National Agromet Advisory Bulletin
Thursday, 9th February, 2012
(For the period 09th to 13th February, 2012)

Satellite image 0600 UTC dated 10th February, 2012

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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 to severe cold wave conditions are prevailing over many parts of Punjab, Haryana, and Delhi, Rajasthan, Uttar Pradesh, Gujarat, Maharashtra and some parts of West Madhya Pradesh. Minimum temperature is near normal over remaining parts of the country. Cold wave to severe cold wave conditions would prevail over some parts of Punjab, Haryana, Rajasthan, West Madhya Pradesh and north Maharashtra during next 48 hours. Ground frost would occur over isolated pockets of Punjab, Haryana and North Rajasthan during next 48 hours. 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. Farmers in Assam & Meghalaya and Arunachal Pradesh are advised to use hail nets to protect the crops as hailstorm may occur at one or two places over these States during next 24 hours.

Significant rain / snowfall occurred over Balrampur, Barabanki and Sidharthnagar districts of East Uttar Pradesh, Anantnag, Doda, Ganderwal, Kulgam, Kupwara, Poonch, Ramban, Srinagar and Udhampur districts of Jammu & Kashmir and Kinnaur, Kullu and Lahaul and Spiti districts of Himachal Pradesh during last week. Farmers in these regions are advised to postpone irrigation to the standing rabi crops. As there was no significant rain over most of the remaining parts of the country and either scattered / isolated rainfall or dry / mainly dry weather is likely to occur, farmers are advised to provide irrigation to the rabi crops which are at critical stages (flowering / grain filling). Rainfall for the States of Uttar Pradesh, Uttarakhand, Jammu & Kashmir and Himachal Pradesh and Weather Forecast map is given below.

Farmers are advised to undertake sowing of summer cucurbit crops in Rajasthan, maize in Orissa, transplanting of boro rice in West Bengal, transplanting of onion in Bihar, nursery preparation for medium and late sown cauliflower, cabbage, radish, carrot and chilli and transplanting of brinjal in Madhya Pradesh, sowing of cucurbitaceous crops, leafy vegetables and land preparation and sowing of summer vegetables in Chattisgarh, nursery sowing of rice in Karnataka and planting of sugarcane in Maharashtra.

Due to favourable weather conditions, incidences of thrips in onion and garlic in Rajasthan, rust in late sown wheat in Maharashtra, tikka leaf spot in rabi groundnut in Orissa, aphids in mustard in West Bengal, mites in tea in Tamil Nadu, hoppers in mango in Karnataka and powdery mildew in mango in Chhattisgarh 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 week ending on 08.02.2012

Actual Mean Maximum temperature ranged above 32°C over many parts of Rayalaseema, Telangana, Coastal & North Interior Karnataka, Madhya Maharashtra, Lakshadweep Islands, some parts of Marathwada, South Interior Karnataka, Kerala, Tamil Nadu, Coastal Andhra Pradesh, 28 to 32°C over many parts of Orissa, Chattisgarh, Vidarbha, Gujarat, Saurashtra & Kutch, Coastal Andhra Pradesh, Tamil Nadu, North Interior Karnataka, Konkan, some parts of Madhya Pradesh, Telangana, Rayalaseema, Kerala, North Interior Karnataka, Madhya Maharashtra, Marathwada, Andaman & Nicobar Islands, 24 to 28°C over many parts of North East, Eastern and Central Parts of the country, 20-24°C over many parts of Punjab, Haryana, Delhi, Uttarakhnad, West Rajasthan and below 20°C over remaining parts of the country.

Actual Mean Maximum temperature anomaly ranged above 2°C over many parts of Lakshadweep Islands, some parts of Jammu & Kashmir, Himachal Pradesh, Arunachal Pradesh, Assam & Meghalaya, Nagaland, 0 to 2°C over many places of Himachal Pradesh, Uttarakhnad, East Uttar Pradesh, Bihar, Jharkhand, Sub Himalayan West Bengal, Sikkim, North East India, Orissa, Chattisgarh, Andhra Pradesh, Maharashtra, Coastal Karnataka, Coastal Tamil Nadu, Andaman & Nicobar islands, some parts of Kerala, North & South Interior Karnataka, Madhya Pradesh and below -2°C over rest of the country.

Actual Mean Minimum Temperature ranged between 24°C some parts of Lakshadweep Islands, 20 to 24°C above over many parts of Lakshadweep, Andaman & Nicobar Islands, Kerala and Coastal Tamil Nadu, some parts of Coastal Andhra Pradesh, Telangana, 16 to 20°C over many parts of Andhra Pradesh, Karnataka, Konkan & Goa, some parts of Tamil Nadu, Kerala, Madhya Maharashtra, Marathwada, 12 to 16°C over many parts of Orissa, Chattisgarh, Vidarbha, Madhya Maharashtra, Marathwada, Gujarat, Saurashtra & Kutch, some parts of Gangetic West Bengal, Jharkhand, Coastal Andhra Pradesh, Konkan, Madhya Pradesh, 4 to 8°C over many parts of Punjab, Himachal Pradesh, Jammu & Kashmir, some parts of Delhi, Haryana, East Rajasthan, 0 to 4°C over some parts of Jammu & Kashmir, Himachal Pradesh, 8 to 12°C over remaining parts of the country.

Actual Mean Minimum Temperature anomaly ranged above 0°C over many places of East Rajasthan, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Gujarat, Saurashtra & Kutch, Madhya Pradesh, Konkan and Goa, Kerala, Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands, some parts of West Rajasthan, Jharkhand, Chattisgarh, Coastal Andhra Pradesh, Telangana, Madhya Maharashatra, Marathwada, Vidarbha, and -4 to -2°C over many parts of Orissa, Nagaland, Manipur, some parts of Coastal Andhra Pradesh, Arunachal Pradesh, Assam & Meghalaya, Mizoram, Tripura, of -2 to 0°C remaining parts of the country.
## Distribution of rainfall of the country during week ending on 08.02.2012

### Himachal Pradesh

<table>
<thead>
<tr>
<th>State/Districts</th>
<th>Actual</th>
<th>% Dep.</th>
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<tbody>
<tr>
<td>Deoria</td>
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### Jammu & Kashmir

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### East Uttar Pradesh

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<tr>
<td>Chandauli</td>
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### Uttarakhand

<table>
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<tr>
<th>State/Districts</th>
<th>Actual</th>
<th>% Dep.</th>
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</table>

- (20% or more) excess rainfall
- (-19 to +19%) normal rainfall
- (-20 to -59%) deficient rainfall
- (-60 to -99%) scanty rainfall
- (-100%) no rainfall
- ** Data not available
Weather Forecast
(Valid upto 1430 hours of 12th February, 2012)

Major Feature of Weather Forecast upto 0830 hours IST of 12th February, 2012
- Rain/snowfall would occur at one or two places over western Himalayan region.
- Rain/thundershowers would occur at a few places over Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Arunachal Pradesh during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at one or two places over Tamilnadu, Kerala and Lakshadweep.
- No significant change in minimum temperatures over northwest and adjoining central and west India during next 48 hours and increase thereafter by 34°C over northwest India.
- Weather would be mainly dry over remaining parts of the country.

