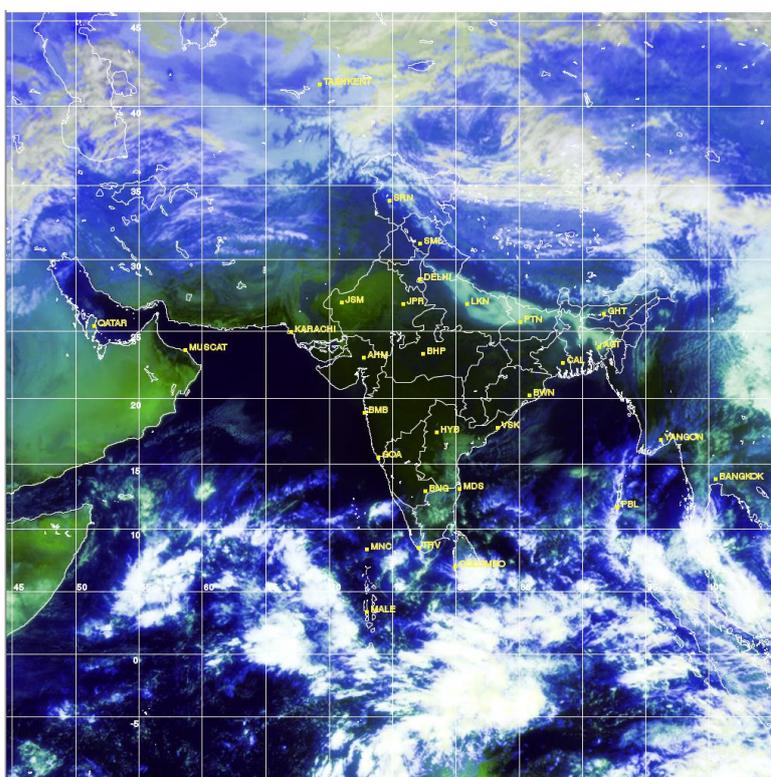




National Agromet Advisory Bulletin

Thursday, 15th December, 2011

(For the period 15th to 19th December, 2011)



Satellite image 0600 UTC dated 16th December, 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

Minimum temperatures fell appreciably below 4°C over parts of Punjab, Haryana, north Rajasthan and many parts of Uttar Pradesh. Ground frost is likely to occur in the above regions during next 48 hours. Frost injury are also observed in potato, tomato, cabbage, mustard and pea in eastern Uttar Pradesh. Cold day conditions prevailed over isolated pockets of north Uttar Pradesh and likely to continue during next 24 hours. Cold day condition is likely to prevail in Bihar also during next 24 hours. Low temperature conditions also prevailed over northwest India. Farmers are advised to provide light and frequent irrigation as well as arrange for smoking around the field in these regions to protect standing crops from cold / frost injury and also to protect the animals from cold wave.

Dense to very dense fog conditions have been observed in the morning hours over many parts of east Uttar Pradesh and some parts of west Uttar Pradesh and Bihar and over isolated pockets of Sub Himalayan West Bengal & Sikkim and north Haryana. Due to prevailing continuous foggy conditions in the morning hours, incidences of late blight in potato are reported in pockets and also growth of *rabi* maize may be affected in Bihar. Due to fog conditions along with high humidity prevailing over Uttar Pradesh, incidence of powdery mildew in pea and late blight of potato are observed. Cool and humid conditions prevailing over Jharkhand led to the incidence of aphids in toria, mustard and rai crops. Farmers are advised to monitor the crops for the pest and disease incidences and apply Wettable Sulphur @ 2.5 gm / lit. of water to control powdery mildew in pea, Mancozeb @ 2.5 ml / lit. of water to control late blight of potato and Dimethoate @ 250 ml / ha to control aphids in toria, mustard and rai, if required.

Farmers in the Central Zone of Kerala are advised to undertake propping in banana at bunching stage since speed of easterly winds is increasing. Priority should be given for propping in banana which faces the easterly side.

As mainly dry weather prevailed over most parts of the country except some districts of Arunachal Pradesh, Tamil Nadu, Rayalaseema and Jammu & Kashmir, farmers are advised to apply irrigation to the crops in these regions. Postpone irrigation to the crops in the districts of above region where rainfall has occurred.

Farmers are advised to complete sowing of wheat and planting of potato in Uttarakhand, sowing of wheat and barley in Rajasthan, summer rice (nursery sowing), summer groundnut and *rabi* sunflower in Konkan, wheat in Jammu & Kashmir, wheat (late varieties) in Madhya Pradesh, wheat, mustard and groundnut in Orissa, lentil, gram and sunflower in West Bengal, wheat in Assam and mustard and rapeseed in Meghalaya.

Due to prevailing weather, incidences of brown leaf spot and blast in rice in Tamil Nadu, aphids in mustard in Orissa, pod fly in pigeon pea, necrosis and powdery mildew in sunflower in Karnataka, *Heliothis* in red gram, wilt in Bengal gram and aphids in safflower in Andhra Pradesh and powdery mildew in lathyrus and pea in Chhattisgarh 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 week ending on 14.12.11

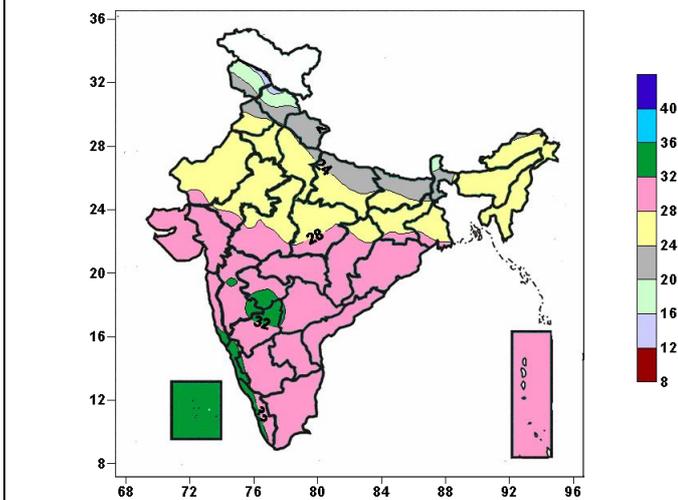
State/Districts	Actual	14.12.11			
Arunachal Pradesh			Rajouri	21	147
Changlang	0	-100	Ramban	39.4	91
East Kameng	0	-100	Reasi	15.5	45
East Siang	69.7	611	Samba	10.4	7
Lohit	20.5	377	Shopian	17	98
Lower Subansiri	1	-88	Srinagar	24.8	72
Papumpara	8.9	187	Udhampur	24.5	129
Tawang	0	-100	Kerala		
Tirap	2.8	-46	Alappuzha	2.2	-85
Upper Siang	22.2	18	Kannur	0	-100
Upper Subansiri	24.6	364	Ernakulam	0	-100
West Kameng	1.5	-88	Idukki	0	-100
West Siang	**	**	Kasaragod	0	-100
Himachal Pradesh			Kollam	1.3	-91
Bilaspur	13.7	242	Kottayam	0	-100
Chamba	4	-67	Kozhikode	0	-100
Hamirpur	14.3	134	Malappuram	0	-100
Kangra	3.8	-46	Palakkad	0	-100
Kinnaur	4.9	-38	Pathanamthitta	1	-93
Kullu	13.8	151	Thiruvananthapuram	8.6	-49
Lahaul and Spiti	2.5	-82	Thrissur	0	-100
Mandi	14.4	149	Wyanad	0	-100
Shimla	7.2	54	Tamil Nadu		
Sirmaur	9.1	-5	Chennai	2.9	-94
Solan	10.4	36	Coimbatore	1.6	-90
Una	7.3	179	Cuddalore	10.7	-78
Jammu & Kashmir			Dharmapuri	6.4	-60
Anantnag	42.9	172	Dindigul	1.4	-93
Badgam	19.6	161	Erode	0	-100
Bandipore	**	**	Kanchipuram	6.3	-85
Baramula	22.1	99	Kanyakumari	3.3	-80
Doda	29.6	44	Karur	1.4	-89
Ganderwal	22	53	Krishnagiri	1.4	-89
Jammu	0.1	-99	Madurai	0.5	-97
Kargil	2	-84	Nagapattinam	20.6	-68
Kathua	29.5	228	Namakkal	0.7	-93
Kistwar	**	**	Nilgiris	6.3	-69
Kulgam	47.4	200	Perambalur	0	-100
Kupwara	31.3	77	Puducherry	22.1	-52
Ladakh(Leh)	0	-100	Pudukottai	8.2	-67
Poonch	25	54	Ramanathapuram	17.4	-38
Pulwama	17.7	106	Salem	0	-99
			Sivaganga	6.8	-67
			Thanjavur	8.3	-76
			Theni	0	-100
			Tirunelveli	6.5	-75
			Tiruvallur	4.2	-88
			Tiruvannamalai	8.6	-66
			Tiruvarur	10.7	-78
			Toothukudi	17.9	-16
			Trichy	1	-95
			Vellore	6.7	-70
			Villupuram	9.2	-73
			Virudhunagar	3.5	-82
			Andhra Pradesh		
			Coastal Andhra Pradesh		
			East Godavari	0	-100
			Guntur	0	-100
			Krishna	0	-100
			Nellore	16	-59
			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	0.1	-98
			Chittoor	15.3	-20
			Cuddapah	1.7	-77
			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

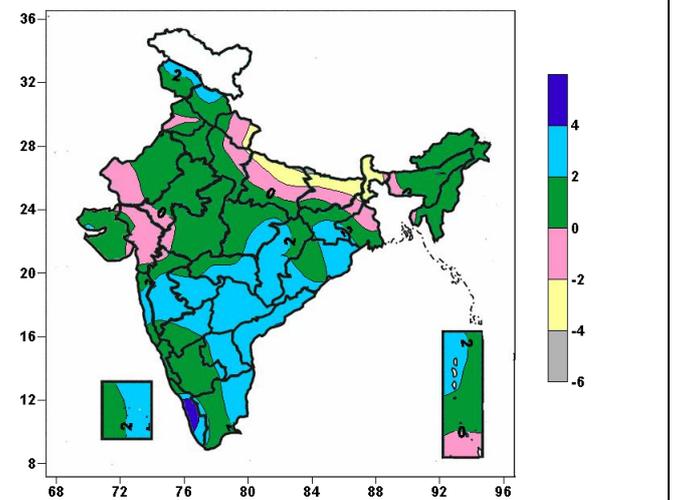
Contour maps for Mean Maximum, Minimum Temperature and their anomaly for the week ending on 14.12.2011

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 14.12.11



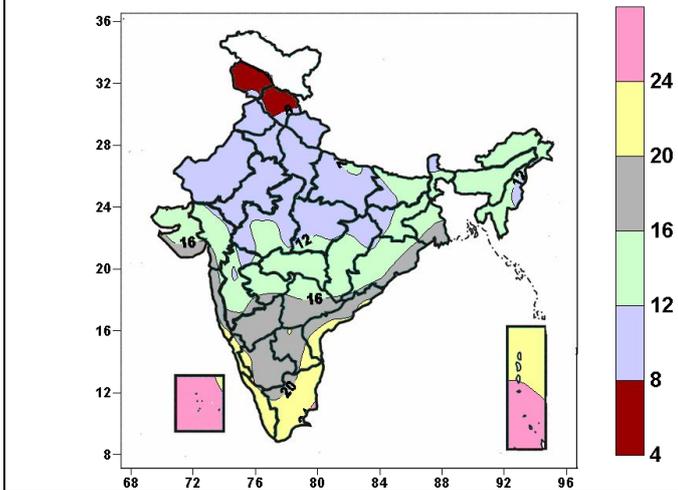
Actual Mean Maximum temperature ranged between 32°C and above over most parts of Coastal Karnataka, Lakshdweep Islands, 24 to 28°C over most parts of Punjab, Haryana, Delhi, Rajasthan, Uttar Pradesh, Jharkhand, North Madhya Pradesh, Gangetic West Bengal, Northeast India, 20 to 24°C over most parts of Uttarakhand, North East Uttar Pradesh, North Bihar, Sub-Himalayan West Bengal, 16 to 20°C over most part of Sikkim, 28 to 32°C over most parts of West India, Orissa, Chattisgarh, South India except (Coastal Karnataka, Coastal Kerala, Lakshdweep Islands).

Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 14.12.11



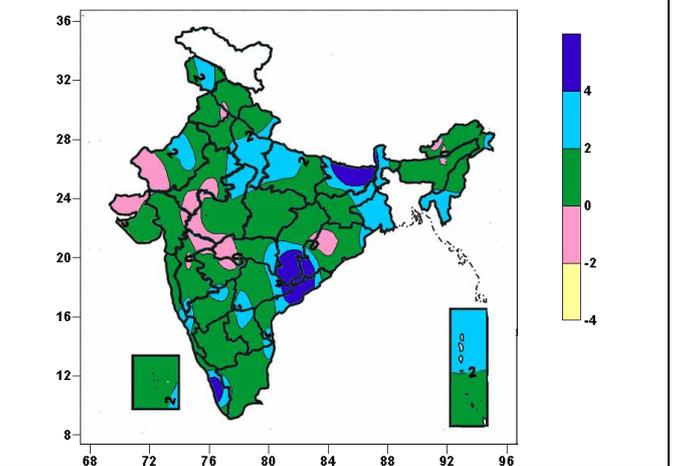
Actual Mean Maximum temperature 4°C above over some parts of Kerala, 2 to 4°C over most parts of Chattisgarh, Orissa, Maharashtra, Andhra Pradesh, Tamil Nadu, Lakshdweep Islands, 0 to 2°C over most parts of Northwest India (except Uttarakhand, East Uttar Pradesh), Gangetic West Bengal, Northeast India, Saurashtra & Kutch, Madhya Pradesh, Karnataka, South Tamil Nadu, -2 to 0°C over most parts of Uttarakhand, Gujarat, -4 to -2°C most parts of Sub-Himalayan West Bengal & Sikkim, some parts of Uttarakhand, East Uttar Pradesh, Bihar.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 14.12.11



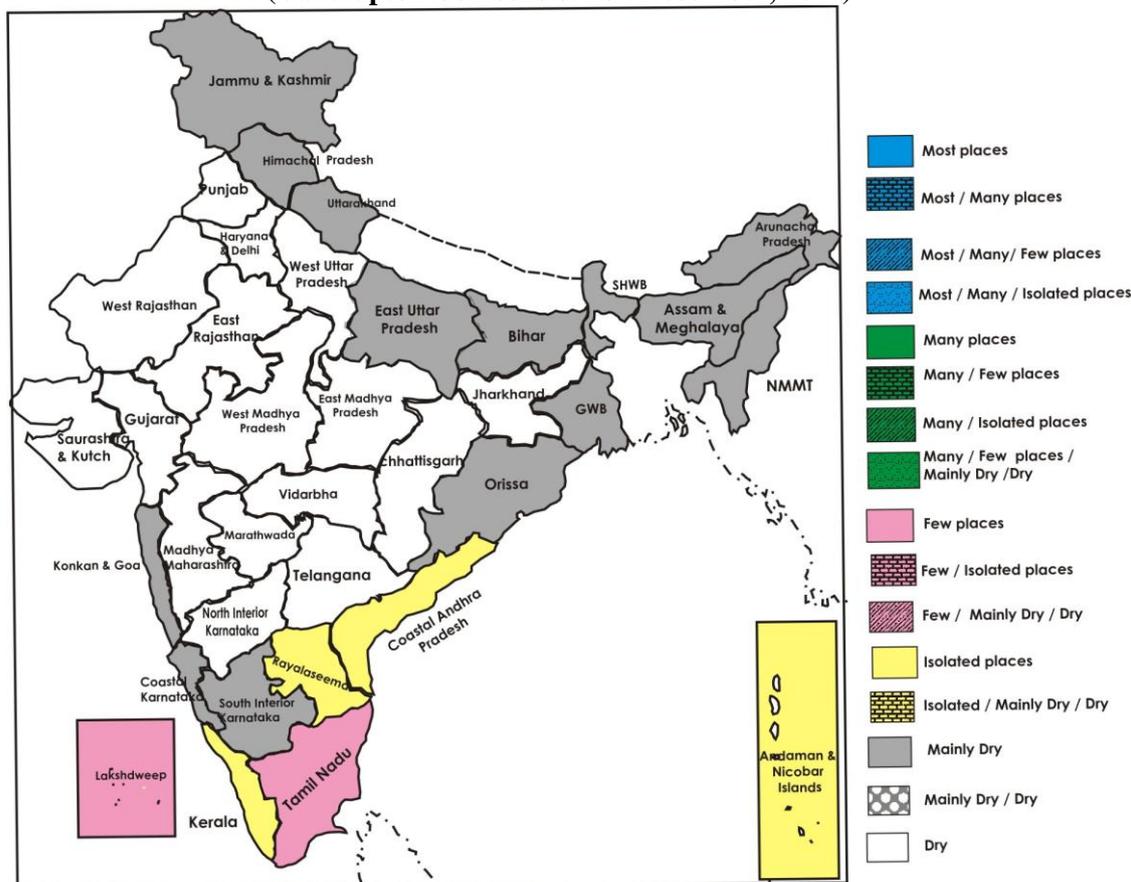
Actual Mean Minimum Temperature ranged between 24°C and above over most parts of Lakshadweep, Andaman & Nicobar Islands, 20 to 24°C over most parts of Tamil Nadu, Kerala, Coastal Karnataka, Andaman & Nicobar Islands, some parts of Goa, Coastal Andhra Pradesh, Rayalaseema, South Interior Karnataka, 16 to 20°C over most parts of Konkan & Goa, Andhra Pradesh, Interior Karnataka, some parts of Gangetic West Bengal, Orissa, Gujarat, Saurashtra & Kutch, Madhya Maharashtra, Marathwada, Coastal Karnataka, Tamil Nadu, 8 to 12°C over most parts of Northwest India (except Jammu & Kashmir, Himachal Pradesh), Sikkim, Madhya Pradesh, some parts of Bihar, Jharkhand, Nagaland, Manipur, Chhattisgarh, Gujarat, North Madhya Maharashtra, 4 to 8°C over most parts of Jammu & Kashmir, Himachal Pradesh, 12 to 16°C over remaining parts of the Country.

Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 14.12.11



Minimum Temperature anomaly between 4°C and above over most parts of Bihar, some parts of Sub-Himalayan West Bengal & Sikkim, Orissa, Chattisgarh, North Coastal Andhra Pradesh, Telengana, Kerala, 2 to 4°C over most parts of Uttar Pradesh, West Bengal, Sikkim, Mizoram, Tripura, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Uttarakhand, Rajasthan, Bihar, Jharkhand, Arunachal Pradesh, Arunachal Pradesh, Manipur, Orissa, Madhya Pradesh, Chhattisgarh, Vidarbha, Madhya Maharashtra, Goa, Andhra Pradesh, Coastal and North Interior Karnataka, Tamil Nadu, Kerala, Lakshdweep Islands, -2 to 0°C over some parts of Uttarakhand, Punjab, Rajasthan, Arunachal Pradesh, Assam, Orissa, Chattisgarh, West Madhya Pradesh, Gujarat, Saurashtra, Madhya Maharashtra, Marathwada, Vidarbha, 0 to 2°C over remaining parts of the Country.

Weather Forecast (Valid upto 1430 hours of 18th December, 2011)



Major Feature of Weather Forecast upto 1430 hours IST of 18th December, 2011

- Sunny day conditions with cold mornings would prevail over northwest & central India during next 2 days.
- Slight fall in minimum temperatures by about 1°C over northwest and adjoining central India and a fall by 2-3°C over east India during next 2 days and rise thereafter.
- Rain/thundershowers would occur at a few places over Tamilnadu and Lakshadweep and at one or two places over Kerala, Andaman & Nicobar Islands and south Andhra Pradesh.
- Mainly dry weather would prevail over remaining parts of the country.
- Cold-day conditions would occur at isolated pockets of north Uttar Pradesh and Bihar during next 48 hours.
- Cold wave conditions would occur over at isolated pockets of Punjab, Haryana, north Rajasthan and west Uttar Pradesh during next 48 hours.

Weather Warning

- Ground frost would occur at one or two places over Punjab, Haryana, north Rajasthan and west Uttar Pradesh during next 48 hours.
- Visibility would reduce to 200 m or less in dense to very dense fog in morning hours over many parts of east Uttar Pradesh and some parts of west Uttar Pradesh and Bihar and over isolated pockets of north Haryana and Sub-Himalayan West Bengal & Sikkim during next 48 hours.

Weather Outlook up to 1430 hours IST of 20th December, 2011

- Rain/ snow would occur at a few places over western Himalayan region.
- Rain/thundershowers would occur at one or two places over extreme south peninsular India.
- Rise in maximum and minimum temperatures by about 2°C over northwest and adjoining central India.

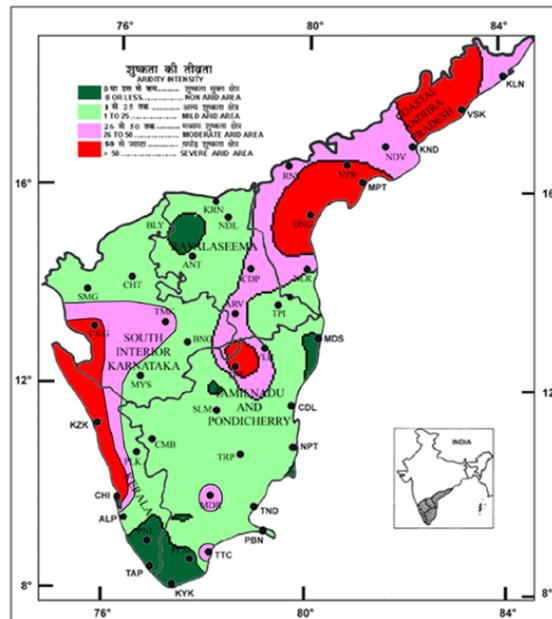
Aridity Anomaly Chart (Northeast Monsoon season) Period from (10.12.11 to 16.12.11)

भारत मौसम विज्ञान विभाग
अनावृष्टि अनुसंधान अनुभाग - पुणे
शुष्कता विसंगति संचित
(उत्तर पूर्व मानसून ऋतु)
अवधि - दिनांक से दिनांक तक

INDIA METEOROLOGICAL DEPARTMENT
DROUGHT RESEARCH UNIT - PUNE
WEEKLY ARIDITY ANOMALY CHART
(NORTHEAST MONSOON SEASON)
PERIOD - FROM 10-12-2011 TO 16-12-2011

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:**
 - Northern and Southern part of Coastal Andhra Pradesh; Southwestern part of South Interior Karnataka and adjoining northwestern part of Kerala.
 - Isolated area around Tirupattur (Tamil Nadu).
- **Areas affected by moderate arid conditions:**
 - Northern and central part of Coastal Andhra Pradesh; Southern part of Rayalaseema.
 - Isolated areas around Madurai and Tuticorin (Tamil Nadu).

