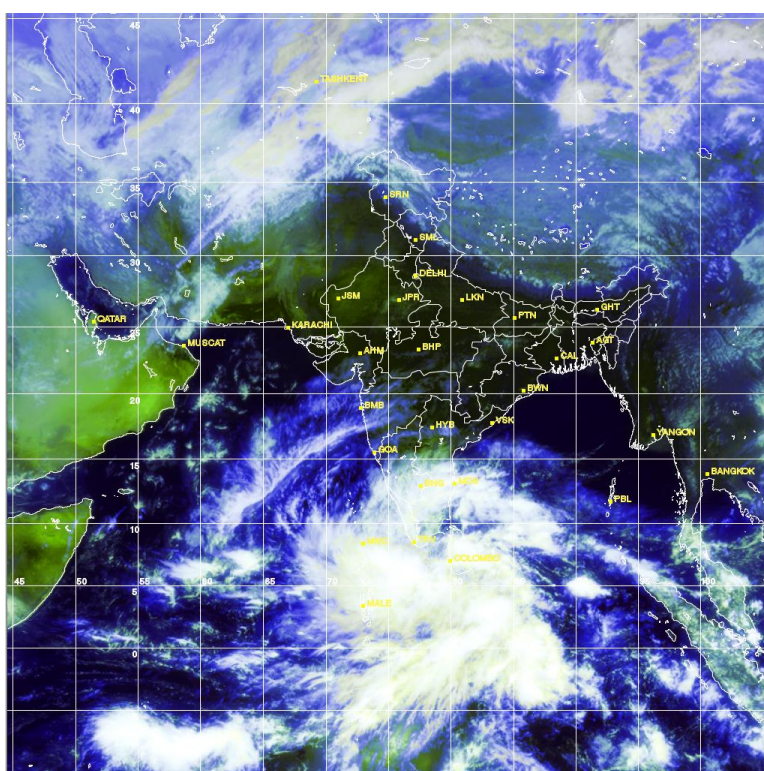




National Agromet Advisory Bulletin

Thursday, 24th November, 2011
(For the period 24th to 28th November, 2011)



Satellite image 0600 UTC dated 25th November, 2011

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

Dry weather prevailed over the country except scattered rainfall over Tamil Nadu during last week. Due to dry weather conditions, most of the area in the North East Dry Zone of Karnataka is under moisture deficit status and crops like red gram, cotton, sunflower and groundnut are under moisture stress. More flower dropping is reported in red gram and forced opening of cotton boll is also noticed. Most of the *rabi* area is also under moisture stress condition causing less *rabi* sowing area.

Farmers in all the regions of Andhra Pradesh are advised to raise irrigated maize and sunflower as an alternative to irrigated rice as the ground water may become scarce due to prevailing dry condition; also undertake sowing of *rabi* crops like rice fallow black gram and rice fallow maize. Take up sowing of rice nurseries with short duration varieties.

Dry weather is also likely to prevail over the country except in Tamil Nadu, Kerala, South Interior Karnataka, South Coastal Andhra Pradesh, Rayalaseema in southern peninsula, Jammu & Kashmir and Himachal Pradesh in Northwest India. Wide spread / fairly wide spread rainfall is likely to occur in Tamil Nadu during next three days along with occurrence of heavy rainfall at 1 or 2 places during next 48 hours. In view of heavy rainfall, farmers are advised to arrange for drainage facilities to avoid water stagnation.

Farmers are advised to undertake sowing of *rabi* crops like wheat, gram and maize and transplanting of cauliflower, onion and chilli in Madhya Pradesh, wheat, gram, pea, lathyrus, mung, sunflower and sugarcane in Chattisgarh, groundnut, mustard, rapeseed, tomato, cauliflower, cabbage, knol khol, broccoli and radish in Orissa, wheat, barley, linseed, gram, pea and lentil and planting of potato in Jharkhand, planting of potato and sowing of mustard, tomato, radish, and carrot and other leafy vegetables in West Bengal, sowing of barley, oat, lentil, sarson, gram, safflower, linseed, chickpea, pea, rajmah and wheat and planting of potato in Uttar Pradesh and sowing of vegetables (raddish, turnip, corriander, cabbage, knol khol, broccoli, parsley, lettuce, cauliflower, onion, potato), wheat and sarson in Himachal Pradesh. Farmers in Punjab and Haryana are advised to complete sowing of long duration varieties of wheat, lentil and *desi* gram and *kabuli* gram.

Due to prevailing weather, incidences of *Helicoverpa* in red gram, aphids in safflower, diamond back moth, thrips, mites, die-back and powdery mildew in vegetables in Andhra Pradesh and pod borer in red gram in Karnataka are noticed. Farmers are advised to undertake appropriate plant protection measures to control the pests and diseases.

Distribution of rainfall of the country during week ending on 23.11.11

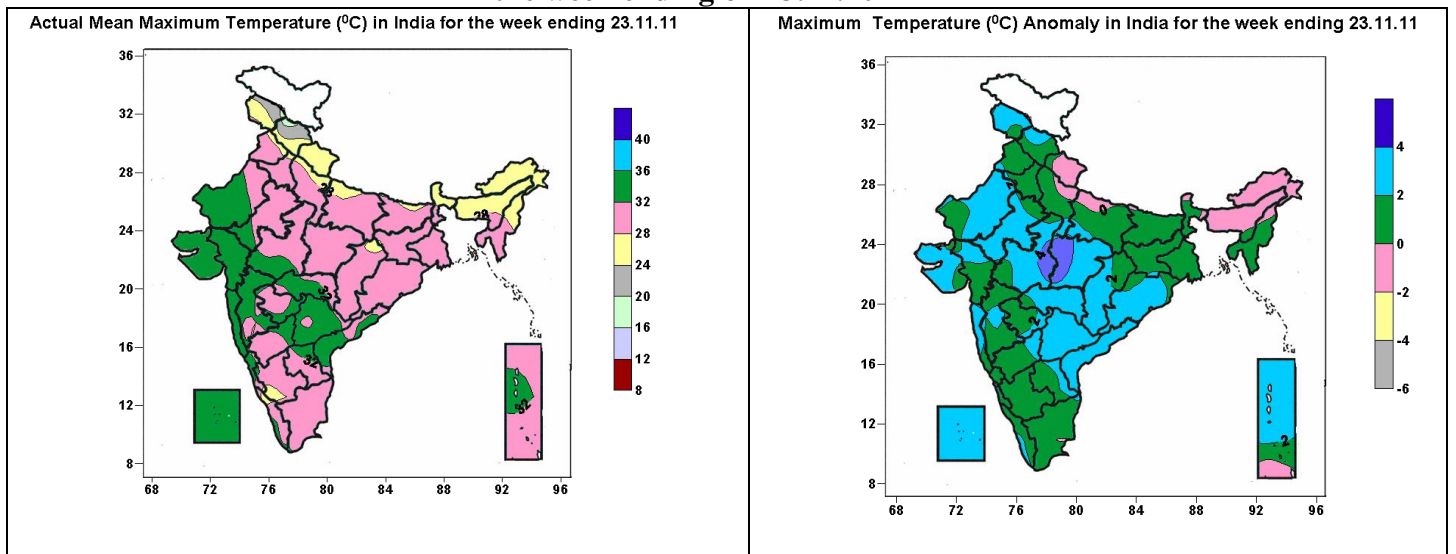
State/Districts	Actual (mm)	% Dep.
Karnataka		
Coastal Karnataka		
Dakshin Kannada	0	-100
Udupi	0	-100
Uttar Kannada	0	-100
Kerala		
Alappuzha	0	-100
Kannur	0	-100
Ernakulam	0	-100
Idukki	0	-100
Kasaragod	0	-100
Kollam	0	-100
Kottayam	0	-100
Kozhikode	0	-100
Malappuram	0	-100
Palakkad	0.3	-99

Pathanamthitta	0	-100
Thiruvananthapuram	1.3	-95
Thrissur	0	-100
Wyanad	0	-100
Tamil Nadu		
Chennai	51.3	-28
Coimbatore	0	-100
Cuddalore	33.7	-46
Dharmapuri	0	-100
Dindigul	6.2	-81
Erode	0	-100
Kanchipuram	38.9	-36
Kanyakumari	4.4	-88
Karur	4.7	-82
Krishnagiri	0	-100
Madurai	7.9	-72
Nagapattinam	70.3	-18
Namakkal	1.6	-92

Nilgiris	1	-97
Perambalur	3.4	-91
Puducherry	31.7	-61
Pudukottai	14	-64
Ramanathapuram	36.7	1
Salem	2.4	-91
Sivaganga	24.8	-9
Thanjavur	32.5	-34
Theni	2.8	-89
Tirunelveli	15.5	-59
Tiruvallur	27.8	-41
Tiruvannamalai	2.3	-94
Tiruvarur	60.2	-16
Toothukudi	11.3	-70
Trichy	11.3	-66
Vellore	12.8	-51
Villupuram	23.1	-50
Virudhunagar	7.7	-77

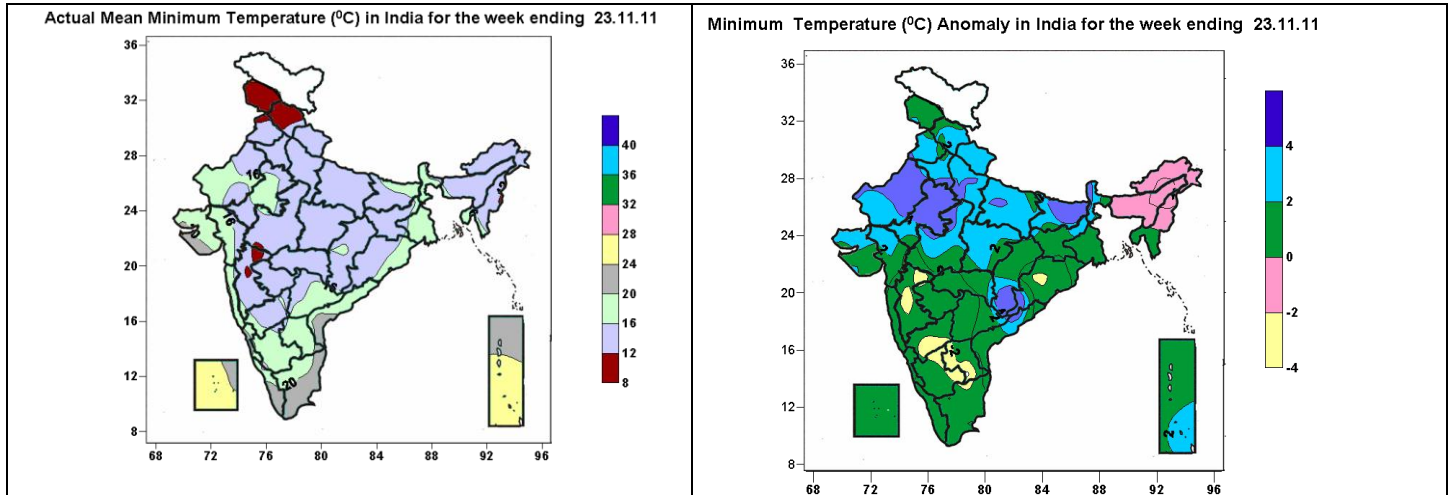


Contour maps for Mean Maximum, Minimum Temperature and their anomaly for the week ending on 23.11.2011



Actual Mean Maximum temperature ranged between 32 to 36⁰C over most parts of West Rajasthan, Gujarat, Saurashtra & Kutch, Maharashtra, Coastal Andhra Pradesh, Telengana, Coastal Karnataka, Lakshadweep Islands, some parts of East Rajasthan, West Madhya Pradesh, Raylaseema, Andaman & Nicobar Islands, 24 to 28⁰C over most parts of Uttarakhand, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, some parts of Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Delhi, Uttar Pradesh, Chattisgarh, Bihar, South Interior Karnataka, Kerala, 20 to 24⁰C over some parts of Jammu & Kashmir, Himachal Pradesh, 16 to 20⁰C over some parts of Jammu & Kashmir, Himachal Pradesh, 28 to 32⁰C over remaining parts of the country.

