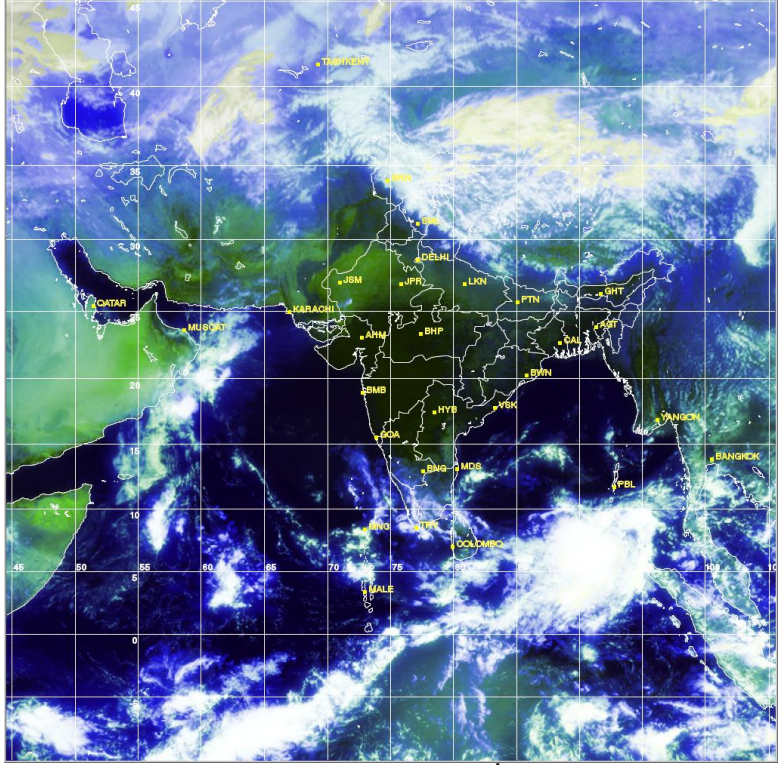




National Agromet Advisory Bulletin

Wednesday, 9th November, 2011

(For the period 9th to 13th November, 2011)



Satellite image 0600 UTC dated 11th 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 is report of overflowing of rivers and water logging situation in many districts of Tamil Nadu during last week due to excess rainfall during last few weeks. Farmers in these districts are advised to monitor the situation and arrange for draining out excess water from the fields. As there is no chance of significant rainfall in Tamil Nadu during next three days, receding of water is anticipated. Farmers are advised to undertake land preparation and sowing of crops in medium and uplands depending upon the field conditions.

Damage to rice crop was reported in some areas of the Coastal Zone of Karnataka due to high rainfall received during the past five days. Farmers are advised to drain out excess water from the fields to avoid further damage.

Under the influence of Western Disturbance, rain / snow is likely at many places over Jammu & Kashmir and with the possibility of isolated heavy rain / snow, farmers are advised to postpone irrigation to standing crops and provide adequate drainage facilities to avoid waterlogging in the field. As dry weather prevailed over most of the remaining parts of the country, farmers are advised to undertake harvesting of matured *kharif* crops. In the areas where late sowing of *kharif* crops was undertaken, arrange for supplementary irrigation as the crops are now at critical stages. After harvesting of *kharif* crops, undertake minimum tillage for preserving residual soil moisture and sowing of *rabi* crops.

Due to favourable weather condition, farmers are advised to undertake land preparation and sowing of gram, pea, potato, and maize in Madhya Pradesh, sunflower in Chhattisgarh, gram, sunflower, wheat and green pea in Madhya Maharashtra, cowpea and kulthi in Konkan, wheat and gram in Gujarat, mustard, green pea and wheat in Orissa, maize and potato in Bihar, gram, mustard and toria in Jharkhand and maize, pea, rapeseed and mustard in Assam.

Due to prevailing weather, incidences of leaf and neck blast in rice, bud / pod borer damage in red gram, Bihar hairy caterpillar in bhindi in Karnataka and root rot in pulses in Tamil Nadu are noticed below economic threshold level. Farmers are advised to undertake appropriate plant protection measures to control the pests and diseases.

Distribution of rainfall of the country during last week

State/Districts	Actual (mm)	% Dep.
Arunachal Pradesh		
Changlang	0.5	-98
East Kameng	0	-100
East Siang	0	-100
Lohit	0	-100
Lower Subansiri	23	43
Papumpara	0	-100
Tawang	19	104
Tirap	0.4	-97
Upper Siang	4.6	-90
Upper Subansiri	0	-100
West Kameng	6.5	-30
West Siang	**	**
Assam		
Baska	**	**
Barpeta	0	-100
Bongaigaon	0	-100
Cachar	0	-100
Chirang	0	-100
Darrang	**	**
Dhubri	0	-100
Dibrugarh	0.6	-90
East Garo Hills	0	-100
East Khasi Hills	2.7	-79
Goalpara	0	-100
Golghat	1	-84
Hailakandi	0	-100
Jaintia Hills	9	-81
Jorhat	0	-100
Kamrup (metropolitan)	0	-100
Kamrup	0	-100
Karbi Analog	0	-100
Karimganj	0	-100
Kokrajhar	0	-100
Lakhimpur	0	-100
Morigaon	4.2	-28
N.C.Hills	0	-100
Nowgong	0.5	-94
Nalbari	0	-100
Ribhoi	64.1	1182
Sonitpur	0	-100
Sibsagar	0	-100
Tinsukia	1.3	-85
Udalgiri	0	-100
Jammu & Kashmir		
Anantnag	3.3	-71
Badgam	16.7	113
Bandipore	**	**
Baramula	20.3	315
Doda	0.0	-100
Ganderwal	28.8	247
Jammu	0.0	-100
Kargil	0.0	-100
Kathua	0.0	-100
Kistwar	**	**
Kulgam	11.1	-2
Kupwara	34.7	150
Ladakh(Leh)	0.0	-100
Poonch	**	**