Zonewise Agromet Advisories

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

- **Realised Rainfall:** No significant rain occurred over the States of the region during last week except east and upper Siang, Lohit and upper Subansiri districts in Arunachal Pradesh.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the region during the period.
- **Advisories**
 - As there was no significant rain during last few weeks in most of the districts of the States of the region and no significant rain is likely to occur 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, *rabi* pulses, niger, wheat, rapeseed and mustard etc.
 - Farmers in Assam are also advised to complete harvesting of matured *sali* rice and advised to continue preparation of nursery beds for *boro* rice.
 - In the Hill Zone of Assam, farmers are advised to complete harvesting of matured *Sali* rice and continue planting of potato.
 - Farmers in Upper Brahmaputra Valley Zone of Assam are advised to continue preparation of nursery beds for *boro* rice and complete sowing of tomato, rapeseed, mustard and planting of potato. Farmers are also advised to complete sowing of *rabi* pulses like lentil, rajmah, pea, lathyrus etc.
 - As dry weather is prevailing, farmers in Barak Valley Zone of Assam are advised to undertake intercultural operation and irrigation in cauliflower, onion and garlic and to continue transplanting of 4 to 6 weeks old tomato seedlings in the main field. Intercropping of pumpkin or bottle gourd with potato is a highly profitable combination of cropping for this zone.
 - Farmers in Lower Brahmaputra Valley Zone of Assam are advised to continue sowing of wheat.
 - Farmers in Arunachal Pradesh are advised to complete sowing of *rabi* crops like pea, mustard etc. and transplanting of vegetables like cabbage, cauliflower, knolkhol and other cole crops.
 - Farmers in Mid Tropical Plain Zone of Tripura are advised to complete planting of potato. In view of prevailing dry weather, farmers are advised to apply light irrigation to pulse crop at flowering stage. Taking the advantage of dry weather, also undertake harvesting of *aman* rice.
 - Farmers in Temperate Sub Alpine Zone of Meghalaya are advised to continue nursery bed preparation and sowing of *boro* rice, planting of potato and *rabi* onion. Complete sowing of mustard and rapeseed. Start planting of cashew, apricot and banana.
 - Farmers of Sub tropical Plain Zone of Manipur are advised to complete transplanting of tomato, onion, cabbage, cauliflower etc., sowing of pea, broccoli, rapeseed and mustard and planting of potato. Start sowing of cucurbits like water-melon, cucumber and sponge gourd.
 - Farmers in Mizoram are advised for sowing of lentil after harvesting of rice under zero tillage operation for utilization of residual soil moisture. Continue sowing of cole crops and tomato.
 - In Mild Tropical Hill Zone of Nagaland, in view of prevailing dry weather, farmers are advised to apply light irrigation to pea crop at flowering / pod formation stage.
 - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.

- In Mid Tropical Plain Zone of Tripura, there is chance of attack of aphids and alternaria blight disease in toria due to prevailing cloudy weather condition. Farmers are advised to monitor the crops and spray Monocrotophos @ 2 ml per liter of water against aphids and Dithane M 45 or Indofil @ 2 g per liter of water against alternaria blight disease to control the attack. Also there is chance of leaf curl disease in early sown tomato and brinjal. Spray neem green 2 to 3 ml per liter of water to manage the attack.
- In Kolasib region of Mizoram, decrease in sunshine hours with fluctuation of humidity is congenial for attack of aphids in cole crops, tomato, pea and beans; farmers are suggested to take appropriate measures. To control the attack spray tobacco decoction or dust wood ash. As prevailing weather is congenial for the activity of fruit fly on khasi mandarin at vegetative and fruit formation stage, apply *Metarrhiziumanisopliae* @ 5.0 kg / ha.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - The farmers in Upper 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.
 - The farmers in Kolasib region of Mizoram are advised to vaccinate cattle against foot and mouth disease. Provide warm shed to poultry and pig against cold.
 - The farmers in Central Bramhaputra Valley Zone of Assam are advised to vaccinate poultry birds against Ranikhet disease.
 - 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 poultry against Ranikhet, IBD / Gumboro disease, deworm and vaccinate pigs and goats against Endoparasites, Ectoparasites etc.
 - The farmers in Arunachal Pradesh are advised to provide wooden sleeping box or wooden dry floor at night, as wet bedding and cold weather may cause pneumonia. Farmers are also advised to deworm goats.
 - The poultry farmers in Nagaland are advised to provide ample quantity of clean drinking water, avoid feeding of mouldy feed and overcrowding and carry out regular deworming to control worms.
 - Poultry farmers in Tripura are advised to vaccinate the birds against Ranikhet disease and Fowl pox. Pigs can be infected with a number of worms, which results in poor weight gain in adults. In young pigs, infection with roundworms can cause diarrhea, weight loss, lung problems and death. Hence, the piglets should be dewormed at regular interval. Spray Asuntol (1 g / litre of water) or Butox (2 ml / litre of water) on cattle as well as in the sheds against tick infestation. Do not spray animals below six months of age.

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

- **Realised Rainfall:** Mainly dry weather prevailed over the States of the region during last week.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the region during the period. Fall in minimum temperatures by 2- 3° C over the region during next 48 hours and rise thereafter.
- **Advisories:**
 - As there was no significant rain during last few weeks in most of the districts of the States of the region and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.

- Undertake sowing of oilseed crops like mustard, groundnut etc. in Western Undulating Zone, East and South Eastern Coastal Plain Zone and North Central Plateau Zone of Orissa.
- Farmers in Western Undulating Zone of Orissa are advised to undertake transplanting of onion. In view of prevailing dry weather condition, farmers are also advised to apply irrigation to oilseed crops.
- Farmers in North Central Plateau Zone of Orissa are advised to complete the sowing of wheat, mustard, groundnut and pea soon to get optimum yield.
- Farmers in North Central Plateau Zone of Orissa are advised to harvest low land rice and undertake sowing of linseed, gram, coriander, cauliflower, cabbage, onion, garlic and planting of potato.
- Farmers in North Eastern Coastal Plain Zone of Orissa are advised to undertake sowing of mustard, rapeseed, tomato, cauliflower, cabbage, knol-khol, broccoli, radish, marigold, groundnut etc.
- Farmers in East and South Eastern Coastal Plain Zone of Orissa are advised to complete sowing of pluses, mustard, fodder oat, coriander, sunflower and planting of potato and banana. Farmers are also advised to undertake harvesting of rice crops taking advantage of prevailing dry weather.
- Farmers in the districts of North Bihar are advised to undertake sowing of irrigated wheat. As dry weather is prevailing, farmers are advised to apply light irrigation in the potato crops, which are in 10-20 days stage for proper germination of tubers and better crop growth and yield.
- Farmers in the districts of North Bihar are advised to apply irrigation in wheat wherever crops are at crown root initiation stage and undertake planting of late varieties of cauliflower and late and medium varieties of cabbage. Farmers are also advised to complete sowing of *rabi* maize.
- Farmers in the districts of South Bihar Alluvial Zone are advised to undertake planting of potato and sowing of irrigated wheat, other *rabi* crops and green fodder. Crops like cauliflower, cabbage, chillies, tomato, palak, carrot, radish, knol-khol, turnip, beet, garlic and other vegetable crops and spice crops such as coriander, fenugreek and Mangrailla should also be sown as early as possible. Also sow the seeds of onion in prepared nursery.
- Farmers in Central, Western and North Eastern Plateau Zone of Jharkhand are advised to undertake sowing of wheat, barley, linseed, gram, pea, lentil and planting of potato.
- Farmers in Central and North Eastern Plateau Zone of Jharkhand are also advised to sow onion, African marigold or French marigold and prepare the field for vegetables like long gourd, round gourd, bitter gourd, sponge gourd, cucumber, water melon and musk melon.
- In Western Plateau Zone of Jharkhand, farmers are advised to sow mustard after harvesting of *khari*f crops. It is also the time for sowing of winter vegetables like cauliflower, cabbage, chilli, tomato etc.
- Farmers in South Eastern Plateau Zone of Jharkhand are advised to undertake sowing of wheat, pigeon pea, chick pea and raising seedlings of winter season vegetables like onion, brinjal, cabbage, cauliflower, tomato, capsicum etc.
- As dry weather is prevailing, farmers in New Alluvial Zone of West Bengal are advised to irrigate the wheat wherever the crops are at CRI stage. To protect the seedlings of *boro* rice from cold, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially at night-time.
- Taking the advantage of dry weather, farmers in Old Alluvial Zone of West Bengal are advised to undertake earthing up in potato at 21 days after sowing.

- Sowing of Potato in Hill Zone of West Bengal should be started.
- Farmers in Coastal Saline Zone of West Bengal are advised to undertake sowing of lentil, gram, sunflower and *boro* rice.
- Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
- Cool, humid and foggy weather in the morning and later on clear sunny weather are favourable for the attack of aphids in toria in South Eastern Plateau Zone of Jharkhand; spray Rogar (Dimethoate) @ 2 ml or Monochrotophos @ 1 ml per litre of water.
- Due to cool and humid weather, infestation of leaf eating insects and powdery mildew in pea is noticed in South Eastern Plateau Zone of Jharkhand; spray concentrated neem or tobacco leaf extract diluted in the ratio of 1:10 liters or neem oil @ 5 ml per liter of water and alternately spray Karathen @ 1 ml or sulfex @ 3 ml per litre of water. In potato infestation of early and late blight is noticed; spray Krilaksil or Ridomil MZ @ 1.5 g per litre of water.
- Due to cool and lower atmospheric temperature, pigeon pea may be attacked by leaf eating and sucking pests in South Eastern Plateau Zone of Jharkhand; spray Monochrotophos @ 1 ml per litre of water during day time at flowering stage and Indoxacarb at pod formation stage @ 0.5 – 1 ml per litre of water.
- Cutworm is found in rice in Kendrapara district of Orissa; spray 2 ml Chloropyriphos in 1 litre water during afternoon. Apply Chloropyriphos dust around the bund to prevent the entry of caterpillar to the unaffected fields in early morning.
- In North Eastern Plateau Zone and North Central Plateau Zone of Orissa, mustard is found to be affected by aphids. Spray 400 ml Metasystox or Rogor in 200 litres of water per acre for controlling aphids. The weather is conducive for powdery mildew disease in green pea. Hence, spray Karathen @ 1 ml per litre of water or Sulfex @ 3 g per litre of water to control the disease.
- In East and South Eastern Coastal Plane Zone of Cuttack district in Orissa, medium duration arhar is found to be affected by pod borer. Spray 400 ml Endosulphan or 800 ml neem based pesticides or 250 LE NPV in 200 litres water per acre.
- In East and South Eastern Coastal Plane Zone of Kendrapara district in Orissa Mustard is found to be affected by aphids. Spray 400 ml Dimethoate in 200 litre water per acre for controlling aphids.
- Due to no rainfall and clear sky in Laterite and Red Soil Zone of West Bengal, diamond back moth may infest cabbage and cauliflower. Apply Cypermthrin 10% @ 1 ml per litre of water.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In North Central Plateau Zone and North Eastern Plateau Zone of Orissa, protect the animals from cold wave.
 - In the present weather conditions ticks and mites may affect the animals in North Central Plateau Zone of Orissa; spray Butox @ 2 ml / litre of water at skin.
 - In North Eastern Plateau Zone of Orissa, in the present weather conditions, there is likely attack of F.M.D in milch animals. Vaccinate the animals.
 - The weather is favourable for attack of F.M.D. in milch animals in Western Plateau Zone of Jharkhand; farmers are advised to take preventive measures to control this disease and animals should be vaccinated twice in a year.
 - To prevent goat from pneumonia in Central & North Eastern Plateau Zone of Jharkhand, kids should be given tetracycline medicine in water and vaccinated as per recommendation of Veterinary Doctor.

