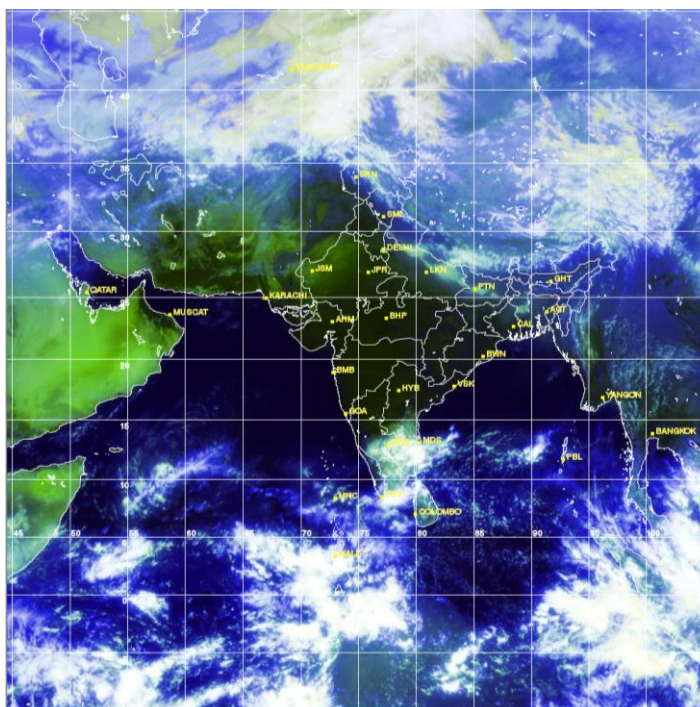




National Agromet Advisory Bulletin

Thursday, 17th November, 2011
(For the period 17th to 21st November, 2011)



Satellite image 0600 UTC dated 18th 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

There was no significant rainfall in Tamil Nadu during last week, which helped in receding of excess water from the water logged fields in Madurai, Dindigul, Virudhunagar and Pudukottai districts of Tamil Nadu. However, as there is chance of rainfall at many places in Tamil Nadu during next 48 hours, farmers are advised to arrange for adequate drainage to avoid further water stagnation in these districts. There is report of occurrence of frost in some parts of the High Altitude Hilly Zone of Tamil Nadu during last week. Farmers are advised to apply light and frequent irrigation or arrange for smoking around the fields to prevent the crops from frost damage.

As there was no significant rain during last week over most of the remaining parts of the country and there is less possibility of occurrence of rainfall, farmers are advised to undertake harvesting of *kharif* crops and subsequent sowing of *rabi* crops.

Due to favourable weather condition, farmers are advised to undertake land preparation and sowing of wheat and barley in Rajasthan, wheat, potato, pea, lentil and vegetables in Jammu & Kashmir, wheat, gram and vegetables in Delhi, gram, pea, potato and linseed in Madhya Pradesh, sunflower in Chhattisgarh, gram, sunflower, wheat and green pea in Madhya Maharashtra, cowpea and kulthi in Konkan, wheat, maize, mustard and gram in Gujarat, mustard, green pea and wheat in Orissa, maize and potato in Bihar, gram, mustard and toria in Jharkhand, maize, pea, rapeseed and mustard in Assam, potato and mustard in West Bengal.

Due to prevailing weather, incidences of bacterial leaf blight, leaf streak and leaf folder in rice, internode borer in sugarcane in Tamil Nadu, leaf and neck blast in rice, woolly aphid and root grub in sugarcane and stem borer and mites in cotton in Karnataka, case worm, blast and bacterial leaf blight, sheath blight and sheath rot in rice, red palm weevil, rhinoceros beetle, coried bug in coconut and pollu disease and phytophthora foot rot in pepper in Kerala, sawfly, flea beetle and lemon butterfly in mustard in Rajasthan and wilt in gram in Madhya Pradesh 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 16.11.11

State/Districts	Actual (mm)	(% Dep.)
Arunachal Pradesh		
Changlang	2	-64
East Kameng	0	-100
East Siang	1.6	-66
Lohit	3.8	-57
Lower Subansiri	7	-19
Papumpara	1	-87
Tawang	19	35
Tirap	0	-100
Upper Siang	22.4	117
Upper Subansiri	13.2	48
West Kameng	0	-100
Assam		
Barpeta	2.6	-66
Bongaigaon	8.8	-57
Cachar	0	-100
Chirang	1	-82
Dhubri	2.4	-22
Dibrugarh	0	-100
East Garo Hills	0	-100
East Khasi Hills	0	-100
Goalpara	28.2	355
Golghat	0	-100
Hailakandi	0	-100
Jaintia Hills	3	-84
Jorhat	0	-100
Kamrup (metropolitan)	0	-100
Kamrup	2.5	-31
Karbi Analog	0	-100
Karimganj	0	-100
Kokrajhar	7.6	-21
Lakhimpur	2.9	5
Morigaon	0	-100
N.C.Hills	0	-100
Nowgong	0	-100
Nalbari	0.8	-89
Ribhoi	4.4	-19
Sonitpur	41.9	1063
Sibsagar	6.7	253
Tinsukia	0.8	-84
West Garo Hills	5.5	31
Jammu & Kashmir		
Anantnag	9.9	67
Badgam	10.4	141
Bandipore	**	**
Baramula	17.2	123
Doda	8.4	0
Ganderwal	16.6	246
Jammu	0.1	-97
Kargil	4.6	227
Kathua	0	-100
Kistwar	**	**
Kulgam	6.1	3
Kupwara	14.8	24
Ladakh(Leh)	0.7	144
Pulwama	3.4	-24
Rajouri	0	-100
Ramban	8.1	-4
Reasi	0.6	-87

State/Districts	Actual (mm)	(% Dep.)
Samba	0.2	-94
Shopian	7	56
Srinagar	10.1	109
Udhampur	1.4	-69
West Bengal		
GWB		
Bankura	7.2	89
Birbhum	0	-100
Burdwan	0.4	-88
East Midnapore	3.5	-70
Hooghly	0	-100
Howrah	0	-100
Kolkata	0	-100
Murshidabad	0	-100
Nadia	0	-100
24 Pargana (N)	0.1	-99
Purulia	0	-100
24 Pargana (S)	0	-100
West Midnapore	0	-100
SHWB		
Cooch Behar	1.6	-66
Darjeeling	4.4	-11
East Sikkim	41.8	919
Jalpaiguri	3.6	-53
Malda	0.4	-93
North Dinajpur	0	-100
North Sikkim	27.1	95
South Dinajpur	0	-100
South Sikkim	3.5	-15
West Sikkim	25	80
Karnataka		
Coastal Karnataka		
Dakshin Kannada	0	-100
Udupi	0.4	-97
Uttar Kannada	0	-100
North Interior Karnataka		
Bagalkote	0	-100
Belgaum	0	-100
Bidar	0	-100
Bijapur	0	-100
Dharwad	0	-100
Gadag	0	-100
Gulbarga	0	-100
Haveri	0	-100
Koppal	0	-100
Raichur	0	-100
Yadgir	0	-100
South Interior Karnataka		
Bangalore Rural	0	-100
Bangalore Urban	0	-100
Bellary	0	-100
Chamarajnar	0	-100
Chichballapur	0	-100
Chickmagalur	0	-100
Chitradurga	0	-100
Davangere	0	-100
Hassan	0	-100
Kodagu	0	-100
Kolar	0	-100
Mandya	0	-100