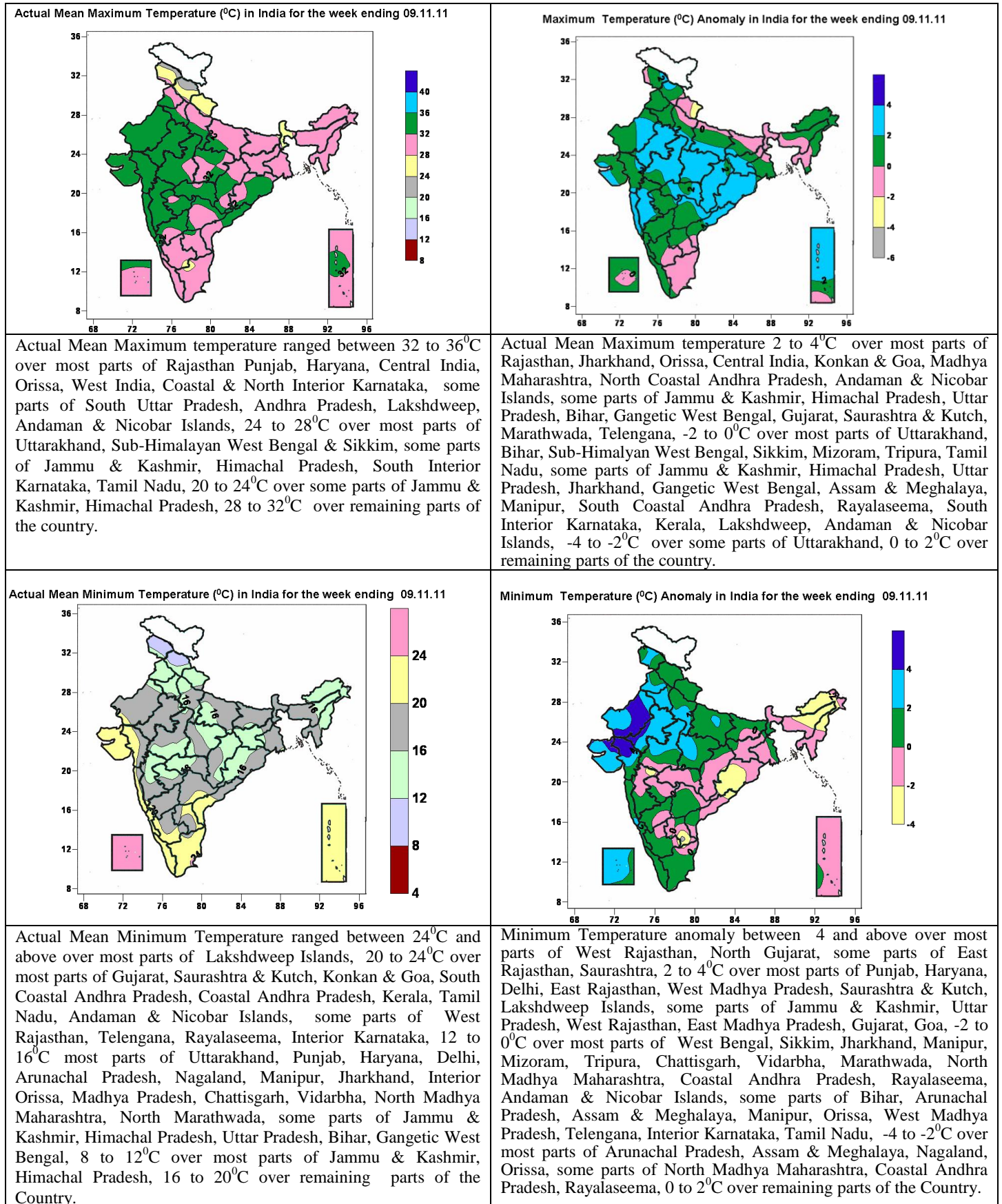
Pulwama	0.7	-86
Rajouri	4.2	200
Ramban	0.7	-92
Reasi	0.0	-100
Samba	0.0	-100
Shopian	0.0	-100
Srinagar	15	81
Udhampur	0.0	-100
Karnataka		
Coastal Karnataka		
Dakshin Kannada	111.9	256
Udupi	99.3	244
Uttar Kannada	11.4	-18
North Interior Karnataka		
Bagalkote	0.0	-100
Belgaum	0.0	-99
Bidar	0.0	-100
Bijapur	0.0	-100
Dharwad	0.2	-98
Gadag	0.3	-98
Gulbarga	0.4	-93
Haveri	1.0	-93
Koppal	1.3	-85
Raichur	0.0	-99
Yadgir	0.0	-100
South Interior Karnataka		
Bangalore Rural	12.8	-34
Bangalore Urban	49.7	186
Bellary	1.5	-85
Chamarajnagar	66.5	211
Chichballapur	25.5	44
Chickmagalur	34.8	63
Chitradurga	5.1	-53
Davangere	2.7	-82
Hassan	75.7	252
Kodagu	81.9	204
Kolar	12.4	-29
Mandya	76.0	342
Mysore	61.1	241
Ramnagara	30.6	72
Shimoga	17.4	19
Tumkur	17.9	17
Kerala		
Alappuzha	55.3	-8
Kannur	44.0	49
Ernakulam	76.2	58
Idukki	113.0	89
Kasaragod	150.8	364
Kollam	140.5	87
Kottayam	78.3	24
Kozhikode	184.6	302
Malappuram	109.5	157
Palakkad	135.9	166
Pathanamthitta	45.3	-33
Thiruvananthapuram	43.5	-32
Thrissur	130.7	191
Wyanad	72.4	115
Tamil Nadu		
Chennai	135.2	35
Coimbatore	87.1	75
Cuddalore	120.1	30

Dharmapuri	79.1	144
Dindigul	74.3	32
Erode	103.8	139
Kanchipuram	65.4	-22
Kanyakumari	71.9	-1
Karur	68.5	58
Krishnagiri	44.6	85
Madurai	88.3	60
Nagapattinam	51.4	-57
Namakkal	53.1	47
Nilgiris	63.2	2
Perambalur	47.2	-2
Puducherry	39.1	-69
Pudukottai	47.7	17
Ramanathapuram	38.2	-39
Salem	67.7	72
Sivaganga	72.6	29
Thanjavur	58.3	-22
Theni	87.1	71
Tirunelveli	46	-33
Tiruvallur	95.3	27
Tiruvannamalai	35.7	-26
Tiruvarur	44.2	-51
Toothukudi	18.3	-69
Trichy	44.8	-5
Vellore	38.9	7
Villupuram	62	3
Virudhunagar	65.5	11
Andhra Pradesh		
Coastal Andhra Pradesh		
East Godavari	0	-100
Guntur	0.3	-99
Krishna	1.6	-94
Nellore	97	14
Prakasam	23.4	-43
Sirkakulam	0	-100
Visakhapatnam	0	-100
Vizianagram	0	-100
West Godavari	0	-99
Telangana		
Adilabad	0	-100
Hyderabad	7.3	-38
Karimnagar	0	-100
Khammam	0	-100
Mehabubnagar	0	-100
Medak	0	-100
Nalgonda	0.9	-94
Nizamabad	0	-100
Rangareddy	0.9	-88
Warangal	2.6	-75
Rayalaseema		
Anantapur	10.2	-19
Chittoor	32.7	-13
Cuddapah	29.5	13
Kurnool	1.3	-85