- Newly born baby goat should be prevented from morning and evening cold in South Eastern Plateau Zone of Jharkhand. Deworming should be done to all animals and birds. Supplementary minerals should be added to feed of lactating animals for healthy offsprings and better yielding of milk.

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

- **Realised Rainfall** : Some districts of Jammu & Kashmir received rainfall. Mainly dry weather prevailed over rest of the region.
- **Rainfall Forecast:** Mainly dry weather is likely over the region. Sunny day conditions with cold mornings is likely to prevail over northwest during next 2 days. Slight fall in minimum temperatures by about 1°C over northwest India. Cold-day conditions would occur at isolated pockets of north Uttar Pradesh and Bihar during next 48 hours. Cold wave conditions would occur over at isolated pocket of Punjab, Haryana, north Rajasthan and west Uttar Pradesh during next 48 hours. Ground frost would occur at one or two places over Punjab, Haryana, north Rajasthan and west Uttar Pradesh during next 48 hours.
- **Advisory:**
 - Cold wave conditions would occur over at isolated pockets of Punjab, Haryana, north Rajasthan and west Uttar Pradesh during next 48 hours with ground frost at one or two places over Punjab, Haryana, north Rajasthan and west Uttar Pradesh during next 48 hours. Dry weather is likely in North West region during next three days. Farmers are advised to provide light and frequent irrigation in these regions to protect to the standing crops viz. wheat, mustard, lentil in early stages from low temperature/frost injury and protect the animals from cold wave and pest and diseases.
 - In view of present weather farmers in Delhi are advised to sow late wheat and give irrigation to timely sown wheat which is about 21-25 days old and are in CRI stage. Give second dose of fertilizer 3-4 days after irrigation. Transplant onion, tomato, cauliflower, cabbage, knolkhol and broccoli in the raised beds. Irrigate timely sown vegetable crops.
 - Farmers in Punjab and Haryana are advised to complete sowing of wheat. Apply irrigation to timely sown wheat which is in CRI stage. Complete the harvesting of toria and start transplanting of 4-6 week old seedlings of onion in the raised beds. Irrigate the barseem crop at 15 days interval. Harvest the sugarcane crop. In raya, if necessary, second irrigation at flowering stage may be given, which saves the crop from frost. Give need based irrigation to normal sown gram crop.
 - In Sub Tropical Zone of Jammu & Kashmir, farmers are advised to continue sowing of late sown barley, wheat under rainfed and irrigated areas with available soil moisture without any further delay. Farmers are also advised to continue sowing of vegetable crops like radish, spinach.
 - In lower belts of cold arid zone of Leh, farmers are advised to go for nursery sowing of Apricot & Apple and to undertake harvesting of Chinese cabbage, lettuce and Beet. Farmers are advised to harvest toria crop if pods turn yellow. Due to decrease in minimum temperature, farmers are advised to provide cover to young fruit plants. Hoeing & weeding in nursery areas and also hoeing, weeding and thinning operation in normal sown mustard crop may be done.
 - Farmers in Himachal Pradesh are advised to complete sowing of wheat, vegetables (raddish, turnip, coriander, cabbage, knol khol, broccoli, parsley, lettuce, fennel, cauliflower, onion, potato) and sarson. It is optimum time for raising the nursery of winter flowers like Calendula, arctotis, dog flowers, sweet pea, dianthus, petunia, stock and flox in fields. Farmers in Mid Hills and Sub Humid region of Himachal Pradesh are

advised to complete the sowing peas and cabbage. Apply light irrigation to vegetable crops.

- In Uttar Pradesh, farmers are advised to complete sowing of onion, carrot, radish, turnip, beet, tomato, berseem, oat for green fodder, garlic, coriander, palak, sauf, mangarail, fenugreek and cumin etc.
- In Bundelkhand zone of Uttar Pradesh, farmers are advised to apply light irrigation and top dressing in already sown wheat, pea, toria, etc. Farmers are advised to sow late sown improved varieties mentioned in Annexure I.
- In Bhabar & Terai zone, Pantnagar of Uttarakhand, farmers having irrigation facilities are advised to give first irrigation to wheat crop at CRI stage. Due to expected dry weather condition and fall in temperature, farmers are advised to continue sowing of lentil. Undertake weeding & thinning operations in other standing crops like pea, chickpea, rajmash etc. for their better growth and apply grass mulching in between rows to conserve soil moisture.
- Farmers in Sub humid sub tropic in Uttarakhand are advised to complete sowing of potato, wheat, also advised to irrigate all *rabi* vegetables like coriander, fenugreek, tomato, spinach, radish and carrot.
- In the hill zone of Uttarakhand, farmers are advised to give light irrigation to timely sown irrigated wheat crop and continue sowing irrigated and non-irrigated wheat, masoor, green pea, gram, sarson and fodder makka.
- Farmers in Rajasthan are advised to complete sowing of wheat, barley, potato, cumin, isabgol, ajwain, mustard, gram, lentil, oat, fenugreek, berseem, lucerne, toria, taramira, linseed (alsi), opium poppy, coriander and vegetables viz. tomato, brinjal, radish, chilli etc., transplanting cauliflower, cabbage, *rabi* onion.
- Farmers in Rajasthan are advised to give light irrigation to timely sown wheat crop, which are about 21-25 days old and are in the CRI stage and also apply second dose of fertilizer 3-4 days after irrigation. Farmers are advised to give 1st irrigation to mustard, gram, cumin and barley crop.
- In Bhabar & Terai zone, Pantnagar of Uttarakhand, under dry weather conditions and fall in temperature, white rust in pea crop is possible. If the symptoms of white rust are seen, then farmers are advised to spray 0.5 % solution of Carbendazim at an interval of 10 days.
- In Bhabar & Terai zone, Pant Nagar of Uttarakhand, under the foggy weather conditions, there are chances of incidence of aphids in Lahi and if the incidence is 8-10 aphids per plant, then spray 400 ml of metasistox dissolved in 200 litres of water per acre area. But spraying must be carried in the afternoon.
- In J&K Intermediate Zone of Jammu & Kashmir(Rajouri), farmers are advised to control damping off in cabbage, cauliflower, knol-khol, blight in spinach, wilt and root rot in peas and blotch in onion by treating seed before sowing with thiram/captan @ 3g/kg or carbendazim @ 2g/kg of seed.
- In Sub tropical zone of Jammu & Kashmir, farmers are advised to rogue out the plants affected by little leaf disease and wilted plant from brinjal crop and black rot affected plants from cauliflower and cabbage.
- In Intermediate Zone of Jammu & Kashmir farmers are advised to spray malathion 50 EC @ 0.05% or carbaryl 50WP 0.1% to control mustard saw fly & flea beetle. For control of aphid infestation on toria crop spray chlorpyrifos 20EC @ 0.05% or monocrotophos 36 SL @ 0.04%.
- In Transitional Plain Zone of Inland Drainage of Rajasthan, farmers are advised to monitor mustard and barley crop for aphid attack and are advised to spray Dust Methyl

Parathion 2 % @ 25 kg per hectare and then spray Melathion 50 EC @ 1ml per litre of water, if noticed.

- In Eastern Plain Zone of Uttar Pradesh, there are chances of fruit borer in early sown arhar, farmers are advised to spray Imidachlorprid 1 ml in 1 liter of water per hectare. There are also chances of stem fly in pea. To control, farmers are advised to spray Imidachlorprid 17.8% 0.5 ml or Dimethoate 30 EC 1 ml in one liter water, at the interval of 10 days.
- Due to high relative humidity, infection of early blight may occur in potato and tomato in Delhi. Farmers are advised to monitor the crop and take proper plant protection measures. Also weather is favourable for attack of painted bug on mustard crop, spray Carbaryl (Sevin) @ 2g per litre of water. In present weather condition constant monitoring of aphid is advised in all *rabi* crops.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandary**
 - In semi-arid western plain zone of Rajasthan, Himachal Pradesh, in view of falling night temperature, livestock farmers are advised to protect their infant animals from pink cold. They are also suggested for deworming of animals except pregnant animals and deworming medicines like Albendazol, Fenbendazol may be given to animals under the guidance.
 - In Semi-Arid Eastern Plain Zone of Jaipur in Rajasthan, farmers are advised to cover the door of animal house, wrap jute bag around animal back and keep litter dry every day to protect milch & infant animals from cold.
 - In Bhabar & Tarai zone of Uttarakhand, due to expected cold conditions during this week in the night, farmers are advised to keep all types of animals inside the shed during night time. Put rice straw at the place of sitting of animals for their better comfort. Keep down curtains in Poultry farm in the night for safety of birds from these cold weather conditions. 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 Uttar Pradesh, in bundelkhand zone (Bharari) and also in western plain zone (Modipuram), it is advised to tie young cattle in closed shelter and feed them with big cardamom, ajwain and jaggery, keep cattle shelter clean and take special care of young ones to protect from cold in this season.
 - In Jammu & Kashmir of Chatha (jammu) Sub Tropical Zone, it is advised to protect the pregnant and mulch animals from cold and feed them mineral mixture regularly.

