



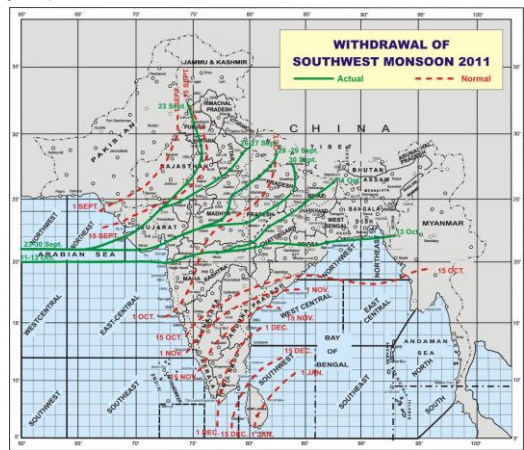
# National Agromet Advisory Bulletin

## Thursday, 13<sup>th</sup> October, 2011

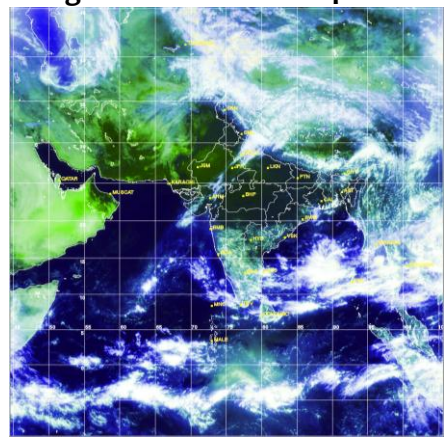
(For the period 13<sup>th</sup> to 17<sup>th</sup> October, 2011)

### Monsoon Watch

- The southwest Monsoon has further withdrawn from entire West Bengal & Sikkim and northeast India (Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram and Tripura), remaining parts of Bihar and Jharkhand, some parts of north Bay of Bengal and Orissa and some more parts of Chhattisgarh and Vidarbha.
- The withdrawal line of southwest monsoon passes through Lat. 22.0°N / Long. 93.0°E, Balasore, Keongjargarh, Raipur, Akola, Malegaon, Dahanu, Lat. 20.0°N / Long. 70.0°E and Lat. 20.0°N / Long. 60.0°E.



Satellite image 0600 UTC dated 14<sup>th</sup> October, 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

Southwest monsoon has withdrawn from North Western States, Gujarat, Madhya Pradesh, Bihar, Jharkhand and some parts of Orissa, Chhattisgarh, Vidarbha, North Madhya Maharashtra, entire West Bengal & Sikkim and northeast India and no significant rainfall is likely in the above regions except Konkan, Madhya Maharashtra and Marathwada during next three days. Due to possibility of rainfall in Konkan, Madhya Maharashtra and Marathwada, farmers are advised to wait to undertake harvesting of rice, ragi and other *kharif* crops and postpone irrigation and intercultural operation to the late sown *kharif* crops.

Due to favourable weather condition, land preparation and sowing of mustard, niger, rainfed groundnut and sunflower in Orissa, mustard, spices like coriander, cumin, fennel and fenugreek in West Bengal, toria, rapeseed and tobacco in Bihar and green pea, mustard, toria and potato in Jharkhand may be undertaken.

Due to spells of rainfall during last week in Anantapur and Cuddapah districts in Rayalaseema, many of the late sown crops which suffered moisture stress during earlier weeks, are likely to recover. Due to less rain in some parts of Kurnool and Chittor districts in Rayalaseema, farmers are advised to provide supplementary irrigation to late sown groundnut crop. Sugarcane suffered from moisture stress during last week in North Coastal Zone of Andhra Pradesh is likely to recover.

Mainly dry weather prevailed in most of the States except rainfall in few districts of Jammu and Kashmir, Rayalaseema, Coastal Andhra Pradesh, Coastal Karnataka, North Interior Karnataka and Tamil Nadu and many districts of South Interior Karnataka. Farmers in North Interior Karnataka are advised to prepare land for sowing of *rabi* crops like safflower, jowar, sorghum and Bengal gram. In the areas under moisture deficit status, apply protective irrigation to crops like pigeon pea, cotton, sunflower and groundnut which are under stress. Nursery preparation and transplanting of *samba* rice and preparatory tillage for sowing of rainfed *rabi* crops *viz.*, sorghum, maize, pearl millet, cotton etc. may be undertaken in Tamil Nadu.

As fairly widespread rain / thundershowers would occur over Konkan, Madhya Maharashtra and Marathwada, Andhra Pradesh, Karnataka, Kerala and Tamil Nadu, farmers are advised to undertake intercultural operation and application of fertilizer and plant protection measures to the crops after current spells of rain.

Due to prevailing weather, incidences of leaf folder, hispa, gundhi bug and case worm in rice, powdery mildew in sunflower in Karnataka, leaf miner in groundnut in Andhra Pradesh, red palm weevil and rhinoceros beetle in coconut, mahali disease in areca nut, pollu disease in pepper, pseudo stem weevil / rhizome weevil, leaf spot in banana and fungal diseases in rubber in Kerala and case worm and leaf folder in rice in Jharkhand are reported. 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	12.10.11
<b>Jammu &amp; Kashmir</b>		
Anantnag	9.4	0
Badgam	12.6	56
Baramula	21.2	207
Doda	15.8	76
Ganderwal	12.1	75
Jammu	0	-100
Kargil	0	-100
Kathua	0	-100
Kulgam	16.6	77
Kupwara	18	50
Ladakh(Leh)	0	-100
Poonch	0	-100
Pulwama	7	46
Rajouri	0	-100
Ramban	1.5	-83
Reasi	0	-100
Samba	0	-100
Shopian	17	254
Srinagar	11.4	64
Udhampur	0	-100
<b>Chattisgarh</b>		
Bastar	10.4	-60
Bijapur	1.2	-96
Bilaspur	9.0	-43
Dantewara	45.5	50
Dhamtari	0.0	-100
Durg	55.7	236
Janjgir	4.1	-64
Jashpurnagar	10.2	-41
Kanker	1.7	-92
Korba	14.0	-3
Koriya	3.6	-54
Kawardha	2.0	-90
Mahasumund	0.0	-100
Narayanpur	24.8	-18
Raigarh	0.0	-100
Raipur	3.9	-72
Rajandgaon	6.5	-70
Surguja	25.6	97
<b>UttaraKhand</b>		
Almora	1.5	-91
Bageshwar	0	-100
Chamoli	0.4	-97
Champawat	0	-100
Dehradun	26.2	6
Garhwal Pauri	2.0	-90
Garhwal Tehri	0	-100
Haridwar	0	-100
Nainital	1.2	-95
Pithorgarh	5.0	-78
Rudraprayag	0	-100
Udham Sing Nagar	0	-100
Uttarkashi	1.2	-94
<b>Jharkhand</b>		
Bokaro	26.2	-8
Chatra	3.8	-77
Dhanbad	6.6	-71
East Singhbhum	49.4	148
Garhwa	13	-24
Giridih	21.3	-14
Hazaribagh	52.8	143
Jamtara	0.5	-98
Koderna	10	-38
Latehar	8	-60


Lohardagga	15	-18
Pakur	0	-100
Palamau	11.9	-30
Ramgarh	9.6	-56
Ranchi	13.2	-52
West Singhbhum	0	-100
<b>Maharashtra</b>		
<b>Konkan &amp; Goa</b>		
Goa	24.8	-36
Mumbai	2.6	-91
Raigad	58.8	41
Ratnagiri	69.2	54
Sindhudurg	48.5	18
Thane	1.1	-97
<b>Madhya Maharashtra</b>		
Ahmednagar	1.4	-94
Dhule	0	-100
Jalgaon	0	-100
Kolhapur	36.2	3
Nandurbar	0	-100
Nasik	0.7	-97
Pune	39	55
Sangli	30.2	-5
Satara	33.3	28
Solapur	31.4	20
<b>Marathwada</b>		
Aurangabad	0.8	-96
Beed	10.3	-51
Hingoli	0	-100
Jalna	2.7	-89
Latur	4.5	-83
Nanded	0.7	-97
Usmanabad	14.3	-35
Parbhani	1.6	-92
<b>Vidarbha</b>		
Akola	0.1	-99
Amraoti	13.3	-24
Bhandara	4.5	-76
Buldhana	0.2	-99
Chandrapur	3.4	-82
Gadchiroli	5.9	-70
Gondia	1.1	-94
Nagpur	0	-99
Wardha	2.2	-88
Washim	0	-100
Yeotmal	0.5	-97
<b>Orissa</b>		
Angul	13.3	-45
Balasore	3.4	-94
Bargarh	11.6	-23
Bhadrak	0.2	-99
Bolangir	6.2	-66
Boudh	0	-100
Cuttack	10.5	-71
Deogarh	11.5	-25
Dhenkanal	5.1	-83
Gajapati	4.6	-89
Ganjam	3.6	-93
Jagatsingpur	29.1	-25
Jajpur	6.1	-85
Jharsuguda	3.6	-84
Kalahandi	13	-20
Kandhamal	6.5	-83
Kendrapara	5.8	-90
Keonjhar	14.7	-55
Khurda	9.1	-83
Koraput	4.3	-89