Weather Warning
- Hailstorm would occur at one or two places over Assam & Meghalaya and Arunachal Pradesh during next 24 hours.
- Cold wave to severe cold wave conditions would prevail over some parts of Punjab, Haryana, Rajasthan, west Madhya Pradesh and north Maharashtra during next 48 hours.
- Ground frost would occur over isolated pockets of Punjab, Haryana and north Rajasthan during next 48 hours.

Weather Outlook up to 0830 hours IST of 14th February, 2012
- Rain/snowfall would occur at many places over western Himalayan region.
- Rain/thundershowers would occur at one or two places over northeastern states and south peninsular India.
- Mainly dry weather would prevail over rest of the country.
Zonewise Agromet Advisories

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

- **Realised Rainfall:** Mainly dry weather prevailed over the States of the region during last week.
- **Rainfall Forecast:** Rain / thundershowers would occur at a few places over Assam, Meghalaya and Arunachal Pradesh during next 48 hours and decrease thereafter. Mainly dry weather will prevail over the remaining States of the region during the period. Hailstorm would occur at one or two places over Assam & Meghalaya and Arunachal Pradesh during next 24 hours.

- **Advisories**
  - As there was no significant rain during last few weeks in most of the districts of the States of the region, farmers are advised to apply irrigation to the standing crops.
  - Farmers in Assam & Meghalaya and Arunachal Pradesh are advised to use hail nets to protect the crops as hail storm may occur at one or two places over these States during next 24 hours.
  - Farmers in Assam are advised to continue transplanting of boro rice.
  - Farmers in the Hill Zone of Assam are advised to continue sowing of okra and cucurbits crops.
  - Farmers of Upper Bramhaputra Valley Zone and North Bank Plain Zone of Assam are advised to continue land preparation and planting of sugarcane.
  - Farmers of Lower Bramhaputra Valley Zone of Assam are advised to continue land preparation and sowing of ahu rice, pointed gourd, musk melon, watermelon, pumpkin etc., planting of sugarcane and undertake land preparation and sowing of black and green gram.
  - Farmers of Barak Valley Zone of Assam are advised to harvest the matured potato, cabbage and knolkhol.
  - Farmers in Sub Tropical Hill Zone of Arunachal Pradesh are advised to harvest the matured cole crops, potato, mustard, maize, pea, turmeric, ginger etc. and undertake land preparation for new maize crop.
  - Farmers in Mild Tropical Plain Zone of Tripura are advised to complete sowing of boro rice in lowland. As dry weather prevailed during last few weeks and there is no possibility of rainfall, farmers are advised to apply light irrigation to pulse crops and also to sugarcane.
  - Farmers in Temperate Sub Alpine Zone of Meghalaya are advised to complete transplanting of boro rice. Continue sowing of spring potato, ladies finger, pumpkin and French beans.
  - Farmers of Sub tropical Plain Zone of Manipur are advised to continue sowing of cucurbits like water-melon, cucumber and sponge gourd. Continue land preparation for transplanting of rice and complete land preparation for transplanting of tomato, brinjal and chilli.
  - As there was no significant rain during last few weeks in Mild Tropical Hill Zone of Mizoram, lack of moisture coupled with present weather conditions caused fruit cracking in tomato and banana; hence farmers in Mild Tropical Hill Zone of Mizoram are advised to ensure sufficient soil moisture. Maize crops at cob formation stage are more critical to moisture and nutrients; hence ensure irrigation and nutrient management for high yield and attain full length of cob with grains.
  - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
  - Due to prevailing weather, there is chance of late blight in tomato in Hill zone of Assam; farmers are advised to apply Ridomil MZ-72 @ 2 g/litre of water and Indofil M-45 @ 2.5 g / litre of water at 15 days interval.
  - Farmers in North Bank Plain Zone of Assam are advised to monitor potato crop as there is chance of attack of late blight due to congenial weather; for controlling late blight of potato, spray Mancozeb 75% a.i. @ 2.5 g /litre of water at an interval of 12 days.
  - Attack of aphids in toria is observed in different places of North Bank Plain and Central Bramhaputra Valley Zone of Assam. Farmers are advised to apply Dimethoate 30 EC or Chloropyriphos 20 EC @ 1 ml or Endosulfan @ 2 ml per litre of water in toria field.
  - Due to prevailing weather conditions, there is chance of late blight and early blight diseases in potato in Mild Tropical Plain Zone of Tripura. To manage the attack of blight diseases, spray Indofil M-45 or Ridomil or Mancozeb @ 2 g per litre of water or Cut Zed @ 2.5 g per litre of water. Weather is...
favourable for the incidence of blight in tomato and chili crops. Spray Mancozeb @ 1 g per litre of water. There is also chance of attack of fruit borer in tomato. Spray Neem seed Kenel 5%.

- In Mild Tropical Hill Zone of Mizoram, due to prevailing weather conditions, there is chance of infestation of blight and fruit borer in tomato and chilli crops; farmers in this zone are advised to spray Mancozeb @ 1 g per litre of water for blight and NPV @ 250-500 LE / ha with teepol @ 100 ml to control the attack.

- Due to congenial weather, there is chance of attack of late blight in potato in Mild Tropical Hill Zone of Nagaland; farmers are advised to monitor crops and apply appropriate plant protection measures.

- Farmers of Sub tropical Plain Zone of Manipur are advised to monitor pea, rapeseed / mustard crop, as there is chance of attack of aphid; spray Chloropyriphos 20 EC or Quinalphos 25 EC @ 2 ml / litre water.

- Stages of major crops are mentioned in Annexure I.

**Animal Husbandry**

- Fishery farmers in Central Brahmaputra Valley Zone of Assam are advised to apply Potash @ 4-5 mg / litre of water, Sukrena WS @ 1 litre of water per bigha against various bacterial diseases.

- Poultry farmers in North Bank Plain Zone of Assam are advised to vaccinate poultry birds against ranikhet disease.

- Farmers in Lower Brahmaputra Valley Zone of Assam are advised to vaccinate cattle, goat and pigs against the Foot and mouth disease.

- 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.

- Farmers in Mild Tropical Plain Zone of Tripura are advised to deworm calves against Ascariasis / Malap with piperazine liquid 4 ml / 10 kg body weight.

- The poultry farmers in Nagaland are advised to vaccinate against bird flu and vaccinate pig / piglet against swine flu. Vaccinate cattle, buffalo, pig, sheep and goat against FMD.

- The poultry farmers in Manipur are advised to vaccinate against, Ranikhet, IBD / Gumboro disease and deworm pig / piglet.

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

- **Realised Rainfall:** Mainly dry weather prevailed over the States of the region during last week.

- **Rainfall Forecast:** Rain / thundershowers would occur at a few places over Sub-Himalayan West Bengal and Sikkim during next 48 hours and decrease thereafter. Mainly dry weather will prevail over the remaining States of the region during the period.