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

- **Realised Rainfall:** No significant rainfall occurred in most states of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at a few places over Tamil Nadu and Lakshadweep and either dry weather or isolated rainfall would occur over remaining parts of the region.
- **Advisories:**
 - As there was no significant rainfall in most states of the region, apply irrigation to the standing crops.
 - Farmers in all the Southern Telangana Zone of Andhra Pradesh are advised to raise irrigated dry crops like maize and sunflower as an alternative to irrigated rice under wells as the ground water is going to be scarce due to drought, take up sowing of *rabi* crops like maize and sunflower under irrigated dry conditions

- As there is no forecast for rain in the North Coastal Zone of Andhra Pradesh, farmers are advised to go in for harvesting of crops, if the crop is matured.
- Farmers in the Scarce Rainfall Zone of Rayalaseema in Andhra Pradesh are advised to complete groundnut sowing in places where irrigation facilities are available by next week and also undertake plant protection measures for protection against pests and diseases.
- Farmers in the North Transition Zone of Karnataka are advised to irrigate wheat, jowar, sunflower, black gram and maize to avoid moisture stress, due to dry weather and undertake plant protection measures.
- Due to prevailing dry weather in the North East Transition Zone of Karnataka, farmers are advised to provide irrigation to wheat crop, apply 20 kg urea per acre and undertake plant protection measures.
- Farmers in the Southern Dry Zone of Karnataka are advised to harvest paddy crop, dry the grains of the harvested crops properly and drain out excess water from the paddy field one week before harvesting of paddy.
- Farmers in the Central Dry Zone of Karnataka are advised to continue the harvesting and threshing of paddy, since there is no chance of occurrence of rains in the coming days. In the area where the paddy harvesting is completed, farmers are advised to take up the sowing of pulses like black gram, green gram and also the green manure crop sun hemp to utilize residue moisture after harvest of the paddy in paddy field.
- Farmers in the Southern Transition Zone of Karnataka are advised to harvest paddy and maize and undertake plant protection measures.
- As rain is expected this week, farmers in the High Altitude Zone of Kerala are advised to skip irrigation.
- Farmers in the High Altitude Zone of Kerala are advised to rogue out the off types from paddy field before harvest for seed purpose, plough the field after the harvest for taking next crop and allow the stubbles to decay, select short duration varieties for the summer crop, test their soils before the next crop and undertake plant protection measures.
- Since light rainfall is forecasted in the Problem Area Zone of Kerala, farmers are advised to undertake sowing of rice and undertake plant protection measures to protect crops from pests and diseases.
- Farmers in the Central Zone of Kerala are advised to give propping to bunched rain fed banana, since speed of easterly winds is increasing. Priority should be given for propping for banana which faces the easterly side.
- Leaf folder attack is seen in isolated places in the Northern Zone of Kerala. Farmers are advised to unfold the leaves by rolling thorny wires/twigs over the canopy. If the attack is severe, spot spraying of carbaryl 85MS @ 4g/litre of water. Since high humidity prevailing in the zone is conducive for fungal multiplication and other disease occurrence, farmers are advised to undertake plant protection measures.
- Farmers in the Southern Zone of Kerala should be vigilant against blast, bacterial leaf blight, sheath rot diseases, brown plant hopper and stem borer infestation in paddy, since the climatic conditions are highly conducive for the attack of pests and diseases.
- Incidence of Helicoverpa is observed in red gram, fusarium wilt in Bengal gram, aphids in safflower, diamond back moth, thrips, mites, die-back, gemini virus and powdery mildew is noticed in vegetables and fruits, and powdery mildew in coriander in the Southern Telangana Zone of Andhra Pradesh. Farmers are advised to undertake plant protection measures to prevent attack of these pests and diseases and also monitor for the incidence of Spodoptera in groundnut and castor.
- Blast incidence and brown leaf spot disease is noticed in paddy field in the Western Zone of Tamil Nadu. Farmers are advised to spray edifenphos 50 EC @ 500 ml/ha to

control blast incidence and edifenphos at the ratio of 1 ml/litre to control brown leaf spot disease.

- Farmers in the South Zone of Tamil Nadu are advised to monitor the incidence of leaf folder in rice, die back and fruit rot in chilli, sucking pest in pulses and cotton and follow appropriate plant protection measure.
- Bacterial leaf blight, bacterial leaf streak and green leaf hopper incidences are noticed in samba paddy in the Cauvery Delta Zone of Tamil Nadu due to prevailing weather condition. To control bacterial leaf blight and bacterial leaf streak, farmers are advised to spray streptomycin 18 g + Copper oxy chloride 500 g mixture/acre or copper hydroxide at 500 g/ac in 200 litre of water and spray Azadiractin or Profenophos at 2 ml/liter to control green leaf hopper.
- Farmers in the High Altitude Hilly Zone of Tamil Nadu are advised to control leaf miner in peas and beans and adopt measures to manage blister blight in tea.
- Farmers in the North Dry Zone of Karnataka are advised to undertake plant protection measures in crops especially, chickpea, since there is no possibility of rainfall in the coming days.
- Incidences of pod fly damage in pigeon pea was noticed in the North East Transition Zone of Karnataka. Farmers are advised to spray Rogor (Dimethoate) 2 ml per liter of water to control pod fly damage.
- Necrosis problem and powdery mildew is noticed in sunflower in the North Transition Zone of Karnataka. Farmers are advised to spray 0.25 ml Imidachloprid 17.8 S.L or 1.5 ml Oxidematon methyl 25 EC per liter of water to control necrosis problem and 1 g. Carbandizeme dissolved in one liter of water to control powdery mildew.
- In early sown crop, powdery mildew has been noticed in sunflower in the Hill Zone of Karnataka. Farmers are advised to spray 1 g. Carbandizeme dissolved in one liter of water to control it. Due to low temperature during night followed by morning dew pod borer incidence was noticed in the pigeon pea crop. Spray NPV 0.75 ml per liter of water, if the pod borer is in big size and 0.3 ml Indoxicarb or 0.1 ml Spinosad per litre of water, if there is no control of the pest.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Dry weather prevailed over the States of the region during last week.
- **Rainfall Forecast:** Dry or mainly dry weather is likely to prevail over the States during the period.
- **Advisories:**
 - As there was no significant rain during last few weeks and mainly dry weather is likely during the period over the States, farmers are advised to apply irrigation to the standing crops.
 - Taking the advantage of dry weather, farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to continue picking of fully opened cotton bolls. Avoid irrigation at the time of boll bursting.
 - Farmers in Konkan region of Maharashtra are advised to complete nursery sowing of summer rice and sowing of *rabi* groundnut and *rabi* sunflower. Complete sowing of short duration crops like cowpea, wal and kulthi in the harvested rice field. Farmers in South Konkan are advised to complete sowing of mustard.
 - In view of prevailing dry weather farmers in Madhya Maharashtra are advised to apply Nitrogen @ 136 kg to pre-seasonal sugarcane after 45 days from planting followed by irrigation. Apply 160 kg Nitrogen, 85 kg Phosphorous and 85 kg Potash per hectare to *adsali* sugarcane at the time of final earthing up after 16 to 20 weeks from planting, followed by irrigation.

- Farmers of Madhya Maharashtra and Marathwada are advised to undertake preparatory tillage for planting of *suru* sugarcane and field may be kept ready for planting.
- Farmers in Middle Gujarat Zone are advised to undertake sowing of late varieties of wheat. Carry out sowing of *rabi* maize and planting of potato. Undertake picking of cotton during morning hours. In view of prevailing dry weather, farmers are advised to apply irrigation to timely sown wheat at crown root initiation stage and to gram at branching stage.
- Taking the advantage of dry weather, in Bhal and Coastal Zone and North Gujarat Zone of Gujarat, farmers are advised to undertake picking of cotton during morning hours.
- As dry weather is prevailing, in Bhal and Coastal Zone, farmers are advised to carry out inter cultural operation in fennel and vegetables and apply irrigation to cotton and castor.
- In North West Zone of Gujarat, farmers are advised to complete sowing of wheat crop.
- Farmers in South Gujarat Zone and South Gujarat Heavy Rainfall Zone are advised to undertake inter crops like groundnut and mung in between the sugarcane.
- Farmers in South Gujarat Heavy Rainfall Zone are advised to carry out inter cultural operation in fenugreek and vegetables like brinjal, chilli, tomato, cabbage and cauliflower. Apply irrigation to timely sown wheat.
- In view of prevailing dry weather, farmers in South Saurashtra Zone of Gujarat and South Gujarat Heavy Rainfall Zone are advised to apply irrigation in cotton and castor. Also undertake sowing of wheat.
- Farmers in North Gujarat Zone are advised to carry out sowing of cumin.
- Farmers in North Saurashtra Zone of Gujarat are advised to carry out sowing of wheat, coriander, cumin and isabgul.
- Suitable varieties of the crops for sowing are mentioned in Annexure II.
- Due to cloudy weather during last week in Madhya Maharashtra, there may be incidence of pod borer on gram; spray 5% Neemark followed by Heliokill 500 ml per hectare after 10-15 days.
- Prevailing cold and dry weather is favourable for spread of powdery mildew in pea, chillies, tomato etc. in Madhya Maharashtra; spray water soluble Sulphur 80% @ 25 g per 10 litres of water.
- Due to rains during earlier week and cloudy weather, there may be incidence of anthracnose on new vegetative flush and mango inflorescence in South Konkan region of Maharashtra; spray Carbendazim @ 10 g or Thiophenate methyl @ 10 g or Propineb @ 20 g per 10 litres of water. There may also be incidence of tea mosquito bug in cashew in Konkan; spray 35% Profenophos @ 10 ml per 10 litres of water.
- Prevailing weather is favourable for attack of thrips in mango in North Konkan region of Maharashtra; spray Spinosad 45 SL @ 2.5 ml per 10 litres of water.
- Prevailing weather is favourable for infestation of aphids in jowar in Madhya Maharashtra; spray Dimethoate 34% @ 500 ml or Methyl Dimeton 25% @ 500 ml per hectare in 500 litres of water.
- There is a possibility of powdery mildew in mango and vegetables due to decrease in temperature in North Gujarat Zone; farmers are advised to spray 300 mesh Sulphur @ 20 g / ha in vegetables and spray wettable Sulphur (0.2%) or Denocap (0.05%) for mango.
- There is a chance of attack of powdery mildew disease and aphid in mustard in South Gujarat Heavy Rainfall Zone and in Bhal and Coastal Zone. To control powdery

mildew farmers are advised to spray Mancozeb (75%) @ 25 g / 10 litres of water. To control the aphids, spray Phosphomidone (100 %) @ 3 ml or Diamithoate (30%) @ 10 ml added in 10 litres of water.

- Stages of major crops are mentioned in Annexure I.