Malkangiri	8	-78
Mayurbhanj	6.7	-76
Nawapara	0	-100
Nawarangpur	0	-100
Nayagarh	25.4	-51
Puri	12	-78
Rayagada	20	-49
Sambalpur	19.3	26
Sonepur	0.7	-95
Sundargarh	13.6	-12
<b>West Bengal</b>		
<b>GWB</b>		
Bankura	14.5	-30
Birbhum	7	-69
Burdwan	14.1	-36
East Midnapore	10.8	-74
Hooghly	8.4	-69
Howrah	11.9	-68
Kolkata	13.4	-66
Murshidabad	8.6	-71
Nadia	7	-70
24 Pargana (N)	8	-73
Purulia	11.2	-48
24 Pargana (S)	8.7	-86
West Midnapore	1.8	-92
<b>SHWB</b>		
Cooch Behar	0	-100
Darjeeling	2.6	-90
East Sikkim	0.3	-99
Jalpaiguri	0.6	-99
Malda	0.2	-99
North Dinajpur	0	-100
North Sikkim	0.5	-99
South Dinajpur	0	-100
South Sikkim	1.1	-98
West Sikkim	6	-92
<b>Karnataka</b>		
<b>Coastal Karnataka</b>		
Dakshin Kannada	70.6	12
Udupi	46.3	-22
Uttar Kannada	17.5	-57
<b>North Interior Karnataka</b>		
Bagalkote	27.0	-15
Belgaum	37.9	19
Bidar	4.9	-82
Bijapur	4.3	-83
Dharwad	25.7	-16
Gadag	17.4	-49
Gulbarga	14.5	-49
Haveri	38.3	21
Koppal	12.5	-57
Raichur	4.6	-86
Yadgir	3.0	-91
<b>South Interior Karnataka</b>		
Bangalore Rural	75.6	59
Bangalore Urban	73.4	68
Bellary	17.0	-41
Chamarajnarag	48.3	31
Chichballapur	45.7	4
Chickmagalur	36.7	-11
Chitradurga	22.3	-32
Davangere	17.6	-45
Hassan	55.8	44
Kodagu	64.4	36
Kolar	42.1	-6
Mandya	32.3	-16
Mysore	68.7	93


Ramnagara	39.3	-14
Shimoga	33.0	-5
Tumkur	33.3	-12
<b>Kerala</b>		
Alappuzha	2.6	-97
Kannur	47.2	-21
Ernakulam	37.9	-46
Idukki	11	-87
Kasaragod	62.3	-17
Kollam	0.7	-99
Kottayam	17.2	-77
Kozhikode	33.8	-49
Malappuram	30.5	-58
Palakkad	5.2	-91
Pathanamthitta	11.5	-85
Thiruvananthapuram	0	-100
Thrissur	12	-81
Wyanad	8.5	-83
<b>Tamil Nadu</b>		
Chennai	3.2	-92
Coimbatore	4	-85
Cuddalore	36.3	-12
Dharmapuri	35.1	-25
Dindigul	15.4	-58
Erode	17.1	-47
Kanchipuram	11.2	-71


Kanyakumari	0	-100
Karur	36.2	14
Krishnagiri	65	11
Madurai	30.6	52
Nagapattinam	32.7	-26
Namakkal	48.4	-1
Nilgiris	35.4	23
Perambalur	28.6	-16
Puducherry	18.9	-42
Pudukottai	10.9	-64
Ramanathapuram	13.8	-48
Salem	53.7	17
Sivaganga	14	-60
Thanjavur	11.7	-67
Theni	18.7	-35
Tirunelveli	7.9	-68
Tiruvallur	24.5	-37
Tiruvannamalai	57.2	17
Tiruvarur	11.7	-65
Toothukudi	11.7	-53
Trichy	29.3	-27
Vellore	46	5
Villupuram	23.1	-46
Virudhunagar	34.3	6
<b>Andhra Pradesh</b>		
<b>Coastal Andhra Pradesh</b>		


East Godavari	34.3	-53
Guntur	16.8	-52
Krishna	14.4	-67
Nellore	31.5	-15
Prakasam	43.6	15
Sirkakulam	3.7	-93
Visakhapatnam	23.2	-59
Vizianagram	8.6	-83
West Godavari	15.6	-74
<b>Telangana</b>		
Adilabad	2.1	-91
Hyderabad	25.1	-15
Karimnagar	2.6	-90
Khammam	15.1	-55
Mehabubnagar	9.1	-66
Medak	0	-100
Nalgonda	0.5	-98
Nizamabad	0.1	-99
Rangareddy	9.3	-69
Warangal	4.4	-83
<b>Rayalaseema</b>		
Anantapur	42.4	29
Chittoor	20.7	-49
Cuddapah	31.4	-9
Kurnool	9.2	-68

 (20% or more) excess rainfall

 (-19 to +19%) normal rainfall

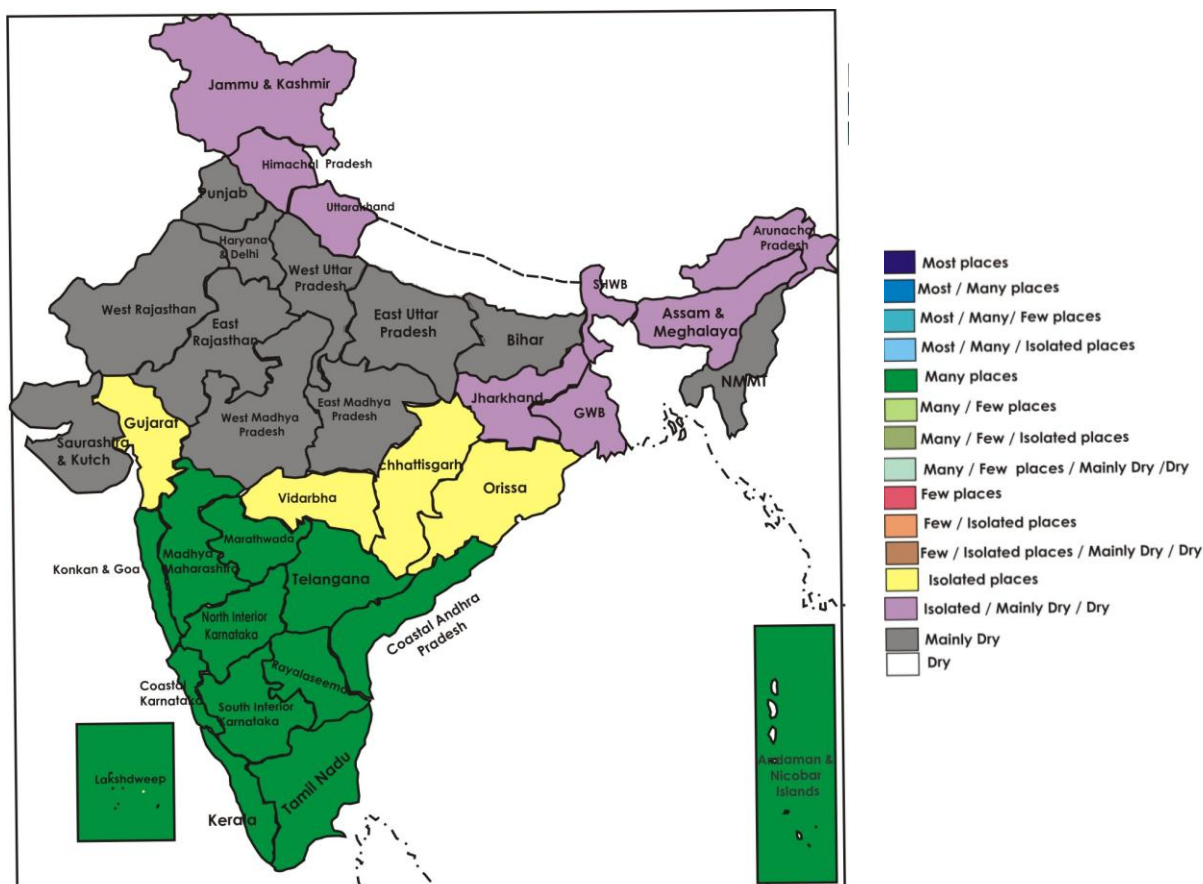
 (-20 to -59%) deficient rainfall

 (-60 to -99 %) scanty rainfall

 (-100%) no rainfall

 \*\* Data not available

## Weather Forecast (Valid upto 1430 hours of 16<sup>th</sup> October, 2011)



### Major Feature of Weather Forecast upto 1430 hours IST of 16<sup>th</sup> October, 2011

- Fairly widespread rain/thundershowers would occur over south peninsular India and adjoining south Maharashtra, Lakshadweep and Andaman & Nicobar Islands.
- Isolated rain/thundershowers would occur over Gangetic West Bengal, Jharkhand, Orissa and south Chhattisgarh.
- Isolated rain/snow would occur over western Himalayan region during next 48 hours and mainly dry weather thereafter.
- Mainly dry weather would prevail over rest parts of the country outside Sub-Himalayan
- West Bengal & Sikkim, Assam, Meghalaya and Arunachal Pradesh where isolated rain/thundershowers may occur from 15<sup>th</sup> October.
- Fall in minimum temperatures by 23°C over northwest and adjoining central India from 15<sup>th</sup> onwards.

### Weather Outlook up to 1430 hours IST of 18<sup>th</sup> October, 2011

- A low pressure area may form over east-central Bay of Bengal and neighbourhood.
- Fairly widespread rainfall activity would continue over peninsular India.
- Mainly dry weather would prevail over northwest, central and east India.