- **Advisories:**
  - As there was no significant rain during last week over 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.
  - 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 land preparation and planting of sugarcane. Farmers are also advised to undertake transplanting of summer rice and harvesting of cotton on sunny days. Apply irrigation to mustard wherever the crops are at seed formation stage.
  - In view of prevailing dry weather, farmers in North Eastern Plateau Zone of Orissa are advised to apply irrigation to mustard and sunflower.
  - Farmers in East and South Eastern Coastal Plain Zone of Orissa are advised to transplant summer rice. Farmers are also advised to undertake harvesting of sugarcane, sowing of the crops like summer sunflower and groundnut and transplanting of ragi crop. The farmers are also advised to apply irrigation to rabi sunflower at flowering stage.
  - It is optimum weather for sowing of sesame; farmers of East and South Eastern Coastal South Eastern Coastal Plain Zone Plain Zone of Orissa are advised to undertake the sowing of sesame.
  - Farmers in North central Plateau Zone of Orissa are advised to undertake transplanting of summer rice and apply irrigation to wheat crop. Taking the advantage of dry weather, farmers are also advised to
undertake intercultural operation in groundnut and sunflower, apply irrigation to mustard crop and undertake sowing of early summer vegetables.

Farmers of North Central Plateau Zone of Orissa are advised to complete the sowing of summer maize as late sowing may reduce the yield due to high temperature during April and May and also complete the sowing of summer groundnut in river banks.

As temperature condition is now congenial for transplanting of boro rice, planting of autumn planted sugarcane, onion and sowing of summer vegetables in North West Plain Zone of Bihar, farmers are advised to undertake these operations.

As dry weather is prevailing, farmers in the districts of North Bihar are advised to apply irrigation to wheat, maize and harvest matured tobacco crop.

Apply irrigation in timely sown wheat crop, second irrigation in late sown wheat crops and undertake intercultural operation in maize, carrot, radish, turnip and sweet potato crops. Transplanting of onion crop should be done as soon as possible.

Undertake nursery preparation for sowing of chilli, tomato, early cucurbitaceous and brinjal in poly house for summer season in South Bihar Alluvial Zone.

Farmers in Western, Central and North Eastern Plateau Zone of Jharkhand are advised to prepare the field for vegetables like long gourd, round gourd, bitter gourd, sponge gourd, cucumber, water melon, musk melon and apply light irrigation to early sown crops.

Farmers in Old Alluvial Zone, New Alluvial Zone and Laterite and Red Soil Zone of West Bengal are advised to complete transplanting of boro rice with 4-5 weeks age seedling.

Farmers in New Alluvial Zone of West Bengal are also advised to undertake land preparation for cultivation of ladies finger, kakrol, amaranthus etc.

Farmers in Coastal Saline Zone of West Bengal who want to cultivate boro rice by SRI method are advised to transplant the seedlings of 15-18 days old. Farmers are also advised for planting of onion and cultivation of ladies finger.

Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.

Due to cool and humid weather during morning time, infestation of late blight is seen in potato in South Eastern Plateau Zone of Jharkhand; spray Krilaksil or Ridomil MZ @ 1.5 g per litre of water. Increase in day temperature may cause favourable weather condition for the attack of insects in chick pea; spray Spinosad @ 5 g or Imidachloprid or Acetamiprid @ Ecalux 25 EC @ 1 ml per liter of water.

Due to partly cloudy conditions in South Eastern Plateau Zone of Jharkhand, weather is congenial for powdery mildew and rust incidence in late sown peas. It can be controlled by spraying of Mancozeb @ 2 g per liter of water. To decrease the intensity of damage, spraying of concentration of neem or tobacco leaf extract diluted in the ratio of 1:10 liters or neem oil @ 5 ml per liter of water is recommended.

In North Eastern Coastal Plain Zone of Orissa, due to attack of thrips on chilli crop, there is curling of leaves and stunting of plant growth. To control the pest, spray Imidacloprid @ 0.5 ml / litre or Methyl demeton @ 2 ml / litre of water.

Infestation of pod borer has occurred in gram and pea in East and South Eastern Coastal Plain Zone of Orissa; spray 50 ml Imidaclorpid or 400 ml Dimethoate or Metasystox in 200 litres water per acre. Leaf eating caterpillar and leaf miner have been found in rabi sunflower; spray 400 ml Endosulphan / acre.

Current weather is favourable for infestation of leaf eating caterpillar in groundnut in East and South Eastern Coastal Plain Zone of Orissa. Apply 10 Kg of 2% Methyl Parathion dust around the bund. Moderate temperature increased the thrips population. Spray 2 ml Methile Dematon per liter of water. The current temperature may also aggravate the infestation of downy mildew in mustard. Spray 2 g Redomil-MZ / litre water. Tikka disease and white ant attack have occurred in rabi groundnut. Spray 500 g Blitox - 50 in 200 litres of water per acre for Tikka and spray 2 ml Chloropyriphos in 1 litre water for controlling white ant attack. Also Bacterial wilt has been found in summer groundnut. Spray 1 g Streptocycline / 10 litres of water thoroughly in the root zone. Also occurrence of stem and root borer is found in cashew. Remove minimum width of the bark (only the damaged or tunneled portions) retaining at least 50% of the bark circumference. Inject 0.5% Monocrotophos @ 1 ml per hole in the bore. The bore shall be plugged with cotton and wax. Pod borer has occurred in gram and pea in cuttuck district; spray 50 ml Imidaclorpid or 400 ml Dimethoate or Metasystox 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 @ 400 ml per acre to control these insects. Foggy weather has aggravated the attack of aphids in rapeseed and mustard. Farmers are advised to spray Imidacloprid @ 0.5 ml / litre or Methyl demeton @ 2 ml / litre of water.

In North Central Plateau Zone of Orissa, the current weather is favourable for leaf eating caterpillar, thrips and aphid infestation in rabi groundnut. Farmers are advised to apply 10 Kg of 2 % Methyl Parathion dust around the bund and spray 400 ml Dimethoate or 50 ml Imidachloprid in 200 litres of water / acre.

Due to lower temperature and foggy weather in Terai Zone and Old Alluvial Zone of West Bengal, potato may be attacked by late blight. To prevent the attack of late blight, spraying of Mancozeb (2 g / litre of water) and Blitox (4 g / litre of water) alternately at 10-12 days interval by completely wetting the leaves is recommended. If attacked by late blight, spray the mixture of Metalaxyl 8% and Mancozeb 64% @ 1 to 1½ g per litre of water alternately at 12-15 days interval by completely wetting the leaves.

There is infestation of aphids in mustard in Old Alluvial Zone, Terai 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. Current weather is also favourable for the attack of powdery-mildew in cucumber and pointed gourd. Apply 3 to 4 gm Blitox per litre of water.

Stages of major crops are mentioned in Annexure I.