Animal Husbandry

- In North West Zone of Gujarat, farmers are advised to clean udder of milking animals properly with insecticide. Farmers are also advised to cut the beaks of birds in the poultry under age of 15 weeks.
- Farmers in South Gujarat Heavy Rainfall Zone are advised to clean animal byres and spray Neon insecticide @ 1 to 1.5 ml per liter of water for controlling ecto-parasites in animal house.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Dry weather prevailed over the region.
- **Rainfall Forecast:** Sky remain mainly clear and no rainfall is expected over the region.
- **Advisories:**
 - Farmers in Kymore Plateau and Satpura Hill Zones of Madhya Pradesh are advised that temperatures are favorable for sowing of late sown wheat crops in irrigated conditions, especially in areas where pea and potato harvesting is completed. Farmers are also advised to do hand weeding and intercultural operations after 20-25 days after sowing of chickpea, mustard and lentil crop and give irrigation as per requirement, also prepare nursery for medium and late sown cauliflower, cabbage, carrot, radish and onion.
 - Farmers in Jhabua Hills Zone of Madhya Pradesh are advised to prepare their field and sow rabi crops. Give first irrigation in wheat crop 21 DAS (full Irrigated) and 30-35 DAS (Semi-irrigated). Cotton crop is at boll opening stage so irrigate the crop if moisture is less.
 - Farmers in Gird Zone regions of Madhya Pradesh are advised for sowing of wheat and also give irrigation to crops.
 - Farmers in Vindhyan Plateau of Madhya Pradesh are advised to transplant chilli, brinjal, tomato, onion and cauliflower, give irrigation to fruit plants.
 - Farmers in Central Narmada Zone of Madhya Pradesh are advised to undertake planting green fodder like berseem and lucern, and plant sugarcane also weed control may be done in rabi crops like chickpea, lentil and linseed.
 - Farmers in Bundelkhand region of Madhya Pradesh are advised to irrigate vegetable, fruit and wheat crop which are about 40-45 days old. Apply remaining dose of fertilizer after irrigation (3-4 days).
 - Farmers in Malwa Plateau region of Madhya Pradesh are advised for sowing of wheat now use late sown varieties. For growing of rabi vegetables transplanting of onion, brinjal, chilly, tomato, can be done, but plant to plant and row to row spacing should be reduced and it should be planted at 35 x 40 cm spacing. In case of potato do not over irrigate the crop, over irrigation may favour disease infestation in potato.
 - Farmers in Chattisgarh Plain Zone are advised for the sowing of rabi crops specially wheat, gram, pea, rabi moong, sunflower, mustard due to favourable weather conditions for sowing of potato and autumn sugarcane.
 - Due to prevailing weather condition in the past few days infestation of insects in vegetable crops may occur. Hence, farmers are advised to monitor these crops and if the infestation is above normal spray the insecticides in Chattisgarh Plain Zone.
 - Farmers in Bastar Plateau Zone of Chhatisgarh are advised to prepare field for sowing of wheat, gram, mustard, linseed, safflower and lentil crops and sowing should be

completed as early as possible. Sugarcane planting should be completed at the earliest and earlier planted sugarcane should be irrigated. Mustard sowing should be completed at the earliest.

- Farmers in Kymore Plateau and Satpura Hill Zones and Satpura Plateau of Madhya Pradesh are advised that weather is congenial for insect attack in pigeon pea crop. For control spray Quinalphas at 2.0 ml. per litre also pheromone or light traps may be used for monitoring these pests.
- Farmers in Gird zone of Madhya Pradesh are advised, to control early blight of potato, two sprays of 2.5g mencozeb per litre of water should be done at the interval of ten days.
- There is possibility of dry weather during next five days in Bundelkhand region of Madhya Pradesh hence farmers are advised to monitor the mustard crop against attack of aphids, spray methyl demeton 25 E.C. or dimethoate 30 E.C. @ 2.0 ml. per liter of water for their control.
- Due to large difference in maximum and minimum temperature there may be attack of insects mainly aphids and other sucking type of insects in Malwa Plateau region of Madhya Pradesh. For its control apply Rogor @ 1ml/lit of water if infestation is very high than apply amidachlopride @ 1ml/3lit of water.
- Due to cloudy conditions attack of powdery mildew in lathyrus and peas. For its control any sulphur based fungicide can be used in Bastar Plateau Zone of Chhattisgarh.
- In cashew leaves, the attack of Tea Mosquito Bug and Thrips is being observed For its control, Carbaryl should be sprayed @ 2 grams per litre of water in Bastar plateau zone of Chhattisgarh.
- Due to the partial cloudy weather during the last few days in Chattisgarh Plain Zone infestation of pod borer may occur. Farmers are advised to keep keen watch on the crop and if the infestation is above ETL spray Polytrin C @ 1 l/ha or Endoxacarb @ 300 ml/ha.
- **Animal Husbandry & Poultry**
 - Humid weather condition will prevail in Kymore Plateau and Satpura hills, Central Narmada regions of Madhya Pradesh hence farmers are advised to keep cattle's in dry and clean place. Create neem leaves smoke in night to save them from mosquitoes and bees.
 - In view of fall in sunshine duration, farmers in Central Narmada and Bundelkhand zones of Madhya Pradesh are advised to provide 4 hour light in poultry houses during night otherwise, insufficient light may affect egg production.

Annexure I

Major Crops

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

- Sugarcane (elongation), *sali* rice (maturity / harvesting), *bororice* (nursery preparation / sowing / seedling / transplanting), wheat (sowing / CRI), tomato (transplanting / vegetative / flowering / fruiting), *rabi* pulses (sowing / seedling / vegetative), cauliflower, cabbage and knoll khol (transplanting / vegetative / head formation), brinjal (early variety) (vegetative / flowering / fruiting / harvesting), country bean (vegetative / flowering), winter vegetables, pea (sowing / transplanting / vegetative), onion, garlic (sowing / seedling / vegetative), khasi mandarin (fruit maturity / harvesting), niger and lentil (sowing/ seedling / vegetative), potato (planting / vegetative/ stolon formation), rapeseed and mustard (sowing / vegetative / flowering / siliqua formation) and cole crops (transplanting / vegetative) in Assam.
- Rice (Mipun cultivar) harvesting), cabbage, cauliflower, knolkhol etc. (vegetative / head formation), maize (vegetative / maturity), mustard (vegetative / flowering / pod formation) and pea (vegetative) in Arunachal Pradesh.
- Cucurbits (sowing), rapeseed / mustard (sowing / vegetative), tomato (transplanting / vegetative), cauliflower and cabbage (transplanting / vegetative / head formation), broccoli (transplanting / vegetative / harvesting) in Manipur.
- *Boro* rice (nursery sowing / seedling / transplanting), wheat (germination / seedling / CRI), pea, garlic and lettuce (germination / seedling / vegetative), *toria* (vegetative / pod formation / maturity), *rabi* onion (sowing), *kharif* onion (maturity), potato (planting / vegetative), tomato (maturity), Khasi mandarin (flowering / fruiting), lentil, mustard, rapeseed (sowing / vegetative / flowering), *rabi* onion (vegetative / maturity), winter vegetable (vegetative / fruiting), Bengal gram (vegetative), peach (vegetative/ maturity) in Meghalaya.
- Ginger and turmeric (rhizome formation / maturity / harvesting), khasi mandarin (fruiting / harvesting), banana (vegetative / fruiting / maturity / harvesting), cole crops and tomato (transplanting / vegetative), and pea, bean (vegetative / flowering) in Mizoram.
- Banana (vegetative / fruiting), cabbage (transplanting / vegetative / head formation), pea (early sown) (vegetative / flowering / pod formation), pea (germination), pigeon pea (pod filling), rapeseed, mustard (sowing / vegetative / flowering), French bean (sowing), *rabi* crops (sowing) and broccoli (transplanting / vegetative) in Nagaland.
- *Aman* rice (harvesting), *boro* rice (sowing), cucurbits and other vegetables (flowering / fruiting), pulse crop (flowering), ginger and turmeric (rhizome formation / harvesting), tomato (vegetative), *toria* (vegetative / flowering), cole crops (sowing / vegetative), potato (planting / vegetative) in Tripura.

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

- Sugarcane (vegetative), rice (maturity / harvesting), *kharif* arhar (pod formation / seed formation), sorghum, jowar (harvesting), sesame (harvesting), lobia for green fodder (sowing), mishrikand (vegetative), onion, radish (sowing / vegetative), cauliflower, cabbage (sowing / transplanting / vegetative), fruit trees (transplanting), potato, sweet potato (planting / vegetative), rapeseed, mustard, wheat, vegetables, maize, pulses (sowing / vegetative) in Bihar.

- Rice (harvesting), pigeon pea (pod formation / seed formation), pulses (urd bean, moong bean) (maturity / harvesting), turmeric and ginger (vegetative / rhizome formation), elephant foot yam (tuber elongation), potato (planting / vegetative / tuber formation), sweet potato (vegetative / stem elongation / tuber elongation / maturity / harvesting), mustard, linseed (sowing / vegetative), toria (flowering / pod formation), green pea (sowing / vegetative), cauliflower, cabbage, chilli, tomato (transplanting / vegetative), wheat (sowing / CRI), niger (sowing / vegetative), papaya (transplanting), gram, onion, African or French marigold (sowing / vegetative) in Jharkhand.
- Arhar (pod formation / seed formation), papaya, marigold, tuberose (planting), sugarcane (vegetative), *kharif* rice (harvesting), turmeric and ginger (planting / early vegetative), yam (sowing), Bengal gram, lentil, green pea, mustard (sowing / vegetative), wheat (sowing / CRI), mango, banana, lemon, cashew nut, potato and marigold (planting), sunflower, garlic, groundnut (sowing / vegetative) in Orissa.
- *Boro* rice (nursery bed preparation), mango, coconut, guava, banana (planting), winter vegetables (sowing / transplanting / vegetative), wheat, mustard, lentil, gram, sunflower (sowing / vegetative), potato (planting / vegetative) 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 (maturity / harvesting), wheat (sowing / seedling / CRI), mustard (sowing / germination / vegetative) in Sikkim.

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

- Wheat (sowing of late varieties), lentil (pod formation), sugarcane (planting), *rabi* onion, cauliflower, cabbage, broccoli, tomato, knolkhol (transplanting), radish, spinach and coriander (vegetative/fruitle) in Delhi
- Wheat (sowing/emergence), vegetables (sowing), garlic, ginger (planting), bhindi, cucurbits (sowing), Khira, summer squash, bitter gourd, tur, brinjal, Shimla mirch, and tomato (sowing / transplanting), Apple (maturity / harvesting), pomegranate (fruit development), strawberry (land preparation), arbi, amaranthus, turmeric, rice, maize, barley, raddish, onion, pea, garlic, coriander, cabbage, knol khol, parsley, lettuce, fennel, cauliflower, broccoli (sowing / planting) in Himachal Pradesh.
- Wheat (sowing / emergence / tillering), early/normal sown barley (CRI stage), late sown barley (sowing / emergence), onion (transplanting), winter vegetable crops viz. potato, radish, carrot, turnip, garlic, spinach, methi (various stages i.e. sowing / vegetative), cole crops viz. early cauliflower, cabbage, knoll khol, broccoli (transplanting/emergence), Rabi oilseeds i.e. toria (reproductive / physiological maturity), gobi sarson, mustard normal sown (vegetative) and early sown (flowering), late sown (sowing / emergence), brown sarson (rosette stage), rabi pulses i.e. lentil (sowing / emergence-(germination)/ vegetative), gram (vegetative), pea (sowing / emergence (germination) / vegetative)], fodder crops like oats (emergence / tillering), berseem (vegetative (1st cutting)), Apricot, Apple (nursery sowing), in Jammu & Kashmir.
- Chilli, capsicum, cauliflower, broccolli (transplanting), lahi (flowering / fruiting), sugarcane (planting), litchi, loquat, peach, citrus (flowering / fruiting), mango (early varieties) (flowering), foxtail millet, okhra, bottle gourd, bitter gourd, ginger, turmeric, (germination / vegetative), mustard, toria (pod formation/maturity), papaya (planting), sorghum, pigeon pea (vegetative), vegetable pea(harvesting), urd, potato, and pearl millets (germination), barley, fodder barseem, sarson (germination/ vegetative), onion

(nursery sowing), wheat (germination/crown root initiation), lentil (sowing) in Uttarakhand.