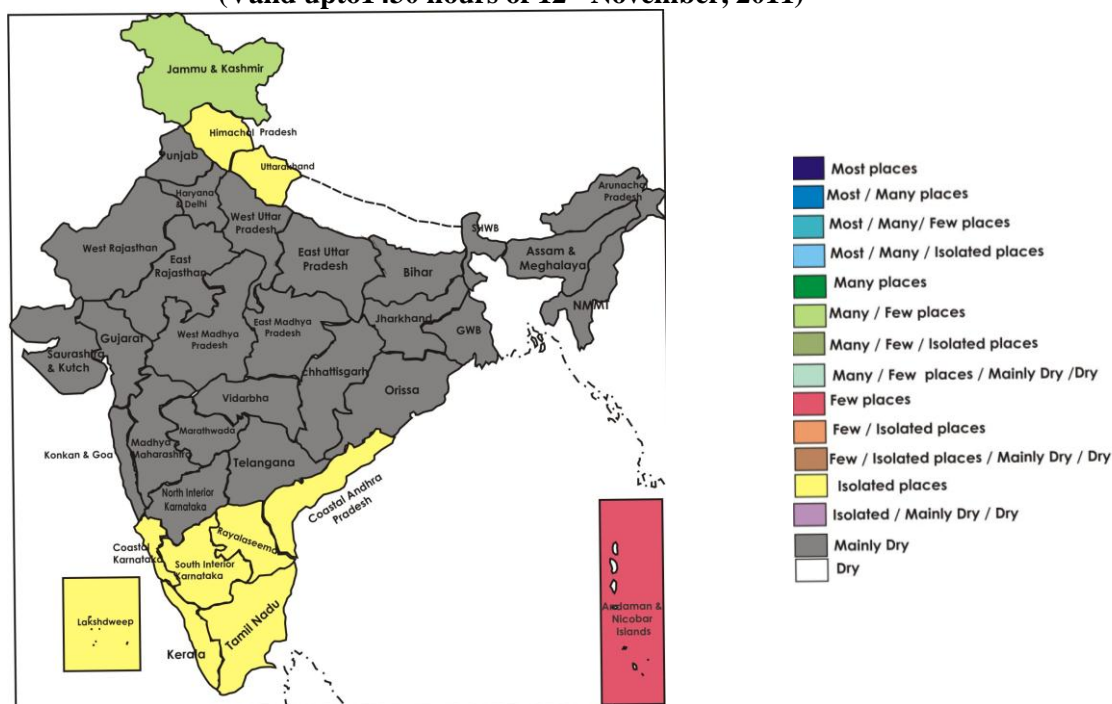
(20% or more) excess rainfall
 (-19 to +19%) normal rainfall
 (-20 to -59%) deficient rainfall

(-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 09.11.2011



Weather Forecast (Valid upto 1430 hours of 12th November, 2011)



Major Feature of Weather Forecast upto 1430 hours IST of 12th November, 2011

- Rain/snow would occur at many places over Jammu & Kashmir and at one or two places over Himachal Pradesh and Uttarakhand.
- Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands.
- Subdued rainfall would occur over south Peninsular India during next 3-4 days due to weakening and southward shift of easterly wave.
- Mainly dry weather would prevail over remaining parts of the country.
- Minimum temperatures would increase by about 2°C over parts of northwest and adjoining central India during next 48 hours.

Weather Warning

- Heavy rain/snow (3 cm or more) would occur at one or two places over Jammu & Kashmir during next 48 hours.

Weather Outlook up to 1430 hours IST of 14th November, 2011

- Decrease in rain/snowfall activity over western Himalayan region.
- Weather would be mainly dry over remaining parts of the country.
- Fall in temperature (maximum & minimum) by 2-4°C over northwest and adjoining central India.

Zonewise Agromet Advisories

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

- **Realised Rainfall:** No significant rainfall occurred in most of the districts of the State.
- **Rainfall Forecast:** Mainly dry weather would prevail over the states of the region 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 onion, garlic, tomato, radish etc. Continue sowing of niger, potato, wheat, rapeseed and mustard, *rabi* pulses etc.
 - Farmers in Karbi Anglong district in Assam are advised for coconut planting in low lying areas with irrigation facility by sub- surface planting method. Also, complete sowing of rapeseed and mustard.
 - In Lower Brahmaputra Valley Zone of Assam, farmers are advised to start harvesting of jute where crop is at small pod stage.
 - In Arunachal Pradesh, farmers are advised to continue sowing of maize, pea, mustard etc.
 - Farmers in Mid Tropical Plain Zone of Tripura are advised to undertake land preparation and planting of potato tuber.
 - Farmers in Arunachal Pradesh are advised to start land preparation and sowing for *rabi* crops like maize, pea, mustard etc. and transplanting of vegetables.
 - Farmers in Mid Tropical Hill Zone in Nagaland are advised to continue sowing of *rabi* crops like rapeseed, mustard, pea etc.
 - Farmers in Tripura are advised to transplant cole crops and tomato and undertake land preparation and sowing of potato.
 - Farmers in Temperate Sub Alpine Zone of Meghalaya are advised to start nursery bed preparation and sowing of *boro* rice. Also undertake land preparation and sowing of wheat.
 - Farmers of Sub tropical Plain Zone of Manipur are advised to continue preparation of bed for raising nursery of tomato, onion, cabbage, cauliflower etc.
 - 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 Hill Zone of Assam, there is chance of infestation of stem borer in *sali* rice; farmers are advised to monitor the crop and spray Chloropyrifos (20%) @ 2 ml / litre of water to control the attack.
 - 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.
 - In Kolasib region of Mizoram and Mid Tropical Plain Zone of Tripura, there is attack of leaf spot on ginger and turmeric; spray Blitox or Blue copper @ 3 g / litre of water to control the attack.
 - In Mid Tropical Plain Zone of Tripura, there is chance of attack of ear cutting caterpillar in rice at milk stage. Monitor the crop and spray Malathion 1.5 ml per liter of water and remove weeds from the bund.