State/Districts	Actual (mm)	(% Dep.)
Mysore	0	-100
Ramnagara	0	-100
Shimoga	0	-100
Tumkur	0	-100
Kerala		
Alappuzha	1.4	-97
Kannur	0	-100
Ernakulam	0	-100
Idukki	3.8	-91
Kasaragod	0	-100
Kollam	0	-100
Kottayam	3.0	-93
Kozhikode	0	-100
Malappuram	0	-100
Palakkad	0	-100
Pathanamthitta	7.5	-88
Thiruvananthapuram	8.6	-83
Thrissur	0	-100
Wyanad	0	-100
Tamil Nadu		
Chennai	0	-100
Coimbatore	0	-100
Cuddalore	5.1	-93
Dharmapuri	0	-100
Dindigul	0	-100
Erode	0	-100
Kanchipuram	0	-100
Kanyakumari	4.7	-91
Karur	0	-100
Krishnagiri	0	-100
Madurai	0	-100
Nagapattinam	10.7	-91
Namakkal	0	-100
Nilgiris	0	-100
Perambalur	0	-100
Puducherry	2.2	-97
Pudukottai	0.2	-99
Ramanathapuram	5.5	-85
Salem	0	-100
Sivaganga	0.6	-98
Thanjavur	2.1	-95
Theni	0	-100
Tirunelveli	1.3	-97
Tiruvallur	0	-100
Tiruvannamalai	0	-100
Tiruvarur	0	-100
Toothukudi	0.1	-99
Trichy	0	-100
Vellore	0	-100
Villupuram	0	-100
Virudhunagar	0	-100
Andhra Pradesh		
Coastal Andhra Pradesh		
East Godavari	0	-100
Guntur	0	-100
Krishna	0	-100
Nellore	0	-100
Prakasam	0	-100
Sirkakulam	0	-100

Visakhapatnam	0	-100
Vizianagram	0	-100
West Godavari	0	-100
Telangana		
Adilabad	0	-100
Hyderabad	0	-100
Karimnagar	0	-100

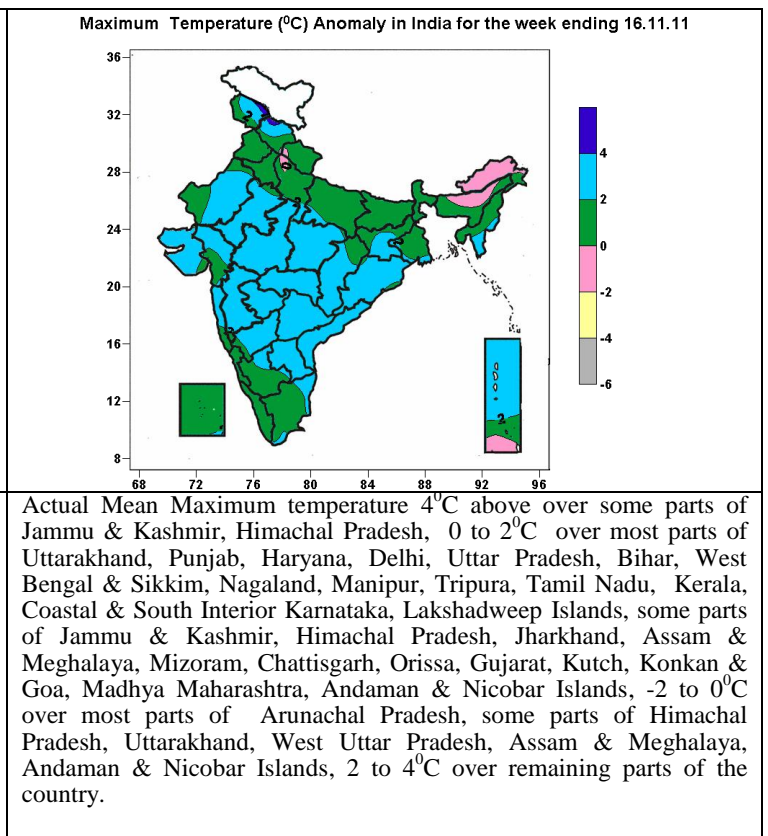
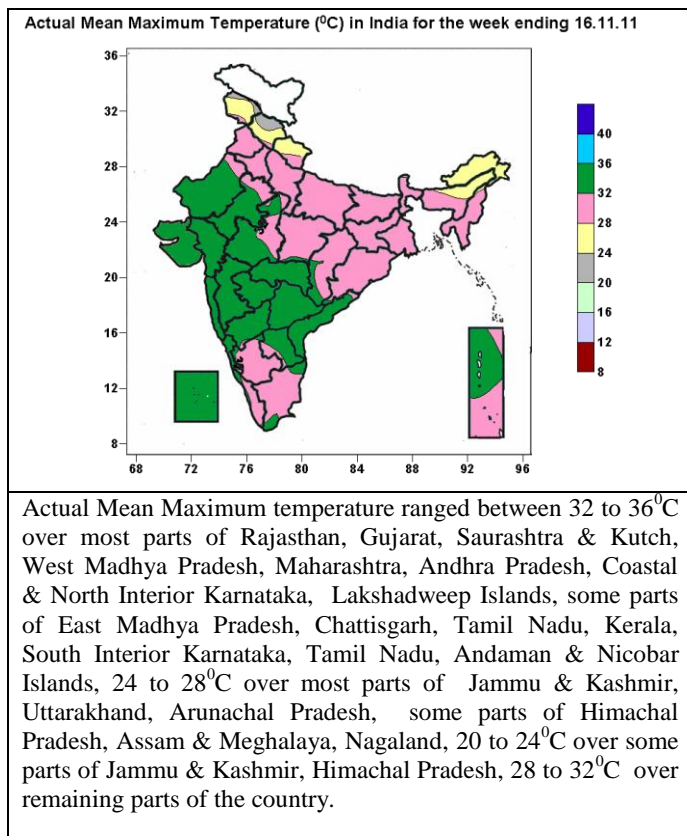
Khammam	0	-100
Mehabubnagar	0	-100
Medak	0	-100
Nalgonda	0	-100
Nizamabad	0	-100
Rangareddy	0	-100
Warangal	0	-100

