean, cauliflower, cabbage, sweet corn (vegetative) and potato (vegetative / tuber development) in Gujarat.

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

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

## Annexure II List of Varieties

### Assam

**Sunflower:** Jwalamukhi.

**Ridge gourd:** Pusa Nasdar, AAUJ-1, AAUJ-2, AAUC-3

**Sponge gourd :** Pusa Chikni

**Musk melon:** Pusa Sharbati, Hara Madhu, Punjab Sunehri, Durgapur Madhu, Arka Rajhans and Arka Jeet.

**Water melon:** Asahi, Pusa Bedana, Sugar Baby, Faizabadi.

**Sugarcane:** Kolong, Luhit, Dhansiri, Doris, Co 1148.

**Ahu rice:** Luit, Kopilee, Rasi

**Okra:** Pusa Sawani, Arka Anamika, Parbhdani Kranti

### Meghalaya

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

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

**Mustard :** M-3, M-18, M-27

### 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.

**Summer Rice:** Parijat, Khandagiri, Lalat, Naveen.

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

### West Bengal

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

### Jharkhand

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

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

**Summer Rice:** MTU 1010, IR 36, 64, Naveen, Lallat.

### 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

**Barley :** var. Ratna, Jyoti and Sonu

**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

**Radish:** Japanese White, white Icicle,

**Turnip:** Golden Ball,

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

**Haryana****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.**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:**

HD-2428, HD-2189, HD -2733, UP.-2425, PBW-343, HD-2428, Raj-3765, HI-1077, UP-2425, PBW-435

**For sandy fallow land :** K.R.L.-19, 210, 213, K-8436 (Prasad), N.W.-1067, 1076, Raj-3077, Lok-1, P.B.W.-65**Cumin :** RS1,NC43**Rajasthan****Onion:** Pusa Red, Pusa Madhavi, Arka, Niketan, Local Red and Pusa white.**Maharashtra****Suru sugarcane:** Co-86032(Neera), Co-94012(Savitri), CO-419, CO-M7125, CO-M 0265(Phule265).**Water Melon :** Sugar Baby, Arka Jyoti or Arka Manik.**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 pea1and 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 18.01.2012**