- In Kolasib region of Mizoram, due to favourable weather condition, chances of fruit cracking is more; to minimize it, proper mulching and nutrient management especially boron is advised.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - The farmers in Center and Lower Bramhaputra Valley Zone of Assam are advised to vaccinate cattle, goat and pigs against BQ, HS, Foot and mouth disease and anthrax disease.
 - Deworm pigs / piglets regularly in Mizoram and Tripura.
 - 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 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, FMD, Ectoparasites etc. Also vaccinate poultry against Gumboro disease (IBD vaccine).
 - Goat farmers in Arunachal Pradesh are 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 would prevail over the states of the region during the period.
- **Advisories:**
 - As there is no significant rain during last few weeks in most of the districts of the States of the region, farmers are advised to apply irrigation to the standing crops.
 - Undertake sowing of oilseed crops like mustard in Western Undulating Zone, East and South Eastern Coastal Plain Zone of Orissa.
 - Farmers are advised for sowing of cole crops and sunflower in the fallow uplands. The weather is also optimum for sowing of fodder oat in irrigated up-medium and medium land in East and South Eastern Coastal Plain Zone of Orissa.
 - Taking advantage of relatively dry weather, harvest the pods of *kharif* green gram and black gram in Orissa.
 - In East and South Eastern Coastal Plain Zone of Orissa, it is optimum time for sowing of green pea, mustard, wheat etc. in the fallow uplands.
 - As the temperature condition is favourable, farmers in the districts of north Bihar are advised to continue sowing of yellow sarson (mustard). Farmers are also advised to carry out land preparation and sowing of other *rabi* crops in these districts.
 - As weather will remain dry in North West Alluvial Zone of Bihar, farmers are advised for harvesting and threshing of rice crop. Weather condition is now suitable for sowing of *rabi* maize; prepare the fields and undertake sowing of this crop. Temperature condition is also now congenial for planting of potato.
 - 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 South Eastern Plateau Zone of Jharkhand are advised to undertake sowing of Chick pea.
 - Farmers in Red and Lateritic Zone of West Bengal are advised to undertake sowing of carrot, radish. Taking the advantage of prevailing dry weather, early sown *Aman* rice can be harvested. Stop irrigation before 10 days of harvesting.
 - Farmers in Old Alluvial Zone of West Bengal are advised to undertake land preparation and sowing of wheat, mustard, tomato and potato.
 - Farmers in Hill Zone of West Bengal are advised to undertake harvesting of Rice. Also undertake of land preparation and sowing of mustard, wheat and potato.
 - 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.
 - Clear sky with cool and high humid weather condition may favour false smut disease in rice in South Eastern Plateau Zone of Jharkhand; spray Chlorpyrifos 20 EC @ 0.6 liter per acre or Carbaryl 50 WP @ 1 g or Carbaryl 5 percent dust @ 10 kg per acre during dusk or evening time. Lower environmental temperature are more likely to favour the attack of various leaf eating and sucking pests in pigeon pea; spray Monochrotophos @ 1 ml per liter of water during day time. To control infestation of leaf eating insects due to variable weather condition 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 spotted boll worm is reported in cotton in East and South Eastern Coastal Plane Zone of Orissa; spray 200 LE HNVP along with gur, if it crosses the ETL of 5 – 10 % of affected twigs and install pheromone trap in the middle of the field at 1 ft above the crop height.
 - 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. If Gundhi Bug is found in rice, use Fipronil @ 1 ml / litre or in case of higher incidence, use Imidachloprid @ 1 ml in 4 liters 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.
 - 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.
 - In North Central Plateau Zone of Orissa, clean the shed and deworm the 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.

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:** Rain/snow is likely to occur at many places over Jammu & Kashmir during next 48 hours and at a few places thereafter, at isolated places over Himachal Pradesh and Uttarakhand during next three days. Mainly dry weather is likely to prevail over remaining parts of the region. (9.11.11 evening f/c)
- **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. Transplant mature seedlings of cauliflower, cabbage, broccoli and tomato. Nursery preparation may be started for late crops.
 - As temperature is favourable 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. Complete sowing of mustard crop. Prepare nursery bed for sowing of tomato. As dry weather is expected in coming days, irrigate sugarcane crop during these days. Transplant 4 to 6 weeks old seedlings of cabbage, chinese cabbage and late season cauliflower. 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 go for sowing of barley, early variety of wheat under rainfed and irrigated areas with available soil moisture. Also advised for sowing of mustard, pulses, vegetable crops like radish, carrot, turnip, garlic, spinach and methi and immediate sowing of berseem. Undertake transplanting of cauliflower, knol khol, broccoli, winter lettuce, chinese cabbage and beet leaf in green house in cold arid zone of Leh. Farmers are also advised to go for harvesting of mosambi, sweet lime and late apple varieties due to avoid loss due to sudden fall in temperature. Irrigation to the orchard at 15 days interval is advised to avoid desiccation due to autumn / winter winds.
 - Farmers in Himachal Pradesh are advised to sow vegetables (raddish, turnip, coriander, cabbage, knol khol, broccoli, parsley, lettuce, fenel and cauliflower), potato, wheat and gobhi sarson.
 - In Uttar Pradesh, farmers are advised to undertake sowing of barley, oat, masur, sarson, gram, toria, safflower, linseed, potato, chickpea, pea, rajmash and berseem during this week as the temperature will remain favourable for sowing and also advised to sow wheat before 15th of November. Farmers are also advised to undertake nursery sowing of onion, carrot, radish, tomato. In harvested rice fields, plough the field for breaking the hard layers and clods for improving the soil tilth for sowing of *rabi* season crops.
 - Farmers in Bhabar and Tarai Zone of Uttarakhand are advised to give irrigation in Toria and Mustard crops of 30 days duration, since dry weather is expected during this week, and top dress 1/2 kg Urea per Nali & do weeding & thinning operations for crop growth. Complete harvesting & threshing operations of matured Soybean & Finger millets crops during this week and keep the produce in safer place. Farmers having irrigation facilities are advised to give light irrigation in vegetable crops like vegetable pea,

coriander, spinach, radish, fenugreek etc. as per the soil moisture deficit and crop need during this week. Undertake weeding in earlier sown garlic and onion and apply irrigation.