- **Animal Husbandry**

- **Due to low temperature, calves and kids are susceptible to respiratory infection, mostly pneumonia. Farmers in North Eastern Coastal Plain Zone and North Central Plateau Zone of Orissa are advised to provide warm and comfortable housing and good ventilation to animals and birds. Vaccination of FMD (Foot and Mouth Disease) to animals is also recommended. In case of disease outbreak, strict isolation of affected animals should be done.**

- **Pisciculture**

- **Weather conditions are favourable for growth of fishes in North Eastern Plateau Zone of Orissa and Western Plateau Zone of Jharkhand; farmers are advised to add cow dung and lime in the pond as natural foods for them and alternative feeds may also be used like rice bran and mustard cake (each of 5 kg per day per acre area of pond). 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 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:** There was significant rainfall in all the districts of Himachal Pradesh except in the districts of Sirmaur, Solan and few districts of East Uttar Pradesh and Uttarakhand. Mainly dry weather prevailed over remaining States in the region.

- **Rainfall Forecast:** Rain/snow would occur at isolated places over Jammu & Kashmir, Himachal Pradesh and Uttarakhand during next three days and mainly dry / dry weather is likely to occur over remaining parts of the region.

- **Advisory:**

- Cold wave to severe cold wave conditions would prevail over some parts of Punjab, Haryana, Rajasthan, west Madhya Pradesh and north Maharashtra during next 48 hours. and ground frost would occur over isolated pockets of Punjab, Haryana and north Rajasthan during next 48 hours. 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. As there was no significant rainfall in remaining States during last week and mainly dry / dry weather is likely to occur, farmers are advised to apply irrigation to the standing crops.
In Flood Prone Eastern Plain Zone of Rajasthan, farmers are advised to carry out regular weeding and intercropping in wheat crops and also advised to spray a solution of Metasulfuron methyl @20g/ha in500 litre water to control broad leaved weeds.

In Semi-Arid Eastern Plain Zone of Rajasthan, it is optimum time for sowing of summer cucurbits. Before sowing treat the seeds with Bavistan @ 2 gm per kg seed. Soak the seeds for 24 hours in order to increase germination.

As weather is favourable, farmers in Delhi are advised to sow cucurbitaceous, chilli, tomato and brinjal crops in the nursery and undertake transplanting of young seedlings of tomato, chilli and cole crop in this week. Give light irrigation to pea and gram crop which are in flowering and 30-40 % pod formation stage. Sowing of spinach, coriander and fenugreek may be done in present weather conditions in Delhi.

Farmers in Punjab and Haryana are advised to start preparation of fields for planting of spring sugarcane from second fortnight of this month. Apply irrigation to autumn planted crop as per need of intercrops and sugarcane. Start the planting of new nursery plants of peach, plum and pear. In some areas of Western Plain Zone of Punjab there are reports of Mn deficiency in wheat crop, in such areas, spray the crop with 0.5% MnSo4. Repeat the spray if necessary.

In Sub Tropical Zone of Jammu and Kashmir, farmers are advised to undertake nursery sowing of tomato, brinjal, chilli crop, harvesting of citrus fruits and raise cucurbits under protection in polythene bags. Farmers can plan for plantation of new orchards during these days. Due to chances of rainfall, farmers are advised to not allow stagnating water in wheat, barley, mustard and gobhisarson field under low lying areas.

In Valley Temperate zone of Srinagar, wheat, brown sarson, pea, lentil, 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 drainage channels should be dug so as to avoid water stagnation. Farmers are advised to complete transplanting of onion, planting of garlic, sowing of leafy vegetables (orach, spinach and methi) in poly house. Also advised to mulch seed crops of KnolKhol, cabbage and root crops, stop pruning activities in fruit crops and not to go for new planting.

In Intermediate Zone of Jammu & Kashmir, farmers are advised to raise cucurbits under protection in polythene bags, nursery sowing of tomato and brinjal, transplanting of onion, knolkhol.

Farmers in Leh region are advised to harvest Chinese cabbage, lettuce, beet leaf var. Mongol at weekly interval. 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. Farmers are also advised to prepare pits for planting new plants.

In the Mid hill sub-humid zone of Himachal Pradesh, planting of new plants may be done up to March. Irrigation to newly planted trees is necessary for getting high survival rate.

Farmers of the Low Hill sub-tropical zone of Himachal Pradesh are advised to skip irrigation in late planted wheat crop and continue sowing of vegetables like okra and French beans.

Farmers in Uttar Pradesh are advised to give light irrigation in normal wheat, rabi pulses, rabi oilseeds, potato, already transplanted vegetable crops. Start field preparation for planting of sugarcane.

In Bhabar and Tarai, sub-humid sub tropic zones of Uttarakhand, remove weeds form early sown nursery of tomato, capsicum, onion, lentil, chickpea & other vegetable crops like coriander, spinach, radish, methi. Farmers having their land at 5000 ft along with irrigation facilities are advised to go for sowing of potato and also it is favourable period for sowing of sugarcane crop after the harvest of toria, potato etc.

In the Undulating Plain Zone of Punjab, farmers are advised to monitor the wheat crop as weather is favourable for incidence of yellow rust, if symptoms observed spray Propiponazole(Tilt) @200ml per/acre to control it. Also there may be attack of aphid on Rape/Mustard crop, to control use melathion 250-500 ml 50 EC in 100 litres of water.

In Delhi due to present weather condition constant monitoring of the wheat crop against rust disease is advised. If symptoms of black, brown or yellow rust appears farmers are advised to spray Dithane M 45 @ 2.5 grams per litre of water. Also monitor mustard crop against attack of aphid, if aphid population
exceeds above ETL then farmers are advised to spray Rogor 2 ml/litre or Quinalphos @ 2 ml/litre water is recommended.

- In Flood Prone Eastern Plain Zone of Rajasthan, due to continuous cool humid and cloudy weather, there are chances of black spot disease in the mustard crop at pod formation stage. Farmers are advised to spray 2% Mencozeb 30EC solution to manage the disease. Spray a solution of thiourea @ 0.1% to protect crop against frost attack.
- In Semi Arid Eastern Plain Zone of Rajasthan, garlic & onion crop is likely to be affected by thrips. To control this insect farmers are advised to spray Methyl dematon 25 EC or Melathion 50 EC @ 1.0 ml per litre water. Also in methi, pea, cumin, and coriander are likely to be affected by powdery mildew attack. Spray Karathion @ 1.0 ml or calaxin @ 1.0 ml per litre water or dust sulphur @ 25 kg per hectare.
- In Central & Western plain zone of Uttar Pradesh, farmers are advised to protect the gram crop from leaf eating caterpillars, spray 400ml Endosulphan 35EC in 100 liters of water and against attack of aphids in wheat crop, spray methyl parathion dust 20 – 25 kg/hectare.
- Stages of major crops are mentioned in Annexure I.