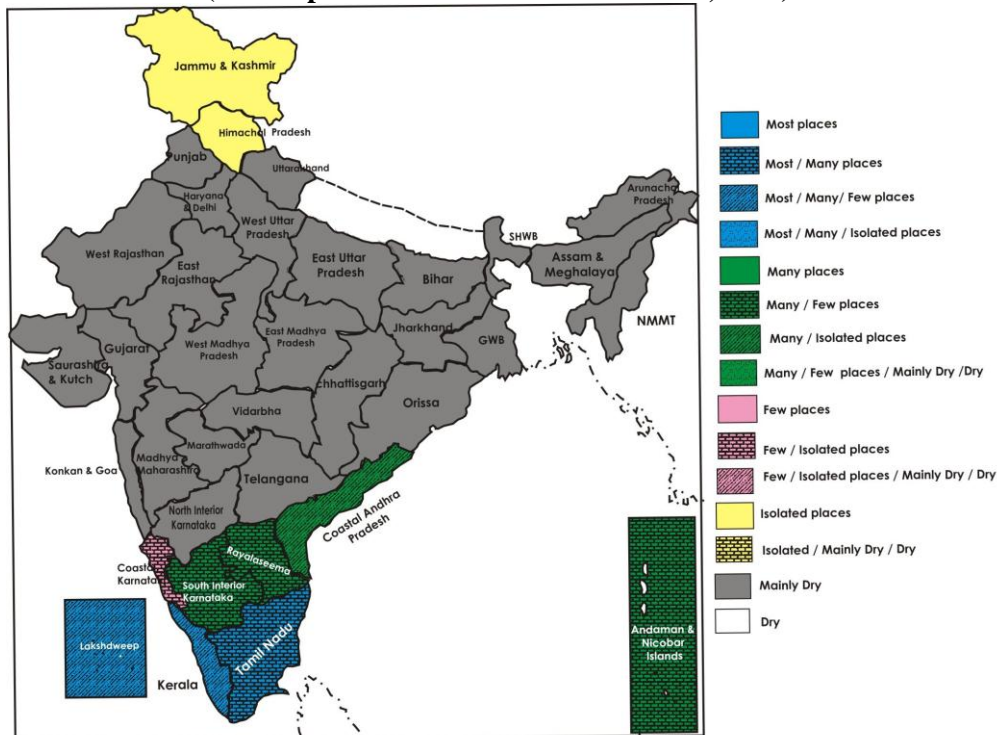
Actual Mean Maximum temperature 4⁰C above over some parts of Madhya Pradesh, 0 to 2⁰C over most parts of Himachal Pradesh Punjab, Haryana, Delhi, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Manipur, Mizoram, Tripura, Raylaseema, Tamil Nadu, Kerala, Karnataka, Madhya Maharashtra, Marathwada, Gujarat, some parts of Jammu & Kashmir, Uttarakhand, Sikkim, Assam & Meghalaya, Nagaland, Chattisgarh, Orissa, Saurashtra & Kutch, Konkan & Goa, Vidarbha, West Madhya Pradesh, Andaman & Nicobar Islands, -2 to 0⁰C over most parts of Uttarakhand, Arunachal Pradesh, Assam & Meghalaya, some parts of Sikkim, Uttar Pradesh, Nagaland, Andaman & Nicobar Islands, 2 to 4⁰C over remaining parts of the country.



Actual Mean Minimum Temperature ranged between 24⁰C and above over most parts of Lakshadweep, Andaman & Nicobar Islands, 20 to 24⁰C over most parts of Kerala, Tamil Nadu, some parts of Saurashtra & Kutch, Coastal Andhra Pradesh, Rayalaseema, Coastal Karnataka, Lakshadweep, Andaman & Nicobar Islands, 16 to 20⁰C over most parts of Rajasthan, West Bengal, Sikkim, Tripura, Gujarat, Saurashtra & Kutch, Konkan & Goa, Andhra Pradesh, South Interior Karnataka, some parts of Bihar, Jharkhand, Chattisgarh, Orissa, Assam, Mizoram, Coastal & North Interior Karnataka, Tamil Nadu, Kerala, 8 to 12⁰C over most parts of Jammu & Kashmir, Himachal Pradesh, some parts of Punjab, West Madhya Pradesh, Madhya Maharashtra, 12 to 16⁰C over remaining parts of the Country.

Minimum Temperature anomaly between 4⁰C and above over most parts of Rajasthan, Bihar, Sikkim, some parts of Punjab, Haryana, Delhi, Uttar Pradesh, Sub-Himalayan West Bengal, Sikkim, Orissa, Chattisgarh, Coastal Andhra Pradesh, West Madhya Pradesh, 2 to 4⁰C over most parts of Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh, Madhya Pradesh, some parts of Jammu & Kashmir, Rajasthan, Bihar, Jharkhand, Sub-Himalayan West Bengal, Sikkim, Orissa, Chattisgarh, Coastal Andhra Pradesh, Telangana, Vidarbha, Gujarat, Saurashtra & Kutch, Andaman & Nicobar Islands, -2 to 0⁰C over most parts of Arunachal Pradesh, Assam & Meghalaya, Manipur, Mizoram, Nagaland, -4 to -2⁰C over some parts of Orissa, Madhya Maharashtra, Rayalaseema, North & South Interior Karnataka, 0 to 2⁰C over remaining parts of the Country.

Weather Forecast (Valid upto 1430 hours of 27th November, 2011)



Major Feature of Weather Forecast upto 1430 hours IST of 27th November, 2011

- Rainfall/snowfall would occur at one or two places over Jammu & Kashmir and Himachal Pradesh.
- Rain/thundershowers would occur at many places over Andaman & Nicobar Islands during next 24 hours and decrease thereafter.
- Rain/thundershowers would occur at many places over Tamilnadu during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at a few places over Kerala, south interior Karnataka, south coastal Andhra Pradesh, Rayalaseema and Lakshadweep during next 24 hours and increase thereafter.
- Mainly dry weather would prevail over remaining parts of the country.
- No significant change in minimum temperatures over plains of northwest India and central & east India during next 48 hours.

Weather Warning

- Heavy rainfall would occur at one or two places over Tamilnadu during next 48 hours.

Weather Outlook up to 1430 hours IST of 29th November, 2011

- The easterly wave would continue to affect south Peninsular India with rainfall activity at many places.
- Rainfall/snowfall would continue to occur at one or two places over Jammu & Kashmir.
- Weather would be mainly dry over remaining parts of the country.

Zonewise Agromet Advisories

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

- **Realised Rainfall:** No significant rainfall occurred in most of the districts of the States of the region during last week.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the States during the period.
- **Advisory**
 - As there was no significant rain during last few weeks in most of the districts of the States of the region and mainly dry weather is likely to prevail during the period, farmers are advised to apply irrigation to the standing crops.
 - In Assam, farmers are advised to complete sowing of potato, onion, garlic, tomato, radish etc. Continue sowing of niger, wheat, rapeseed and mustard, *rabi* pulses etc.
 - In Lower Brahmaputra Valley Zone of Assam, farmers are advised to undertake harvesting of jute where crop is at small pod stage.
 - Farmers in Upper Brahmaputra Valley Zone of Assam are advised to continue preparation of nursery beds for *boro* rice, sowing of tomato, rapeseed and mustard and planting of potato. Land preparation and sowing may be started for *rabi* pulses like lentil, rajmah, pea, lathyrus etc.
 - As dry weather is prevailing, farmers in Upper Barak Valley Zone of Assam are advised to undertake regular intercultural operation and irrigation in cauliflower, onion and garlic crops.
 - In Central Brahmaputra Valley Zone in Assam, farmers are advised to continue the harvesting and threshing of already matured *sali* rice and subsequently sow pea.
 - Farmers in Arunachal Pradesh are advised to undertake land preparation and sowing of *rabi* crops like maize, pea, mustard etc. and transplanting of vegetables like cabbage, cauliflower, knolkhol and other cole crops.
 - Farmers in Mid Tropical Plain Zone of Tripura are advised to undertake land preparation and planting of potato. Taking the advantage of dry weather, also start harvesting of already matured *aman* rice.
 - Farmers in Mid Tropical Hill Zone in Nagaland are advised to continue sowing of *rabi* crops like rapeseed, mustard, pea, planting of potato and transplanting of onion.
 - Farmers in Temperate Sub Alpine Zone of Meghalaya are advised to start nursery bed preparation and sowing of *boro* rice. Start harvesting of matured onion crop. Also undertake land preparation and sowing of wheat.
 - Farmers of Sub tropical Plain Zone of Manipur are advised to continue transplanting of tomato, onion, cabbage, cauliflower etc., sowing of pea, broccoli, rapeseed and mustard and planting of potato.
 - Farmers in Mizoram are advised to take advantage of prevailing dry weather for application of fertilizer and weeding of the crop fields.
 - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
 - Due to reduction in soil moisture, chances of fruit cracking is more in banana in Mid Tropical Plain Zone of Tripura; to minimize it, proper mulching and nutrient management especially boron is advised. There is chance of attack of aphids in toria at flowering stage due to prevailing cloudy condition. Spray Monocrotophos @ 2 ml per liter of water to control the attack.
 - In Kolasib region of Mizoram, decrease in sunshine hours with fluctuation of humidity is congenial for attack of the aphids in cole and tomato crops. Also the present weather are congenial for infestation of leaf miner. Farmers are advised to spray Monocrotophos

1 ml / litre at evening hours. Also due to cloudy weather and substantial decrease in temperature, chances of aphid infestation are more in pea and beans; farmers are suggested to take appropriate measures.

➤ Stages of major crops are mentioned in Annexure I.

- **Animal Husbandry**

➤ The farmers in Upper Brahmaputra Valley and NorthBank Plain Zone of Assam are advised to vaccinate cattle, goat and pigs against BQ, HS, Foot and mouth disease and anthrax disease.