- 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 and carrot. Transplanting of cabbage, cauliflower and tomato may be done in this week. Intercultural operations in tomato may be undertaken.
 - 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 (Jaipur).
 - In semi-arid western plain zone (Jaipur) of Rajasthan, mustard crop is likely to be affected by the attack of Painted bug & mustard saw fly. Farmers are advised to broadcast Methyl parathion 2% @ 20-25 kg ha⁻¹ for the control of same insects. Blight disease may spread in tomato, chilli & brinjal crops. Farmers are advised to spray Mencozeb @ 2 gm per litre water. Mango, Guava & pomegranate may also be attacked by millibug insect. Hopper of this bug suck sap of tender leaves of these trees. To control this, it is advised to mix quinalphos 1.5 % granules @ 50-100 gm per tree in soil at a depth of 10-25 cm.
 - 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, during 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 Uttarakhand, vaccinate the animals for various diseases as they are more prone to diseases in this weather. For the control of cough use piperazine citrate @50-30 ml/animal.
 - In semi-arid western plain zone (Jaipur) of Rajasthan, in view of falling night temperature, livestock raisers are advised to protect their infant animals from pink cold. They are also suggested for deworming of animals. Except pregnant animals, deworming medicines like Albendazol, Fenbendazol may be given to animals under the guidance.

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

- **Realised Rainfall:** Nellore in Coastal Andhra Pradesh, Chittoor in Rayalaseema, Bangalore Urban, Chamarajnar, Chickmagalur, Kodagu, Hassan, Mandya, Ramanagara, Mysore in South Interior Karnataka and all / most of the districts in Kerala, Tamil Nadu and Coastal Karnataka received good rainfall. No significant rainfall was received in remaining parts of the region.
- **Rainfall Forecast:** Either mainly dry weather or rain / thundershowers at isolated places is likely to occur over the region during next three days.
- **Advisories:**
 - Excess rainfall causing overflowing of rivers and flood like situation in most of the districts of Tamil Nadu was observed during last week. Crop fields have been inundated with rain water. Farmers are advised to monitor the fields and advised to arrange drainage faculties. As there is no chance of significant rainfall during next three days, receding of water is anticipated.
 - Good rainfall occurred in most of the districts of Tamil Nadu and Kerala during last week. Farmers are advised to undertake land preparation and sowing of crops. Drain out excess water from the fields to avoid water stagnation. Postpone sowing of crops at the time of heavy rainfall.
 - Kharif rainfed crops are affected due to less rainfall and only 15% of Rabi area 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, groundnuts, which were under stress was observed. Groundnut and sunflower are mostly in non-recoverable stage. Farmers are advised to arrange for life saving irrigation wherever possible.
 - Damage to paddy crop was reported in the Coastal Zone of Karnataka due to high rainfall received in the past five days. Farmers are advised to drain out excess water from the fields to avoid water stagnation and undertake harvesting as early as possible.
 - As there was sufficient rainfall in Nellore in Coastal Andhra Pradesh, Chittoor in Rayalaseema, Bangalore Urban, Chamarajnar, Chickmagalur, Kodagu, Hassan, Mandya, Ramanagara, Mysore in South Interior Karnataka and most of the districts in Kerala, Tamil Nadu and Coastal Karnataka, postpone irrigation to the crops. Apply irrigation to the crops in the remaining parts of the region.
 - 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.
 - 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 rice 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, spray need based fungicides and insecticides for crops 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.
- Since moderate rainfall is forecasted for the next five days in the Problem Area Zone of Kerala, farmers are advised to immediately drain out the excess water, complete harvesting using combined harvester and undertake land preparation for the next crop.
- Since light rainfall is expected in the next five days over Cauvery Delta Zone of Tamil Nadu, farmers are advised to use foliar spray of 2% DAP during flowering to increase number of filled grains and grain yield in Kuruvai paddy.
- Due to continuous flooding, Zn deficiency is noticed in few areas in the Southern Zone of Tamil Nadu. Foliar spray of 2% twice with an interval of 15 days helps to overcome the yellowing in leaves.
- Problem of sucking pests, stem borer and cut worms in cotton, murda disease in chilli, spodoptera in soybean, groundnut, maize, blast disease in paddy and sphingid moth and powdery mildew in green gram was noticed in North Transition Zone of Karnataka due to cloudy weather. Farmers are advised to spray 1.7 ml Rogar / 1.5 ml Metasystox + 2.5 ml Dicofol to control sucking pests, SL NPV (100 LE)@ 1 ml / L and second spray after 20 days with Lamidasilothrin (Karate) @ 0.5 ml / L or Neaumorina riley @ 1 gram per litre at the interval of 15 days to control spodoptera, drench the soil along the seedling with endosulphan @ 2 ml /L to control cut worms, destroy the adult insects and spray carbaryl (50WP)@ 4 gram or Chlorpyrifos (20 EC) @ 2 ml per litre to control sphingid moth, spray with cabendizim @ 1 gram per litre or trisciclozole @ 0.6 gram per litre of water to control Blast disease and spray wettable sulphur @ 3 grams per litre or carbendizim @ 1 g per litre of water powdery mildew.
- Incidence of leaf and neck blast in paddy, bud/pod borer damage in red gram crop, bihari hairy caterpillar in bhendi crop was noticed in the Southern Dry Zone of Karnataka. Farmers are advised to take up spraying of carbendizim @1 gm or Kitazin @ 1 ml or Tricyclozole 0.6 gm/ lt. of water to control leaf and neck blast, chlorpyrifos 20EC@ 2 ml or endosulphan 35EC@ 2ml or indoxicarb 14.5 SC @1ml or sphynozad @45SC 0.25ml/lt. of water or dusting of melathian @ 5% to control bud/pod borer and ekalux @ 2.00ml per ltr. of water to control bihari hairy caterpillar.
- Incidence of maruka (leaf webbing) pest in red gram 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 it.
- Due to continuous rainfall in the last week in the South Zone of Tamil Nadu, incidence of root rot is noticed in pulses. For controlling this disease spot drench with carbendazim 1 g / l.
- Incidence of panicle mite is noticed in late planted rice, fusarium wilt in bengal gram, 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.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** No significant rain received during the period over the States.
- **Rainfall Forecast:** Mainly dry weather would prevail over the States during the period.
- **Advisories:**
 - As mainly dry weather prevailed during last few weeks and no significant rain is expected during the period over the States, farmers are advised to apply irrigation to the standing crops.
 - Farmers in Konkan and Madhya Maharashtra region are advised to continue harvesting of medium and late varieties of *kharif* rice. Farmers in East Vidarbha region are also advised to continue harvesting of rice.
 - Farmers in Marathwada and Vidarbha region are advised to continue picking of fully opened cotton bolls.
 - Farmers of Madhya Maharashtra are advised to undertake sowing of *rabi* sunflower.
 - Prevailing weather is favourable for the planting of pre-seasonal sugarcane crop. Farmers in Madhya Maharashtra and Marathwada region are advised to undertake planting of pre-seasonal sugarcane.
 - In view of prevailing weather farmers in Madhya Maharashtra and Vidarbha region are advised to undertake sowing of irrigated gram and wheat.
 - 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.
 - Prevailing weather is favourable for sowing of green pea in Madhya Maharashtra.
 - Farmers in Middle Gujarat Zone are advised to sow wheat, gram and *rabi* maize and plant potato.
 - Carry out sowing of *rabi* crops in Bhal and Coastal Zone. Picking of cotton and castor may be done in early morning hours. Taking the advantage of dry weather apply basal dose of Nitrogen @ 25 kg / ha, Phosphorus @ 50 kg / ha in mustard.
 - Farmers in South Gujarat Zone are advised to complete sowing of wheat in this month.
 - Under high temperature condition, farmers in South Gujarat Heavy Rainfall Zone are advised to apply irrigations in the *kharif* crops like castor, vegetables etc. Carry out sowing of gram. Complete sowing of mustard.
 - Suitable varieties of the crops for sowing are mentioned in Annexure II.
 - Under prevailing dry weather, farmers in South Saurashtra Zone of Gujarat are advised to irrigate cotton and castor. Picking of cotton may be carried out.
 - Farmers in North West Zone of Gujarat are advised to harvest green gram and pulses.
 - Weather is congenial for infestation of blight and leaf spot in turmeric in Pune Division; spray Mancozeb 75 WP @ 30 g or Carbendazim 50 WP @ 10 g per 10 litres of water at an interval of 15 to 20 days.
 - In view of present weather, there may be attack of shoot fly in *rabi* jowar in Marathwada; spray Quinolphos @ 15 ml or Carbosulfan @ 20 ml in 10 litres of water.
 - Present weather is favourable for infestation of *Helicoverpa* larvae at flowering and pod formation stage in red gram in Madhya Maharashtra. For control, spray Heliokil @ 200 ml per acre in 200 litres of water at an interval of 15 days.