- Wheat (sowing/emergence/crown root initiation), winter sugarcane (vegetative growth), summer sugarcane (grand growth), cucurbits like gourd, bitter melon, cucumber, etc. and other vegetables like lady's finger, tomato, brinjal, chilli etc. (flowering/fruiting), arhar, toria (seed maturity/harvesting), tomato, brinjal, bhindi (vegetative / fruiting), cabbage, garlic, cauliflower (flowering / fruiting), barley, gram, alsi, maize, rai, mustard, berseem, potato, sarson, masoor, pea and chick pea (sowing/ germination) in Uttar Pradesh.
- Spring sugarcane (sprouting), berseem (vegetative), sugarcane (maturity / harvesting), sugarcane autumn (planting), cotton (boll maturity/picking), gram, lentil, mustard, rape seed (branching/flowering), radish, carrot, turnip, onion, cauliflower (sowing/ transplanting), barley (CRI/tillering), wheat (sowing of late varieties, CRI/tillering in timely sown) in Punjab.
- Sugarcane (spring season) (planting/emergence/early vegetative), berseem (vegetative), pulses, moong, mash, pigeon pea (vegetative), cauliflower, cabbage, carrot, potato (transplanting), mustard (sowing / vegetative), sarson, raya, radish, turnip (sowing), wheat (sowing) in Haryana.
- Wheat (sowing / germination / CRI stage), sweet potato, chilli and cluster bean (vegetative), mustard (vegetative growth / flowering), gram (sowing / germination), coriander (sowing / germination), barley, oats, lentil, lucerne, taramira, linseed (alsi), opium poppy, vegetables (potato, fenugreek, tomato, brinjal, radish, chilli, carrot, phalak, berseem, cumin, isabgol, ajwain, garlic (sowing / vegetative growth), green pea (vegetative growth / pod formation), cauliflower, cabbage, *rabi* onion (transplanting) in Rajasthan.

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

- Sugarcane (vegetative), cotton (boll opening), maize (harvesting), ragi, sunflower (heading/sowing), Bengal gram (fruiting), red gram (pod formation/ maturity), *rabi* jowar (sowing), late planted paddy (harvest), *rabi* sorghum(vegetative), wheat (vegetative) and safflower (vegetative), pigeon pea (pod filling) and horticultural crops (vegetative growth/ flowering/ fruit development) in Karnataka.
- Groundnut (sowing/germination/seedling/flowering), *rabi* paddy (sowing/panicle initiation), *kharif* paddy (grain hardening/ harvesting), *rabi* pulses (vegetative) Bengal gram (vegetative), red gram (pod development), green gram and black gram (seedling), castor (development of third spikelet), sunflower (vegetative), cotton(boll initiation/boll development), tomato ,chilli and bhendi (vegetative/flowering/fruiting) in Andhra Pradesh.
- Rice (flowering/harvesting), arecanut (harvesting), pepper (maturity/harvesting), ginger (nearing harvest), cardamom (harvesting), nutmeg (maturity), sugar-cane (harvesting/planting), vegetables (harvesting), banana (planting/harvesting), mundakan paddy (panicle initiation / ear bearing) in Kerala.
- Rice - Samba (tillering), cotton (vegetative), vegetables (vegetative/harvest), sugarcane (vegetative/ grand growth/maturity), maize (vegetative/ harvest), millets (vegetative/ harvest), sorghum (vegetative/harvest), Bengal gram (sowing), groundnut (flowering/harvest) in Tamil Nadu.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- Sugarcane (*Adsali*) (grand growth / cane maturity), sugarcane pre-seasonal (elongation / cane maturity), sugarcane (*suru*) (elongation), sugarcane (new *adsali*) (early

vegetative), sugarcane (new pre-seasonal) (sprouting / early tillering), cotton (boll maturity / picking), red gram (pod development / pod maturity), *rabi* jowar (flag leaf initiation / ear head emergence), safflower (vegetative / flowering), irrigated gram (branching / flowering / pod formation), irrigated wheat (crown root initiation / early tillering), sunflower, maize (early vegetative / vegetative) in Maharashtra.

- Wheat (sowing / crown root initiation), gram (branching / flowering / pod formation), *rabi* maize (sowing / vegetative), Isabgul (sowing), sugarcane (planting / vegetative), jowar (seedling / vegetative), cotton (picking) , castor (spike initiation / capsule formation), mustard (vegetative), cluster bean, cauliflower, cabbage, sweet corn (sowing / vegetative), potato (planting / emergence / vegetative) and spices (sowing), onion (transplanting) in Gujarat.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Sugarcane (planting/vegetative), vegetables (fruiting), Mustard (branching/ flowering), wheat, maize (tillering), onion, garlic, tomato, brinjal, chilli (sowing/transplanting) cotton (maturity) in Madhya Pradesh.
- Rice (Harvesting), sugarcane (planting), groundnut, arhar, green gram and sesame (vegetative), ginger, turmeric, papaya, mango and guava (vegetative) cauliflower, potato (sowing), 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, Bishnuprasad, Jyotiprasad, Kanaklata, Cauvery, Banglami, Joymati and Dinanath.

Wheat: Sonalika, UP 262, K 7410, WH 291, HDR-77, DBW-14, HUW - 468.

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.

water melon :

for small type: Water Baby.

for big type: Madhavi-10.

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; **late varieties** – Pusa Drumhead, Drumhead Late.

Broccoli: Pushpa, Pusa Broccoli, Aishwarya and Fiesta.

Cauliflower: Snowball -16, Pusa Early Synthetic-1 and 2, Pusa Shubhra, Pant Gobhi – 2 and Patna Ageti.

Meghalaya

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

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

Cashew: Ullal-3, Ullal-4, Venguria-1, Venguria-4 and Venguria-7.

Apricot: New castle, Kaisha, Nugget, Shipley, Suffaida.

Banana: Chenichampa Malbhog, Jahagi, Kaskol, Kaitkhun, Cavendish.

Orissa

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

Groundnut: Smruti, TAG-27, TAG – 24, JL-24, AK-12-24 and TMV-2.

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

Mustard: Prabhat, Anuradha, TS-294, M-27, PusaJaikisan, Pusa Bold.

Green pea: Rachana, Arkel, T-163.

Banana: Cavendish and Robusta.

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

Bengal gram: Gourav, Annegiri, Radhey.

West Bengal

Banana: Mortoman, Chapa, Kathali, Singapuri.

Cauliflower: Pusa Dipali, Pusa Chetaki.

Tomato: Baisali, Indam 1116, Akash.

Mustard: Sita, Vagirathi, Baruna, Agrani, Panchali, Sarama, B-54, M-27, Sanjukta etc.

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

Wheat: PBW-343, K-307, UP-262, Janak, C-306, Raj-911.

Potato: Kufri Jyoti.

Sunflower: Morden, Sidhesor (80-85 days), Pack-36 (104 Days), M.F.S.H.-17 (104 Days), Sungin-85 (80-90 days), B.S.H.-1 (85-90 days).

Lentil: B-77 (Asha), B-256 (Ranjan), Subrata, L-4076 (Mallicka) etc.

Gram: Mahamaya-1, Mahamaya-2, Anuradha etc.

Jharkhand

Green Pea: Swarn Rekha, Arkel, Azad Pea, Kashi Nandini, PE-6, Birsa Matar, Rachna, D.D.R. etc.

Potato:

Short duration: Kufri Ashoka and Kufri Pukhraj.

Long duration: Kufri Surya and Kufri Puskar.

Niger: Birsa Niger-1, Birsa Niger-2.

Tomato: Pusa Ruby, Swarna Sampda, Swarn Lalima.

Cabbage: Golden Acre, Pride of India, Early Drum Head.

Cauliflower: Pusa Deepali, Patna Early, Hazipur Extra Early, Pusa Ketki.

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

Mustard: Shivani, Pusa Jaikisan, Pusa Bold, Vardan.

African marigold: Pusa Narangi, Pusa Basanti.

French marigold: Petite Orange, Petite Yellow, Rusty Red, Lemmon Drop.

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

Gram: Birsa Chana – 3, B.G. – 372, B.G. – 256, K.W.R. – 108, Pant G. – 108, 114 and Kabuli type varieties like B.G. 1053, 1003, H.K.-94-134 and Kak 2.

Linseed: Shubhra, T. – 397, Sweta.

Wheat:

Irrigated varieties: K-9107, HUW-468, HD-2733 and Birsa Genhu-3.

Unirrigated varieties: H.D.R.-77, K.-8027, C.-306, K.-8962, K.-8027etc.

Bihar

Cauliflower: Aghani, Pusa Dipali, Pusi, Patna Main, Pusa Shuvra, **Late variety** - Maghi, Snow King, Pusa Snow King 1, Pusa 2, Pusa Snow ball 16.

Cabbage: Late Drum Head and Pusa Drum Head.

Rapeseed: RAUTS-17, PT-303, Panchali and Bhawani.

Mustard: Rajendra Sarson-1 and Swarna.

Potato: Kufri Lalima, Kufri Kuber, Kufri Alankaar, Kufri Jyoti, Kufri Chandramukhi, Ranjendra Aloo 1, 2 and 3, Kufri Badshah.

Gram: Rajendra Chana, Uday, Pusa 256, RAU 52, SG2.

Lentil: BR 25, Pant L406, 639, Malika, Arun.

Peas: Ratna, Arpana, Harbhajan, Malbai, Malviyamator 15, Pusa Prabhat.

Maize: Saktiman 1, 2, 3, 4; Laxmi, Rajendra Shankar Makka 1 and 2, Ganga 11, Deoki, Safed Laxmi, Suwan Peela.

Rai: Baruna, Pusa Bold and Kranti.

Delhi

Wheat (Late sown): P.B.W.373, WR-544, U.P.2338, U.P.2425.

Himachal Pradesh

Lettuce: Iceberg

Brinjal : Arka Nidhi, PPC

Ageti bhindi : P-8, Prabhini kranti, Arka anamika

Frenchbean : Contender

Pepper : Surjmukhi

Broccoli: Palam Samridhi
Rajmash : Triloki, Jwala, baspa Kailash
Raddish : japani white and early mino white.
Turnip : PTWG-1.
Cabbage, coriander: Snow ball K-1 Palam uphar, golden acre.
Knol khol : White Bina.
Cauliflower : Pride of India

Jammu & Kashmir

Wheat: late sown wheat varieties Raj 3077, PBW-226, PBW-373, PBW-435 and Raj-3765,
Barley : var. Ratna, Jyoti and Sonu
Mustard: RSPR-01, RLM-514, RLM-619, Pusa-Basant, Pusa-Bahar, Kranti, Varuna, RH –30 and RL 1359.
Vegetable crop like **radish** (var. Pusa chetki, Japanese white & Pusa reshmi), **carrot** (var. Pusa kesar), **turnip** (var PTWG), **garlic** (var. local, large segmented), **spinach** (prickly seeded) and **methi** (P.E.B.K methi), **Cauliflower** (var. Pusa Dipali), **knoll khol** (White Vienna), **Broccoli** (Early green).