## Zonewise Agromet Advisories

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

- **Realised Rainfall:** Mainly dry weather prevailed over the states of the region during last week.
- **Rainfall Forecast:** Mainly dry weather would prevail over the states of the region during next 48 hours and isolated rain may occur after that.
- **Advisory**
  - As there is no significant rain during last couple of 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 pulses like green gram and black gram, pigeon pea and continue sowing of onion, garlic, brinjal (early varieties), cauliflower (early varieties), cabbage, knoll khol, tomato, radish, country bean, Dolichos bean etc. Start land preparation and sowing of niger, bulk wheat, rapeseed and mustard etc.
  - Farmers in Sub Tropical Hill Zone of Arunachal Pradesh are advised to harvest matured maize cobs and WRC crops (rice-IR-8 cultivar) and dry properly before storing.
  - Farmers in Arunachal Pradesh are advised to start land preparation and sowing for *rabi* crops and transplanting of vegetables.
  - Farmers in Mid Tropical Hill Zone in Nagaland are advised to undertake sowing of *rabi* crops like rapeseed, mustard, pea etc. Undertake harvesting of upland rice. Farmers are advised to drain water from the rice field about 7-10 days before harvest to facilitate harvesting.
  - Farmers in Mid-tropical plain zone of Tripura are advised to prepare nursery for sowing of early cauliflower, other cole crops, turmeric, radish and brinjal (early).
  - Farmers of Sub tropical Plain Zone of Manipur are advised to continue to prepare bed for raising nursery of tomato, onion, cabbage, cauliflower etc.
  - In Kolasib region of Mizoram, continue to prepare nursery bed for *rabi* crops, pea, bean, cole crops and tomato.
  - Farmers in Temperate Sub Alpine zone of Meghalaya are advised to undertake harvesting of jute and mesta in Ri-Bhoi, East Khasi and South Garo hill districts, harvesting of ginger & turmeric in Ri-Bhoi, East Khasi, West Khasi and Jaintia Hill district and sowing of broccoli and winter vegetables in Ri-Bhoi, East Khasi and West Khasi Hill districts.
  - 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 panicle initiation 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 blast where the crops are at panicle initiation stage; farmers are advised to monitor *sali* rice and spray Hinosan @ 1 ml / litre of water to control the attack.
  - In upper Brahmaputra Valley Zone in Assam, there is attack of stem borer and caseworm at maximum tillering and panicle initiation stages of rice; farmers are advised to monitor the crops and spray Chloropyrifos (20%) @ 2 ml / litre of water to control the attack.
  - In Sub Tropical Plain Zone of Manipur, there is chance of occurrence of disease like neck blast and insects like stem borer and brown plant hoper in rice; farmers are advised to monitor and spray Tricyclazole @ 6 g / 10 litres of water against neck blast,

spray Fipronil 80% WG @ 2 g / 15 litres of water against stem borer and brown plant hopper.

- In Kolasib region of Mizoram, due to prevailing weather conditions, there is chance of infestation of bacterial wilt, sucking insect and diseases like blast in rice; farmers are advised to monitor the crops and spray streptomycin @ 1-2 g in 5 liters of water and 2.5 g ceresan @ 0.5% in one liter of water against bacterial wilt; to control most of the sucking insects, dust rice crop with Folidol @ 20-25 kg / ha in the morning hours when leaf remains wet; spray Benlate or Mancozeb @ 0.25% against blast disease. Due to prevailing weather as well as fruit maturity period of khasi mandarin, there are chances of peak activity of fruit fly; apply baits of jaggery + fruit juice + malathion (20:20:1). Fruit fly infestation is more in cucurbits also; use light trap and poison baits during night containing 200 g gur + 20 ml Malathion in 20 litres of water as coarse droplets on lower surface of leaf.
- In Mild Tropical Plain Zone of Tripura, due to the prevailing weather condition, there is chance of attack of bacterial wilt, sucking insects / pests, leaf roller and disease like blast in *aman* rice; farmers are advised to spray streptomycin @ 1-2 g in 5 liters of water and Cereson 0.5% @ 2.5 g in one liter of water against bacterial wilt; undertake dusting in rice with Folidol @ 20-25 kg / ha in the morning hours when the leaf is wet to control the attack of sucking insects / pests; spray Cypermethrin + Prophenofos @ 1.5 ml per liter of water to manage the attack of leaf roller and Benlate or mancozeb @ 0.25% against blast.
- Stages of major crops are mentioned in Annexure I.

#### **Animal Husbandry:**

- Undertake immunizations against Brucellosis, Foot and mouth disease (FMD), HS, BQ and Anthrax diseases in cattle, pig and goat in Upper, Lower and Central Bramhaputra Valley Zone in Assam.
- In Mizoram and Tripura, due to prevailing weather conditions, there is chance of infestation of round worm, flukes and tapeworms in cattle; farmers are advised to de-worm cattle by using appropriate de-wormer like Albendazole, Rafoxanide and Praziquantel, respectively. Vaccinate pig against swine fever.
- In Nagaland, due to ingestion of contaminated feed and water, there is chance of effect of Foot and Mouth Diseases in livestock. To control the disease, apply Bonoglycerine on mouth lesions, mouthwash with 1% KMnO<sub>4</sub>, foot wash with 2% copper sulphate or 2-4% sodium carbonate solution.
- In Manipur, cattle farmers are advised to de-worm and vaccinate cattle against Black Quarter, poultry against Ectoparasites, Coccidiosis, Ranikhet, pig and goat against Endoparasites, FMD, Ectoparasites etc.

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

- **Realised Rainfall:** No significant rain occurred in most of the districts of the States of the region during last week.
- **Rainfall Forecast:** Isolated rain is likely to occur over Gangetic West Bengal and Orissa and mainly dry weather will prevail over remaining parts of the region during the period.
- **Advisories:**
  - As there is no significant rain during last couple of weeks in most of the districts of the States of the region, farmers are advised to apply irrigation to the standing crops in West Bengal, Bihar, Jharkhand and Sikkim.
  - Undertake sowing of oilseed crop like mustard immediately in Western Undulating Zone of Orissa utilizing residual soil moisture.
  - Farmers are advised for sowing of pre-*rabi* green gram, niger, rainfed groundnut and sunflower in the fallow uplands in East and South Eastern Coastal Plain Zone of Orissa.

- Taking the advantage of relatively dry weather, harvest the pods of *kharif* green gram and black gram in Orissa.
- As weather is likely to be dry, farmers in North Bihar and South Bihar Alluvial Zone are advised to undertake weeding / hoeing and top dressing of urea in early transplanted cauliflower, chilli, brinjal, tomato etc. Weeding and earthing-up should also be carried out for newly planted fruit trees as well as old ones.
- In North West Alluvial Zone of Bihar, farmers are advised to prepare the land in upland areas for sowing of rapeseed.
- As the temperature condition is favourable, farmers in the districts of north Bihar are advised to start the sowing of yellow sarson (mustard). Farmers are also advised to carry out land preparation and sowing of other *rabi* crops in these districts.
- Farmers in Central, Western and North Eastern Plateau Zone of Jharkhand are advised to start sowing of toria, niger, bell pepper, green pea, tomato, cabbage, cauliflower, capsicum, potato etc.
- Farmers in Central Plateau Zone of Jharkhand are advised to grow 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 for the utilization of residual soil moisture.
- Farmers in New Alluvial Zone and Coastal Saline Zone of West Bengal are advised to start land preparation and sowing mustard.
- Prepare the land for spices and sow seeds of coriander, cumin, fennel and fenugreek in New Alluvial Zone of West Bengal.
- Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
- Late transplanted rice crops in medium land and low land may be attacked by false smut disease in Western Plateau Zone of Jharkhand; spray fungicide like Blitox- 50 @ 2 g per litre of water or Bavistin @ 0.5 g per litre of water.
- Weather is conducive for the attack of stem borer in turmeric and ginger in South Eastern Plateau Zone of Jharkhand; spray Roger @ 1 ml per litre of water and also remove affected parts. Collar rot disease is seen in elephant foot yam; spray Carbendazim @ 1g + Thirum @ 2 g per litre of water.
- Cool and high humid weather condition may favour the spreading of false smut disease in rice in South Eastern Plateau Zone of Jharkhand; spray Tilt @ 1 ml per litre of water. Clear sky with cool and high humid condition may also favour gundhi bug infestation in rice; spray Chlorpyrifos 20 EC @ 0.6 litre per acre or Carbaryl 50 percent WP @ 1 g or Carbaryl 5 percent dust @ 10 kg per acre during dusk or evening time. In late transplanted rice crop attack of case worm is seen heavily; spray Chlorpyrifos 20 EC @ 0.6 litre per acre.
- Present weather situation also favours occurrence of Anthracnose disease in cucurbitaceous crops in South Eastern Plateau Zone of Jharkhand; spray Blitox 50 @ 3 g per litre of water.
- Timely sown crop of maize is at maturity stage in South Eastern Plateau Zone of Jharkhand; hence, to prevent grains of cob from parrot attack, fence with shining wire around the field, which act as a repeller.
- In some pockets, crops are attacked by leaf roller / folder insects in Western Plateau Zone of Jharkhand. If the pest population is very less, then the affected leaves should be burnt after plucking them. Otherwise, spray Monocrotophos @ 1 ml per litre of water.



- Late sown crops of maize are attacked by fruit borer in Western Plateau Zone of Jharkhand; to control, spray Neem based insecticides @ 2-3 ml per litre of water, preferably on upper parts of the plant.
- Prevailing weather condition are congenial for the incidence of aphids and thrips on vegetables in North Eastern Plateau Zone of Orissa; spray Dimethoate or Methyl-O-Demeton @ 2 ml / litre of water and for thrips, spray Imidachloprid @ 0.4 ml / litre of water. Spraying should be done whenever there is rain free period for at least 6 hours.
- Infestation of spotted boll worm in cotton in East and South Eastern Coastal Plane Zone of Orissa is reported; spray 200 LE HNVP along with gur, if it crosses the ETL level of 5 –10 % of affected twigs and install pheromone trap in the middle of the field at 1 ft above the crop height.
- In North Eastern Plateau Zone of Orissa, the current humid weather is favourable for red and black hairy caterpillar; apply 1.5% Chloropyriphos @ 10 kg in the morning to control it.
- In some places of South Bihar Alluvial Zone, infestation of gundhi bug in rice is reported; for its control apply Methyl parathion / Ekalex (2% dust) early in morning @ 20-25 kg / ha.
- Stages of major crops are mentioned in Annexure I.