**Animal Husbandry**
- 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 buffalos 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 the animals back and keep litter dry every day.
- 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 dry / 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.
- Since there is no rainfall, farmers in the Coastal Zone of Karnataka are advised to take up harvesting of pulse crops like green gram, black gram, cow pea etc., and provide irrigation to arecanut.
- Farmers in the Southern Transition Zone of Karnataka are advised to take up nursery sowing of paddy based on the availability of water and apply manures with micronutrients including zinc and boron and give irrigation to arecanut as and when required.
- Farmers in the Problem Area Zone of Kerala are advised to increase frequency of irrigation to the crops since temperature and wind speed is likely to increase.
- Farmers in the North Eastern Zone of Tamil Nadu are advised to undertake weeding operations in groundnut and paddy and spray Coragen 60 ml/acre to control leaf folder pest in paddy field, undertake field preparations for planting of horticultural crops in the irrigated land and nursery preparations for paddy.
- Farmers in the Cauvery Delta Zone of Tamil Nadu are advised to avoid nitrogen application in blast disease infected samba fields and spray Tetryclozole 200 g /acre or Azoxybostrobin 200ml/acre to control it and undertake plant protection measures against sucking pests like hoppers, thrips and white flies in the rice fallow black gram.
- Farmers in the High Altitude Hilly Zone of Tamil Nadu are advised to initiate land preparation for the coming sowing season, undertake application of dolomite in extremely acidic fields and apply farm yard manures prior to sowing season.
Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to clip tips of rice seedlings before transplanting, correct zinc deficiency, monitor ergot in jowar, helicoverpa in Bengal gram, Spodopter exigua and rust in sunflower and take appropriate plant protection measures.

Due to low temperature, hoppers were noticed in mango crop in the North East Transition zone of Karnataka. For effective control take up spraying of 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.

Farmers in the High Altitude Zone of Kerala are advised to monitor the incidence of blast and brown spot diseases in paddy fields and red palm weevil, rhinoceros beetle, leaf eating caterpillar, stem bleeding and leaf rot disease in coconut.

Farmers in the Western Zone of Tamil Nadu are advised to take proper plant protection measures for managing late leaf spot incidence in groundnut and downey mildew incidence in maize.

Farmers in the South Zone of Tamil Nadu are advised to monitor incidences of blast, sheath blight, sheath rot, ear head bug in rice, fruit borer in chilli and bacterial leaf blight in cotton and undertake proper measures to control them.

Farmers in the High Altitude Hilly Zone of Tamil Nadu are advised to monitor mites infestation in tea, since increase in mites infestation has been noticed.

**Animal Husbandry:**
- Farmers in the North East Dry Zone of Karnataka are advised to vaccinate the animals against Foot and Mouth disease, as there are reports of incidences of the disease.
- Farmers in the southern Transition zone of Karnataka are advised to provide sufficient light (heat) in the poultry sheds to maintain body temperature of the birds and the dairy cows should be maintained clean and neat to protect the udder from mastitis.

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

- **Realised Rainfall:** Dry weather prevailed over the States during last week.
- **Rainfall Forecast:** Weather would be mainly dry over the States of the region during the period.
- **Advisories:**
  - Cold wave to severe cold wave conditions are prevailing over many parts of Maharashtra and would prevail over some parts of north Maharashtra during next 48 hours. Farmers are advised to provide light and frequent irrigation and arrange for smoking around the fields to protect standing crops from cold injury.
  - As weather was dry over the States of the region during last few weeks and dry weather is also likely to prevail during the period, farmers are advised to apply irrigation to the standing crops.
  - As weather is favourable for planting of suru sugarcane in Madhya Maharashtra and Marathwada, farmers are advised to complete planting within 15th February.
  - As dry weather is prevailing, farmers of South Konkan region of Maharashtra are advised to apply irrigation to maintain 2 to 3 cm water level for first 8 to 10 days and accordingly increase up to 5 cm in transplanted rice field.
  - In view of prevailing weather, farmers in Madhya Maharashtra, Marathwada and West Vidarbha are advised to complete preparatory tillage and undertake sowing of summer groundnut.
  - Sowing of summer chilli on nursery bed may be done during this week in Madhya Maharashtra and undertake transplanting of summer chilli seedlings at 60 x 45 cm distance, wherever seedlings are ready.
  - Prevailing weather is favourable for sowing of okra in Pune division and summer sesame in Central Vidarbha Zone.
  - As dry weather is prevailing, farmers in Middle Gujarat Zone are advised to apply irrigation to pigeon pea and gram.
  - Farmers in South Saurashtra Zone of Gujarat are advised to prepare land and undertake sowing of summer groundnut. Apply irrigation to wheat, chickpea, gram and garlic.
  - Farmers in Bhal and Coastal Zone of Gujarat are advised to carry out picking of castor capsules and vegetables during early morning hours.
Farmers in South Gujarat Heavy Rainfall Zone are advised to undertake land preparation and sowing of summer crops like groundnut, moong and pearl millet. Carry out picking of capsules in castor during early morning hours. Spray 0.5% urea solution in mango crop for higher flowering. Apply irrigation in castor at grain development stage. Taking advantage of dry weather, carry out hand weeding and other intercultural operations.

Farmers in South Gujarat Zone are advised to spray 0.5% urea solution in mango crop for higher flowering and spray 0.5% Zinc Sulphate or 0.2% Ferrous Sulphate in banana crop for higher yield and good quality. Apply irrigation to vegetables at an interval of 3 to 4 days as there is increase in temperature.

Farmers in North Gujarat Zone are advised to carry out land preparation and sowing of summer groundnut. Harvest fully matured spikes in castor. Carry out timely harvesting of cotton.

Farmers in North Saurashtra Zone are advised to irrigate garlic, onion, pigeon pea, gram and mustard. Carry out sowing of summer groundnut. Taking the advantage of dry weather, apply supplementary dose of Nitrogen @ 25 kg / ha in isabgol and 37.5 kg / ha as top dressing in onion at 30 to 45 DAS ensuring optimum soil moisture level.

Farmers in North West Zone of Gujarat are advised to apply supplementary irrigation and top dressing dose of Nitrogen fertilizer in wheat. Apply 2nd irrigation in mustard at flowering stage. Apply irrigation in vegetables at evening time to protect against frost / cold waves.

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 of water.

There may be of infestation of rust in late sown wheat in Marathwada and Central Vidarbha Zone; spray Hexaconazol @ 10 g in 10 litres of water in Marathwada and spray Mancozeb @ 25 g in 10 litres of water in Central Vidarbha Zone.

Present weather is congenial for attack of leaf eating beetles and leaf miner in water melon in South Konkan region of Maharashtra; to control leaf eating beetles spray 50% Malathion @ 20 ml per 10 litres of water and to control leaf miner spray Dimethoate @ 10 ml per 10 litres of water, respectively. Also there is chance of attack of eriophyte mites in coconut; root feeding of 5% Nimazol @ 7.5 ml or Econeem plus 10 ml with equal quantity of water may be done.

There may be increase in infestation of thrips and eriophyte mites in garlic in Western Maharashtra Scarcity Zone; to control spray Dimethoate @ 10 ml + WS Sulphur @ 30 g in 10 litres of water at 8-10 days interval.

Weather conditions are favourable for infestation of blight disease in potato, tomato and cumin crop in North Gujarat Zone; farmers are advised to spray 0.25% Mancozeb @ 30 g in 10 litres of water with 10 g desi soap solution.

Stages of major crops are mentioned in Annexure I.