➤ The farmers in Lower Brahmaputra Valley Zone of Assam are advised to protect poultry birds (Broiler) from cold by using electric bulb (300 Watt for 100 sq. feet) to prevent Coryza disease. In case of lacrimation and swelling of the head, treat the fowl with Sulphar drugs. Poultry birds in general should be regularly observed and fed with antibiotics and vitamins after consulting veterinary doctors.

➤ The farmers in Central and Lower Brahmaputra Valley Zone of Assam are advised to vaccinate poultry birds against Ranikhet disease.

➤ In Nagaland, poultry farmers are advised to take measures against coccidiosis using coccinil plus, Amprolium, supercox with vitamin and mineral supplement.

➤ In Manipur, cattle farmers are advised to deworm and vaccinate cattle against B.Q. and H.S. and apply 2 ml of Butox in 1 litre of water while brushing against skin diseases; vaccinate pig and goat against Endoparasites, Ectoparasites etc.

➤ The farmers in Arunachal Pradesh are advised to provide anti-stress powder with drinking water for chickens, also provide adequate heat source (particularly at night) for the chicks and piglets. Farmers are also advised to vaccinate goat against enterotoxaemia.

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:** Mainly dry weather is likely to prevail over the States of the region.

- **Advisories:**

➤ As there is no significant rain during last few weeks in most of the districts of the States of the region and mainly dry weather is likely to prevail during the period, farmers are advised to apply irrigation to the standing crops.

➤ Undertake sowing of oilseed crops like mustard, groundnut etc. in Western Undulating Zone, East and South Eastern Coastal Plain Zone and North Central Plateau Zone of Orissa.

➤ Farmers in Western Undulating Zone of Orissa are advised to undertake transplanting of onion. In view of prevailing dry weather condition, farmers are also advised to apply irrigation to oilseed crops.

➤ Farmers in North Central Plateau Zone of Orissa are advised to prepare land and undertake sowing of wheat, mustard, groundnut, pea etc. Farmers are also advised to undertake transplanting of onion, cabbage and cauliflower and sowing of carrot and radish.

➤ Farmers in North Eastern Coastal Plain Zone of Orissa are advised to undertake sowing of mustard, rapeseed, tomato, cauliflower, cabbage, knolkhol, broccoli, radish etc..

➤ Farmers in East and South Eastern Coastal Plain Zone of Orissa are advised to complete sowing of pluses, mustard, fodder oat, coriander, sunflower and planting of potato and banana. Farmers are also advised to undertake harvesting of medium duration rice crops taking the advantage of prevailing dry weather.

➤ Farmers in the districts of North Bihar are advised to complete sowing of rainfed wheat

and start the sowing of irrigated wheat. As dry weather is prevailing, farmers are advised to apply light irrigation in the potato crops, which are in 10-20 days stage for proper germination of tubers and better crop growth and yield. Farmers are advised to complete harvesting and threshing of rice crop and carry out land preparation and sowing of other *rabi* crops in these districts. Farmers are also advised to start transplanting of Autumn season sugarcane.

- Farmers in the districts of South Bihar Alluvial Zone are advised to prepare the field for planting of potato and sowing of timely irrigated wheat, other *rabi* crops and green fodder. Spice crops such as coriander, fenugreek and Mangrailla should be sown as early as possible. Also sow the seeds of onion in prepared nursery.
- Farmers in Central, Western and North Eastern Plateau Zone of Jharkhand are advised to undertake sowing of wheat, barley, linseed, gram, pea, lentil and planting of potato.
- Farmers in Central Plateau Zone of Jharkhand are advised to sow gram, onion, chick pea, African marigold or French marigold.
- In Western Plateau Zone of Jharkhand, farmers are advised to sow mustard and toria after harvesting of *kharif* crops. It is the time for sowing of winter vegetables like cauliflower, cabbage, chilli, tomato etc. Farmers are advised to raise the seedlings of these vegetables.
- Farmers in South Eastern Plateau Zone of Jharkhand are advised to undertake sowing of wheat, pigeon pea and chick pea. In view of prevailing dry weather condition, farmers are advised to apply light irrigation to oil seeds (groundnut), turmeric, ginger and elephant foot yam.
- Farmers in New Alluvial Zone of West Bengal are advised to undertake land preparation and sowing of wheat and planting of potato. Also start nursery bed preparation of *boro* rice.
- Farmers in Red and Lateritic Zone of West Bengal are advised to undertake planting of potato and sowing of wheat crop.
- Farmers in Old Alluvial Zone of West Bengal are advised to undertake land preparation and sowing of wheat, mustard, tomato and planting of potato.
- Farmers in the Hill Zone of West Bengal are advised to undertake land preparation and sowing of mustard, wheat and planting of potato. Sowing of radish, carrot, and other leafy vegetables and transplanting of broccoli should be started. Farmers are also advised to undertake harvesting of soybean, ginger, black gram and rice bean.
- Farmers in Coastal Saline Zone of West Bengal are advised to undertake sowing of mustard and planting of potato.
- Farmers in Terai Zone of West Bengal are advised to start transplanting of marigold.
- Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
- Cutworm is found in rice in Kendrapara district of Orissa; spray 2 ml Chloropyriphos in 1 litre water during afternoon. Apply Chloropyriphos dust around the bund to prevent the entry of caterpillar to the unaffected fields in early morning.
- As the weather condition is warm day and cool night, there is a possibility of downy mildew in cucumber in Terai Zone of West Bengal. To manage the disease spray Mancozeb @ 2 g / litre or Metalaxyl 8% and Mancozeb 64% @ 1-1.5 g / litre of water. In this weather condition, ear cutting caterpillar may be a problem in rice. To manage this pest, spray Lamdacyhalothrin 2.5 EC @ 1.5 ml / litre of water.
- Large differences between day and night temperatures in Coastal Saline Zone of West Bengal are favourable for attack of ear cutting caterpillar and gundhi bug in *Kharif* rice. To control ear cutting caterpillar, spray Spinosad 45 SC @ 0.5 ml / litre of water or Profenophos + Cypermethrin 44 EC @ 1 ml / litre of water during afternoon hours. To

control gundhi bug, spray 2% powder @ 1-1.5 kg / bigha or BHC 50% @ 2-2.5 kg / bigha during afternoon time.

- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In North Eastern Plateau Zone of Orissa, as the winter is initiated, there is a possibility of “EUS” disease in fish. Farmers are advised to apply ‘Cifax’ @ 400 ml mixed with 40 litre of water in one acre pond area as a preventive measure.
 - The farmers in North Central Plateau Zone of Orissa are also advised to apply 50 kg lime / Ac-m in all pisciculture tanks as a preventive dose against diseases before onset of winter season.
 - Clean and hygienic water should be fed to dairy animals in old Alluvial Zone of West Bengal. In this time, disease may outbreak on the fish in ponds; so as preventive measure, apply lime @ 40 Kg / bigha / meter depth of pond water or apply mixture of turmeric (1 Kg), garlic (500 g), KMnO₄ (150 g) and salt (50 g) in 1 bigha pond at the time of netting.

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

- **Realised Rainfall:** Mainly dry weather prevailed over the region during last week.
- **Rainfall Forecast:** Rainfall / snowfall is likely at isolated places in Jammu & Kashmir, Himachal Pradesh and mainly dry weather is likely over the rest of the region.
- **Advisory:**
 - As there was no significant rainfall in most of the districts over the region during last week, apply irrigation to the standing crops.
 - Keeping in view of temperature farmers in Delhi are advised to undertake sowing of wheat at the earliest. Also undertake sowing of oat and barseem for fodder, late field pea, rabi onion, late cultivars of potato, carrot, radish, beetroot, turnip, sarson saag, spinach, fenugreek, coriander. Prepare nursery for late crops.
 - Farmers in Punjab and Haryana are advised to complete the sowing of long duration varieties of wheat. In November transplanting of gobhi sarson is more profitable than direct sowing. Use 60 days old seedlings of gobhi sarson. This is the right time for sowing Radish and Turnip. Transplant 4 to 6 week old seedlings of cabbage, chinese cabbage and late season cauliflower. Irrigate methi and palak once a week. It is advisable to withhold the irrigation right now to deciduous fruits such as pear, peach, grapes so that the trees enter dormancy and become sufficiently hardened to withstand cool weather. Irrigate the fruit bearing ber trees. Farmers should complete picking of the crop as early as possible and vacate the fields for the rabi season crops. Complete sowing of lentil crop. Complete sowing of Desi gram and kabli gram under irrigated conditions. As dry weather is expected in coming days, farmers can apply irrigation to sugarcane crop during these days.
 - In Sub Tropical Zone of Jammu & Kashmir, farmers are advised to continue sowing of barley, early variety of wheat under rainfed and irrigated areas with available soil moisture. Farmers are also advised to continue sowing of mustard, pulses, lentil and vegetable crops like radish, carrot, turnip, garlic, spinach, methi and berseem without any further delay. In lower belts of cold arid zone of Leh, it is advised to undertake transplanting of cauliflower, knol khol, broccoli, winter lettuce, chinese cabbage, onion and beet leaf in green house and to plough their field to retain more moisture during the winter months. It will also help in the uprooting of the weeds and decomposition of crop residues.
 - Farmers in Himachal Pradesh are advised to sow vegetables (raddish, turnip, coriander, cabbage, knol khol, broccoli, parsley, lettuce, fennel, cauliflower, onion, potato), wheat

and sarson. It is optimum time for raising the nursery of winter flowers like Calendula, arctotis, dog flowers, sweet pea, dianthus, petunia, stock and flox in fields. Farmers in Mid Hills and Sub Humid region of Himachal Pradesh are advised to complete the sowing peas and cabbage.