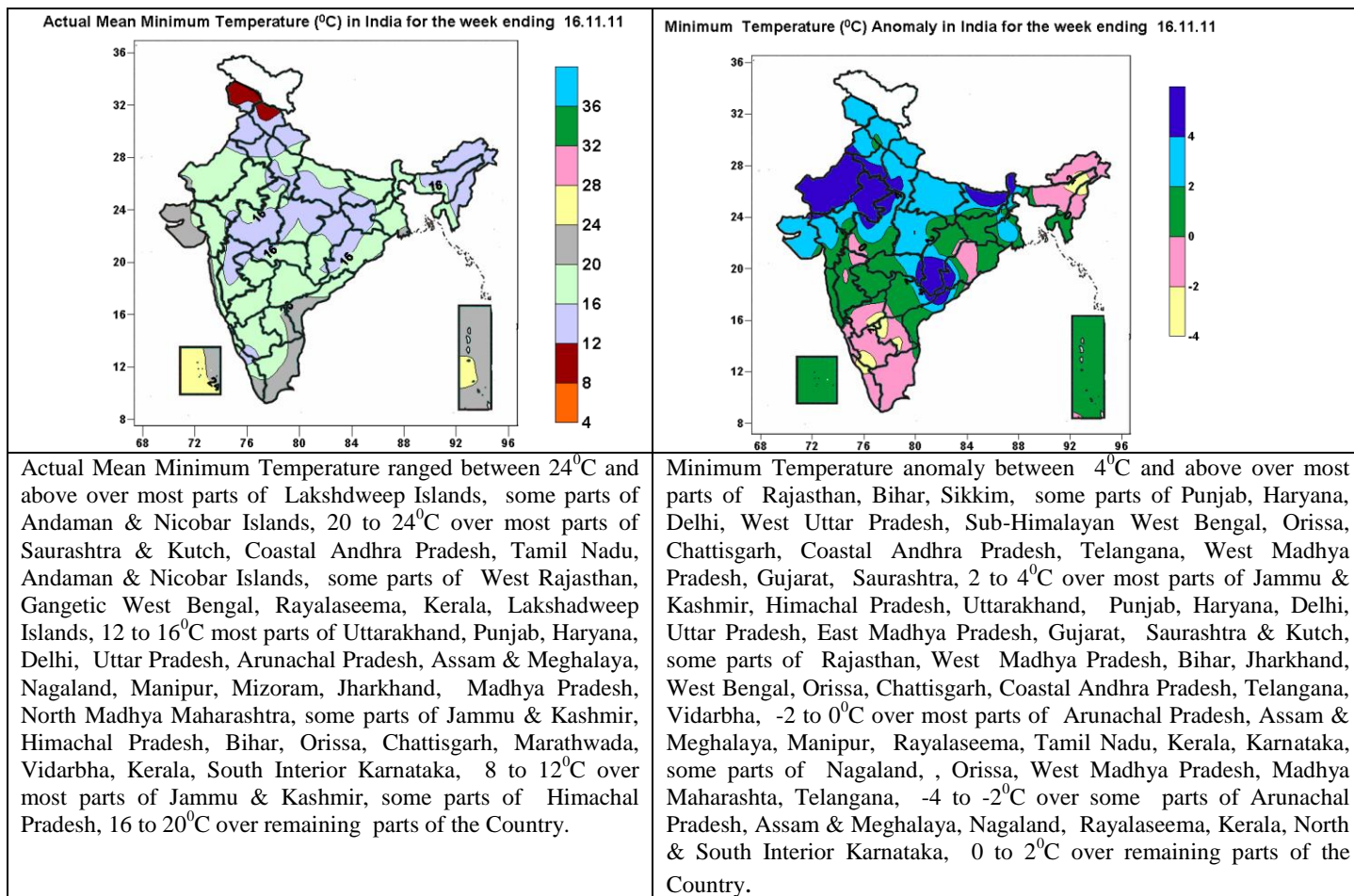
Rayalaseema		
Anantapur	0	-100
Chittoor	0	-100
Cuddapah	0	-100
Kurnool	0	-100

	(20% or more) excess rainfall
	(-19 to +19%) normal rainfall
	(-20 to -59%) deficient rainfall

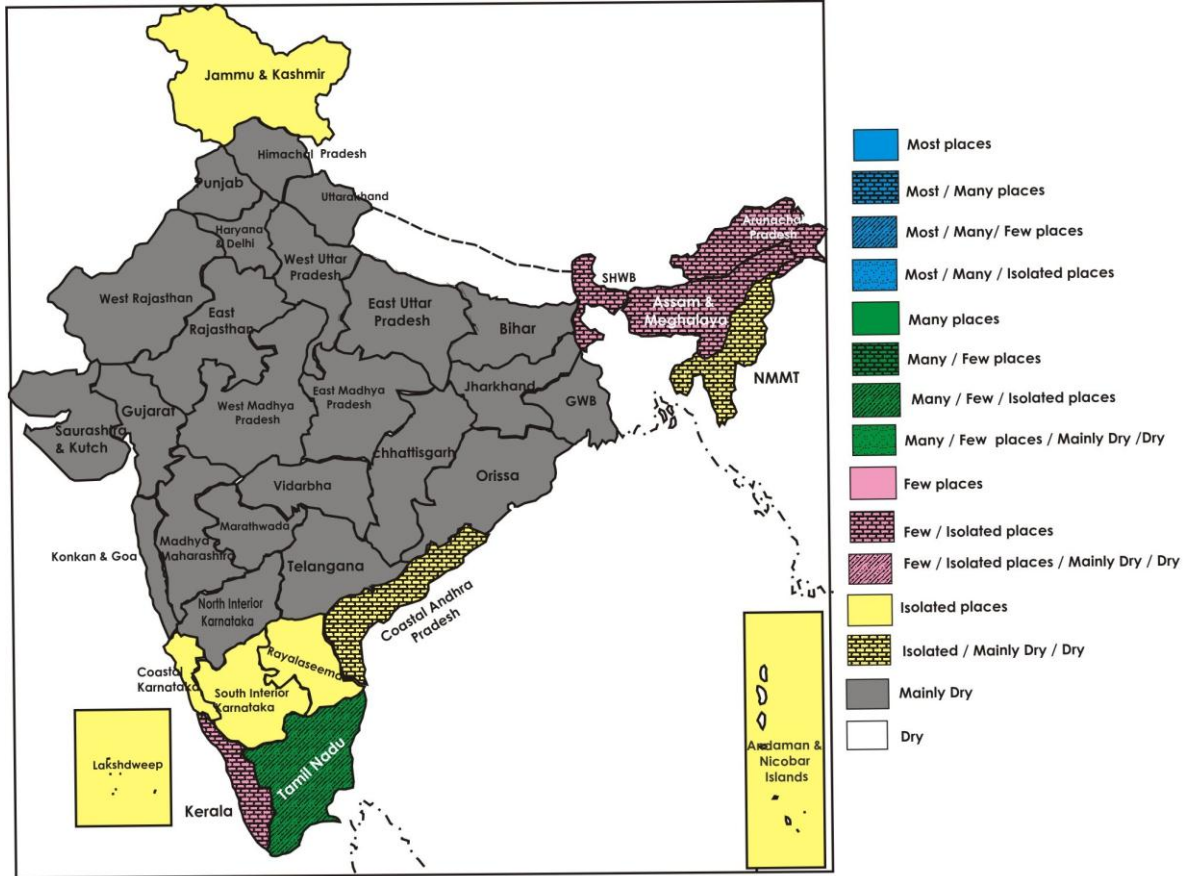
	(-60 to -99 %) scanty rainfall
	(-100%) no rainfall
**	Data not available

Contour maps for Mean Maximum, Minimum Temperature and their anomaly for the week ending on 16.11.2011





Weather Forecast (Valid upto 1430 hours of 20th November, 2011)



Major Feature of Weather Forecast upto 1430 hours IST of 20th November, 2011

- Rain/snow would occur at one or two places over Jammu & Kashmir.
- Rain/thundershowers would occur at one or two places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh and Assam & Meghalaya during next 48 hours and mainly dry thereafter.
- Rain/thundershowers would occur at many places over coastal Tamilnadu and at a few places over Kerala and interior Tamilnadu during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at one or two places over Lakshadweep and Andaman & Nicobar Islands.
- Mainly dry weather would prevail over remaining parts of the country.
- No significant change in minimum temperatures over many parts of northwest and adjoining central & east India.

Weather Outlook up to 1430 hours IST of 22nd November, 2011

- Rainfall would occur at a few places over Andaman & Nicobar Islands and at one or two places over extreme south Peninsular India and Lakshadweep.
- 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 except Upper Siang district in Arunachal Pradesh and Goalpara, Sonitpur districts in Assam.
- **Rainfall Forecast:** Rain / thundershowers would occur at one or two places over Arunachal Pradesh and Assam & Meghalaya during next 48 hours and mainly dry thereafter.
- **Advisory**
 - As there was no significant rain during last few weeks in most of the districts of the States of the region and either isolated rain will occur or mainly dry weather will 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 start 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.
 - Farmers in Arunachal Pradesh are advised to undertake land preparation and sowing of *rabi* crops like maize, pea, mustard etc. and transplanting of vegetables.
 - 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 etc.
 - 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 potato, 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.
 - In Central Brahmaputra Valley Zone in Assam, there is attack of gundhi bug in milk / dough stage of *sali* rice; to control the attack, apply Malathion 5% dust @ 20 kg / ha.
 - In Kolasib region of Mizoram, weather is favourable for infestation of leaf miner in Khasi Mandarin; monitor the crop and spray Imidacloprid @ 0.05% to control the attack.
 - Due to favourable weather condition, especially 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.
 - Due to prevailing weather condition, there is chance of attack of aphids on pea and beans in Kolasib region of Mizoram; farmers are advised to take appropriate plant protection measures.

- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - The farmers in Center and Lower Brahmaputra Valley Zone of Assam are advised to vaccinate cattle, goat and pigs against BQ, HS, Foot and mouth disease and anthrax 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.
 - Goat farmers in Arunachal Pradesh are advised to vaccinate goat against enterotoxaemia.
 - Farmers in Mizoram and Tripura are advised to deworm pigs and piglets against different kinds of worms.
 - In Tripura, poultryfarmers are advised for raising broiler chicks and get chicks from hatchery of repute.

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 one or two places over SubHimalayan West Bengal & Sikkim during next 48 hours and mainly dry thereafter. Mainly dry weather would prevail over remaining parts 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.
 - The weather is optimum for sowing of fodder oat in irrigated up-medium and medium land in East and South Eastern Coastal Plain Zone of Orissa. Farmers are also advised for sowing of cole crops and sunflower in the fallow uplands.
 - Taking advantage of relatively dry weather, harvest the pods of green gram and black gram in Orissa.
 - In East and South Eastern Coastal Plain Zone of Orissa, it is optimum time for sowing of lentil, Bengal gram, green pea, mustard, wheat, potato etc. in the fallow uplands. Dry weather and prevailing temperatures are favourable for banana (dwarf type) planting.
 - Farmers in the districts of North Bihar are advised to complete the sowing of rainfed wheat and start the sowing of irrigated wheat and continue sowing of yellow sarson (mustard) and planting of potato. Farmers are also advised to carry out land preparation and sowing of other *rabi* crops in these districts.
 - Taking the advantage of dry weather, harvest the early transplanted or timely sown rice crops, if it is matured, in South Bihar Alluvial Zone and prepare the field for sowing of vegetable crops.
 - Farmers in Central, Western and North Eastern Plateau Zone of Jharkhand are advised to continue sowing of toria, niger, bell peper, green pea, tomato, cabbage, cauliflower, capsicum, potato etc.
 - 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 green pea in fallow medium land. Farmers in this region are also advised to undertake sowing of Chick pea.
 - Farmers in Red and Lateritic Zone of West Bengal are advised to undertake planting of potato and sowing of mustard. In this dry weather condition, farmers are advised to harvest the *aman* 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 complete the harvesting of Rice. Also undertake land preparation and sowing of mustard, wheat and planting of potato. Harvesting of soybean, black gram and rice bean should also be undertaken.
 - Farmers in Coastal Saline Zone of West Bengal are advised to sow mustard and lathyrus.
 - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
 - Lower environmental temperature are more likely to favour the attack of various leaf eating and sucking pests in pigeon pea in South Eastern Plateau Zone of Jharkhand; spray Monochrotophos @ 1 ml per liter of water during day time. To control infestation of leaf eating insects due to variable weather conditions in green pea, spray neem or tobacco leaf extract diluted in the ratio of 1:10 liters or neem oil @ 5 ml per liter of water.
 - Infestation of rodents has been found in the threshing floor and in the field itself in Khurda district of Orissa; use poison bait. Cutworm is also found in rice; spray 2 ml Chloropyriphos in 1 litre water during afternoon. Apply Chloropyriphos dust around the bund to prevent the entry of caterpillar to the unaffected fields in early morning.
 - The present weather conditions are favourable for False Smut disease in medium and low land rice in North Central Plateau Zone of Orissa. To control it, spray Blitox-50 @ 2 g per liter or Bavistin @ 0.5 g per liter of water.
 - 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 difference between day and night temperatures in Coastal Saline Zone and Terai Zone are favourable for attack of ear cutting caterpillar 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.
 - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In North Eastern Plateau Zone of Orissa, due to the climatic conditions, infestation of liver flukes are common in animals which reduces the milk yield and fertility in animals; to prevent from this infestation, undertake deworming in animals.
 - Newly born baby goats should be prevented from morning and evening cold waves and also deworming should be done to all animals in South Eastern Plateau Zone of Jharkhand.

- 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 except Jammu & Kashmir where rainfall received at a few places during last week.
- **Rainfall Forecast:** Rainfall is likely at isolated places in Jammu & Kashmir 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.
 - In Delhi, present weather is favourable for sowing of mustard, pea, *rabi* onion, garlic, potato, gram, lentil, sarson saag, radish, carrot, spinach, fenugreek, coriander, turnip and oat, barseem for fodder. Transplanting of mature seedlings of cauliflower, cabbage, broccoli and tomato may be undertaken. Nursery preparation may be started for late crops.
 - Farmers in Punjab and Haryana are advised to undertake, sowing of wheat, kabuli gram (except in humid areas of Gurdaspur, Hoshiarpur and Ropar districts in Punjab), oil seeds like raya, gram, African sarson, gobhi sarson, vegetables like mid season pea, radish, lentil, carrot, turnip and leafy vegetables, lucerne and oats, senji, barseem for fodder nursery bed for sowing of tomato and complete sowing of mustard crop. Transplanting of cabbage, chinese cabbage and late season cauliflower may be undertaken. Protect young trees as well as newly planted fruit trees against frost by covering with thatches or kullies made of sarkanda or farm waste materials. In orchards of litchi, irrigation should be applied at the end of November or first week of December to protect these from frost injury.
 - 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. Also advised for sowing of mustard, pulses, lentil and vegetable crops like radish, carrot, turnip, garlic, spinach, methi and berseem. Undertake transplanting of cauliflower, knol khol, broccoli, winter lettuce, chinese cabbage, onion and beet leaf in green house in cold arid zone of Leh.
 - In Srinagar valley temperate zone, farmers are advised to provide adequate surface drainage channels in and around the field to avoid water stagnation in the field during winter.
 - 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).
 - In Uttar Pradesh, farmers are advised to continue sowing of barley, oat, masur, sarson, gram, safflower, linseed, potato, chickpea, pea, rajmash and wheat. Farmers are also advised to undertake nursery sowing of onion, carrot, radish and tomato.
 - In Pantanagar- Bhabar & Terai zone of Uttarakhand, farmers are advised to continue sowing of wheat and lentil. Farmers are advised to harvesting of vegetable pea.
 - Farmers in Sub humid sub tropic in Uttarakhand are advised to sow potato, mustard, grams, linseed, barley, berseem, lentil, oats and potato, also advised to irrigate all *rabi*

vegetables like coriander, fenugreek, tomato, spinach, radish, carrot, cabbage, cauliflower and tomato may be done in this week.