### **Animal Husbandry**

- In North Eastern and Central Plateau Zone of Orissa, to control ticks and mites in animals, spray Butox @ 2 ml per litre on animals' body and 1-3 ml per litre in the shed. RD vaccine should be given immediately to the chicks which are 7 days old. To prevent coxidirosis disease, spray antibiotic solution named Kohrsolin-TH in the poultry house. Periodic vaccination viz. FMD, HS & BQ may be carried out to protect the dairy animals. Clean and hygienic water should be fed to dairy animals. Keep the animal shed clean. Produce and use Azolla as animal feed. Feed the milch animals @ 1 kg feed in two litres of water mixed in 50 g mineral salt.

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

- **Realised Rainfall:** Dehradun district in Uttarakhand and few districts of Jammu & Kashmir received rainfall. Mainly dry weather prevailed during last week in most of the districts of remaining States.
- **Rainfall Forecast:** Isolated rain/thundershowers would occur over Jammu & Kashmir and Himachal Pradesh during next three days. Mainly dry weather would prevail over rest parts of the region except isolated rain after 24 hours in Uttarakhand.
- **Advisory:**
  - As there was no significant rainfall in most of the districts over the region during last week, apply irrigation to the standing crops.
  - As weather is favourable, farmers in Delhi are advised to undertake planting of early potato and transplanting of cauliflower, cabbage, broccoli, tomato chrysanthemum and marigold and sowing of pea and carrot. Undertake field preparation for sowing of other *rabi* crops like wheat. Due to favorable temperature, sowing of early mustard, sarson, radish, french radish, fenugreek and turnip.
  - Farmers in Uttar Pradesh are advised to prepare field for sowing of *rabi* mustard, gram, potato, alsi (linseed), masoor (lentil), pea, chickpea, barley, berseem, rajma, jai, garlic, early varieties of potato and winter sugarcane. They are also advised to continue sowing of brinjal, chilli, lady's finger and lobia.
  - As weather is expected to be dry during the period, farmers in Punjab and Haryana are advised to pick the fully matured opened bolls in the cotton crop and harvesting of matured rice crop. Undertake sowing of raya and autumn potato till 15<sup>th</sup> October and

complete sowing of Barseem (fodder). Due to favourable weather transplanting of main season varieties of cauliflower and cabbage and sowing of radish, turnip and carrot. Give need based irrigation to sugarcane crop.

- Farmers of Himachal Pradesh are advised to make arrangement for immediate harvesting of apple, pomegranates, ragmash, beans, vegetables, potato. Nursery beds preparation and subsequently sowing of seeds of cabbage, cauliflower and broccoli etc. may be done. Direct sowing of carrot, raddish, early peas and Palak can also be done during this period. Light earthing up followed by light irrigation is also advised in ginger and turmeric. Farmers of the sub-montane and low hill area are advised to complete sowing of toria and berseem, and take up sowing of potato, Gobhi sarson, and barley. In the high hills, Kalazira and saffron are near maturity so do not allow water stagnation.
- Farmers in Jammu & Kashmir are advised to undertake harvesting of matured rice, matured pods of pulses, early sown maize, bajra, oilseeds and *kharif* vegetables. Farmers are also advised sowing of spinach and methi. Undertake nursery sowing of cabbage, chinese cabbage, kale, planting of roots seed of Beet leaf and harvesting of onion, garlic, potatoes, summer squash, cottle gourd, okra and cucumber under green house conditions in cold arid zone (Leh). In fallow lands, conservation of soil moisture *insitu* condition for the sowing of *rabi* crops is advised. Make arrangements for proper drainage of water from the orchards.
- Farmers in Bhabar and Tarai Zone of Uttarakhand are advised to continue sowing of vegetable pea at high hills, planting of potato and also continue sowing of early vegetable pea, mustard, berseem, toria and garlic under optimum soil moisture conditions.
- Farmers in Bhabar and Tarai Zone of Uttarakhand are advised to complete sowing of Rajmash crop.
- Farmers in Rajasthan are advised to undertake field preparation for sowing of Ajwain, taramira, rainfed taramira, toria, pea, gram, mustard, fennel (saunf). They are also advised to undertake seed bed preparation for raising nursery of vegetables viz. chilli, brinjal, palak, pea, cabbage, coriander, radish, onion and tomato for *rabi* season. Farmers are advised to start field preparation for sowing of wheat, oats and barley and procure improved varieties of mustard, lentil, gram and potato tubers. In command areas of southern humid plain zone, farmers are advised to go for sowing of maize for fodder or for green cobs before sowing of wheat.
- In Southern Humid Plain Zone (Banswara), due to bright sun shine, crop damages due to excess rains is expected to cover to some extent with extended maturity period specially in soybean & cotton, irrigation as per need at square formation is advised to farmers.
- In Semi Arid Eastern Plain Zone (Jaipur), Cauliflower is affected with leaf eating insects like sawfly, flea betel and lemon butterfly. Farmers are advised to spray Melathion 5% or Carboryl 5% dust @ 20 kg /ha. Tomato crop is also affected with blight attack. Blight attack causes brownish spot on leaves. To control blight spray Mencozeb @ 2 gm or copper oxychloride @ 3 gm per litre water. Stem fly is likely to attack early sown pea. Maggots of this insect bore into the stem. To control this insect farmers are advised to broadcast forate 10 G @ 10-15 kg ha<sup>-1</sup>.
- In Semi Arid Eastern Plain Zone (Jaipur), looking into the forecast of rise in mean temperature above 25°C, the sowing of gram and mustard may be delayed till temperature become suitable for the sowing.
- In the sub montane zone of Himachal Pradesh attack of Fruit borer is observed in bhindi and brinjal. Farmers are advised to spray carbaryl 50wp @2g per litre of water or endosulphon @1.5ml per litre of water. Observe 7 days waiting period for picking of fruits.

- Farmers of the mid hills zone of Solan in Himachal Pradesh are advised to spray triazophos 0.15% (375 ml Hostathion 40 EC) or Acephate 0.15% (200 gram astof) or Fenvalrate 0.02% (100 ml fanvel/ Agrofen 20 EC) or deltamethrin 0.0056% (200 ml decis 2.8 EC) per 100 litre of water at 15 days interval for the control of leafminer in tomato. For the control of Jassids in okra spray malathion 0.05% ( 100 ml cythion/malathion/masthion 50 EC) or endosulfan 0.05% (140 ml thiodan/Hildan/Endocil/Endovan 35 EC) in 100 litre of water at 15 days of interval.
  - Farmers are advised to monitor sugarcane for the attack of pyrilla in Punjab and Haryana. Take proper plant protection measures.
  - Due to high humidity there is possibility of attack of Jassid and Sundi in cotton crop in Haryana. Take proper plant protection measures.
  - In Delhi Monitoring of cucurbitaceous crops against attack of fruit fly is recommended in present weather condition. After detecting the symptoms, spraying of Carbaryl @ 1.5 to 2 gram /litre of water is advised. In vegetables (brinjal, cauliflower, cabbage, tomato etc) spraying of Spinosad 1.0 ml / 4 litre of water is advised against fruit borer, diamond back moth. Termites may damage crops and vegetables in the present weather. Farmers are advised to spray Chlorpyrifos 20 EC @ 4ml/litre of water.
  - In Delhi present weather conditions, rouging of viral infested crop should be done in chilli. Infected plants should be uprooted and buried in the soil. After rouging, spraying of Imidacloprid @ 0.3 ml per litre of water is advised for control the vector. Also, constant monitoring of ladyfinger, brinjal and chilli crop is advised against attack of mite and jassid. Spraying of phosmite @ 1.5 - 2 ml per litre of water is advised to control mite. Spraying of Dimethoate 30 EC @ 2 ml/liter of water against jassid is advised.
  - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandary**
    - 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.
    - To check tick infection spray Asuntol 0.05%, Butox 0.02% and Tactic 0.02% on the animals as well as in the sheds and repeat the spray after 10-15 days.
    - Due to changing environment milch and baby animals are likely to be affected with infection of respiratory tracts in In Semi Arid Eastern Plain Zone of Jaipur in Rajasthan. If symptoms like droppings from nose, fever etc. are seen in animals, a three days course of Cproflaxin, Anorflaxin or Sulpha may be given under the guidance of veterinary doctor.

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

- **Realised Rainfall:** Dakshin Kannada and Udipi in Coastal Karnataka, Belgaum and Haveri in North Interior Karnataka, most of the districts in South Interior Karnataka except Bellary and Davangere districts, Kannur, Ernakulam, Kasaragod, Kozhikode and Malappuram in Kerala, Cuddalore, Dharmapuri, Karur, Madurai, Nagapatinam, Namakkal, Nilgiris, Salem, Tirupur, Tiruvannamalai and Virudunagar in Tamil Nadu, Nellore, Prakasam in Coastal Andhra Pradesh and Anantapur in Rayalaseema received sufficient rainfall. No significant rainfall occurred in the remaining parts of the region.