- In Uttar Pradesh, farmers are advised to complete sowing of barley, oat, masur, sarson, gram, safflower, linseed, potato, chickpea, pea, rajmash and wheat. Farmers are also advised to continue sowing of onion, carrot, radish and tomato.
- In Bundelkhand zone of Uttar Pradesh, farmers are advised to apply light irrigation and top dressing in already sown pea, toria, etc.
- In Bhabar & Terai zone of Uttarakhand, in this week present weather is favourable for sowing of masoor and horse gram, if not sown advised to sow certified seeds.
- Farmers in Sub humid sub tropic in Uttarakhand are advised to sow potato, wheat, also advised to irrigate all rabi vegetables like coriander, fenugreek, tomato, spinach, radish and carrot.
- In hill zone of Uttarakhand, farmers are advised to give light irrigation to timely sown irrigated wheat crop and continue sowing irrigated and non-irrigated wheat, masoor, green pea, gram, sarson and fodder makka.
- Farmers in Rajasthan are advised to continue land preparation for sowing of wheat, barley, potato, cumin, isabgol, ajwain, raising nursery for seedling of autumn vegetables viz. tomato, brinjal, radish, etc., transplanting cauliflower, cabbage, *rabi* onion, plucking citrus fruits late during afternoon hours, sowing of mustard, gram, lentil, oat, fenugreek, berseem, lucerne, toria, taramira, linseed (alsi), opium poppy and coriander. They are also advised to undertake harvesting of matured cotton and castor crops in arid western plain zone.
- In Sub tropical zone of Jammu & Kashmir the weather is congenial for saw fly or flea beetle in mustard, spray Malathion 50EC @ 0.05% or carbaryl 50WP @ 0.1%.
- In Flood Prone Eastern Plain Zone (Bharatpur) in Rajasthan, there are chances of *Sclerotia* and bacterial rot due to excess moisture in mustard and due to humid conditions prevailed during last week, there are chances of mustard sawfly in mustard and other brassica. Farmers are advised to keep watch on fields and take appropriate protection measures and also to notice the leaves for white rust appearance (yellowish on upper side while white circular or irregular blisters).
- In present weather due to high relative humidity, infection of late blight may occur in early potato in Delhi. Farmers are advised to monitor the crop and take proper plant protection measures.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandary**
 - In semi-arid western plain zone of Rajasthan, Himachal Pradesh, in view of falling night temperature, livestock farmers are advised to protect their infant animals from pink cold. They are also suggested for deworming of animals except pregnant animals and deworming medicines like Albendazol, Fenbendazol may be given to animals under the guidance.
 - In semi-arid eastern plain zone of Rajasthan, animals may be vaccinated against H.S. disease. It is also advised to keep teats of milch cow & buffalo clean before & after milking to protect them from the attack of Mastitis.
 - In Bhabar & Tarai zone of Uttarakhand, , due to expected cold conditions during this week in the night, farmers are advised to keep all types of animals inside the shed during night time. Put rice straw at the place of sitting of animals for their better

comfort. Keep down curtains in Poultry Farm in the night for safety of birds from these cold weather conditions.

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

- **Realised Rainfall:** The districts of Chennai, Cuddalore, Kanchipuram, Nagapattinam, Puducherry, Ramanathapuram, Thanjavur and Tiruvarur in Tamil Nadu received good rainfall during last week. No significant rainfall occurred in the remaining states of the region.
- **Rainfall Forecast:** Fairly wide spread/wide spread rain would occur over Tamil Nadu. Fairly wide spread/wide spread rain would occur over Kerala, South Interior Karnataka and Rayalaseema after 24 hours. Scattered rain would occur over Coastal Karnataka. Mainly dry weather / isolated rain would occur over remaining parts of the region. Heavy rainfall would occur at one or two places over Tamil Nadu during next 48 hours.
- **Advisories:**
 - Most of the area in the North East Dry Zone of Karnataka is under moisture deficit status because of no rainfall and crops like pigeon pea, cotton sunflower, groundnuts are under stress. Because of moisture stress, more flower dropping is reported in red gram and forced opening of cotton boll is also noticed. Most of the rabi area is under moisture stress condition, hence less rabi sowing area is reported. Only 75 per cent acreage is sown with *rabi* crops and wherever *rabi* jowar sowings are over and germination is observed. Farmers are advised to undertake thinning to cope up the moisture deficit conditions due to lack of rainfall.
 - As there was sufficient rainfall in Chennai, Cuddalore, Kanchipuram, Nagapattinam, Puducherry, Ramanathapuram, Thanjavur and Tiruvarur in Tamil Nadu, postpone irrigation to the crops. Apply irrigation to the crops in the remaining parts of the region. Farmers in Tamil Nadu are advised to postpone irrigation to the standing crops in view of heavy rainfall, likely at many places over Tamil Nadu during next 24 hours and increase thereafter.
 - Farmers in all the regions of Andhra Pradesh are advised to raise irrigated dry crops like maize and sunflower as an alternative to irrigated rice under wells as the ground water is going to be scarce due to drought, take up sowing of rabi crops like maize and sunflower under irrigated dry conditions, take up sowing of rice fallow black gram and rice fallow maize and rice nursery should be taken up such that the harvestings are completed by the end of March. Take up sowing of rice nurseries with short duration varieties.
 - Farmers in the Scarce Rainfall Zone of Rayalaseema in Andhra Pradesh are advised to undertake sowing of *rabi* groundnut from November 15th to December 15th, raise irrigated dry crops like maize and sunflower as an alternative to irrigated rice, as the ground water is going to be scarce due to drought.
 - As clear and sunny days or light rainfall is expected for coming five days, farmers in the Eastern Dry Zone of Karnataka are advised to harvest the crops like finger millet and other cereals which are at maturity stage, give irrigation to drying crops with available water and spray need based fungicides and insecticides for crops like red gram to prevent pod borer attack.
 - Farmers in the North Dry zone of Karnataka are advised to harvest pearl millet (bajra), groundnut, onion and maize, take up sowing of chick pea and wheat, only if there is sufficient moisture in the soil, since there is no possibility of rain in the coming days and undertake plant protection measures to protect the crops from pests and diseases.
 - Farmers in the North Eastern Zone of Tamil Nadu are advised to drench the vegetable nursery with bavistin (Fungicide) @ of 2gm/liter of water to control damping of diseases

and clean rainwater harvesting structures to harvest rainwater efficiently, since moderate to heavy rainfall is expected in the coming days.

- Farmers in the Western Zone of Tamil Nadu are advised to give proper irrigation to rice at active tillering time, since moisture stress due to inadequate water at rooting and tillering stage causes poor root growth leading to reduction in tillering, poor stand and low yield. They are also advised to take proper plant protection measures.
- Farmers in the North Western Zone of Tamil Nadu should complete weeding in the young 15-20 day plants to for good growth and save nutrients for the plants.
- Farmers in the Northern Zone of Kerala are advised to undertake proper plant protection measures, since high humidity prevailing in the zone is conducive for fungal multiplication and other disease occurrence and iron toxicity is found in paddy fields of midland lateritic belts of Kerala.
- Farmers in the Krishna Godavari Zone of Andhra Pradesh are advised to undertake plant protection measures to prevent attack of leaf folder, BPH, sheath blight, leaf blast and mites on rice, leaf folder, powdery mildew and cercospora leaf spot in green gram and black gram, since low temperature due to present weather conditions favour their attack.
- Incidence of helicoverpa is observed in red gram, aphids in safflower, diamond back moth, thrips, mites, die-back and powdery mildew is noticed in vegetables and fruits, and powdery mildew in coriander in the Southern Telangana Zone of Andhra Pradesh. Farmers are advised to undertake plant protection measures to prevent attack of these pests and diseases.
- Due to low temperature at night followed by morning dew, pod borer incidence was noticed in entire pigeon pea crop in the North East Transition Zone of Karnataka. Farmers are advised to spray NPV 0.75 ml per liter of water to control it, if the pod borer is big in size and 0.3 ml indoxcarb or 0.1 ml spinosad per litre of water, if there is no control of the pest.
- Necrosis problem and alternaria leaf spot is noticed in sunflower in the North Transition Zone of Karnataka. Farmers are advised to spray 0.25 ml Imidachloprid 17.8 S.L or 1.5 ml Oxidematon methyl 25 EC per liter of water to control necrosis problem and 2 gm of either Zyneb or Mancozeb or 1 ml of Hexaconozol 5 E.C fungicide per liter of water spray at 40, 55 and 65 DAS to control alternaria leaf spot. Due to partial cloudy weather, sucking pest problem is also noticed in cotton. 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.
- Bacterial leaf blight, bacterial leaf streak, leaf folder and rice hispa incidences are being noticed in samba paddy in the Cauvery Delta Zone of Tamil Nadu due to prevailing weather condition. Farmers are advised to spray streptomycin 18 g + Copper oxy chloride 500 g mixture/acre or copper hydroxide at 500 g/ac in 200 litre of water to control bacterial leaf blight, bacterial leaf streak and apply cartop hydrochloride 4 G at 6 kg/acre mixed with equal quantity of sand or chloripyriphos 400 ml/acre to control leaf folder and spray profenophos 600 ml/acre to control rice hispa.
- Farmers in the Southern Zone of Kerala are advised to keep vigil against stem borer and leaf folder and undertake plant protection measures to prevent their attack.
- Undertake spraying of chemicals after spells of rain over Tamil Nadu, Kerala, Rayalaseema and Coastal Andhra Pradesh and on a non-rainy day over South Interior Karnataka.
- **Animal husbandry**
- Relative humidity and day and night temperatures are showing decreasing tendency in the Eastern Dry Zone of Karnataka. So farmers are advised to maintain optimum room temperature for silkworm and poultry rearing houses.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** No significant rain occurred during the period over the States of the region.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the States during the period.
- **Advisories:**
 - As there was no significant rain during last few weeks and mainly dry weather is likely during the period over the States, farmers are advised to apply irrigation to the standing crops.
 - Farmers of Madhya Maharashtra, Marathwada and Vidarbha are advised to continue picking of fully opened cotton bolls. Farmers in Vidarbha region are advised to undertake sowing of mustard and linseed. Prepare nurseries for *rabi* onion.
 - Present weather is suitable for planting of *kande bag* banana in Madhya Maharashtra and Marathwada. Undertake transplanting of *rabi* tomato and cabbage seedlings in the main fields.
 - Farmers of Madhya Maharashtra and South Konkan region of Maharashtra are advised to undertake sowing of *rabi* sunflower. Farmers in South Konkan region of Maharashtra are advised to undertake sowing of mustard.
 - Farmers in Konkan region of Maharashtra are advised to undertake sowing of short duration crops like cowpea, wal, kulthi utilizing optimum moisture in the harvested rice field. Undertake transplanting of 5 to 6 weeks old seedlings of brinjal and chilli on ridges of main field.
 - Farmers in Middle Gujarat Zone are advised to complete sowing of wheat, undertake sowing of gram and *rabi* maize and planting of potato.
 - Farmers in South Gujarat Zone are advised to complete sowing of wheat in this month.
 - In view of prevailing dry weather, farmers in South Saurashtra Zone of Gujarat are advised to apply irrigation in cotton and castor. Carry out sowing of wheat and picking of cotton.
 - As weather condition is favorable in North Gujarat Zone, farmers are advised for sowing of *rabi* crops like wheat, cumin, coriander and ajwan and planting of potato. Taking the advantage of dry weather, harvest castor bolls in time.
 - Carry out sowing of wheat, cumin in Bhal and Coastal Zone of Gujarat. Apply regular irrigation in castor.
 - Farmers in North Saurashtra Zone of Gujarat are advised to carry out sowing of wheat, coriander and cumin.
 - Suitable varieties of the crops for sowing are mentioned in Annexure II.
 - As weather is favourable, there may be attack of tea mosquito, leaf miner and leaf cutting / eating beetle on cashew crop in new flush and flowering stage in some parts of the districts in Konkan region of Maharashtra. Spray 36% Monocrotophos @ 14 ml per 10 litres of water.
 - In view of present weather there may be incidence of shoot borer on new flush of Mango in South Konkan region of Maharashtra. Farmers are advised to spray Monocrotophos 36 WSC @ 11 ml per 10 litres of water. Due to change in weather the incidence of mango hoppers on new flush of mango may be noticed in some parts of

the districts. Spray 25% Cypermethrin @ 3 ml, or 2.8% Deltamethrin @ 9 ml or 20% Fenvelarate @ 5 ml per 10 litres of water on whole tree.