- In Ranchuri hill zone of Uttarakhand, farmers are advised to sow irrigated and non-irrigated wheat, Jai, masoor, green pea, gram, sarson and fodder makka.
 - Farmers in Rajasthan are advised to prepare land for sowing of wheat, barley, potato, cumin, isabgol, raising nursery for seedling of autumn vegetables viz. tomato, brinjal, radish, *rabi* onion etc., transplanting cauliflower, cabbage, plucking citrus fruits late during afternoon hours, sowing of mustard, gram, lentil, oat, fenugreek, berseem, lucerne, toria, taramira, alsi, opium poppy and coriander. They are also advised to undertake harvesting of matured cotton and castor crops in arid western plain zone.
 - In chatha 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 semi-arid Eastern plain zone (Jaipur) of Rajasthan, cauliflower is affected with leaf eating insects like sawfly, flea betel and lemon butterfly. Farmers are advised to spray Malathion 5% or Carbaryl 5% dust @ 20 kg /ha. Also to control leaf curl & mosaic in papaya, uproot and burn the affected plants and spray Dimethoate 30 EC or Methyl Demeton 25 EC @ 1 ml per litre water to check the spread of viral disease.
 - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandary**
 - In western zone of Punjab (Bhatinda), farmers are advised to deworm regularly the calves with piperazine liquid (4ml/kg body weight) first at 15 days of age, then 7 days later twice and then on 3 months of age and then 3 months after up to 1 year of age. Watch the animals regularly in the morning and evening for heat symptoms. Because of scarcity of green fodder during this month, give silage to the animals along with mineral mixture @ 50 g per animal per day and common salt @ 20 g per animal per day. Protect young calves from cold weather by providing dry bedding and clothing (Jhull).
 - In Punjab, hot and humid climate may lead to conditions of ring worm & other problems in animals so farmers are advised to keep the animals clean and dry also protect wounds from flies to avoid maggots' infestation.
 - In semi-arid western plain zone (Jaipur) 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 Uttarakhand, Pantanagar-Bhabar & Tarai zone, 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:** Most parts of the region did not receive any significant rainfall during last week.
- **Rainfall Forecast:** Rainfall at many places over Tamil Nadu during next 48 hours and at a few places thereafter, at a few / isolated places in Kerala and no significant rain is likely to occur in the remaining states of the region during next three days.

- **Advisories:**

- *Kharif* rainfed crops are affected due to less rainfall and only 25% of *rabi* sowings is achieved in the North East Dry Zone of Karnataka. Most of the area is under moisture deficit status because of no rainfall and wherever rainfall has been received at isolated places, a slight recovery of crops like pigeon pea, cotton, sunflower, groundnut, was observed. Because of lesser rainfall, moisture stress is experienced in rainfed situation in cotton and early opening of bolls are noticed.
- Farmers in Tamil Nadu are advised to postpone irrigation to the standing crops in view of rainfall, likely at many places during next 24 hours.
- Farmers in the scarce rainfall zone of Rayalaseema in Andhra Pradesh are advised to undertake sowing of *rabi* groundnut up to 15th December.
- Farmers in the Southern Telangana Zone of Andhra Pradesh are advised to undertake 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, take up sowing of *rabi* crops like maize and sunflower under irrigated dry conditions, complete sowing of chickpea under residual moisture conditions, take up sowing of rice, fallow black gram and fallow maize and not to sow safflower and castor.
- 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 give irrigation to the crops, if water is available, harvest the crops which are at maturity stage, spray need based fungicides and insecticides for crops like red gram to control pod borer, and protect the horticultural crops by providing stalk to newly planted crops like mango, sapota, banana etc.
- 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 East Dry Zone of Karnataka are advised to continue *rabi* sorghum sowing and wherever *rabi* sowings are over and germination is observed, undertake thinning to cope up moisture deficit due to lack of rainfall. They are also advised to go in for sowing of Bengal gram in places where *rabi* jowar germination is not proper in black soils.
- 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 Krishna Godavari Zone of Andhra Pradesh are advised to protect attack of leaf folder, BPH, sheath blight, leaf blast and mites on rice, since low temperature due to present weather conditions favour their attack.
- Pod borer incidence and cercospora leaf spot in pigeon pea crop and mites in chillies were noticed in the North East Transition Zone of Karnataka. Farmers are advised to spray Profenophos 2 ml or Thiodicarb 0.6g for effective control of pod borer, carbendazim @ 1g/litre of water to control cercospora leaf spot and proporgite (omite) 2 ml per liter of water to control mites.
- There was severe infestation of finger blast and neck blast in ragi, severely infestation of aphids, yellow mosaic virus in beans, leaf and neck blast in rice and shooty mould in sapota in the Southern Dry Zone of Karnataka due to congenial weather. Farmers are advised to spray bavistin @ 1 gm or Kitazin @ 1.5 gm/ltr. of water to control finger blast and neck blast, monocrotophos @ 1.25 ml/ltr. of water to control aphids, uproot infected plant and burn to control yellow mosaic virus, spray carbendizim @1 gm or Kitazin @ 1

ml or Tricyclozole 0.6 gm/ 1ltr. of water to control leaf and neck blast, spray corn flour @ 20 gm/ ltr. of water to control shooty mould.

- Incidence of maruka (leaf webber), *Heliothis* in red gram, mites in cotton, stem borer in rice and powdery mildew disease in chilli, bhendi and sunflower is noticed in almost all parts of the North East Dry Zone of Karnataka. Farmers are advised to add 0.5ml of DDVP insecticide /l to control maruka, chlorpyrifos @ 2ml/liter or thiodicarb 0.6g or methomyl 0.6g of water to control *Heliothis*, wettable sulphur @3g/l of water to control mites, solution of sulphur (3g) in a liter of water to control powdery mildew and chlorpyrifos @ 2.5 ml per litre of water to control stem borer.
- Powdery mildew has been noticed in early sown sunflower crop in the Hill Zone of Karnataka. Farmers are advised to spray 1 g Carbandizim dissolved in one liter of water.
- Leaf folder, bacterial leaf blight and bacterial leaf streak are noticed in the samba paddy fields in the Cauvery Delta Zone of Tamil Nadu, due to prevailing weather condition. Farmers are advised to apply cartop hydrochloride 4 G at 6 kg/acre mixed with equal quantity of sand or chloropyrifos 400 ml/acre to control leaf folder and spray streptomycin 18 g + Copper oxy chloride 500 g mixture/acre or cooper hydroxide at 500 g/ac in 200 litre of water to control bacterial leaf blight and bacterial leaf streak.
- Incidence of internode borer incidence is noticed in the Southern Zone of Tamil Nadu Farmers are advised to release *Trichogramma chilonis* egg parasitoid @ of 1.0 cc/release/acre for six times with two weeks interval to control it. The expected weather is conducive for attack of pests and diseases on major crops like paddy, cotton, black/green gram and maize/millet. Undertake plant protection measures.
- Farmers in the South Zone of Tamil Nadu are advised do weeding in rain fed crops and monitor the incidence of stem borer in sorghum and damping off in chilli and follow appropriate plant protection measures
- There has been frost in many parts of the High Altitude Hilly Zone of Tamil Nadu during the past week. Hence, farmers are advised to adopt preventive measures to prevent crops from frost damage.
- Incidence of panicle mite is noticed in late planted rice, fusarium wilt in bengal gram, *Helicoverpa* is observed in redgram, sucking pests in vegetables and fruits in the Southern Telangana Zone of Andhra Pradesh. Prevailing weather conditions are congenial for the incidence of aphids, jassids, whitefly, mealy bugs, thrips, grey mildew and leaf spots in cotton, brown plant hopper (BPH), sheath blight and sheath rot in rice and leaf miner in groundnut. Farmers are advised to undertake plant protection measures to prevent attack of these pests and diseases.
- Incidence of blast and bacterial blight disease, rice case worm, sheath blight and sheath rot in rice, red palm weevil, rhinoceros beetle, coried bug in coconut, mahali disease in arecanut, pollu disease, phytophthora foot rot in pepper and pseudostem weevil / rhizome weevil in banana is seen in various parts of Kerala. Farmers are advised to undertake plant protection measures.
- **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 was received during the period over the States.
- **Rainfall Forecast:** Mainly dry weather would 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. Avoid irrigation at the time of bursting of cotton bolls.
- Farmers in Madhya Maharashtra and Marathwada region are advised to complete planting of pre-seasonal sugarcane.
- Farmers in Madhya Maharashtra and Vidarbha region are advised to complete sowing of irrigated gram and wheat.
- Farmers of Madhya Maharashtra and Sindhudurg region of Maharashtra are advised to undertake sowing of *rabi* sunflower.
- 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.
- Farmers in Middle Gujarat Zone are advised to sow wheat, gram and *rabi* maize and plant potato. Carry out sowing of spices like fenugreek, coriander and cumin.
- Complete sowing of wheat, mustard and carry out transplanting of vegetables in Bhal and Coastal Zone. Picking of cotton and castor may be carried out in early morning hours. Carry out sowing of inter crops viz., vegetables or pulses in newly established orchards.
- Farmers in South Gujarat Zone are advised to complete sowing of wheat in this month. In view of prevailing dry weather condition, apply urea @ 75 gm per plant of Banana and make ring around plant for irrigation.
- As temperature is favourable for better germination of seeds in South Gujarat Heavy Rainfall Zone, farmers are advised to carry out sowing of wheat and gram. Complete plucking of cotton in time.
- Under prevailing dry weather, farmers in South Saurashtra Zone of Gujarat are advised to irrigate cotton, castor and gram. Carry out sowing of wheat and picking of cotton.
- As there is a possibility of decrease in temperature, farmers in North Gujarat Zone are advised to prepare land for sowing of *rabi* crops. Apply irrigation in castor.
- Suitable varieties of the crops for sowing are mentioned in Annexure II.
- Prevailing weather is favourable for the attack of pod borer in Tur in Marathwada region of Maharashtra; farmers are advised to spray Imamectin Benzoate @ 4 g or Spinosad @ 3 ml in 10 litres of water. Also there may be infestation of powdery mildew in grapes; spray Tridemarf @ 2.5 g or Dinocap @ 5 g per 10 litres of water.
- There may be incidence of shoot borer on new flush of mango in Konkan region of Maharashtra; spray Monocrotophos 36 WSC @ 11 ml per 10 litres of water. Also there may be incidence of Eriophyte mites in coconut; root feeding of 5% Nimazol @ 7.5 ml or Econeem plus @ 10 ml may be given with equal quantity of water. There is chance of attack of leaf and bud eating caterpillar on newly emerged sapota flush in North Konkan region of Maharashtra; spray 50% wet Carbaryl dust @ 20 g per 10 litres of water.
- Weather condition is favourable for outbreak of thrips in castor and chilies in North Gujarat Zone. Farmers are advised to spray Mithyl-o-Dematone 25% or Dimethoate 30 E.C. @ 10 ml per 10 litres of water.