- There may be incidence of thrips and blight on onion in Pune Division. For control of thrips, spray Profenophos @ 10 ml or 25% Cypermethrin @ 5 ml or Carbosulfan @ 10 ml per 10 liters of water at an interval of 15 days. For control of blight, spray Mancozeb 0.25% or Carbendazim 0.1% or Chlorothalonil 0.25% in water at an interval of 15 days.
- The Prevailing weather condition are favourable for attack of mango shoot borer and midge fly on new flush of mango in Konkan; spray Monocrotophos 36 WSC @ 11 ml/10 litres.
- Weather condition is favourable for outbreak of thrips in castor, cotton, chilies and fennel in North Gujarat Zone. Farmers are advised to spray Mithyl- o-Dematone 25% or Dimethoate 30 E.C. @ 10 ml / 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% wetttable Carbaril @40 g or 50 EC Profenphos @ 10 ml or 20 EC Quinalphos 20 ml with 10 g detergent powder in 10liters of water.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
- Farmers in North-West Zone of Gujarat are advised to give antibiotic R to B @ 0.5 ml to the poultry birds and antibiotic dose to the animals.

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 favourable weather condition in Bundelkhand Zone of Madhya Pradesh, farmers are advised to start sowing of wheat after 4-5 days in irrigated areas. They are also advised to do hoeing and weeding in fruit orchard basin and use bordopest in stems. Sowing of winter seasonal vegetable crops like tomato, brinjal, cauliflower, coriander, radish, carrot. Farmers are advised to undertake sowing of medium and late maturity varieties of pea. Stop irrigation in mango orchard for better flowering.
 - In Kymore Plateau and Satpura Hill Zones in Madhya Pradesh, temperature and soil moisture is optimum for sowing of *rabi* crops like chickpea, mustard, linseed and lentil and prepare nursery for vegetable crops like cauliflower and cabbage and transplant seedling in main field at optimum moisture level in the field.
 - Farmers in Central Narmada Valley Zone of Madhya Pradesh are advised to prepare field for sowing of Rabi season crop 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 do transplanting of vegetable crops.
 - 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 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.
- 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), *boro* rice (nursery preparation / sowing), wheat, toria, linseed, tomato (sowing), 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, wheat, lentil, potato (land preparation / sowing), rapeseed and mustard (land preparation / sowing / vegetative) in Assam.
- Rice (Mipun cultivar) (grain filling / maturity), cabbage, cauliflower, knolkhol etc. (transplanting / vegetative), pea, mustard (sowing), ginger and turmeric (harvesting) and maize (sowing) in Arunachal Pradesh.
- *Kharif* rice (grain filling / maturity), potato, pea (land preparation / sowing), rapeseed / mustard (sowing), tomato (nursery raising / transplanting), cauliflower and cabbage (nursery sowing / transplanting / vegetative), onion (nursery raising / vegetative), broccoli (nursery preparation), brinjal (flowering / fruiting) in Manipur.
- Arhar (pod formation), *sali* rice (milk / dough / maturity), *boro* rice, wheat (sowing), *rabi* maize (vegetative / flowering), pea, garlic and lettuce (sowing), ginger and turmeric (late sown) (vegetative), *toria* (vegetative), groundnut (pod formation), onion (bulb formation / maturity), potato (vegetative), *Khasi* mandarin (flowering / fruiting) and banana (vegetative), lentil, mustard, rapeseed (vegetative/ flowering), broccoli (vegetative), winter vegetable (vegetative) in Meghalaya.
- Rice (harvesting), groundnut, soyabean (pod formation), 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.
- Soyabean, groundnut (pod formation), okra (flowering / fruiting), lowland rice (harvesting), banana (vegetative / fruiting), cabbage (transplanting), pea (vegetative / flowering / pod formation), pigeon pea (pod filling), rapeseed, mustard (land preparation / sowing), French bean (sowing), *rabi* crops (sowing), broccoli (transplanting), mandarin (pre bearing) and papaya (transplanting) in Nagaland.
- Lowland rice (flowering), *Aman* rice (flowering / milk / dough), cucurbits and other vegetables (flowering / fruiting), ginger and turmeric (rhizome formation / harvesting), 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 (grain formation / maturity), sesame (pod formation / 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), groundnut (seed formation / maturity), turmeric and ginger (planting / early vegetative), yam (sowing), green pea, wheat, mustard (sowing), green gram, black gram, niger, other pulses (seed formation / maturity), mango, banana, lemon, cashew nut and marigold (planting), sunflower (sowing), groundnut (land preparation / sowing) in Orissa.