- In Madhya Maharashtra there may be infestation of helicoverpa in red gram; spray Heliokill 200 ml per 200 litres of water per acre. Repeat spraying at an interval of 15 days for proper pest management.
- There is a possibility of outbreak of shoot borer and stem borer in jowar. Farmers in South Gujarat Heavy Rainfall Zone are advised to spray Chloropyriphos 20 EC @ 20 ml or Quinalphos 25 EC @ 20 ml or Monocrotophos @ 12 ml in 10 liter of water.
- Farmers in South Gujarat Zone are advised to spray Monocrotophos 36 SL @ 20 ml per 10 litres of water against spotted bollworm infestation in cotton crop.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry:**
 - Farmers in South Gujarat Heavy rainfall Zone are advised to apply lime (for colouring) paste two times in a year to the shed and to keep the animal sheds clean to avoid the spread of ticks, flies, mosquitoes etc.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Dry weather prevailed over the region.
- **Rainfall Forecast:** Dry weather is likely to prevail over the region.
- **Advisories:**
 - In view of possibility of dry weather condition in Kymore Plateau and Satpura Hill Zones in Madhya Pradesh, farmers are advised to prepare field for sowing of wheat crop in irrigated conditions and sowing should be done with recommended dose of fertilizers and varieties after seed treatments at optimum temperature. Use thiram and bavistin (1.5g /kg seed) as fungicides before sowing of different *rabi* crops, intercultural operation should be done for controlling weeds in crops like mustard, toria, chickpea and lentil.
 - Farmers in Jhabua Hills Zone of Madhya Pradesh are advised to sow wheat, gram and maize and transplanting of vegetable crops may be done.
 - Farmers in Malwa Plateau Zone of Madhya Pradesh are advised for sowing of wheat and prepare nursery/transplanting for onion, brinjal, chilli and tomato etc. Mulching may be done to conserve the soil moisture.
 - Farmers in Gird zone of Madhya Pradesh are advised to transplant the winter sown varieties of cauliflower, onion and chilli in the field and sow garlic crop as soon as possible.
 - As weather is congenial for sowing of Rabi crops farmers in Plain Zone of Chattisgarh, are advised to sow wheat, gram, pea, lathyrus, mung, sunflower etc. Looking to the present weather conditions and soil temperature farmers are advised for the sowing of autumn sugarcane as early as possible. Top one-third portion of the cane should be used as seed sett and the setts should be dipped in the solution of copper-oxycloiride @ 3g per liter water or Emisan @ 1.25g per of water for 5-10 minutes.
 - Farmers in Jhabua hills region of Madhya Pradesh are advised for control of sucking pest i.e. jassid, aphid & white fly spray Acitameprid 0.35 to 0.5ml/l (5.0 to 7.0ml/pump), boll worm spray Profenophos @ 40ml/pump and milibug spray Profenophos 40-45 ml+ Acefat 20 gm/pump (15lit.) of water with 5.0 ml/l of neem oil and sticking material give good result.

- Farmers in Malwa Plateau Zone of Madhya Pradesh are advised in case of attack of leaf rot and fruit rot diseases in fruit plants, to control these diseases apply Bawastin fungicide. In order to avoid various fungal infections, spraying of copper Oxchloride @3g/l should be done in acid lime orchards. Prune the newly planted plant for good erect growth. Apply fertilizer in fruit plants. In papaya if there is attack of yellow Mosaic disease than apply Rogar 30 EC @ 1-2 ml/liter or apply confodore @0.33 ml/lit.
- Farmers in Gird zone of Madhya Pradesh are advised to give one irrigation in mustard crop to minimize painted bug insect. Spray of melathion 50@ 1 ml / litre of water are effective against painted bug in mustard crop.
- Weather is congenial for insect attack in pigeon pea crop in Kymore Plateau and Satpura Hill Zones in Madhya Pradesh, spray Quinalphas at 2.0 ml. per liter. Pheromone or light traps may be used for monitoring these pests.
- In Bastar plateau zone of Chhattisgarh leaf eating caterpillar and also to some extent, beetle attack is observed in cashew, for its control spray Chlorpyriphos 20 EC @ 2.5 mls per litre of water.
- **Animal Husbandry & Poultry**
 - 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.
 - Onset of winter is likely to be started due to which there are chances of spread of foot and mouth disease. Hence, farmers are advised to do vaccination against the disease.
 - As humid weather condition is prevailing cattle should be kept in dry and clean places. Create neem leaves smoke in night to save them from mosquitoes and bees.

Annexure I

Major Crops

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

- Sugarcane (elongation), *sali* rice (milk / dough / maturity / harvesting), *boro* rice (nursery preparation / sowing), wheat, toria, linseed, (sowing), tomato (flowering / fruiting), *rabi* pulses (land preparation / sowing / seedling), (early cauliflower (curd formation / maturity), cabbage and knoll khol (nursery raising / sowing / transplanting / vegetative / head formation), brinjal (early variety), country bean (vegetative / flowering), jute (for seed production) (small pod formation / harvesting), winter vegetables (nursery bed preparation / sowing / transplanting / vegetative), black gram / green gram (maturity / harvesting), onion, garlic (sowing / planting), khasi mandarin (fruit maturity / harvesting), niger and lentil (land preparation / sowing/ seedling), potato (land preparation / planting / vegetative), rapeseed and mustard (land preparation / sowing / vegetative / flowering) and winter vegetables, pea (sowing / transplanting) in Assam.
- Rice (Mipun cultivar) (grain filling / maturity / harvesting / threshing), Khampti variety of rice (maturity), cabbage, cauliflower, knolkhol etc. (transplanting / vegetative / head formation), maize (sowing / vegetative) and pea, mustard (sowing / germination / vegetative) in Arunachal Pradesh.
- *Kharif* rice (maturity / harvesting), potato, pea (land preparation / planting / sowing), rapeseed / mustard (sowing / vegetative), tomato (nursery raising / transplanting), cauliflower and cabbage (transplanting / vegetative), onion (nursery raising / vegetative), broccoli (nursery preparation / transplanting), brinjal (flowering / fruiting) in Manipur.
- Arhar (pod formation), *sali* rice (milk / dough / maturity), *boro* rice (sowing / vegetative), wheat (sowing), pea, garlic and lettuce (sowing), ginger and turmeric (late sown) (vegetative), *toria* (vegetative / flowering), onion (bulb formation / maturity), potato (planting / vegetative), *Khasi* mandarin (flowering / fruiting) and banana (vegetative), lentil, mustard, rapeseed (vegetative), broccoli (vegetative), winter vegetable (vegetative) in Meghalaya.
- Rice (harvesting), ginger and turmeric (rhizome formation / maturity / harvesting), *khasi* mandarin (fruiting / harvesting), banana (vegetative / fruiting / maturity / harvesting), cucurbits (fruiting / harvesting), cole crops and tomato (transplanting / vegetative), pea, bean (vegetative) in Mizoram.
- Okra (flowering / fruiting), lowland rice (harvesting), banana (vegetative / fruiting), cabbage (transplanting / vegetative), pea (vegetative / flowering / pod formation), pigeon pea (pod filling), rapeseed, mustard (sowing / vegetative), French bean (sowing), *rabi* crops (sowing), broccoli (transplanting / vegetative) and papaya (transplanting) in Nagaland.
- Low land rice (flowering / milk), *Aman* rice (harvesting), cucurbits and other vegetables (flowering / fruiting), ginger and turmeric (rhizome formation / harvesting), banana (vegetative / fruiting / harvesting), toria (vegetative / flowering), cole crops (sowing / vegetative), potato (land preparation / planting) in Tripura.

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

- Sugarcane (vegetative), rice (grain formation / maturity), *kharif* arhar (pod formation / seed formation), sorghum, jowar (maturity), sesame (maturity), lobia for green fodder, mishrikand (vegetative), onion, radish (sowing), cauliflower (sowing), fruit trees (transplanting) and potato, sweet potato (planting), mustard, toria (sowing) wheat, vegetables, maize, pulses (sowing) in Bihar.
- Rice (maturity / harvesting), rice (late transplanted) (milk / dough), maize (grain formation / grain filling / maturity), pigeon pea (seed formation), pulses (urd bean, moong bean) (maturity), groundnut (maturity / harvesting), turmeric and ginger (vegetative / rhizome formation), elephant foot yam (tuber elongation), potato (land preparation / planting / vegetative), sweet potato (vegetative / stem elongation / tuber elongation / harvesting), mustard (sowing), toria (flowering), green pea (sowing / vegetative), cauliflower, cabbage, chilli, tomato (transplanting / vegetative), niger (sowing), papaya (transplanting), gram, chick pea, onion, African or French marigold (sowing) in Jharkhand.
- Arhar (seed formation / flowering), maize (cob formation / maturity), papaya, marigold, tuberose (planting), *kharif* vegetables (fruiting / harvesting), sugarcane (vegetative), *kharif* rice (grain formation / maturity), *kharif* groundnut (seed formation / maturity), turmeric and ginger (planting / early vegetative), yam (sowing), green gram, black gram, niger, other pulses (seed formation / maturity), Bengal gram, lentil, green pea, wheat, mustard (sowing), mango, banana, lemon, cashew nut, potato and marigold (planting), sunflower, garlic, (sowing), groundnut (land preparation / sowing) in Orissa.
- *Boro* rice (nursery bed preparation), mango, coconut, guava, banana (planting), *kharif* vegetables (fruiting / harvesting), winter vegetables (transplanting / vegetative), mustard (sowing), potato (field preparation / planting), wheat (sowing) in West Bengal.
- Large cardamom (new) (transplanting of suckers from nursery), large cardamom (old) (capsule formation / seed maturity / harvesting), *rabi* vegetables (vegetative), orange (fruit maturity / harvesting), ginger (maturity / harvesting), rice (milk / grain formation / grain maturity), wheat (sowing / germination / seedling / crown root initiation), mustard (sowing / germination / vegetative) in Sikkim.