- Weather condition is favourable for outbreak of mealy bug in cotton in South Gujarat Zone. Farmers are advised to spray 50% wettable Carbaril @ 40 g or 50 EC Profenphos @ 10 ml or 20 EC Quinalphos @ 20 ml with 10 g detergent powder in 10 litres of water.
- Stages of major crops are mentioned in Annexure I.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Mainly dry weather prevailed over the region.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the region.
- **Advisory:**
 - 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 crops 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 do for controlling weeds in crops like mustard, toria, chickpea and lentil.
 - Farmers in Central Narmada Valley Zone of Madhya Pradesh are advised to prepare field for sowing of *rabi* crops like chickpea, lentil, linseed, wheat etc. and arrange for farm inputs.
 - Farmers in Jhabua Hill 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 potato and prepare nursery for onion, brinjal, chilli and tomato etc. Also under rainfed conditions, sowing of *rabi* crops should be done immediately after harvesting of soybean before losing of soil moisture. Mulching may be done to conserve the soil moisture.
 - Farmers in Vindhya Plateau Zone of Madhya Pradesh are advised to continue sowing of wheat, gram and garlic.
 - Farmers in Grid Zone of Madhya Pradesh are advised to start potato planting according to moisture availability, also transplant the winter sown varieties of cauliflower in the field.
 - Farmers in Nimar Valley Zone of Madhya Pradesh are advised to continue sowing of wheat and gram.
 - Farmers in Satpura Plateau Zone of Madhya Pradesh are advised to prepare field for sowing of irrigated wheat. Sow pea and potato where irrigation facilities are available.
 - Farmers in North Hill Zone of Chattisgarh are advised to complete sowing of wheat and planting of sugarcane.
 - Farmers are advised to prepare field for wheat, gram, mustard, linseed, lentil and sowing should be done in Bastar Plateau Zone of Chattisgarh. Sugarcane planting may be completed at the earliest and earlier planted sugarcane should be irrigated. Mustard sowing should be completed at the earliest. If the winter season vegetables (cauliflower vegetables, brinjal and chillies etc.) nursery are ready, then planting should be done after field preparation.
 - Farmers in Bastar Plateau Zone are advised for sowing of nursery of *rabi* vegetables. Before sowing treat seeds with Tricoderma or Bavistin.

- Farmers in Bastar Plateau Zone are advised to arrange irrigation at an interval of 7-10 days in coconut plantations as the crop is suffering from moisture stress due to dry condition during last month.
- In Plain Zone of Chattisgarh, looking to the monsoon withdrawal situation, farmers are advised to store water in the rice fields particularly in medium and long duration rice varieties. Farmers are advised to sow sunflower in irrigated condition after the harvesting of the rice crop. Farmers are also advised to sow linseed and gram after harvesting of soyabean. Undertake sowing of nursery of cauliflower, tomato, brinjal, chilli in a raised nursery of about 6 inch with proper drainage system. Before sowing seed should be treated with bavistine or thiram @ 2-3 g per kg seed. Where the sowing has already been done, spraying of bavistine @ 1 g per liter water solution is advised to protect the seedlings from damping off.
- Farmers in Bundelkhand Zone of Madhya Pradesh are advised to keep watch on the mustard, chickpea and pea crops for insect pest and disease infestation during this week. Chickpea crop is affected by wilt in some area hence for its control, drench the crop with solution of bavistin @ 1.5 gm per liter of water.
- In view of possibility of dry weather condition in Bundelkhand Zone of Madhya Pradesh, farmers are advised to irrigate the mustard crop which is about 30-35 days old, start the sowing of wheat and also treat the seed with fungicide carboxin or carbendazim @ 2.5g/kg to control of loose smut there after use the azotobacter and PSB culture. Farmers are also advised to complete the sowing of coriander and garlic, mulch the crop to enhance germination after the sowing.
- 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.
- Farmers in Bastar Plateau zone are advised, if saw fly attack is being observed, neem oil 5 percent should be sprayed for control. In sem (beans) beetle and aphids attack is being observed, spray Carboryl @ 2 grams per litre. In Colocasia, spots disease is being observed, spray Blitox-50 @ 1 gram per litre of water.
- Farmers in Bastar Plateau Zone are advised to control *Alternaria* blight and thrips in horsegram crop, spray Copper Oxychloride and Monocrotophos.
- **Animal Husbandry & Poultry**
 - In view of fall in sunshine duration, farmers in Bundelkhand Zone of Madhya Pradesh are advised to provide 3-4 hours light in poultry houses during night otherwise, insufficient light may affect eggs production.
 - Onset of winter is likely to be started due to which there are chances of spread of mouth and foot 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), winter vegetables (nursery bed preparation / sowing / transplanting / vegetative), black gram / green gram (grain formation / maturity / harvesting), onion, garlic (sowing / planting), khasi mandarin (fruit maturity / harvesting) and niger, lentil (land preparation / sowing), potato (land preparation / planting), rapeseed and mustard (land preparation / sowing / vegetative) in Assam.
- Rice (Mipun cultivar) (grain filling / maturity), cabbage, cauliflower, knolkhol etc. (transplanting / vegetative), maize (sowing / vegetative) and pea, mustard (sowing) in Arunachal Pradesh.
- *Kharif* rice (maturity / harvesting), potato, pea (land preparation / sowing), rapeseed / mustard (sowing / vegetative), tomato (nursery raising / transplanting), cauliflower and cabbage (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.
- Lowland 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 (seed formation / maturity), lobia for green fodder, mishrikand (vegetative), onion, radish (sowing), cauliflower (sowing), fruit trees (transplanting) and potato, sweet potato (planting), mustard, toria (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) (seed formation / maturity), groundnut (maturity / harvesting), turmeric and ginger (vegetative / rhizome formation), elephant foot yam (tuber elongation), potato (land preparation / planting), sweet potato (vegetative / stem elongation / harvesting), mustard, toria, green pea (sowing / vegetative), cauliflower, cabbage, chilli, tomato (transplanting), niger (sowing), papaya (transplanting), gram, chick pea, onion, African or French marigold (sowing) in Jharkhand.
- Arhar (seed formation), 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.
- *Aman* rice (grain formation / maturity / harvesting), mango, coconut, guava, banana (planting), *kharif* vegetables (fruiting / harvesting), winter vegetables (sowing / transplanting / early vegetative), mustard (sowing), potato (planting) 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]