- *Aman* rice (milk / dough / maturity), mango, coconut, guava, banana (planting), *kharif* vegetables (fruiting / harvesting), winter vegetables (sowing / transplanting / early vegetative), mustard (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 / dough / 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 (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 (field preparation/ nursery sowing / transplanting), maize, bajra (maturity), rice (maturity / harvesting), *Rabi* oilseeds i.e. toria, gobi sarson (sowing / emergence / vegetative), *rabi* mustard, pulses (i.e. lentil, pea, fodder crops (oats) (land preparation/sowing), 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 (milking/maturity/harvesting), wheat (sowing), winter sugarcane (vegetative growth / formative), summer sugarcane (initial growth / formative stage), cucurbits like gourd, bitter gourd, cucumber, etc. and another vegetables like lady's finger, tomato, brinjal, chilli etc. (sowing / flowering/fruitletting), arhar, toria (flowering), tomato, brinjal, bhindi (vegetative / fruitletting), cabbage, garlic, cauliflower(sowing / transplanting/flowering / fruitletting), barseem, potato, sarson, masoor, pea, 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 Sriganganagar), 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/ (transplanting / vegetative / tillering) kuruvai (flowering and maturity), cotton (vegetative/ boll formation/harvest), vegetables (nursery / transplanting), sugarcane (vegetative/ grand growth/maturity), maize, sorghum, red gram and pulses (vegetative), groundnut (pod development / maturity stage) in Tamil Nadu.
- Sugarcane (grand growth), cotton (boll development), hybrid jowar, maize (harvesting), ragi, sunflower (maturity), bengal gram (sowing / vegetative), red gram (flowering/ pod formation), rabi jowar (sowing), late planted paddy (maturity/ harvest), rabi sorghum, wheat and safflower (sowing), groundnut (harvest) and horticultural crops (vegetative growth/ flowering/ fruit development) in Karnataka.
- Maize (harvesting), jowar, cotton (boll formation/maturity), rice (tillering /panicle initiation), groundnut (pod development/ harvesting), bajra (harvesting), rabi pulses green gram, bengal gram (sowing) in Andhra Pradesh.
- Black pepper (harvesting), ginger (maturity/harvest), *mundakan* rice (transplanting / 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

formation / boll maturity / picking), red gram (pod formation / seed formation), *rabi* jowar (germination / early vegetative), safflower (germination / early vegetative), irrigated gram (sowing / germination), irrigated wheat (sowing / germination) in Maharashtra.

- *Kharif* bajra (harvesting), vegetables (fruiting / harvesting), sugarcane (vegetative), groundnut (maturity / harvesting), *kharif* pulses (grain maturity / harvesting), *kharif* maize (harvesting), gram (sowing), *rabi* maize (sowing), 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, Boro2, 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, PusaRatnar, Pusa White, N-53.

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

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

Lentil: B-77, L-9-12.

Potato: Kufri Chandramukhi, Kufri Jyoti, Kufri Sindhuri.

Niger: NG-1, GA-5.

Manipur

Pea: Arkel, Azad, Rachana.

Cabbage:

for small size: Green Wonder.

for medium to big size: Rareball.

for big size: Green Hero.

Cauliflower: White Flash.

Potato: KufriMegha, KufriJyoti.

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, Ryozeke, Harnil.

Broccoli: Pushpa, Pusa Broccoli, Aishwarya and Fiesta.

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

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.

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 Nikatan, Arkakalyan, Agrifound Dark Red.

Chick Pea: Birsachana – 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

Onion: N-53, Agrifound Dark Red and Baswant 780.

Radish: Pusa Chetki, Pusa Deshi, Pusa Himani, Pusa Reshmi, Japani Safed, Arka Nishant.

Sweet Potato: Rajendra Shakarkand-5, Krash-4, Rajendra Shakarkand-35, Rajendra Shakarkand-43, Rajendra Shakarkand-47, Shri Bhadra, Kalmegh, Rajendra Shakarkand-92.

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 L 406, 639, Malika, Arun.

Peas: Ratna, Aprna, Harbhajan, Malbai.

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; 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
Barley : var. Ratna, Jyoti and Sonu
Mustard: RLM-514, RLM-619, Kranti, Varuna and RH –30
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

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

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
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.

Linseed : T-397, Nilam, Heera, Garima, Sweta, Subhra, Kiran, Sheetal, Gourav, Padmini

Safflower: K-65, Malaviya-305

Massor: KLK 75, DWL62, L-4076, Pant masoor-639, 406, 234, malika, IPL-81.

Pea: Aparna, Rachana, Pant Matar-5, 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

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 : Kufri Chandramukhi, Kufri Bahar, Kufri Pokharaj, Kufri 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 Non-irrigated var. (C-306, K-8027, K-8962, K-9351, K-9644)

Barley : irrigated var. (Jyoti, R.S.-6, Narendra J-1,2,3, Manjula), non-irrigated var.(K-144),

Lakhan, Haritama, K-603, Gitanjali)

Fodder berseem: JHDB-146.

Rajasthan

Wheat: HD-2329, H.D. 2009 (Arjun), WH147, Raj-3765, Raj-3077, Raj-3777, Raj.4037, 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-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, , 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.

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

Gujarat:

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-1 or GCT-3.

Cauliflower: Pusa Early, Pusa Dipali, Pusa Kartiki, Early Kuvvari, Pusa synthetic, Early Snowball, Jayyant Snowball, Pusa Snowball, super Snowball, Snowball-13.

Cabbage: Kranti, Golden Acre, Pride of India, Coppin Market.

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

Potato: Kufri Badsah, Kufari Pokhraj, Kufari Lokar.

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.

Green Pea: Bonevilla, Arkel, Phule Priya.