Punjab

Wheat: PBW 621, DBW 17, PBW 550, PBW 502, PBW 343, WH 542, PDW 291, PDW 274 and PDW 233
Radish: Japanese White, white Icicle,
Turnip: Golden Ball,
Raya: PBR-210 and PBR 91 for South Western regions only. 23

Haryana

Wheat: PBW 621, DBW 17, PBW 550, PBW 502, PBW 343, WH 542, PDW 291, PDW 274 and PDW 233.
Raya: PBR-210 and PBR 91 for South Western regions only.
Radish: Japanese White, white Icicle,
Turnip: L-1, **Carrot:** Selection 21 and PC-34
Sugarcane: CoJ85, CoJ64, CoJ83

Uttarkhand:

Barley: Jyoti, Vijaya, or Jagrati and Oat varieties like UPO-50, UPO-212, JHO-822, Kent etc.
Potato: Kufri Bahar, Kufri Jawahar, Kufri Ashok, Kufri Anand.
Wheat: UP-2338, UP-2425, UP-2526, PBW-373, UP-2565, UP2572, UP2584, UP1109, PBW343
Sarson: Jai 56, 85, 01, Pant masoor 4, 5, BL masoor 125, 126.
Pea : BL matter 3, 7, Vivek matter 6, varun kanti.

Uttar Pradesh:

Lentil: 7, Narendra Masoor-1, K-75, Pant Masoor, 406, 4, L-4076, DPL-15, IPL-81,
Sarson: 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.
Sugarcane : KBHA-8436, 88230, 96268, 98231, KS-95436, 00235, 03234, 01235, KJ-64
Tomato-Azad type-5,6
Wheat: Malviya – 234, UP-2338, PVW-373, UP-2425, Narendra wheat-2036, 1014, K-9533, K-9162, HD-2428, HD-2189, HD -2733, UP.-2425, PBW-343, HD-2428, Raj-3765, HI-1077, UP-2425, PBW-435

Rajasthan

Wheat: Raj-3765, Raj-3777, Raj-3077, & Lok-1, HI-8498, PBW-373
Barley: RD-2052, RD-2503, RD-2035, RD 2668,
Onion: Pusa Red, Pusa Madhavi, Arka, Niketan, Local Red and Pusa white.

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

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)

Sunflower-KBSH-1, KBSH-42, KBSH-44.

Groundnut-ICGS-11, K-134, Chinthamani-2

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 Kadiri-3,4,5,6; tirupati-4,Narayani, Vemana and Greeshma

Paddy: BPT-5204

Gujarat:

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

Wheat (late sown): Lok-1, GW-120, GW-173, GW-405.

Rabi Maize: Ganga Safed-2.

Cluster bean: GC-1, 2.

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

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

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

Potato: Kufri Badsaha, Kufri Pokhraj, Kufri Lokar.

Spices: Methi Kasuri or Pusa Early Branching (Fenugreek), Guj. Coriander 1 or 2 (Coriander), Guj. Cumin 1, 2, 3, 4 (Cumin).

Isabgul: Isabgul 1, Isabgul 2.

Maharashtra:

Rabi sunflower: Modern, S.S. 56, B.S.H-1 in Konkan.

Rabi tomato: Dhanashri, Bhagyashri, Phule Raja (hybrid).

Rabi groundnut: TG-26, TAG-24, TPG-41, Konkan Gaurav, Konkan Tapora.

Mustard: Pusa Bold, Varuna.

Madhya Pradesh

Wheat- Early sown varieties: Sujatha, HW 2004 or HI 1500 HI -1500, HI-1531 and HD 2004, JWS- 17, HD-4672. Jaki 9218 MP-1142, MP-4010, MP-1201, MP-1202

Sugarcane- Jawahar-86141, Ko-Jawahar-86141, Ko-Jawahar-86572, Ko-Jawahar8632, Ko-6304, Ko-C-671, CoJN 86032, CoJN 86600 and CoJN 86582

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

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

Lentil-JLS-03

Maize-JVM -421, JM-16

Pea- Jawahar peal and 2

Chattisgarh

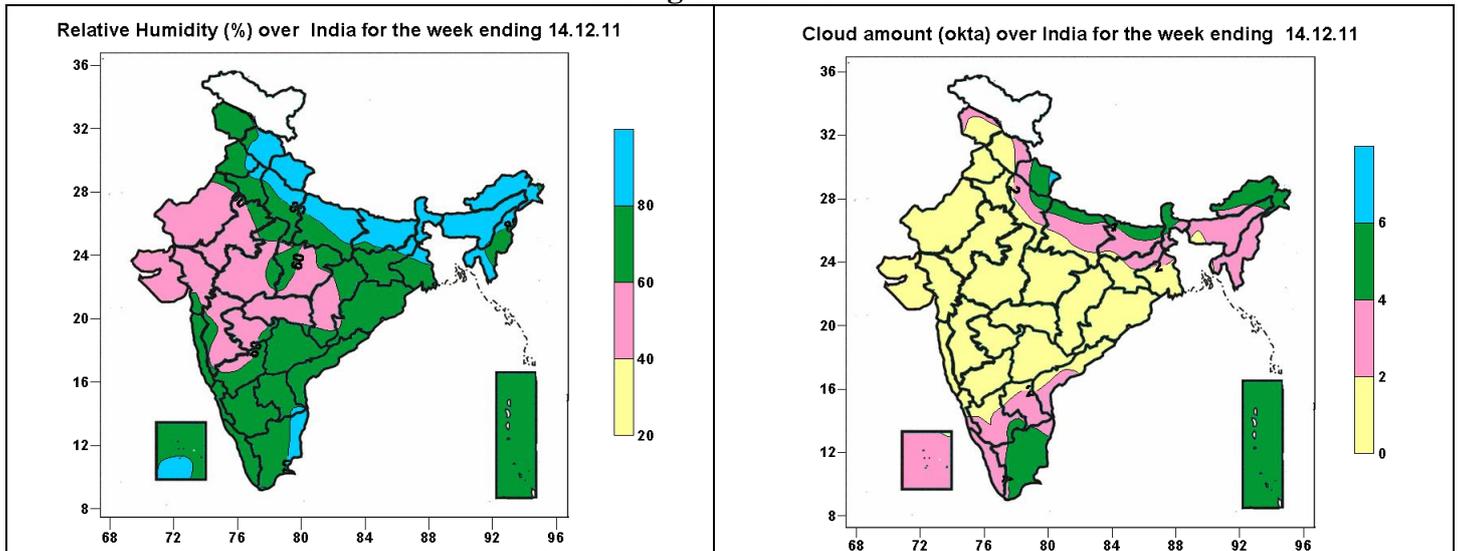
Wheat-GW-273

Potato-Kufari Lalima, Kufari Pukhra

Sugarcane- Co 86032, Co 86141

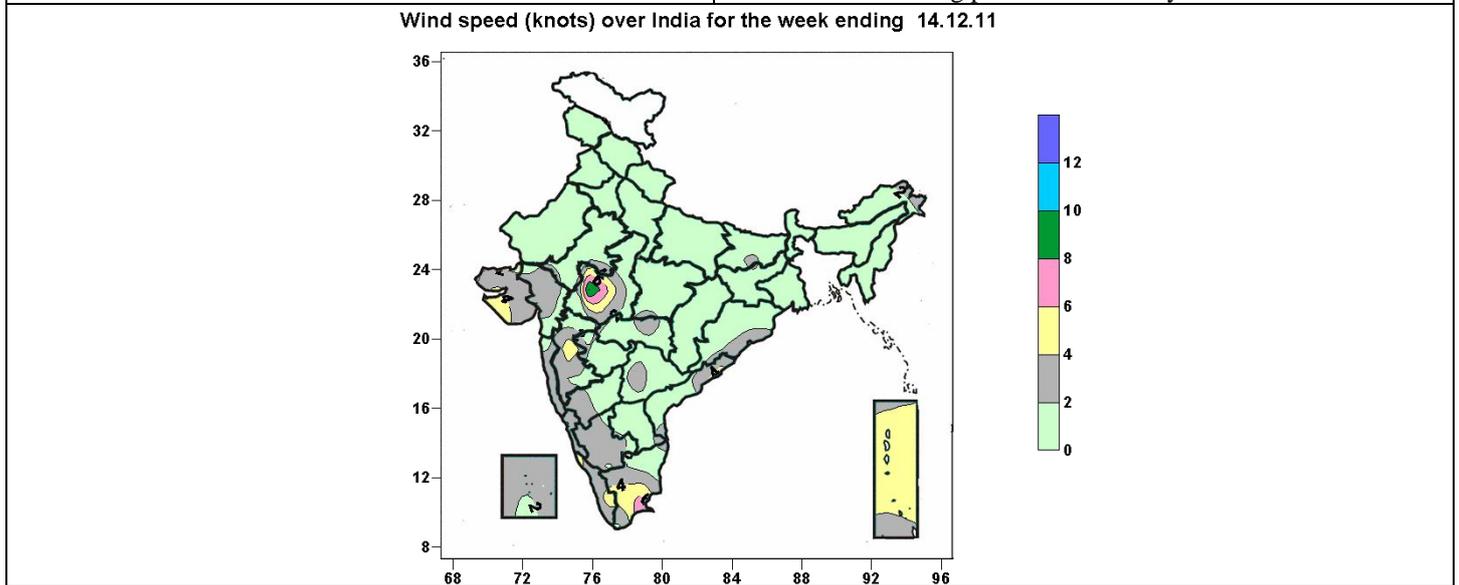
Annexure III

Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 14.12.2011



Relative humidity ranged between 80% and above over most parts of Himachal Pradesh, Uttarakhand, Uttar Pradesh, Bihar, Sub-Himalyan West Bengal, Sikkim, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Mizoram, Tripura, some parts of Punjab, Haryana, Jharkhand, Gangetic West Bengal, Manipur, Rayalaseema, Tamil Nadu, Lakshdweep Islands, 40 to 60% over most parts of Rajasthan, Central India, Gujarat, Saurashtra & Kutch, Madhya Maharashtra, Marathwada, some parts of Orissa, North Interior Karnataka, 60 to 80% over remaining parts of the country.

Cloud amount 6 okta and above over some parts of Uttarakhand, 4 to 6 okta over most parts of Uttarakhand, Sikkim, Arunachal Pradesh, Tamil Nadu, Andaman & Nicobar Islands, some parts of Uttar Pradesh, Bihar, Sub-Himalyan West Bengal, Assam, South Interior Karnataka, 2 to 4 okta over most parts of Uttar Pradesh, Bihar, Assam & Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Coastal Andhra Pradesh, Rayalaseema, South Interior Karnataka, Kerala, Lakshdweep Islands, some parts Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Jharkhand, West Bengal, Arunachal Pradesh, Coastal Karnataka, Tamil Nadu, 0 to 2 okta over remaining parts of the country.



Wind speed ranged between 8 knots and above over some parts of west Madhya Pradesh, 6 to 8 knots over some parts West Madhya Pradesh, Tamil Nadu, 4 to 6 knots over most parts of Andaman & Nicobar Islands, some parts of West Madhya Pradesh, Saurashtra & Kutch, Madhya Maharashtra, Kerala, Tamil Nadu, 2 to 4 knots over most parts of Gujarat, Saurashtra & Kutch, Konkan & Goa, Madhya Maharashtra, Karnataka, Kerala, Lakshdweep, some parts of Bihar, Arunachal Pradesh, Orissa, Madhya Pradesh, Vidarbha, Marathwada, Andhra Pradesh, Tamil Nadu, Andaman & Nicobar Islands, 0 to 2 knots over remaining parts of the country.