- Late sown rice (harvesting), early (lady finger, brinjal, tomato, chilli, cauliflower, cabbage, radish, spinach, coriander) (vegetative / fruiting), cucurbits crops (fruiting), lentil (pod formation), maize, hybrid cluster bean, baby corn, Pigeon pea (sowing/vegetative), green gram and black gram (flowering / fruiting), cotton (sowing), Sugarcane (sowing), guar, bajra (flowering/grain filling), soyabean (grain filling), *rabi* mustard, lentil, pea, garlic, potato, gram, fodder oats and berseem, sarson saag, *rabi* onion (sowing), cauliflower, cabbage, broccoli, tomato (transplanting) in Delhi.
- Wheat (sowing/transplanting), vegetables (sowing), garlic, ginger (planting), bhindi, (transplanting), cucurbits (transplanting), Khira, summer squash, bitter gourd, tur, brinjal, Shimla mirch, and tomato (transplanting), Apple (maturity), pomegranate (fruit development), ginger, arbi, amaranthus, turmeric, rice, maize, barley, raddish, onion (sowing) in Himachal Pradesh.
- Wheat / barley (land preparation/sowing), Berseem (sowing / emergence), onion (seed bed preparation), winter vegetable crops viz. potato, radish, carrot, turnip, garlic, spinach, methi (sowing / vegetative / fruiting), cole crops viz. early cauliflower, cabbage, knoll khol, broccoli (nursery sowing / transplanting), maize, bajra (maturity), rice (maturity / harvesting), *Rabi* oilseeds i.e. toria, gobi sarson, mustard, *rabi* pulses (emergence / vegetative), lentil, pea, fodder crops (oats) (sowing/emergence), citrus, guava, apple (fruiting, apple – harvesting (Leh), mosambi, sweet lime (fruit ripening / harvesting), winter lettuce, chinese cabbage (transplanting in greenhouses in cold arid zone of Leh), Beet leaf (sowing / transplanting in green house in Jammu & Kashmir).
- Chilli, capsicum, cauliflower, broccoli (transplanting), lahi (flowering / fruiting), sugarcane (planting), rice (milking/maturity/harvesting), litchi, loquat, peach, citrus

(flowering / fruiting), mango (early varieties) (flowering), maize (cob formation/cob maturity/harvesting), foxtail millet, okra, bottle gourd, bitter gourd, ginger, turmeric, (sowing / planting), toria, pea (sowing), papaya (planting), sorghum, pigeon pea, early rabi vegetable pea, urd, potato, mustard and pearl millets(sowing), barley, fodder barseem, sarson(sowing) in Uttarakhand.

- Late sown rice (harvesting/threshing), wheat (sowing), winter sugarcane (vegetative growth / formative), summer sugarcane (initial growth / formative stage/harvesting), cucurbits like gourd, bitter gourd, cucumber, etc. and another vegetables like lady's finger, tomato, brinjal, chilli etc. (sowing / flowering/fruiting), arhar, toria (flowering), tomato, brinjal, bhindi (vegetative / fruiting), cabbage, garlic, cauliflower(sowing / transplanting/flowering / fruiting), barley, gram, alsi, maize, rai, mustard, garlic, barseem, potato, sarson, masoor, pea and chick pea (sowing) in Uttar Pradesh.
- Spring sugarcane (sprouting), barseem (vegetative), sugarcane(maturity / harvesting), Sugarcane autumn (sowing), cotton (boll maturity/picking), fodder lucerne, oats, senji (sowing), gram, potato, peas (sowing), radish, carrot, turnip, cauliflower (sowing/transplanting), Rape seed, mustard(sowing / emergence), wheat, barley, gram, lentil (sowing) in Punjab.
- Sugarcane (spring season) (planting/emergence/early vegetative / grand growth), 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.
- Late sown rice (maturity / harvesting), narma cotton, desi cotton (flowering / boll formation/picking in Sriganaganagar), pearl millet, sorghum (vegetative / maturity / harvesting), moong, cowpea, urd (maturity / pod picking), early sown maize (harvesting), sweet potato, saunf (sowing), maize, soybean, chilli and cluster bean (vegetative), mustard, garm, coriander, wheat (sowing / germination), barley,oats, lentil, lucern, taramira, linseed(alsi), opium poppy, vegetables (potato, fenugreek, tomato, brinjal, radish, carrot, *rabi* onion, phalak, green pea, lentil, berseem, cumin, isabgol (land preparation/sowing), cauliflower, cabbage (transplanting) in Rajasthan.

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

- Rice - Samba / thaladi/ (tillering/transplanting) kuruvai (flowering and maturity), cotton (boll formation), vegetables (nursery / transplanting), 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) in Tamil Nadu.
- Sugarcane (grand growth), cotton (boll development/flowering/harvesting), hybrid jowar, maize (harvesting), ragi, sunflower (vegetative/maturity), bengal gram (sowing / vegetative), red gram (flowering/ pod formation), rabi jowar (sowing), late planted paddy (harvest), *rabi* sorghum, wheat (vegetative) and safflower (sowing), groundnut (harvest), pigeon pea(flowering/ pod development) and horticultural crops (vegetative growth/ flowering/ fruit development) in Karnataka.
- Maize (harvesting), jowar, cotton (boll formation/maturity), rice (flowering/panicle initiation/grain hardening), groundnut (pod development/ harvesting), bajra (harvesting), *rabi* pulses green gram, bengal gram (sowing), *rabi* groundnut (sowing) in Andhra Pradesh.
- Black pepper (harvesting), ginger (maturity), mundakan rice (tillering), 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) (planting), *kharif* rice, jowar (grain maturity / harvesting), cotton (boll maturity / picking), red gram (pod formation), *rabi* jowar (early vegetative / vegetative), safflower (early vegetative), irrigated gram (sowing / germination), irrigated wheat (sowing / germination), sunflower, maize (sowing / germination) in Maharashtra.
- *Kharif* bajra (harvesting), wheat (sowing), gram (sowing), *rabi* maize (sowing), vegetables (fruiting / harvesting), sugarcane (vegetative), 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), 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.

Manipur

Pea: Arkel, Azad, Rachana.

Potato: Kufri Megha, Kufri Jyoti.

Rapeseed / 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, PusaShubhra, Pant Gobhi - 2 and Patna Ageti.

Meghalaya

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

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

Orissa

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

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

Beans: Bush Bean and Runner Bean.

Wheat: Sonalika, UP-262.

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.

Bengal gram: Gourav, Annegiri, Radhey.

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

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

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.