Animal Husbandry:

In South Gujarat Heavy Rainfall Zone, keep the animals in well suited cattle house to save them from cold during night.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Dry weather and clear sky condition over the region.
- **Rainfall Forecast:** Mainly dry/dry weather condition would prevail over the region..
- **Advisories:**
  - Cold wave to severe cold wave conditions are prevailing over some parts of West Madhya Pradesh. Minimum temperature is near normal over remaining parts of the country and likely to continue during next 48 hours. Farmers in this region are advised to provide light and frequent irrigation and arrange for smoking around the fields to protect standing crops from frost/cold injury.
  - Due to forecast of clear weather and no rainfall farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised to irrigate wheat crop at critical stages as per requirement, undertake hand weeding and intercultural operations at 20-25 days after sowing in wheat, chickpea, lentil and mustard. Carry out intercultural operations in sugarcane sown in the month of November. Prepare nursery for medium and late sown cauliflower, cabbage, radish and carrot.
Farmers in Jhabua Hills region of Madhya Pradesh are advised to give third irrigation in fully irrigated wheat and maize crops 55-60 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, chilli, tomato, brinjal etc. and when temperature increase and fallow field available then sow these crops. 

In Nimar Valley region of Madhya Pradesh farmers are advised to irrigate wheat and gram crops; also start planting of sugarcane and prepare nursery of chilli, brinjal, okra and tomato.

In view of dry weather conditions farmers in Central Narmada Zone of Madhya Pradesh are advised to irrigate the standing crops. Farmers are also advised to do intercultural operations and irrigation in Lentil and Linseed. Harvest the matured pigeon pea. Prepare nursery for chilli and planting of brinjal.

Farmers in Malwa region of Madhya Pradesh are advised to irrigate wheat at tillering, flowering and grain filling stages. If required give irrigation in chickpea, mustard, safflower, sunflower crops. Sowing of summer vegetable crops such as ladies finger and cucurbits should be done.

Farmers in Satpura Plateau region of Madhya Pradesh are advised to do intercultural operation and top dressing of nitrogen in vegetables.

Farmers in Vindhyan Plateau region of Madhya Pradesh are advised give light irrigation in wheat crop.

Farmers in Bundelkhand Zone of Madhya Pradesh are advised to irrigate all crops.

In Chattisgarh Plain Zone, inter-culture, fertilizer application, earthing followed by irrigation is advised in sugarcane crop wherever the crop is at knee height stage. Farmers are also advised for sowing of cucurbitaceous crop in the poly houses, sowing of leafy vegetables and land preparation for summer vegetables.

Farmers in Bastar Plateau Zone of Chhattisgarh are advised to complete sugarcane planting at the earliest and earlier planted sugarcane should be irrigated. Summer crop seeds like moong, urad and maize crops of high yielding varieties should be selected and sowing should be done. Wheat crop should be irrigated and second dose of nitrogen should be applied. Arrange for irrigation in linseed and mustard crop at an interval of 15 days

Farmers in Bastar Plateau Zone of Chhattisgarh are advised to complete sugarcane planting at the earliest and earlier planted sugarcane should be irrigated. Summer crop seeds like moong, urad and maize crops of high yielding varieties should be selected and sowing should be done. Wheat crop should be irrigated and second dose of nitrogen should be applied. Arrange for irrigation in linseed and mustard crop at an interval of 15 days.

Mustard crop in Bundelkhand region of Madhya Pradesh are affected by aphids, for its control spray methyl dematon 25 E.C. or dimethoate 30 E.C. @ 2.0 ml per liter of water. They are also advised to spray Malathion 50 E.C. @ 1.0ml/L of water and do not pick up cuds within one week.

Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised that weather is congenial for insect attack in pigeon pea, therefore spraying of Indoxacarb or Quinalphos @ 2.0ml/liter is recommended.

Chickpea crop is being damaged by the caterpillar in Central Narmada region of Madhya Pradesh so farmers are advised to monitor the chickpea crop and when pest reaches at ETL level, the spray of quinalphos 20E.C @ 2.0 ml per liter of water is recommended.

Due to excessive cold condition in Bastar Plateau Zone of Chhatisgarh, powdery mildew attack is being observed in mango, spray Sulfex @ 3 grams per litre of water.

In Bastar Plateau Zone of Chhatisgarh purple blotch is being observed in the onion crop, spray Blitox 50 or Dithane M-45 alongwith Rogor insecticide. For control of fruit rotting in chillies, Blitox 50 should be sprayed.

Due to the cloudy weather conditions and rainfall received during the past week there is occurrence of yellowness in the nursery of summer rice in many places. Hence, farmers are advised to avoid the application of heavy doses of urea and apply Zinc Sulphate @ 10 kg/acre.

Mustard is in flowering/pod formation stage, at this stage aphids are commonly observed in this crop. Hence, farmers are advised for the monitoring of the crop and if the infestation is above ETL, spraying of Metasystox @ 2 ml/ liter water solution followed by spraying of Dimethioate @ 2 ml/ liter water solution after 15 days of first spraying is advised.
In Chattisgarh Plain Zone, incidence of stem borer occurred in the nursery of summer rice. Farmers are advised to use light trap to control it. In case of heavy infestation of stem borer, apply Carbofuron @ 33 kg/ha.

Incidence of Heliothis in gram is reported from many places in Chattisgarh Plain Zone and it is likely to increase. Farmers are advised to keep keen watch over the crops and adopt integrated pest management practices like light trap, pheromone trap, bird perch etc. for initial control. If necessary spray insecticides like Spinoshed @ 300 ml/ha or Aciphate WP @ 250 g/ha (250 ml/ha) or HNPV @ 250 LE/ha or Polytrin C @ 1 litre/ha.

**Animal Husbandry & Poultry**

- Farmers in Bundelkhand region are advised to vaccinate cattle against the mouth and foot disease.
- 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.
- Farmers in Central Narmada region and Satpura Plateau regions of Madhya Pradesh are advised to keep cattles in dry and clean place in view of humid weather conditions. Create neem leaves smoke in the night to save them from mosquitoes and bees.
Annexure I