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

- Wheat (sowing), lentil (pod formation), sugarcane (planting), guar, bajra (grain filling), rabi mustard, lentil, pea, garlic, Carrot, sarson saag, radish, spinach, coriander, Turnip, Pea, Potato, gram, fodder oats and berseem, sarson saag, rabi onion (sowing), cauliflower, cabbage, broccoli, tomato (transplanting) in Delhi.
- Wheat (sowing), vegetables (sowing), garlic, ginger (planting), bhindi, cucurbits (sowing), Khira, summer squash, bitter gourd, tur, brinjal, Shimla mirch, and tomato (sowing / transplanting), Apple (maturity), pomegranate (fruit development), arbi, amaranthus, turmeric, rice, maize, barley, raddish, onion (sowing / planting) in Himachal Pradesh.
- Wheat / barley (sowing / emergence / tillering), onion (seed bed preparation), winter vegetable crops viz. potato, radish, carrot, turnip, garlic, spinach, methi (various stages i.e. sowing / vegetative), cole crops viz. early cauliflower, cabbage, knoll khol, broccoli (nursery sowing / transplanting), maize, bajra (maturity), *Rabi* oilseeds i.e. toria (reproductive), gobi sarson, mustard normal sown (vegetative) and early sown (flowering), late sown (sowing / emergence), brown sarson (rosette stage), *rabi* pulses

i.e. lentil (sowing / emergence), gram (vegetative), pea (sowing / emergence)], fodder crops like oats (sowing / emergence / tillering), berseem (sowing/emergence), citrus, guava, apple (fruiting / harvesting), mosambi, sweet lime (fruit ripening / harvesting), winter lettuce, chinese cabbage (transplanting), beet root (planting in green house) in Jammu & Kashmir.

- Chilli, capsicum, cauliflower, broccolli (transplanting), lahi (flowering / fruiting), sugarcane (planting), rice (maturity/harvesting), litchi, loquat, peach, citrus (flowering / fruiting), mango (early varieties) (flowering), maize (cob maturity/ harvesting), foxtail millet, okhra, bottle gourd, bitter gourd, ginger, turmeric, (sowing / planting/ germination), toria (sowing/ germination), papaya (planting), sorghum, pigeon pea, early rabi vegetable pea, urd, potato, mustard and pearl millets (sowing/ germination), barley, fodder barseem, sarson, (sowing), onion (nursery sowing) in Uttarakhand.
- Rice (harvesting), wheat (sowing/emergence), winter sugarcane (vegetative growth), summer sugarcane (grand growth), cucurbits like gourd, bitter gourd, cucumber, etc. and another vegetables like lady's finger, tomato, brinjal, chilli etc. (flowering/fruiting), arhar, toria (flowering/seed formation), tomato, brinjal, bhindi (vegetative / fruiting), cabbage, garlic, cauliflower (flowering / fruiting), barley, gram, alsi, maize, rai, mustard, berseem, potato, sarson, masoor, pea and chick pea (sowing/ germination), in Uttar Pradesh.
- Spring sugarcane (sprouting), berseem (vegetative), sugarcane (maturity / harvesting), Sugarcane autumn (planting), cotton (boll maturity/picking), fodder lucerne, oats (sowing), gram, potato, peas (sowing), radish, carrot, turnip, cauliflower (sowing/ transplanting), rape seed, mustard (sowing / emergence), wheat, barley, lentil (sowing/emergence) in Punjab.
- Sugarcane (spring season) (planting/emergence/early vegetative), barseem (vegetative), pulses, moong, mash, pigeon pea (vegetative), rice (maturity/ harvesting), cauliflower, cabbage, carrot, potato (transplanting), mustard (sowing / vegetative), sarson, raya, radish, turnip (sowing), wheat (sowing) in Haryana.
- Wheat (sowing / germination), sweet potato, chilli and cluster bean (vegetative), mustard (sowing / germination), gram, coriander (sowing / germination), barley, oats, lentil, lucerne, taramira, linseed (alsi), opium poppy, vegetables (potato, fenugreek, tomato, brinjal, radish, carrot, phalak, green pea, berseem, cumin, isabgol, ajwain (land preparation/sowing), cauliflower, cabbage, rabi onion (transplanting) in Rajasthan.

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

- Rice - Samba / thaladi/ (tillering) cotton (boll formation), vegetables (flowering / fruiting), sugarcane (vegetative/ grand growth/maturity), maize, millets (vegetative/ harvest), sorghum (vegetative/harvest), bengal gram (sowing) and pulses (vegetative/flowering/harvest), groundnut (flowering/harvest), pulses (vegetative/ flowering/harvest) in Tamil Nadu.
- Sugarcane (grand growth), cotton (harvesting), hybrid jowar, maize (harvesting), ragi, sunflower (heading), bengal gram (vegetative), red gram (flowering stage / pod formation stage), rabi jowar (sowing), late planted paddy (harvest), rabi sorghum, wheat (vegetative) and safflower (sowing), pigeon pea (pod filling) and horticultural crops (vegetative growth/ flowering/ fruit development) in Karnataka.
- Maize (tasselling / cob initiation), jowar, cotton (boll initiation/ boll development / picking), rice (flowering/panicle initiation/grain hardening), groundnut (pod

development/ harvesting), bajra (harvesting), rabi pulses green gram, bengal gram (sowing/vegetative), rabi groundnut (sowing) in Andhra Pradesh.

- Black pepper (harvesting), ginger (maturity/harvesting), mundakan rice (tillering/ panicle initiation), Rubber (tapping) in Kerala.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- Sugarcane (*Adsali*) (grand growth), sugarcane pre-seasonal (elongation / cane maturity), sugarcane (*suru*) (elongation), sugarcane (new *adsali*) (early vegetative), sugarcane (new pre-seasonal) (sprouting), cotton (boll maturity / picking), red gram (pod development), *rabi* jowar (vegetative), safflower (early vegetative / vegetative), irrigated gram (germination / branching), irrigated wheat (germination / seedlings), sunflower, maize (sowing / germination) in Maharashtra.
- *Kharif* bajra (harvesting), wheat (sowing), gram (sowing), *rabi* maize (sowing), vegetables (fruiting / harvesting), sugarcane (vegetative), jowar (seedling), groundnut (maturity / harvesting), *kharif* pulses (grain maturity / harvesting), *kharif* maize (harvesting), cotton (boll formation / maturity / picking) , castor (flowering / capsule formation), cluster bean, mustard, cauliflower, sweet corn (sowing) in Gujarat.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Sugarcane (vegetative), vegetables (flowering/fruiting), Mustard (branching/flowering), wheat, maize, gram, toria (sowing / early vegetative), onion, garlic, tomato, brinjal, chilli (sowing/transplanting) cotton (boll development / maturity) in Madhya Pradesh.
- Rice (grain development / maturity), sugarcane (planting), groundnut, arhar, green gram and sesame (vegetative), ginger, turmeric, papaya, mango and guava (vegetative) cauliflower, potato (sowing), proper time for sowing/transplanting of tomato, brinjal, chilli, niger, horsegram, ramtil, toria, cauliflower, cabbage, niger, kulthi and wheat (sowing) in Chhattisgarh.

Annexure II List of Varieties

Assam

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

Wheat: Sonalika, UP 262, K 7410, WH 291, HDR-77.

Toria: M-27, TS-36, TS-38, TS-46, TS-47.

Linseed: T-397.

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

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

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

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

Rapeseed and mustard: M-27, TS-36, TS-38 and TS-46.

Potato: Kufri Chandramukhi, Kufri Jyoti, Kufri Sindhuri.

Niger: NG-1, GA-5.

Pea: T-136, Bonneville etc

Manipur

Pea: Arkel, Azad, Rachana.

Potato: Kufri Megha, Kufri Jyoti.

Rapeseed and mustard: M-27.

Tripura

Cauliflower: CFL-4048, Pusa Early Synthetic, Kamaya, Suhasi.

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

Broccoli: Everest, Ayeshwaria.

Mizoram

Cabbage: Golden Acre, Ryozekei, Harnil.

Broccoli: Pushpa, Pusa Broccoli, Aishwarya and Fiesta.

Cauliflower: Pusa Early Synthetic, Pusa Shubhra, Pant Gobhi - 2 and Patna Ageti.

Meghalaya

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

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

Orissa

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

Groundnut: Smruti, TAG-27, TAG - 24 and JL-24.

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

Mustard: Parbhat, Anuradha, TS-294.

Green pea: Rachana, Arkel, T-163.

Onion: Nasik Red, Patna Red, Pune Red, Bellary Red, Pusa Ratnar, Pusa Madhavi, Arka Niketan, Arka Pragati, Agrifound Light Red, Agrifound Dark, Punjab Selection, Patna White, Bombay White, Pusa White Round, PKM-1.

Banana: Cavendish and Robusta.

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

Bengalgram: Gourav, Annegiri, Radhey.

Lentil: Asha, Pant-L-4, Pant-L-6.

Garlic: Phawari, Rajalbadi, Jamnagar and G-282.

Green gram: TARM-1, Pusa 9072, Kamdev.

Black gram: Pant-U-19, Pant-U-30, T-9.

Fodder Oat : Kent, OS-6 and JHO- 822.

West Bengal

Banana: Mortoman, Chapa, Kathali, Singapuri.
Cauliflower: Pusa Deipali, Pusa Chetaki.
Tomato: Baisali, Indam 1116, Akash.
Mustard: Sita, Vagirathi, Baruna, Agrani, Panchali, Sarama, B-54, M-27. Sanjukta etc.
Lathyrus: Nirmal, Ratan.
Boro Rice: Supriya, Jamini, Bhupen, IET-2233.
Wheat: PBW-343, K-307, UP-262, Janak, C-306, Raj-911.
Potato: Kufri Jyoti.

Jharkhand

Lentil: P.L.- 406, P.L.- 639, D.P.L.- 15, D.P.I.-62 etc.
Green Pea: Swarn Rekha, Arkel, Azad Pea, Kashi Nandini, PE-6, Birsa Matar, Rachna, D.D.R. etc.
Potato:
Short duration: Kufri Ashoka and Kufri Pukhraj.
Long duration: Kufri Surya and Kufri Puskar.
Toria: T-9, P.T.-303, Panchali and Bhavani.
Niger: Birsa Niger-1, Birsa Niger-2.
Bell pepper: California Wander, Bharat, Arka Basant, Arka Mohini, Arka Gaurav, Allowander, Bombi, Indra, Nan-3020.
Tomato: Pusa Ruby, Swarna Sampda, Swarn Lalima.
Cabbage: Golden Acre, Pride of India, Early Drum Head.
Cauliflower: Pusa Deepali, Patna Early, Hazipur Extra Early, Pusa Ketki.
Papaya: Pusa Giant, Pusa Dwarf, Honey Dew, Pusa Majesty.
Mustard: Shivani, Pusa Jaikisan, Pusa Bold, Vardan.
African Marigold: Pusa Narangi, Pusa Basanti.
French Marigold: Petite Orange, Petite Yellow, Rusty Red, Lemmon Drop.
Onion: Pusa Red, Pusa Ratnar, N-53, Arka Niketan, Arka Kalyan, Agrifound Dark Red.
Chick Pea: Birsa Chana – 3, B.G. – 372, B.G. – 256, K.W.R. – 108, Pant G. – 108, 114 and Kabuli type varieties like B.G. 1053, 1003, H.K.-94-134 and Kak 2.
Linseed: Shubhra, T. – 397, Sweta.
Barley: Ratna.
Wheat:
Irrigated varieties: K-9107, HUW-468, HD-2733 and Birsa Genhu-3.
Unirrigated varieties: H.D.R.-77, K.-8027, C.-306, K.-8962, K.-8027etc.