- **Rainfall Forecast:** Fairly widespread rainfall is likely to occur in all the State of the region.
- **Advisories:**
  - Due to poor rainfall conditions prevailing in Rayalaseema, many of the late sown crops at pod formation / development stage suffer from moisture stress. Farmers are advised to arrange for supplementary irrigation depending on rainfall situation as some rainfall is forecasted and the crops are now at critical stage for irrigation.
  - Due to dry spell, sugarcane is suffering from moisture stress in the North Coastal Zone of Andhra Pradesh. Farmers are advised to spraying with urea 250 g + MOP 250 g / 10 litres of water on non-rainy days and detrashing and mulching is advised to conserve moisture.
  - As there was sufficient rainfall in Dakshin Kannada and Udipi in Coastal Karnataka, Belgaum and Haveri in North Interior Karnataka, most of the districts in South Interior Karnataka except Bellary and Davangere, Kannur, Ernakulam ,Kasaragod, Kozhikode and Malappuram in Kerala, Cuddalore, Dharmapuri, Karur, Madurai, Nagapatinam, Namakkal, Nilgiris, Salem, Tirupur, Tiruvannamalai and Virudunagar in Tamil Nadu, Nellore, Prakasam in Coastal Andhra Pradesh and Anantapur in Rayalaseema, postpone irrigation to the crops. Apply irrigation to the crops in most of the districts in Andhra Pradesh and in the remaining parts of the region.
  - Farmers in the Eastern Dry Zone of Karnataka are advised to take up the earthing up for early sown crops and weeding based on soil moisture, since light to moderate rainfall is expected in the coming four days. In case of early sown crops, farmers are advised to undertake operations like weeding, thinning of excess population in ragi and gap filling of same age seedlings and also earthing up in ragi crop.
  - Farmers in the North Dry Zone of Karnataka are advised to continue sowing of sun flower, rabi sorghum, chickpea, wheat and safflower and harvesting of maize may be taken up, since rainfall is expected in the district.
  - Farmers in the North East Dry Zone of Karnataka are advised to undertake inter cultivation in cotton and red gram and weed removal for better aeration of the soil. Farmers are also advised to undertake sowing of rabi crops like safflower, rabi jowar & sorghum, bengal gram. As most of the area is under moisture deficit status, apply protective irrigation to crops like pigeon pea, cotton, sunflower and groundnut which are under stress.
  - Since rainfall is forecasted for the next five days, farmers in the Cauvery Delta Zone of Tamil Nadu are advised to arrange for proper drainage and plan harvest accordingly.
  - Farmers in the North Eastern Zone of Tamil Nadu are advised to maintain sufficient amount of water in the paddy field, since it is in the growing stage.
  - As there is forecast for rains in the week ahead, farmers in the High Altitude Hilly Zone of Tamil Nadu are advised to postpone irrigation accordingly.
  - Farmers in the Problem Areas Zone of Kerala are advised to undertake new planting of banana.
  - Mid whorl yellowing is observed to be severe in coconut palms in the Southern Zone of Kerala. Apply 50-100kg of organic manure per palm. For palms grown under rainfed conditions, apply one-third dose of the chemical fertiliser (365g Urea, 535g Rock phosphate, 670g MOP per palm. For newly planted seedlings apply 5 kg FYM and 250 g coconut mixture per palm. Apply 500g of Magnesium sulphate / palm to mature palms. Apply fertilizers after spells of rain

- Incidence of red palm weevil, rhinoceros beetle in coconut, mahali disease in arecanut, pollu diseases in pepper, pseudo stem weevil / rhizome weevil, leaf spot are in banana and fungal diseases in rubber are seen in Kerala. Farmers are advised to undertake plant protection measures.
- Pod borer eggs in pigeon pea and paddy leaf folder, paddy hispa and case worm was noticed in paddy in North East Transition Zone of Karnataka. Farmers are advised to take up ovicidal insecticide such as profenophos 2 ml or Thiodicarb 0.6g or Methomyl 0.6g per litre of water to control pod borer eggs and spray Quinolphos or Chloropyriphos 2ml/litre of water to control leaf folder, paddy hispa and case worm.
- In early sown sunflower crop, powdery mildew has been noticed in the North Dry Zone of Karnataka. Farmers are advised to spray 1 g. Carbandizeme dissolved in one liter of water to control it. They are also advised to remove the standing water from the pigeon pea field by making seepage channels because if rain water stagnates in field, then there is possibility of occurrence of wilt disease.
- Due to sudden decrease in rainfall in last two weeks, gundhi bug was noticed in paddy in the Coastal Zone of Karnataka and sudden rise in temperature affected flowering condition at critical stages of crop. Farmers are advised to undertake plant protection measures and go for dusting of melathion @ 8-10 kg/ acre or spray the same @ 2 ml/lit of water or carbaryl@5% - 15 days after panicle emerge.
- Farmers in the Hill Zone of Karnataka are advised to undertake plant protection measures, since cloudy weather prevailing for the next five days favours the occurrence of purple blotch in onion and boll worms in cotton.
- Incidence of powdery mildew disease is noticed in chilli, bhendi and younger sunflower crops in the North East Dry Zone of Karnataka. Farmers are advised to spray with the solution of sulphur (3g) in one litre of water.
- Undertake plant protection measures after spells of rain in the region.

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

- **Realised rainfall:** Mainly dry weather prevailed in most of the districts in the region except rainfall in Raigad, Ratnagiri and Sindhudurg districts in Konkan, Sangli, Satara, Solapur, Pune and Kolhapur districts of Madhya Maharashtra.
- **Rainfall forecast:** Fairly widespread rainfall is likely in Konkan, Madhya Maharashtra and Marathwada and isolated rainfall in Vidarbha in Maharashtra. Mainly dry weather is likely in Saurashtra & Kutch and isolated rainfall is likely in Gujarat region.
- **Advisories:**
  - As fairly widespread rainfall is likely in Konkan, Madhya Maharashtra and Marathwada, farmers are advised to postpone irrigation, intercultural operation and application of fertilizer and plant protection measures to the crops.
  - Farmers in Madhya Maharashtra, Marathwada and Vidarbha region of Maharashtra are advised to continue harvesting of matured black gram and soyabean crop. Farmers in South Konkan region are advised to continue harvesting of matured early rice varieties. Farmers in Madhya Maharashtra are advised to start harvesting of matured groundnut. Undertake harvesting operation after current spells of rain in Konkan, Madhya Maharashtra and Marathwada.
  - October pruning may be done in grapes in Madhya Maharashtra for proper fruit setting. After October pruning apply 250 kg Phosphorous fertilizer per hectare and after 15 days apply 135 kg Nitrogen.
  - Planting of pre-seasonal sugarcane may be carried out in Madhya Maharashtra. Also undertake field preparation and sowing of rainfed wheat and gram.

- Farmers in Madhya Maharashtra and Marathwada are advised to undertake sowing of *rabi* jowar with the help of optimum moisture in the field. Farmers are also advised to complete preparatory tillage and undertake the sowing of safflower after harvesting of *kharif* crops.
- Farmers in Nasik district in Madhya Maharashtra are advised to prepare the land for *rabi* crops and undertake the sowing of rainfed gram and sorghum and nursery sowing of *rabi* vegetables eg. cauliflower, cabbage, tomato etc.
- As there was no significant rain during last few weeks and no significant rainfall is likely in South Gujarat Zone, South Gujarat Heavy Rainfall Zone, Bhal and Coastal Zone and North Gujarat Zone, farmers are advised to apply irrigation to sugarcane, cotton and vegetables crops.
- Taking the advantage of dry weather, farmers in Middle Gujarat Zone, South Gujarat Heavy Rainfall Zone and North West Zone are advised to continue harvesting of maize, green gram, cowpea and pearl millet.
- As there is no significant rain during last week and no significant rain is likely to occur, farmers in North Gujarat Zone and North West Zone are advised to irrigate groundnut crop.
- Farmers in Middle Gujarat Zone are advised to complete sowing of mustard, cluster bean and undertake sowing of sweet corn and preparation of tobacco nursery.
- Under prevailing dry weather, farmers in South Saurashtra Zone of Gujarat are advised to complete harvesting of groundnut.
- Farmers in North West Zone of Gujarat are advised to undertake sowing of maize, jowar and lucerne.
- Suitable varieties of the crops for sowing are mentioned in Annexure II.
- Due to increase in maximum temperature and high humidity there may be incidence of bacterial leaf blight in *kharif* rice in Pune division; spray Streptocyclin @ 75 g and Copper Oxochloride @ 125 g per hectare in 500 litres of water.
- Due to prevailing weather there may be attack of stem borer and midge fly in rice in East Vidarbha region of Maharashtra; spray Quinolphos 25% WS @ 32 ml or Fenitrothion 50% WS @ 30 ml per 10 litres of water. Also there may be attack of nodal blast in rice in South Konkan; spray Carbendazim @ 10 g or Copper oxochloride 25 g per 10 litres of water.
- As there was rain and humid weather during last week in Western Maharashtra Scarcity Zone, there may be attack of thrips, jassids and white fly in cotton; to control spray Aciphate 20 g + Monosil @ 20 ml in 10 litres of water.
- Weather condition is favourable for infestation of downy mildew in grapes in Madhya Maharashtra; spray Metalaxyl-Mancozeb (0.2%) or Siamoczyanil-Mancozeb (0.2%) five times at an interval of 12 days.
- Prevailing weather may cause fruit dropping in Sapota in North Konkan region of Maharashtra; spray Redomil (Metalaxyl 8% + Mancozeb 64%) at @ 20g per 10 litres of water.
- Due to increase of maximum temperature the infestation of sap sucking pests in bhindi may increase in Madhya Maharashtra which would lead to yellow vein mosaic; farmers are advised to monitor the crop and undertake plant protection measures.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
  - For control of external parasites like ticks, spraying of cattle shed by using 1 to 1.5 ml neon per litre of water is advised. For control of fly and mosquito in cattle shed, spray Malathion dust and clean the shed frequently in Gujarat.
  - 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:** No significant rainfall occurred over the region.
- **Rainfall Forecast:** Mainly dry weather / isolated rain is likely to occur over the region.
- **Advisory:**
  - In Bundelkhand Zone of Madhya Pradesh in view of available moisture, farmers are advised to sow mustard in already prepared field. Also looking towards the possibility of dry weather and clear sky condition during in this week, farmers are advised to start harvesting and threshing of the mature crops of soybean, moong and urd etc and perform sun drying. Farmers are advised to sow potato, pea, chickpea and lentil in already prepared field, and also considering the possibility of dry weather and decreasing moisture in fields, farmers are advised to do irrigation in vegetable crops.
  - In Kymore Plateau and Satpura Hill Zones in Madhya Pradesh farmers are advised to prepare field for sowing of rabi crops and transplant cauliflower in main fields.
  - Farmers in Satpura Hill Zone are advised to harvest matured crop of soybean, maize etc. considering moisture and temperature, sow mustard, gram and sugarcane 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 the field for sowing of early pea and potato.
  - Farmers in Malwa Plateau Zone of Madhya Pradesh are advised for sowing of potato and prepare nursery for onion, brinjal, chilly tomato, etc. Also transplanting of tomato, brinjal, chilly etc. can be done with proper seedlings. Farmers in Vindhya Plateau Zone of Madhya Pradesh are advised for sowing of wheat and gram.
  - Farmers in Gird Valley Zone of Madhya Pradesh are advised to transplant the winter sown varieties of cauliflower in the field. Also the farmers may start mustard sowing from 10th October according to moisture availability.
  - Farmers in Bastar Plateau Zone are advised for sowing of niger, kulthi (horegram), toria, cauliflower and cabbage. Also prepare nursery for rabi vegetables.
  - Looking to the monsoon withdrawal situation, farmers in Chattisgarh Plain Zone are advised to store water in the rice fields particularly in medium and long duration rice varieties. Also weather is congenial for proper germination of linseed and gram. Hence, farmers are advised for sowing of linseed and gram after the harvesting of soybean and sowing of nursery of cauliflower, tomato, brinjal, chilli etc. in a raised nursery of about 6 inch with proper drainage system.
  - Weather is congenial for leaf curl in chilli, fruit and stem borer in brinjal in Bundelkhand Zone of Madhya Pradesh, farmers are advised to spray Methyl Demeton @ 2.0ml per litres of water and spray Melathyon 50 E.C. 2.0 ml per litre of water. Also Flume moth is seen in pigeon pea crops, farmers are advised to spray of Quinolphos 20 EC @ 2 ml per litres of water.
  - Weather is also congenial for sucking pest i.e. jassid, aphid and boll worm in cotton in Jhabua Hill Zone of Madhya Pradesh, spray Acitameprid 0.3ml/l (5.0 ml/pump) of water and for boll worm in non BT cotton, spray Profenophos 40 EC @ 2.5 ml/l of water.
  - In Bastar Plateau Zone of Chattisgarh where niger sowing has taken place, white insect attack is being observed, spray Confidor @ 0.5 g per litre of water.
  - In Bastar Plateau Zone of Chattisgarh, stem borer attack in late sown maize is being observed. For its control, Carobofuran 3 G should be used @ 2-3 grains/ plant or this can be also applied at the time of earthing up @ 10 Kg./ acre.
- **Animal Husbandry & Poultry**
  - In Bundelkhand Zone of Madhya Pradesh, animals should be protected from high day and low night temperature. So keep them in animals' shed.
  - Farmers should vaccinate their animals for Foot & Mouth Disease in Jhabua Hill Zone of Madhya Pradesh. For control of Ranikhet disease in chicks vaccinate with F-1 or Lasota Strain vaccine.
  - Provide de-worming to the calf of dairy animals and keep them in dry and clean shade in Central Narmada Valley Zone of Madhya Pradesh and also advised to do vaccination against PPR disease in Goats.