Major Crops

NORTHEAST INDIA [ARUNACHAL PRADHESH, NMM&T, ASSAM, MEGHALAYA]
- Sugarcane (old) (harvesting), sugarcane (new) (land preparation / planting), boro rice (transplanting / seedling / tillering), ahu rice (sowing), wheat (ear iniation / flowering), tomato, brinjal (vegetative / flowering / fruiting), cauliflower, cabbage, knoll khol (head formation / harvesting), rabi pulses like pea, lentil (flowering / pod formation), onion (vegetative), potato (tuber development / harvesting), rapeseed and mustard (flowering / siliqua formation / seed formation), rabi maize (vegetative), pumpkin / bottle gourd (flowering / fruiting), okra, pointed gourd, musk melon, water melon, ridge gourd, sponge gourd (sowing), black / green gram (sowing) in Assam.
- Cabbage, cauliflower, knolkhol etc. (head formation / maturity / harvesting), maize (cob formation / maturity / harvesting), mustard (pod formation / maturity), potato (tuber formation / harvesting), pea (pod formation / maturity / harvesting), turmeric, ginger (maturity / harvesting) in Arunachal Pradesh.
- Rice (sowing), cucurbits (sowing / transplanting / vegetative), rapeseed and mustard (siliqua formation), tomato, brinjal, chilli (transplanting / vegetative), potato (tuber formation), cauliflower and cabbage (head formation / maturity), pea (flowering / fruiting / harvesting), onion (vegetative / bulb formation) in Manipur.
- Boro rice (late varities) (tillering / panicle initiation / flowering), boro rice (early varities) (flowering / grain formation / milk), wheat (flowering / grain formation), mustard, rapeseed (siliqua formation / maturity), spring potato (sowing / vegetative), potato (tuber formation), lentil, pea (flowering / pod formation), rabi onion (vegetative / bulb formation), Bengal gram (pod formation), cabbage and knol-khol (head formation / maturity), okra (sowing), pumpkin, French bean (vegetative) in Meghalaya.
- Khasi mandarin (vegetative / fruiting / harvesting), banana (vegetative / fruiting / maturity / harvesting), cole crops (head formation / maturity), tomato (fruiting / harvesting), pea, bean (pod formation / maturity), maize (cob formation / maturity) in Mizoram.
- Cabbage, (head formation / maturity), pea (pod formation / maturity / harvesting), rapeseed, mustard (siliqua formation), French bean (flowering / pod formation), potato (tuber initiation), brinjal (flowering / fruiting / maturity) and maize (tasseling / silking / cob formation) in Nagaland.
- Boro rice (tillering), pulse crop, pea, beans (pod formation / maturity / harvesting), mustard (siliqua formation), tomato (flowering / fruiting / maturity / harvesting), potato (tuber formation / early maturity) in Tripura.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL &SIKKIM]
- Sugarcane (vegetative), lobia for green fodder (vegetative), mishrikand (vegetative), cauliflower, cabbage (head formation / maturity), fruit trees (transplanting), potato, sweet potato (tuber formation / early maturity), rapeseed, mustard (pod formation / seed formation), wheat (tillering / booting), pigeon pea (pod formation / seed formation), vegetables (vegetative / flowering / fruiting), maize (tasseling / silking / cob formation, pulses (pod formation), sugarcane, onion (planting), boro rice (transplanting / early tillering) in Bihar.
- Pigeon pea (pod formation / seed 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 (seed formation / pod formation / early maturity), linseed (pod formation / seed formation), toria (early maturity / maturity), green pea (pod formation / maturity / harvesting), cauliflower, cabbage (head formation / maturity), chilli, tomato (flowering / fruiting / maturity), wheat (tillering / jointing), papaya (transplanting), gram (pod formation), summer vegetables (transplanting) in Jharkhand.
- Summer rice (transplanting / early tillering), summer groundnut, sunflower (land preparation / sowing), arhar (pod formation / seed formation), mustard (pod formation / seed formation), sugarcane (maturity / harvesting), sugarcane (new) (planting), Bengal gram, lentil, linseed, green pea (pod formation / seed formation), wheat (tillering), banana and marigold (vegetative), potato (tuber formation / early maturity), tomato (flowering / fruiting / maturity), cauliflower, cabbage, knol-khol (head formation / maturity), onion (vegetative) in Orissa.
- **Boro** rice (transplanting / early tillering), winter vegetables (vegetative / flowering / fruiting), mustard (pod formation / seed formation), wheat (tillering), lentil, gram, sunflower (pod formation / seed formation), potato (tuber development / early maturity), chilli (flowering / fruiting) in West Bengal.

- **Rabi** vegetables (flowering / fruiting / harvesting), orange (harvesting), Large cardamom (vegetative), wheat (flowering / milk), mustard (pod formation / pod maturity), *rabi* potato (tuber formation) in Sikkim.

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

- Wheat (tillering), mustard (pod formation), sugarcane (planting), rabionion (vegetative), cauliflower, cabbage, broccoli, knolkhol (vegetative / fruiting), carrot, turnip, early sown tomato radish, spinach and coriander (vegetative/fruiting), pea, gram (flowering / pod formation), Chilli, tomato, brinjal, cucurbits (nursery preparation in polyhouse), ladies finger(sowing), onion (transplanting) 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, Shilma 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, knolkhol, parsley, lettuce, fennel, cauliflower, broccoli (sowing / planting) in Himachal Pradesh.

**Uttarakhand**

- 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 (vegetative / fruiting/harvesting), cole crops viz. early cauliflower, cabbage, knoll khol, broccoli (vegetative), rabi oilseeds i.e. gobisarson(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 (vegetative (2nd cut)), berseem (vegetative), tomato, brinjal and chilli (nursery sowing), Horticultural crops viz. [Apricot, Apple (nursery sowing), orange & guava (fruiting), citrus fruits (harvesting)] in Jammu & Kashmir. Wheat, Brown Sarson, pea, lentil and Oat are in dormant stage in Srinagar.

- Chilli, capsicum, cauliflower, broccoli (transplanting/seedling), sugarcane (planting), litchi, loquat, peach, citrus (flowering / fruiting), mango (early varieties) (flowering), foxtail millet, okhra, bottle gourd, bitter gourd, ginger, turmeric (germination / vegetative), mustard (Siliqueformation), papaya (planting), sorghum, pigeon pea (vegetative), urd and pearl millets (germination/ early vegetative), potato (maturity / digging), barley, sarson (germination/ vegetative), onion, garlic (transplanting/germination), wheat (late tillering/ear head emergence), lentil, brinjal, potato (sowing/germination) in Uttar Pradesh.

- 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), onion (transplanting / vegetative growth), mustard/ sarson (flowering / silique formation), barley (vegetative / tillering), jai, gram, alsi, maize, masoor, pea, pigeon pea, chick pea (vegetative growth / flower initiation), berseem (vegetative growth), sugarcane (planting) in Uttarakhand.

- Spring sugarcane (sprouting), berseem (vegetative), autumn sugarcane (tillering), gram, lentil, mustard, rape seed (branching/flowering), barley (heading) radish, carrot, turnip, onion, cauliflower (transplanting/vegetative), wheat (Jointing / Pre-Heading/ - timely sown) in Punjab.

- Sugarcane (spring season) (early vegetative), barseem (vegetative), moong, mash, pigeon pea (vegetative), cauliflower, cabbage, carrot, potato (transplanting), barley (heading/pre heading), mustard, sarson, raya (vegetative/flowering), radish, turnip (sowing), wheat (Jointing / Pre-Heading/ - timely sown) in Haryana.
Wheat (tiller/joint stage), very late sown wheat (CRI), sweet potato, chilli and cluster bean (vegetative), mustard (flowering/siliqua/pod formation), gram (flowering/pod formation), 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/flowering), green pea (vegetative growth/pod formation), summer tomato (sowing/germination), cauliflower, cabbage, rabi onion (transplanting), summer cucurbit(sowing) in Rajasthan.