Bihar

Cauliflower: Aghani, Pusa Dipali, Pusi, Patna Main, Pusa Shuvra.
Rapeseed: RAUTS-17, PT-303, Panchali and Bhawani.
Mustard: Rajendra Sarson-1 and Swarna.
Toria: RAUTS-17, PT-303, Bhawani and Panchali.
Potato: Kufri Lalima, Kufri Kuber, Kufri Alankaar, Kufri Jyoti, Kufri Chandramukhi, Ranjendra Aloo 1, 2 and 3, Kufri Badshah.
Gram: Rajendra Chana, Uday, Pusa 256, RAU 52, SG2.
Lentil: BR 25, Pant L406, 639, Malika, Arun.
Peas: Ratna, Arpana, Harbhajan, Malbai, Malviyamator 15, Pusa Prabhat.
Maize: Saktiman 1, 2, 3, 4; Laxmi, Rajendra Shankar Makka 1 and 2.
Rai: Baruna, Pusa Bold and Kranti.
Sunflower: Morden, Surya, Paradovic, KBSH 1, 44.
Green fodder: Berseem, Lucern, Oat.

Delhi

Wheat: H.D. 2687, H.D. 2851, H.D. 2894, H.D. 2967.
Mustard: Pusa Jai Kisan, Pusa Jagannath, Pusa Tarak.

Pea: Azad Matar-1, Pant Matar-3 and Bourneville.
 Garlic: G-1, G-41, G-50, G-282.
 Potato: Kufri Badshah, Kufri Bahar, Kufri Aanand, Chipsona-1, Chipsona-2, Chipsona-3.
 Carrot: Pusa Rudhira and Pusa Kesar.
 Oat: J.H.O-822, O.L.-9, Pusa oat-5
 Barseem :Vardan, Buland Barseem-1, Masakali, B.L., J.B-3
 Gram: Kabuli type - Pusa 267, Pusa 1003, Pusa Chamatkar; local type – C235, Pusa 246, P.B.G. 1, Pusa 372
 Sarson Saag:Pusa Saag-1; Bathua- Pusa Bathua-1;
 Radish;Japani White, Hill queen, French Radish;
 Spinach:All Green, Pusa Bharti;
 Fenugreek:Pusa Kasuri;
 Coriander- Pant Haritama, Hybrids;
 Turnip- Pusa Swati, Local Red variety.

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: Snow ball K-1 Palam uphar,golden acre.
Knol khol : White Bina.

Jammu & Kashmir

Wheat: VL-738, PBW-396, PBW-175, IWP-72 and RSP-81 (jitto) for rain fed areas and VL-804 and HS-240, HD2428, HD2329 and CPAN3004 under rainfed and irrigated area PBW-550, PBW-343, Raj-3077, RSP-303, DBW17,PBW 502, HD2687 and WH 542) under irrigated areas and PBW 175,PBW 396 and RSP81
Barley : var. Ratna, Jyoti and Sonu
Mustard: RSPR-01, RLM-514, RLM-619, Pusa-Basant, Pusa-Bahar, Kranti, Varuna, RH –30 and RL 1359.
Gram : C-235, K-468, Gourav and PBG-1
Field pea : T-163, PG-2, Rachna, HFP-3
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).
Berseem : mascavi, pusa giant, BL-1.
Lentil: L-9/12, PL-406 and L-4147.

Punjab

Wheat: PBW 621, DBW-17, PBW-502, PBW-343, WH-542, HD 2967 and durum wheat WHD 943,PDW 314, PDW 291, PDW-274 and PDW-233, TL2908, and TL 1210 under irrigated conditions and PBW-527, PBW-175 under rainfed conditions.
 Kabuli gram: GLK 25104, L 550 & BG-1053.
 Desi gram : GPF-2
 Gobhi sarson:GSC-5, GSL-1, GSL-2, PGSH-51, Hyola (PAC-401)
 African sarson: PC-5,
 Mid season pea: Punjab 87, Punjab 88, Punjab 89 and Mithi Phali.
 Raya: PBR-210 and PBR 91 for South Western regions only.

Tomato: TH-2312, TH-802, Punjab Tropic and Punjab NR-7
 Radish: Punjab Safed, Punjab Pasand and Japanese White ,White Icicle,
 Turnip: L-1
 Carrot: Selection 21 and PC-34
 Sugarcane: CoJ85.CoJ64,CoJ83

Haryana

Wheat: PBW 621, DBW-17, PBW-502, PBW-343, WH-542, HD 2967 and durum wheat WHD 943,PDW 314, PDW 291, PDW-274 and PDW-233 under irrigated conditions and PBW-527, PBW-175 under rainfed conditions.
 Kabuli gram: GLK 25104, L 550 & BG-1053
 Desi gram : GPF-2
 Gobhi sarson:GSC-5, GSL-1, GSL-2, PGSH-51, Hyola (PAC-401)
 African sarson: PC-5,
 Mid season pea: Punjab 87, Punjab 88, Punjab 89 and Mithi Phali.
 Raya: PBR-210 and PBR 91 for South Western regions only.
 Tomato: TH-2312, TH-802, Punjab Tropic and Punjab NR-7
 Radish: Punjab Safed, Punjab Pasand and Japanese White
 Turnip: L-1, Carrot: Selection 21 and PC-34
 Sugarcane: CoJ85.CoJ64,CoJ83

Uttarkhand:

Barley: Jyoti, Vijaya, or Jagrati and Oat varieties like UPO-50, UPO-212, JHO-822, Kent etc.
Potato: Kufri Bahar, Kufri Jawahar, Kufri Ashok, Kufri Anand.
Wheat: UP-2584, UP-2338, UP-2572, UP-2526 (irrigated) UL-802, 804A, BL-719, BL-832, BL-892, UP-2554, , UP-2628, UP-2382, UP_2338,, HD-2687, PBW-550, PBW-502, PBW-343, PBW-154, WH-542 (non-irrigated), VL-719, VL-738, HS-240, HD-2380, UP-1109, HPW-42, HS-365 etc. For irrigated conditions: UP-2572, VL-719, VL-738, HD-2380, VL-421, HS-240, UP-1109 etc.
Sarson: BLJ 56, 85, 01, Pant JS 01, Pant Masoor 4, 5, BL masoor 125, 126, BL matter 3, 7,
Potato: Kufri badshah, Kufri lalimaa, Kufri sindhuri, Kufri Sutlej and K.bahar
Chickpea: Avrodhi, Radhey, Pant G-114 or Uday ;
Pea : Pant Matar-5, Type-163 or Aparna ; for Rajmash PDR-14 or VL Jamash-63.

Uttar Pradesh:

Toria: Pitambri kanti type-9(black). Type-36(yellow), PT-303, PT30, Bawani, T9, PT303
Gram : K-850, Avarodhi, Radhey, Pant G-144, K.W.R.-108, K.D.G.-1168, Kabuli chana-Sadabahar, Pragati L-550, Pusa-267, 362, BG-244, C-214, Uday, GD1168, KWR108, JG315, Pusa-256, K-5, QR-108, Pragati, Pusa-267, L-550, Kabuli.
Linseed : T-397, Nilam, Heera, Garima, Sweta, Subhra, Kiran, Sheetal, Gourav, Padmini,
 Lentil: 7, Narendra Masoor-1, K-75, Pant Masoor, 406, 4, L-4076, DPL-15, IPL-81,
Safflower: K-65, Malaviya-305
Massor: KLK 75, DWL62, L-4076, Pant masoor-639, 406, 234, malika, IPL-81.
Pea: Rachana, Pant Matar-5, Aparna, Shikha, Malviya,Pea-15,KPMR-400, 522, Pant Pea-5, Sapna, Orkel, Azad-2, 3, P-3, Malviya Matar -2, 15, K.F.P.D.-103, Sapna
Jai : Kent U.P.O.-94, 50, O.S.-6, J.H.O.-822, 851, U.P.O.-212, 822, 851, bundle jai-99-2, FOS-1/29, Algerian.
 Maize: Ganga-11, Dakkan-103, 105, Trishulata, Shaktiman-1, Dhawal, Shakti-1.
Rabi Mustard:-Vaibhav, Varuna(Ta-59), Vardan, Kranti, Rohini, Pitambari
Berseem: Bundelkhand berseem(J.H.T.B.-146)
Sugarcane : KBHA-8436, 88230, 96268, 98231, KS-95436, 00235, 03234, 01235, KJ-64
Tomato-Azad type-5,6
Potato : Ku-Lalima, Ku- Chandramukhi, Ku-Ashok, Ku-Chipsona-1, 2, Ku- Bahar, Ku-Pokharaj, Ku- Ashoka

Wheat: HD2009, WH157, WH147, WH446, WH542, HD2329, HD-2428, HD-2189, HD-2733, U.P.-2425, HI-1077, Raj.-3765, K-9107, PBW343, PBW502, SCW468, WH-147, K-9006, HD2888, UP 2338, UP-2382, Sangam-WH-896, WH542, K-88, PBW-343, K-9006, LOK-1. KRL-1-4., Raj3.77, PBW-65, K-307, Narendra-1012, Ujjayar, HD-2888, Mandakini, Gomti PVW-443, 343, HUW-468, 514, UP-2382, KRL-19, K-8434, NW-1067, 1076, Non-irrigated var. (C-306, K-8027, K-8962, K-9351, K-9644)

Barley : irrigated var. (Jyoti, Manjula, Preeti, Jagriti, NDV-940, R.S.-6, Narendra J-1,2,3,), non-irrigated var.(K-144), Lakhan, Haritama, K-603, Gitanjali)

Garlic: Jeevan, G-50, 282, 41

Fodder berseem: JHDB-146.

Rajasthan

Wheat: HD-2329, H.D. 2009 (Arjun), WH147, PBW502, Raj-3765, Raj-3077, Raj-3777, Raj-4037, Raj-3765, Raj-3077, Raj-4037, Raj-4083, Raj-4120, Raj-1482 & Lok-1 are improved varieties, WH-147, GW-190, GW-322 and GW-273.

Un-irrigated : Sujata, A.9-30-1, D.134, Mukta, H.W. 2004, H.D.4672, J.W.S. 17, HI-1500 and HI-1531

Barley: RD-2052, RD-2508, RD-2503, RD-2660, RD-2035, RD-2592, RD-2624, RD 2035, RD 2052, RD 2503, RD 2668, BL 2 & RD-2552 are improved varieties, **irrigated :** R.D.B. 1, R.D. 103, R.D. 57 unirrigated – R.D.-31 salted soil : B.L.2

Mustard: T-59 (Varuna), Kranti, P.R. 45, Bio-902, Ashirwad, Rh-30, Pusabold, Jagnath, Laxmi (140-150 days), Pusa Jai Kisan (115-120 days), P.R-15 (125-130 days), Pusa bold (130-135 days) & T-59 (125-130 day)

Normal sown (irrigated) - Maya, Rohini, Pusa Jai kisan, Varuna, RGN13, RGN73, NRCDR 2, NRCHB 506(hybrid), Normal sown (rainfed) -Arawali,RGN48, Geeta and PBR97, Saline sodic soils - CS52, CS54, CS56, Narendra Rai 1, 4.Taramira - Karan Tara, Narendra Tara 5, Yellow Sarson - NRCYS-05-02, YSH401

Late sown : Laxmi, Swarn Jyoti, Pusa Agni and Vasundhara.