## Annexure I

### Major Crops

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

- Sugarcane (vegetative), *sali* rice (maximum tillering / panicle initiation / panicle emergence), sesame (vegetative / flowering / pod formation / seed formation), groundnut (pegging / pod formation), arhar, radish, knoll khol, brinjal (early variety), Dolichos bean, country bean (sowing / early vegetative / vegetative), jute (for seed production) (vegetative), early cauliflower and cabbage (nursery sowing / seedling / transplanting / vegetative), winter vegetables (nursery bed preparation / sowing / transplanting), ginger / turmeric (vegetative), black gram / green gram (vegetative), onion, garlic (sowing / planting), khasi mandarin (flowering) and niger, bulk wheat, rapeseed and mustard (land preparation / sowing) in Assam.
- Rice (harvesting), tuber crops (vegetative), soyabean and groundnut (pod formation / seed filling), cabbage, cauliflower, knolkhol etc. (nursery preparation / transplanting), ginger and turmeric (maturity) and maize (harvesting) in Arunachal Pradesh.
- *kharif* rice (grain filling / maturity), ginger and turmeric (rhizome formation), tomato (nursery raising), early cauliflower and cabbage (nursery sowing / transplanting / vegetative), onion (nursery raising), brinjal (flowering / fruiting), French bean, broad bean, pea (sowing / vegetative) in Manipur.
- *Kharif* rice (flowering / grain formation / maturity), arhar (pod formation), *sali* rice (milk / dough / maturity), *rabi* maize (vegetative / flowering), pea, garlic and lettuce (sowing), ginger and turmeric (late sown) (vegetative), *toria* (vegetative), groundnut (pod formation), onion (vegetative), potato (vegetative), *Khasi* mandarin (flowering / fruiting) and banana (vegetative), lentil, mustard, rapeseed (vegetative), broccoli (sowing), winter vegetable (sowing / transplanting / vegetative), jute, mesta (maturity) in Meghalaya.
- Rice (booting / flowering / milk / dough / harvesting), groundnut (pegging / pod formation), soyabean (flowering / pod formation), okra (harvesting), ginger and turmeric (rhizome formation / maturity / harvesting), *khasi* mandarin (vegetative / fruiting / harvesting), French Bean, rice bean, urd and moong bean (maturity / harvesting), banana (vegetative / fruiting / maturity / harvesting), cucurbits (flowering / fruiting / harvesting), cole crops and tomato (nursery preparation) in Mizoram.
- Soyabean (flowering / pod formation), groundnut (flowering / pegging / pod formation), green gram and black gram (vegetative), finger millet (flowering), okra (flowering / fruiting), lowland rice (milk / dough), upland rice (maturity / harvesting), banana (fruiting), colocasia (flowering), cabbage (transplanting), cowpea (vegetative), pigeon pea (pod filling), rapeseed-mustard (land preparation / sowing), *rabi* crops (sowing), broccoli (transplanting), mandarin (planting) and papaya (transplanting) in Nagaland.
- *Aman* rice (panicle initiation / flowering / milk), groundnut (pegging / pod formation), upland / jhum rice (dough / maturity), cucurbits and other vegetables (flowering / fruiting), maize (cob formation / maturity), ginger and turmeric (rhizome formation), cole crops (nursery preparation / sowing), radish, brinjal (early) (sowing) and sesame (vegetative / flowering / pod formation) in Tripura.

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

- Sugarcane (vegetative), rice (panicle initiation / flowering / grain formation / maturity), *kharif* maize (cob formation / maturity), *kharif* arhar, sorghum, jowar, (flowering / pod formation / grain formation), sesame (flowering / pod formation / seed formation), lobia



- for green fodder, mishrikand (vegetative), onion, radish (sowing), cauliflower (sowing), fruit trees (transplanting) and sweet potato (planting), mustard, toria (sowing) in Bihar.
- Rice (booting / flowering / milk / dough / maturity), finger millet (grain formation), maize (silking / grain formation / grain filling / maturity), pigeon pea (vegetative / flowering / grain formation), pulses (urd bean, moong bean) (grain formation / maturity), groundnut (pegging / grain formation/ harvesting), turmeric and ginger (vegetative / rhizome formation), elephant foot yam (tuber elongation), potato (land preparation / sowing), sweet potato (vegetative / stem elongation), mustard, toria, green pea (sowing), cauliflower, cabbage, chilli, tomato (transplanting), niger (sowing), papaya (transplanting), African or French marigold (sowing) in Jharkhand.
  - Arhar (vegetative / flowering / grain formation), maize (tasseling / silking / cob formation), papaya, marigold, tuberose (planting), cowpea (sowing / early vegetative), *kharif* vegetables (flowering / fruiting), sugarcane (vegetative), *kharif* rice (panicle initiation / flowering / grain formation / maturity), groundnut (pegging / pod formation / maturity), turmeric and ginger (planting / early vegetative), yam (sowing), sesame, green gram, black gram, niger, other pulses (flowering / pod formation / seed formation / harvesting), mango, banana, lemon, cashew nut and marigold (planting), sunflower (sowing), groundnut (land preparation / sowing) in Orissa.
  - *Aman* rice (heading / flowering / grain formation), *aus* rice (harvesting), *kharif* maize (tasseling / silking / cob formation), mango, coconut, guava, banana (planting) and *kharif* vegetables (flowering / fruiting / harvesting), winter vegetables (sowing / transplanting) in West Bengal.
  - Large cardamom (new) (transplanting of suckers from nursery), Large cardamom (old) (capsule formation / grain maturity), *rabi* vegetables (sowing / nursery sowing / transplanting), orange (fruiting / maturity), ginger (late vegetative), rice (flag leaf initiation / flowering) and maize (harvesting) in Sikkim.

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

- Rice(vegetative), brinjal, tomato, chilli, cauliflower, cabbage, radish, spinach, coriander, onion (vegetative), cucurbits crops (flowering/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(flower initiation) in Delhi.
- Vegetables (fruiting / harvesting), 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/transplanting) in Himachal Pradesh.
- Wheat ( selection / land preparation), Berseem (sowing / emergence), cucurbits (vegetative / flowering/maturity), onion (seed bed preparation), capsicum, chilli, brinjal, raddish, carrot, turnip, cauliflower, cabbage, broccoli (vegetative / fruiting / maturity / picking), winter vegetable crops viz. potato, radish, carrot, turnip, garlic, spinach, methi (sowing / fruiting), cole crops viz. early cauliflower, cabbage, knoll khol, broccoli (field preparation/ nursery sowing), early sown maize, bajra (maturity / harvesting), maize (grain filling and development), *kharif* pulses, mash (flowering / pod development / maturity), moong (maturity / harvesting), rice (flowering / milking / grain filling / maturity / harvesting), *Kharif* oilseed (groundnut, sunflower, summer brassica etc.) (flowering / seed development / maturity, groundnut – pegging initiation stage), *Rabi*

oilseeds i.e. toria, gobi sarson (emergence), rabi mustard, pulses, fodder crops (selection / land preparation) citrus, guava, apple (fruiting) in Jammu & Kashmir.