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), NIAW-34 (for late sowing in Madhya Maharashtra) and HD-2189, AKW-1071, HD-2380 and MASC-2496 (in Central Vidarbha).

Rabi Sunflower: Morden, SS-56, EC-68414, KBSH-11, APSH-11, BSH-11 and Phule Bhanu.

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

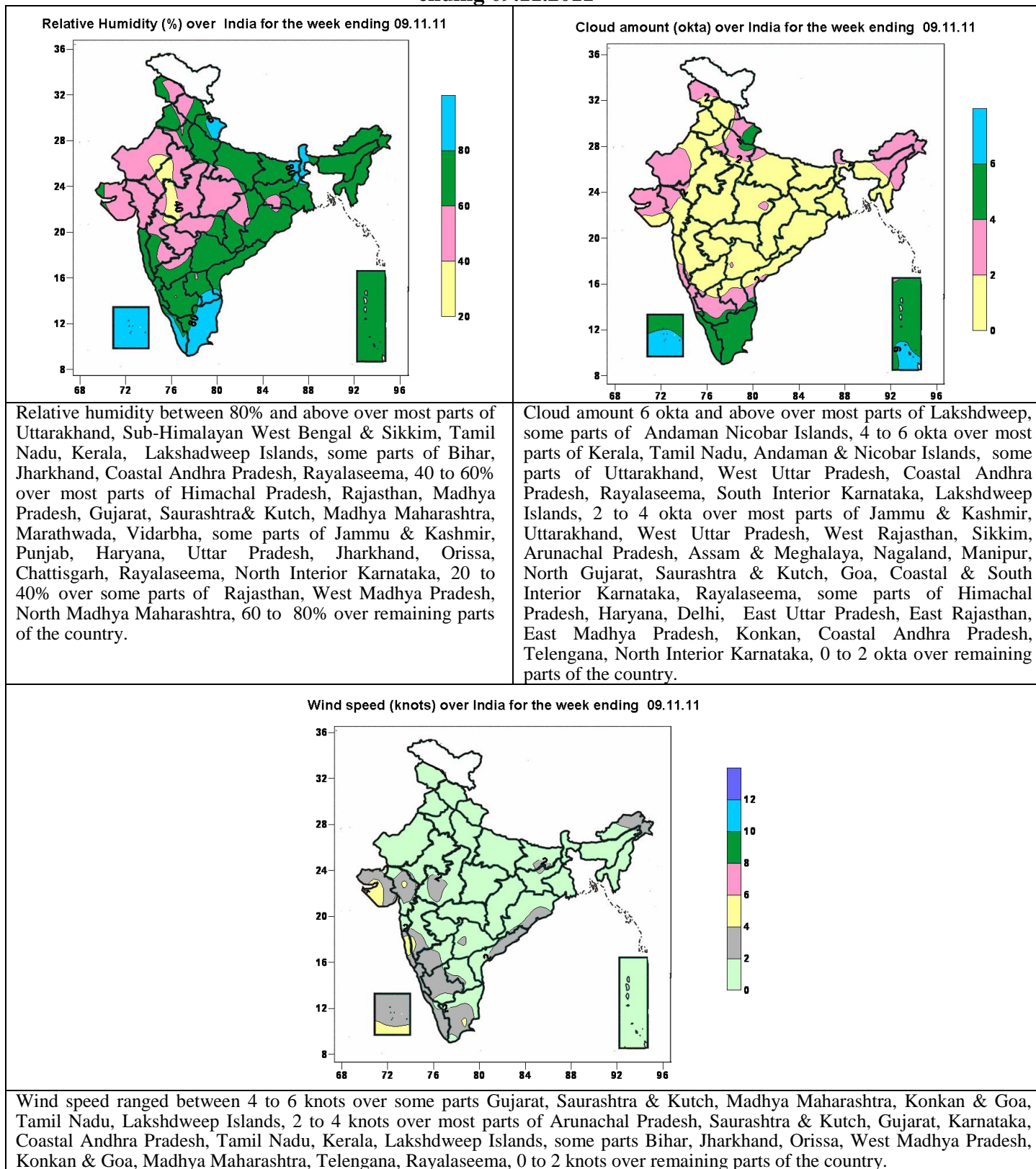
Pea- Jawahar peal and 2

Chattisgarh

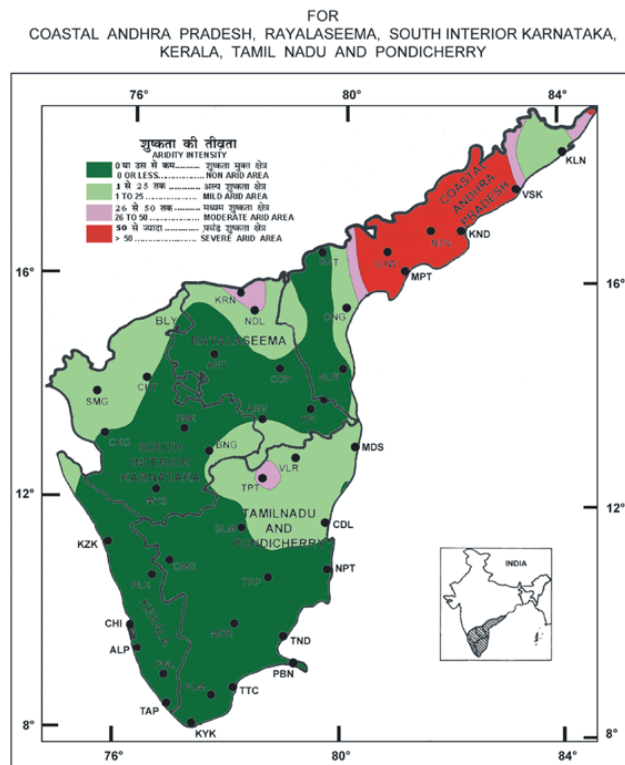
Wheat-GW-273

Potato-Kufari Lalima, Kufari Pukhra

Annexure III
Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending 09.11.2011



Aridity Anomaly Chart (Northeast Monsoon season) Period from (29.10.11 to 04.11.11)



Areas having severe and moderate arid conditions are indicated below:

- **Areas affected by severe arid conditions:** Large central part of Coastal Andhra Pradesh.
- **Areas affected by moderate arid conditions:** Isolated places around Kurnool and Nandyal (Rayalaseema) and Tripattur (Tamil Nadu & Pondicherry)