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.**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.**Gram:** KAK-2, ICC-2, HK94-134 (kabuli) and Pusa 256, Pusa 372, Pant G-114, KWR 108, ICC 37.**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.**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, Khufri Jyoti, Khufri Chandramukhi, Ranjendra Aloo 1, 2 and 3, Khufri 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.**Sarson:** Rajendra Sarson-1, Swarna etc.**Sunflower:** Morden, Surya, Paradovic, KBSH 1, 44.**Delhi****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;** Japanese 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
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

Harvana

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
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, Ujjiyar, 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, Jayyant Snowball, Pusa Snowball, super Snowball, Snowball-13.

Cabbage: Kranti, Golden Acaire, Pride of India, Coppin 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 gram: Vijay, Vishwas, Phule G12, Vikas, Vishal and Virat variety in Madhya Maharashtra, Chafa, Vijay, Jaki-9218, Kabuli in East Vidarbha and Akash (BDNG-797), Vikas, Vishwas in Marathwada.

Sugarcane (pre-seasonal): CO 740, CO 7219 (Sanjivani), CO 88121 (Krishna), CO 8014 (Mahalaxmi), CO 86032 (Nira), CO 94012 (Phule Savitri), CO M 0265 (Phule 265), CO V.S.I. 9805, CO C. 671.

Irrigated wheat: NIAW-301, NAIW-917, NIDW-295 (sowing upto 15th November) and for late sowing select NIAW-34 variety in Madhya Maharashtra and HD-2189, AKW-1071, HD-2380 and MASC-2496 in Central Vidarbha.

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.

Madhya Pradesh

Wheat-Sujatha, HW 2004 or HI 1500 and gram JG 130, JG 11, JG 315, JG 16, Jaki 9218 MP-1142, MP-4010, MP-1201, MP-1202, Lok-1, GW-173, GW-273, GW-322, GW-366 in irrigated condition..

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

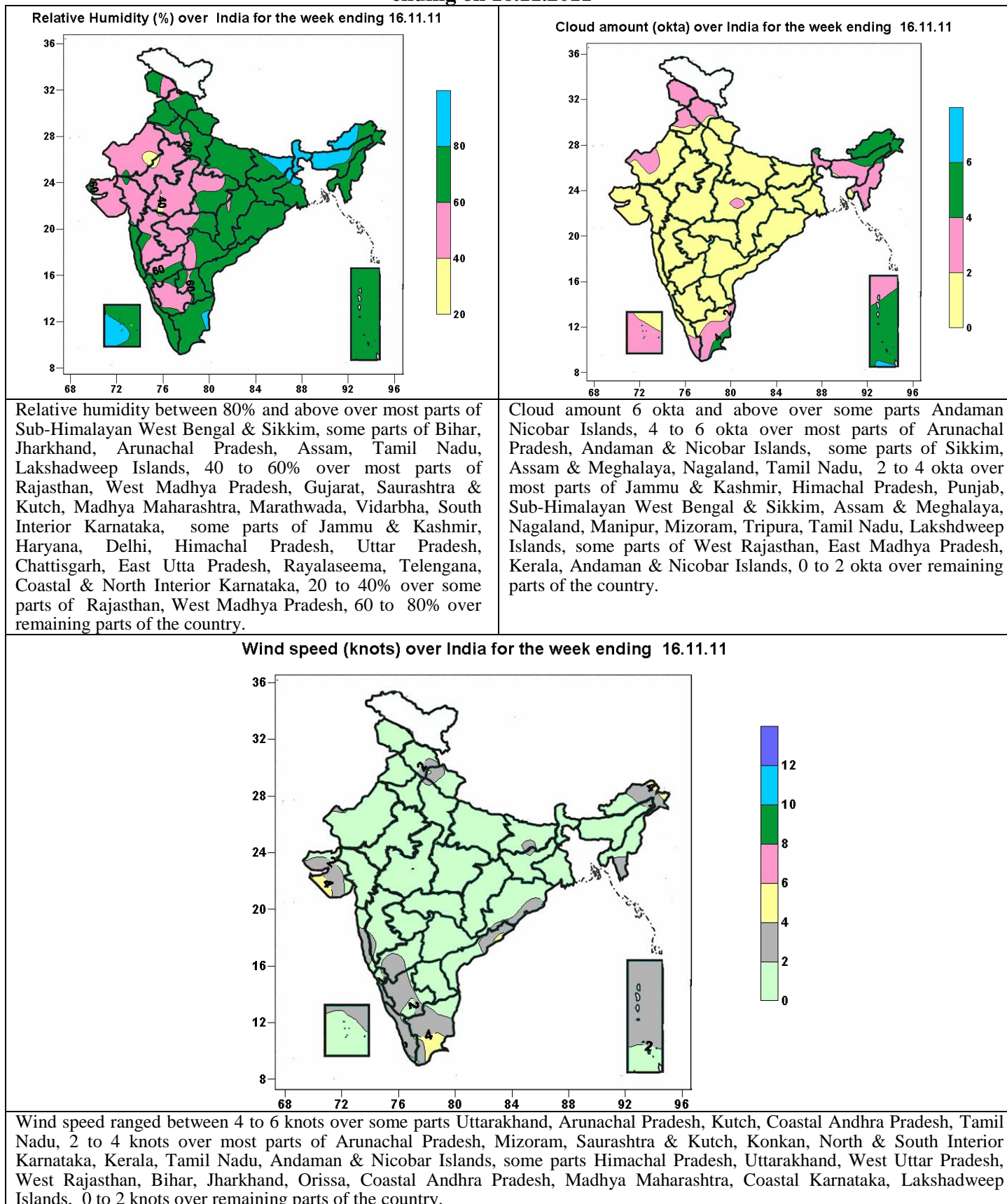
Pea- Jawahar pea 1 and 2

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 16.11.2011

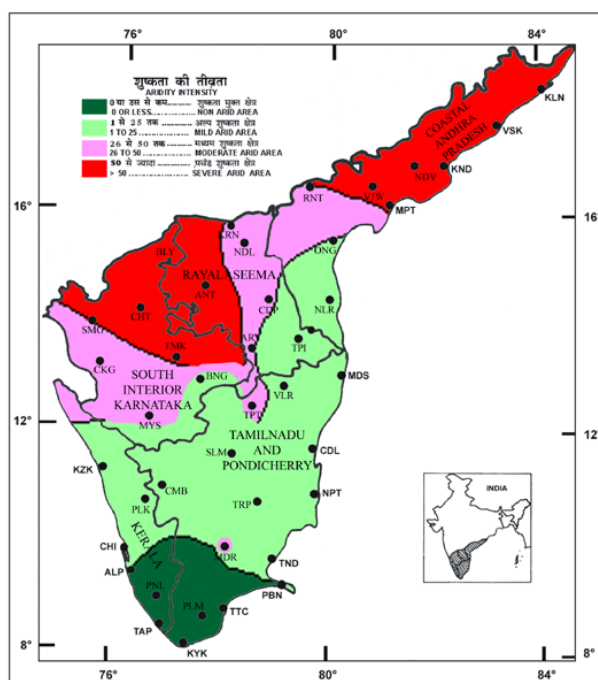


Annexure IV

Aridity Anomaly Chart (Northeast Monsoon season) Period from (05.11.11 to 11.11.11)

तटीय आंध्रप्रदेश, रायलसीमा, दक्षिण आंतरिक कर्नाटका,
केरल, तमिलनाडु और पॉन्डिचेरी के लिए

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:** Large north eastern and central part of Coastal Andhra Pradesh, north western and south western part of Rayalaseema and adjoining north eastern part of South Interior Karnataka.
- **Areas affected by moderate arid conditions:** Small west central part of Coastal Andhra Pradesh and adjoining north eastern and south eastern part of Rayalaseema; southern and western part of South Interior Karnataka.
- Isolated place around Madurai (Tamil Nadu & Puducherry).