- Chilli, capsicum, cauliflower, broccolli (transplanting), lahi (flowering / fruiting), sugarcane (planting), Early planted rice (maturity / harvesting), late planted rice (panicle initiation / milking ), litchi, loquat, peach, citrus (flowering / fruiting), mango (early varieties) (flowering), maize (cob formation/cob maturity), soyabean (maturity/harvesting), foxtail millet, okra, bottle gourd, bitter gourd, ginger, turmeric, (sowing / planting), toria, pea (sowing), papaya (planting), sorghum, pigeon pea, early vegetable pea, urd, potato, mustard and pearl millets(sowing) in Uttarakhand.
- Rice (tillering / flowering / milking), 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/fruiting), black gram, baby corn/ maize / fodder maize, vegetables (flowering/fruiting/maturity/harvesting), groundnut, jowar lobia, (vegetative), til, bajra urd moong, (vegetative / maturity / harvesting), arhar, toria (sowing /early vegetative / flowering), tomato, brinjal, bhindi (vegetative / fruiting ), cabbage, garlic, cauliflower(sowing/transplanting), barseem, potato, (sowing) in Uttar Pradesh.
- Rice (Irrigated area, Basmati) (grain formation), rice ( maturity/ harvesting), spring sugarcane (sprouting), barseem (vegetative), sugarcane(grand growth), cotton (boll maturity/picking), fodder lucerne, oats, senji (sowing), gram, potato, peas(sowing), radish, carrot, turnip, cauliflower(sowing/transplanting) in Punjab.
- Sugarcane (spring season) (planting/emergence/early vegetative), barseem (vegetative), pulses, moong, mash, pigeon pea (vegetative), rice (earhead emergence/maturity/harvesting),cauliflower, cabbage, carrot, potato(transplanting) sarson, raya, radish, turnip(sowing) in Haryana.
- Rice (tillering/vegetative), narma cotton, desi cotton (flowering / boll formation in Sriganganagar), sweet potato, saunf (sowing), pearl millet, sorghum (vegetative / maturity / harvesting), moong, cowpea, urd (maturity / pod picking), early sown maize (harvesting), maize, soybean, chilli and cluster bean (vegetative) in Rajasthan.

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

- Kuruvai rice (harvesting), Samba / thaladi rice (transplanting/ tillering), cotton (sowing/vegetative/ harvesting), vegetables (nursery / transplanting), sugarcane (vegetative/ grand growth/maturity), groundnut (pod development / maturity stage), maize (sowing), sorghum (vegetative), black gram (harvest), red gram (vegetative), pulses (sowing/vegetative/flowering) in Tamil Nadu.
- Sugarcane (grand growth), cotton (boll formation), hybrid jowar, maize (maturity / harvesting), ragi, sunflower (grain / seed development / maturity), bengal gram (sowing), red gram (bud initiation / flowering stage), rabi jowar (sowing), late planting paddy (flowering stage) and horticultural crops (vegetative growth/ flowering/ fruit development) in Karnataka.
- Maize (maturity / harvesting), jowar, cotton (maturity), pulse crops like green gram & red gram (pod formation/ maturity), rice (transplanting/tillering ), groundnut (pod maturity/harvesting), bajra (harvesting) in Andhra Pradesh.
- Black pepper (berry maturing/harvesting), ginger (vegetative), turmeric and vegetable crops (harvesting), mundakan rice (seedling / transplanting / vegetative) in Kerala.

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

- Sugarcane (new *adsali* - early vegetative / old *adsali* - grand growth / elongation), sugarcane (pre-seasonal) (vegetative), sugarcane (*suru*) (vegetative), *Kharif* rice (grain maturity / harvesting in early maturing varieties in South Konkan, grain formation in medium and late maturing varieties and panicle initiation / flowering in late maturing varieties in Konkan, Kolhapur, Pune and Nashik Division and panicle initiation / flowering / grain formation in East Vidarbha), jowar (grain formation / grain maturity in early sown crop), soyabean (pod maturity / harvesting), groundnut (pod maturity / harvesting), cotton (flowering / boll formation), red gram (branching) in Maharashtra.
- *Kharif* bajra (harvesting), vegetables (flowering / fruiting / harvesting), sugarcane (vegetative), groundnut (maturity / harvesting), *kharif* pulses (flowering / grain formation / maturity / harvesting), maize (harvesting), cotton (boll formation / development) , cluster bean, mustard, cauliflower, sweet corn (sowing) in Gujarat.

**CENTRAL INDIA [M.P., CHHATTISGARH]**

- Sugarcane (vegetative), vegetables (flowering and fruiting), moong, urad, maize, soybean, sesame, groundnut, jowar groundnut, pigeon pea (maturity/harvesting), onion, brinjal, tomato and chilli etc. (vegetative), rice (flowering / grain formation), proper time of sowing/transplanting of wheat, gram, toria, onion, garlic, tomato, brinjal, chilly 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 in Chhattisgarh.

## Annexure II

### List of Varieties

#### Assam

##### **Early cauliflower:**

**Mid season varieties:** Improved Japanese, Pusa Synthetic, Pusa Snowball.

**Early maturing cabbage varieties:** Golden Acre, Pride of India, Pusa Mukta.

**Others:** Early Kunwari, Pusa Katki and Pusa Deepali.

**Cabbage:** Golden Acre, Pride of India, Pusa Mukta (Sel-8).

**Tomato:** Punjab Suhara, Avinash, Pusa Ruby.

**Radish:** Pusa Desi, Pusa Himani, Pusa Chetki, Japanese White, Bombay Red.

##### **Brinjal:**

**Long varieties:** Cluster, JC-1, Kuchia, Pusa Kranti, Pusa Purple Long, Longai.

**Round varieties:** Pusa Purple Round, Pusa Vairab, JC-2, BWR-12.

**Knolkhol:** White Vienna.

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

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

**Sesamum:** SP-1181 (Madhabi), Gauri, Binayak, ST 1683, Punjab Tall No. 1.

**Dolichos Bean:** Pusa Early Profile and SD-18.

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

**Niger:** NG-1, GA-5.

#### Manipur

**French bean:** Pant Anupam, Tangkhul Hawaii (local).

**Pea:** Arkel, Azad.

**Cabbage:** Rare Ball.

**Cauliflower:** White Flash.

**Onion:** Nasik Red.

#### Tripura

**Brinjal:** Pusa Kranti, Pusa Purple Long.

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

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

**Broccoli:** Everest, Ayeshwaria.

**Tomato:** Trishul, Allrounder, T-1408, T-1458, Anup.

#### Mizoram

**Tomato:** Avinash -2, Pusa Divya, Arvind, Rita.

**Cabbage:** Golden Acre, Ryozeeki, Harnil.

**Broccoli:** Pushpa, Pusa Broccoli, Aishwarya and Fiesta.

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

#### Orissa

##### **Rice:**

**Medium land close to sea where water is drained out by October:** Lalat, Surendra, MTU-1001, MTU-1010, Konark, Gajapati.

##### **Different crops in upland areas affected by excess rainfall:**

**Sesame:** Kanak, Kalika, Uma, Usha, Tilottama, Neelima and Prachi.

**Green gram:** K-851, PDM-54, PDM-11, OUM 11-5.

**Black gram:** T-9, Pant-U-19, Pant-U-30, Pant-U-11.

**Niger:** Deomali and IGP-76.

**Horse gram:** Urmi, DS 1-2-2, DS 1-2.

**Brinjal:** Utkal Madhuri, Green Round, Green Long, Sufala, Suchitra, Supriya.

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

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

**West Bengal****Banana:** Mortoman, Chapa, Kathali, Singapuri.**Cauliflower:** Pusa Deipali, Pusa Chetaki.**Tomato:** Baisali, Indam 1116, Akash.**Mustard:** Sita, Vagirathi, Baruna, Agrani, Panchali, Sarama etc.**Jharkhand****Green Pea:** Swarn Rekha, Arkel, Azad Pea, Kashi Nandini, PE-6, Birsa Matar.**Sweet Potato:** Birsa Sakarkand-1 and Sri Bhadra.**Potato:** Kufri Ashoka, Kufri Pukhraj, Kufri Surya and Kufri Puskar.**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.**Bihar****Onion:** N-53, Agrifound Dark Red and Baswant 780.**Radish:** Pusa Chetki, Pusa Deshi, Pusa Himani, Pusa Reshmi, Japni 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.**Delhi****Pea:** Pusa Pragati, Arkel.**Carrot:** Pusa Rudhira and Pusa Kesar.**Early mustard:** Pusa Sarson-25, Pusa Sarson-26, Pusa Agni, Pusa Taraka, Pusa Mahak**Early potato :** Kufri Badshah**Sarson Saag-** Pusa Saag-1; Bathua- Pusa Bathua-1;**Radish-** Japni 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