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

- Sugarcane (planting), maize (vegetative/harvesting), sunflower (heading), Bengal gram (harvesting), red gram (maturity/harvesting), rabi jowar (grain filling/grain drying stage), late planted paddy (harvest), wheat (grain formation), 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

- Rabi groundnut (pod filling/development), Early sown paddy (pre-harvest/harvesting) rabi paddy (tilling), maize (vegetative/tasseling), sunflower (heading), sugarcane (planting), jowar (panicle formation/grain setting), rabi pulses (flowering/maturity), castor (vegetative/flowering), vegetables (flowering/fruiting), chilli (flowering/fruiting), green gram & black gram (pod development/maturity), tomato (flowering/fruiting stages) and bhendi (various stages), mango (flowering) in Andhra Pradesh.

- Rice (seedling), arecanut (harvesting), pepper (harvesting), ginger (land preparation), cardamom (harvesting), nutmeg (maturity), sugarcane (harvesting/planting), vegetables (vegetative), banana (rainfed, maturity), banana irrigated (vegetative/harvesting/planting), mundakan paddy (harvesting), virippu paddy (nursery sowing), coconut (harvesting) in Kerala.

- Rice - Samba (flowering/maturity), Thaladi (flowering/maturity), rice fallow pulses (seedling), ginning (sowing), cotton (boll bursting), vegetables (vegetative/harvest), sugarcane (various stages), maize (various stages), millets like sorghum (vegetative), groundnut (pod filling/maturity), chilli (flowering), ginger and turmeric (pod development/harvest) 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), sugarcane (new suru) (planting in Madhya Maharashtra and Marathwada), rabi jowar (grain formation/grain maturity), safflower (seed maturity), irrigated gram (pod maturity/harvesting), irrigated wheat (flowering/milk), sunflower (head formation/seed maturity), maize (cob initiation), summer rice (early tillering in South Konkan and transplanting/early tillering in East Vidarbha), summer groundnut (germination in South Konkan and sowing in Madhya Maharashtra, Marathwada and West Vidarbha) in Maharashtra.

- Summer groundnut (sowing), wheat (booting/flowering/milk), gram (pod development), rabi maize (tasseling/silking/cob formation), Isabgol (branching/flowering), sugarcane (planting/early vegetative), jowar (grain formation), cotton (picking), castor (maturity/harvesting), mustard (siliqua formation/seed formation), vegetables (vegetative/flowering/fruited/maturity/harvesting), cluster bean (pod formation), cauliflower, cabbage (head formation/maturity) and potato (tuber development) in Gujarat.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Sugarcane (knee height stage), vegetables (fruiting), mustard (siliqua formation), wheat (grain filling), maize (tiller), onion, garlic, tomato, brinjal, chilli (sowing/transplanting), gram (pod formation stage) in Madhya Pradesh.

- Sugarcane (planting), groundnut, arhar, green gram and sesame (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/tillering), onion (planting), summer rice (nursery), summer vegetables (land preparation), moong, urad and maize (sowing) in Chhattisgarh.
Annexure II
List of Varieties

Assam

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, Cauvery, Culture-1.

Tall varieties: Banglami, Dubachenga, Rangadaria (115-120 days), Ahujohoa (110-120 days).
Short duration variety: Dogaranga (85-95days).

Okra: Pusa Sawani, Arka Anamika, Parbhani Kranti.

Black gram: T 9, Pant U 19, UG 157 and JU 78.

Jharkhand

Papaya: Pusa Giant, Pusa Dwarf, Honey Dew, Pusa Majesty.
Summer Rice: MTU 1010, IR 36, 64, Naveen, Lallat.

Orissa

Sugarcane: CO 740, CO 6304, CO7219, COT 8201, Neelamadhaba and Sabita.
Summer Sunflower: High Yielding Varieties like Modern and Hybrid Varieties like PAC 36, KBSH, MSHF-1, MSFH-8 and MSFH-17.
Sesame: Uma, Kalika, Nirmala Prachi, Usha.
Summer Maize: Dhabal, Navjot, and Hybrids like Decca, Ganga, Deccan 105, Kargil 900-M, PRO 345, Kargil 633.

Himachal Pradesh

Lettuce: Iceberg, Brinjal : ArkaNidhi, PPC
Agetibhindi: P-8, Prabhinikrant, Arkaanamika, Frenchbean: Contender
Pepper :Surjumukhi, Broccoli: PalamSamridhi, Rajmash : Triloki, Jwala, baspaKailash
Raddish :japani white and early mino white, Turnip : PTWG-1.
Cabbage, coriander: Snow ball K-1 Palamuphar, golden acre.
Knolkhol : WhiteBina, Cauliflower: Pride of India

Jammu & Kashmir

Vegetable crop like radish (var. Pusachetki, Japanese white &Pusareshmi), 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

Sugarcane: CoJ85, CoJ64, CoJ83
**Haryana**

Sugarcane: CoJ85, CoJ64, CoJ83

**Delhi**

Spinach: Jyoti
Coriander: PantHaritma

**Madhya Pradesh**

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

Sugarcane: CoJN 86032, CoJN 86582
Ladies Finger: Pusa Makhamali, Pusa Sawani, A-4 or Parbhani kranti

**Chattisgarh**

Sugarcane: Co 86032, Co 86141

**Maharashtra:**

Okra: Phule Utkarsha, Parbhani Kranti, Arka Anamika, Arka Abhay.
Summer seasum: AKT-10, NT-11-19.
Summer chilli: Phule Jyoti, Phule Mukta.

**Gujarat:**

Summer bajra: GHB-526 and GHB-558.
Annexure III
Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 08.02.2012

Relative humidity ranged between 80% and above over some parts of Jammu & Kashmir, Andaman & Nicobar Islands, 40 to 60% over many parts of Rajasthan, West India, South & North Interior Karnataka, Maharashtra, Chattisgarh, Jharkhand, some parts of Haryana, Uttar Pradesh, Bihar, Gangetic West Bengal, Orissa, Telangana, Raylaseema, Tamil Nadu, Coastal Andhra Pradesh, 60 to 80% over remaining parts of the country.

Cloud amount above 4 okta over many parts Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Andaman & Nicobar Islands, some parts of West Uttar Pradesh, Tamil Nadu, 2 to 4 okta over many parts of Punjab, Haryana, Delhi, Uttar Pradesh, Sikkim, Arunachal Pradesh, Andhra Pradesh, Tamil Nadu, Kerala, Lakshadweep Islands, some parts of Himachal Pradesh, Uttarakhand, Assam & Meghalaya, Nagaland, Andaman & Nicobar Islands, 0 to 2 okta over remaining parts of the country.

Wind speed ranged between 6 knots and above some parts of Tamil Nadu, 4 to 6 knots over many parts of Saurashtra & Kutch, some parts of Orissa, Madhya Pradesh, Kutch, Coastal Andhra Pradesh, Kerala, Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands, 2 to 4 knots over most parts of Saurashtra & Kutch, some parts of Himachal Pradesh, Uttarakhand, Haryana, Delhi, West Uttar Pradesh, Gujarat, Madhya Pradesh, Telanaga, North Interior Karnataka, Tamil Nadu, Kerala, Andaman & Nicobar Islands, 0 to 2 knots over remaining parts of country.