Lucerne :-T-9 and Anand-2, LLC-3, RL-88

Taramira :-T-27 and RTM-314,

Oat : kent,

Fenugreek:RMT-1, RMT-143, Pusa early bunch

Cumin : RS-1, RZ-19, RZ-209, Gujarat Jira-1, Gujarat jira-2 & Gujarat jira-3

Berseem : Muskavi vardan & Pusa Jiant

Coriander : D.C.86, C.S.6, U.D.20, R.C.R.41, R.C.R.436, R.C.R.684

Linseed (Alsi) : R.L.102-71, T.397, Jawahar 23, L.C.K. 8528, Triveni Kiran, Madmani, L.M.H. 62, Mira, R.L.914, Pratap Alsi-1.

Gram: GNG-663 (Vardan), GNG-469 (Samrat), GNG-1581 (Gangaur), GNG-1499 (Gauri), GNG-1292 (Kabuli), C-235,G130, GNG 16, RSG 44, C235, H 208, Dahod yellow ICCV 10, RSG 888 (Anubhav), RSG-963, RSG-973, CSJD-884 (Aakash), RSG-802, Pusa-209, B.G.256, Phule and Pratap chana 1, .

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

Raddish : Pusa Deshi, Japani white and Hill queen

Potato: Early sown- Kufri-Ashok and Chandramukhi, **Mid sowing-** Kufri-Anand, Chipsona-1, 2, Jyoti and Pukhraj.

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

Opium poppy : Chetak.

Karnataka

Green gram: PS-16

Black gram: T-9, TAU-1

Cow pea: C-152, TVX-944

Horse gram: PHG-9

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

Andhra Pradesh

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

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

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

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

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

Gujarat:

Wheat: GW- 496, 503, 273, 322, 190, 276, Lok-1.

Rabi Maize: Ganga Safed-2.

Irrigated gram: Gujarat Chick pea-1, Dahod Pila, ICC-4.

Gram: Gujarat Chick pea-2 (for dry farming).

Cluster bean: GC-1, 2.

Mustard: Guj - Mustard-1, 2, 3, Pusa Jaykisan (Bio-902), Varuna GM-1 or GM-2.

Tobacco: GC-1or GCT-3.

Cauliflower: Pusa Early, Pusa Dipali , Pusa Kartiki, Early Kuvvari, Pusa sythetic, Early Snowball, Jayayant Snowball, Pusa Snowball, Super Snowball, Snowball-13.

Cabbage: Kranti, Golden Acaire, Pride of India, Coppen Market.

Onion: Pusa Red, Nashik Lal, N 53 and H 48.

Potato: Kufri Badsah, Kufari Pokhraj, Kufari Lokar.

Spices: Methi kasuri or Pusa early branching (Fenugreek), Guj. Coriander 1 or 2 (Coriander), Guj. Cumin 1, 2, 3, 4 (Cumin).

Maharashtra

Irrigated wheat: NIAW-34 variety in Madhya Maharashtra for late sowing.

Rabi Sunflower: Modern, SS-56, EC-68414, KBSH-11, APSH-11, BSH-11 and Phule Bhanu in Madhya Maharashtra and Modern, S.S.56, B.S.H-1 in Konkan.

Banana: Basrai, Shrimanti, Grandnaine.

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, Lok-1 **Time Sown Varieties:** GW-173, GW-273, GW-322, GW-366, HI- 8498, HI -1418, HI, 1479, HI – 1544

Bengal gram -JG 1

Sugarcane- Jawahar-86141, Ko-Jawahar-86141, Ko-Jawahar-86572, Ko-Jawahar8632, Ko-6304, Ko-C-671

Garlic-G-283, G-1, G-41 or G-323

Gram-JG-14, JG-06, JG-63, JG-11, JG-11, JG-130, JG-16, JG-322 and JG-01

Mustard-Pusa Mahak, Pusa Agrani, Pusa Jaikisan, Pusa Bold, Jaggannath

Linseed-PKDL-21, JL-1, JL-3, Mallika, JLS-1, IPL-81

Lentil-JLS-03

Maize-JVM -421, JM-16

Pea- Jawahar pea land 2

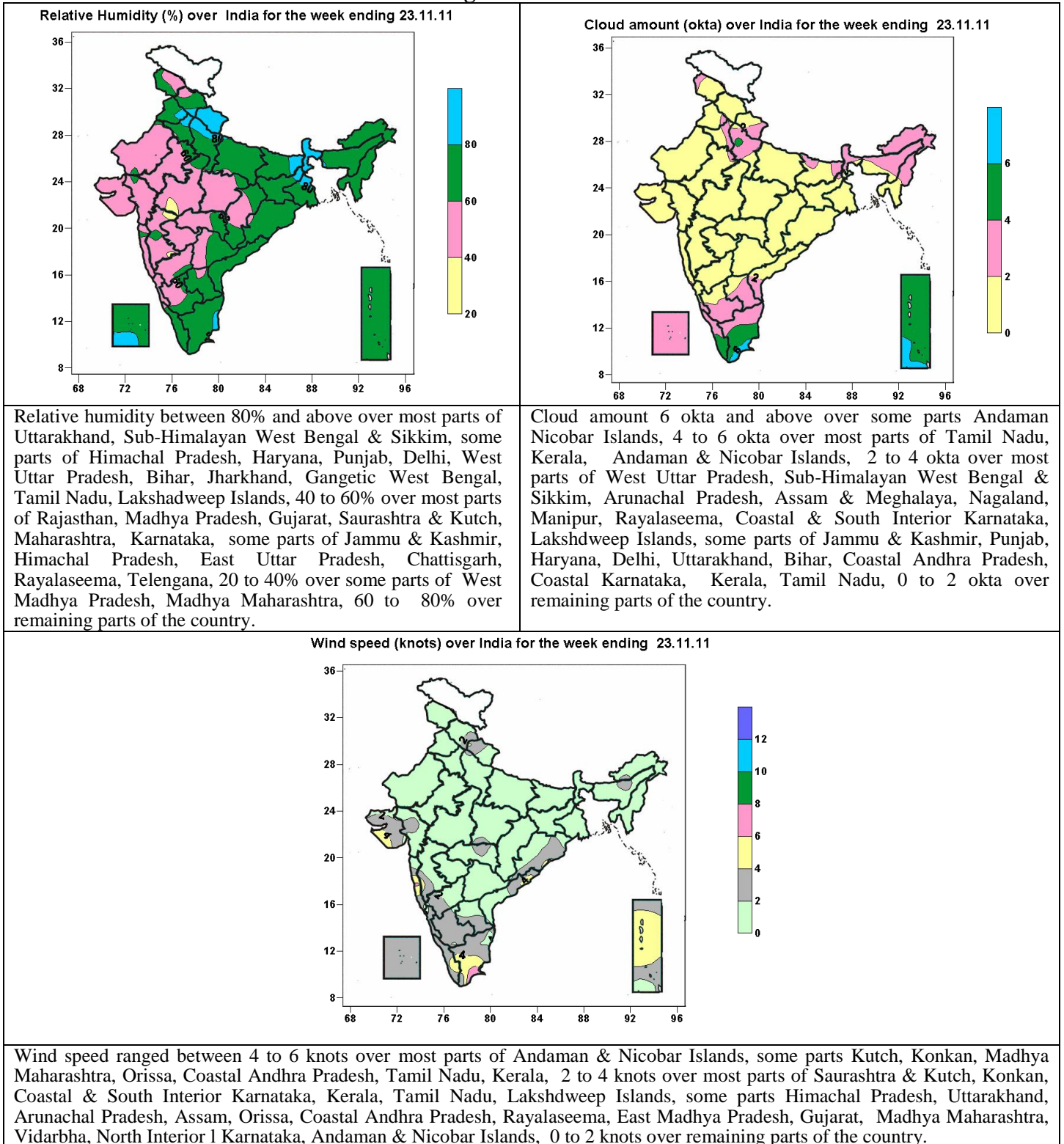
Chattisgarh

Wheat-GW-273

Potato-Kufari Lalima, Kufari Pukhra

Annexure III

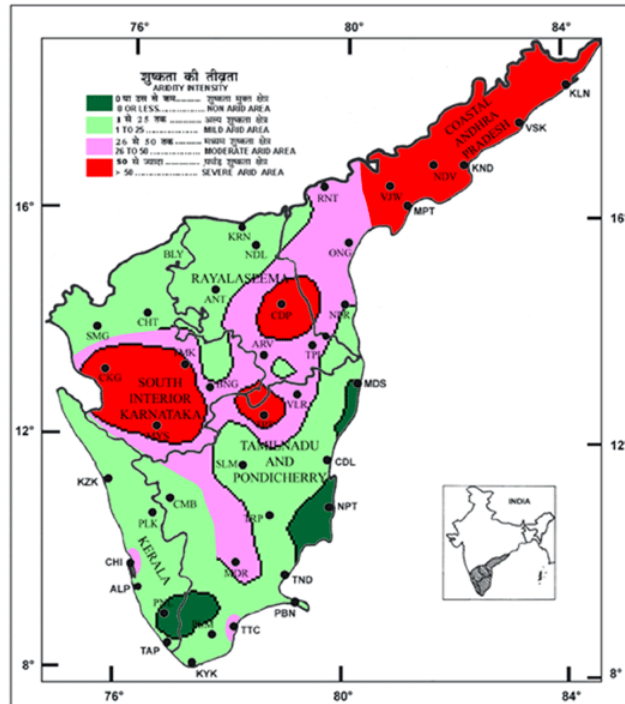
Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 23.11.2011



Annexure IV

**Aridity Anomaly Chart (Northeast Monsoon season)
Period from (12.11.11 to 18.11.11)**

FOR
COASTAL ANDHRA PRADESH, RAYALASEEMA, SOUTH INTERIOR KARNATAKA,
KERALA, TAMIL NADU AND PONDICHERRY



Areas having severe and moderate arid conditions are indicated below:

- **Areas affected by severe arid conditions:**
 - Northern part of Coastal Andhra Pradesh and major part of South Interior Karnataka,
 - Isolated areas around Cuddapah (Rayalaseema) and Tirupattur (Tamil Nadu & Pondicherry).
- **Areas affected by moderate arid conditions:**
 - Southern part of Coastal Andhra Pradesh and adjoining South-eastern part of Rayalaseema, Northern, Eastern and Southern parts of South Interior Karnataka. Central and Northern part of Tamil Nadu and Pondicherry.
 - Isolated areas around Tuticorin (Tamil Nadu & Pondicherry) and Kochi (Kerala)