**Jammu & Kashmir****Brinjal** : PPL, PPC & PPR

Carrot: . Nantes and Pusa Yamdagini

Turnip : Purple Top White Globe

**Chillies** : NP-46A, Pusa jawala**Bajra**:WCC-75, ICMS-7703 and Hybrid M.H.B-110,**Cauliflower** : Giant snow ball, punam, pusa hybrid -2, NS-60**Cabbage**: Golden Acre, pusa mukta & pride of India**Knol –khol** : White Viena, king of market & Purple Viena**Fodder berseem** : mascavi, pusa giant, BL-1**Toria**: RSPT-1, RSPT-2, RSPR-3**Gobi Sarson** : GSS-1**Winter Vegetables** : **Potato** : K. Badshah, K. Sinduri, K. Chipsona & K. Sona, **radish** : **pusa chetki**,**Japanese white** & pusa Reshmi, **carrot**: Pusa Kesar, P. Yamdagani, **Turnip** : PTWG, **garlic** : local,yamuna safed agrifound parvati, large segmented, **Methi**: P.E.B.K. methi, pusa early bunching andkasuri methi and **spinach** : prickly seeded, all green during these days.**Punjab****Desi varieties of radish**: Punjab Pasand and Punjab Safed,**Turnip**: L-1 and 4-white**Carrot** : PC 34)**Late season Cauliflower**: **Snow-Ball-16, Pusa Snow ball 1 & Pusa Snow ball K-1****Gram**: PBG 5 and PBG-1**Peas**: Punjab 87, Punjab 88, Punjab 89 and Mithi Phali**Haryana****Baisakhi Mung**: K851 and Type 44 and Muskan**Pigeon pea**: UPAS 120, T-21.**Raya**: **PBR-210, RLM\_619, PBR-91, Irrigated conditions PBR-97,****Gobhi Sarson**: **GSC-5, GSL-1, PGSH-51, Hyola(PAC-401)****Radish**: Pujjab safed, pasand, Japanese white**Turnip**: L1, 21**Carrot**: PC-34**Uttarkhand:****Pea**: VL Ageti Mater-7, Vivel Mater-10, Pant Subjee Mater-3, Azad Mater-3 and Arkel at high hills, Pant Subjee Matar-3.**Garlic** : VL-Garlic or DARL-52 , Yamuna Safed-1, 2, pant Lohit, Agreefound Parvati etc**Toria** : Pant Toria 2002-25, Pant Toria-30, Pant Toria-303, Type -9.**Tomato** : Pant T-3, Pusa Gaurav, Pusa Bahar, Pusa Hybrid-2 etc

Potato: Kufri Jyoti, Kufri Ashok, Kufri Anand.

**Mustard**: Pant Rai-8988, Rohini, Urvasi, Kranti, Rohini, Vardan etc.**Serson**: Binoy-9, Narendra Dev Yellow Serson-2.**Berseem**: Vardan, Miskavi.**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**Jai** : Kent U.P.O.-94, O.S.-6, J.H.O.-822, 851, U.P.O.-212**Rabi Rajma**-P.D.R.-14, Malaviya-15, MALaviya-137, B.L.-63**Rabi Mustard**:-Vaibhav, Varuna(Ta-59), Vardan**Barseem**: 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

### **Rajasthan**

**Groundnut :** RSB 87, RS 138, JL 24, RG 14,

**Sweet potato:** Pusa Safed, Pusa Lal, Pusa Sunhari & L-20

**Taramira :** T-27, I.T.S.A.

**Toria:** T-9, Sangam

**Gram:** RSG 44, Dahod yellow, GNG 16, ICCV 10, RSG 888 and Pratap chana 1.

**Pea :** Arkil, Hara bona, VL-3, Jawahar Matar-4, Matar Ageti-6 (improved varieties of early pea)

**Mustard:** Improved varieties

1. Early sown (Irrigated) - EJ17, Pusa Mahak and kanti.
  2. Normal sown (irrigated) - Maya, Rohini, Pusa Jai kisan, Varuna, RGN13, RGN73, NRCDR 2, NRCHB 506(hybrid).
  3. Normal sown (rainfed) -Arawali,RGN48, Geeta and PBR97
  4. Saline sodic soils - CS52, CS54, CS56, Narendra Rai 1
  - 5.Taramira - Karan Tara, Narendra Tara
  - 6.Yellow Sarson - NRCYS-05-02, YSH401
- 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)

**Potato :** 1. Early sown- Kufri-Ashok and Chandramukhi for early sowing.

2. Mid sowing- Kufri-Anand, Chipsona-1, 2, Jyoti and Pukhraj.

**Onion :** Red Arka Niketan, Local Red and Pusa white for rabi season.

**Radish :** Pusa Rasmi, Ajwain : Pratap ajwain – 1, 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**

**Sunflower:** Modern, KBSH-41, 42 &44

**Cowpea:** C-152, PKB-4, KM-5

**Horse gram:** KBH-1, PHG-9, GPM-6

**Safflower:** Annigeri-1, S-144

**Rabi Sorghum:** Hybrid- DSH-4, Improved Varieties-M-35-1(rainfed and irrigated), Moguti(5-4-1), DSV-4(rainfed and irrigated), DSV-5(rainfed and 1 or 2 protective irrigation).

**Maize:** GANGA-11, Deccan-103

**Ragi :** INDAF-7,9 and 15

**Bengalgram:** Annegeri -1, ICCV-10, ICCV-2

### **Tamil Nadu**

**Late samba:** ADT 38, ADT 46, ADT 49, improved white ponni, IR 20, ASD 19, Paiyur1, Trichy 1, Trichy 3 and Co 50

**Late Thaladi:** ADT 39 ADT 42, and ASD 16

### **Andhra Pradesh**

**Green gram:** LBG-752, LBG-623, LBG-20, T-9, LGG-460, LGG-407

**Red gram:** LRG-41, ICPL-85063

**Paddy:** (BPT-5204, BPT-5204, MTU-7029, MTU-2067, OMTU-2077,MTU-1001,MTU-7029)

**Groundnut (Under irrigated dry conditions) :** Kadiri - 6, Narayani, Tirupati - 4, Kadiri - 4, JCG 88, Kalahasti, Abhaya, Greeshma, Rohini, Kadiri - 7 Bold, Kadiri - 8 Bold, Kadiri - 9, Kadiri Harithandra, Bhima, Anantha, Kadiri - 5, TAG - 24

### **Gujarat:**

**Cluster bean:** GC-1, 2.

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

**Tobacco:** GC-1or GCT-3.

**Cauliflower:** Pusa Early, Pusa Dipali , Pusa Kartiki, Early Kuvari.

**Maharashtra**

**Rabi Jowar:** Maldandi 35-1, Selection-3, Phule Vasudha, Phule Revati, Phule Yashodha and Mauli, for medium soil - Mauli, for black soil - Phule Revati, Phule Vasudha.

**Safflower:** Bhima, Phule Kusuma.

**Gram:** Vijay Gram.

**Sugarcane:** 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.

**Wheat:** Panchavati, N-5439, N-8223.

**Madhya Pradesh**

**Onion:** Udaipur 102, Pusa white, Nasik Red and Nasik Roja

**Wheat-Sujatha,** HW 2004 or HI 1500 and gram JG 130, JG 11, JG 315, JG 16, Jaki 9218 and for Bengal gram JG 1

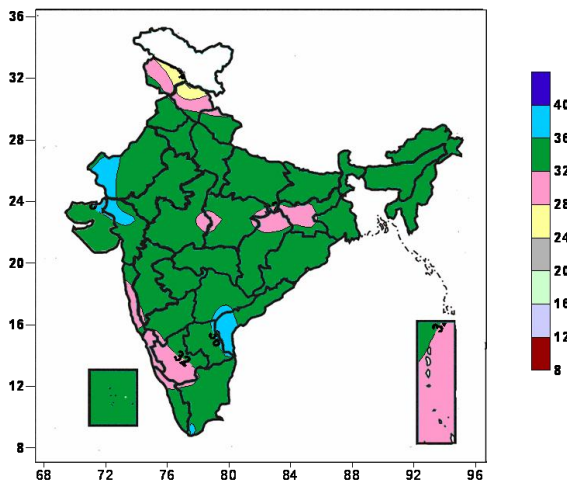
**Sugarcane-** Jawahar-86141, Ko-Jawahar-86141, Ko-Jawahar-86572, Ko-Jawahar8632, Ko-6304, Ko-C-671

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

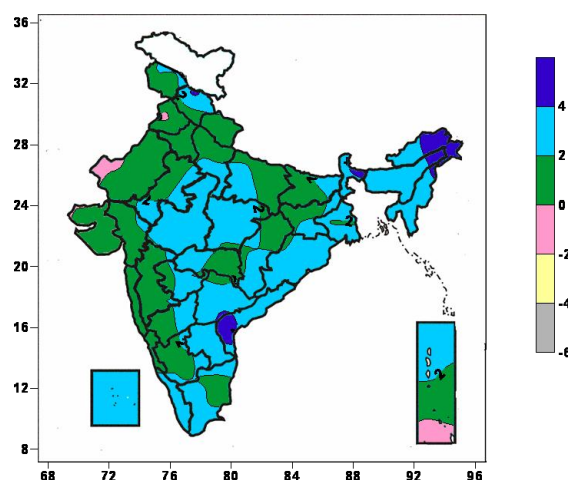


### Annexure III Contour maps for the week ending 12.10.2011

Actual Mean Maximum Temperature (°C) in India for the week ending 12.10.11



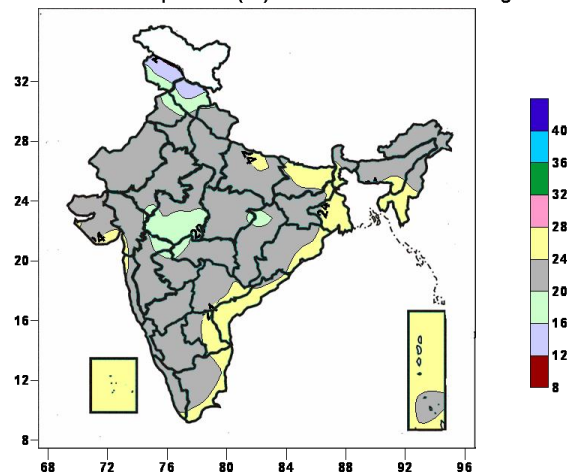
Maximum Temperature (°C) Anomaly in India for the week ending 12.10.11



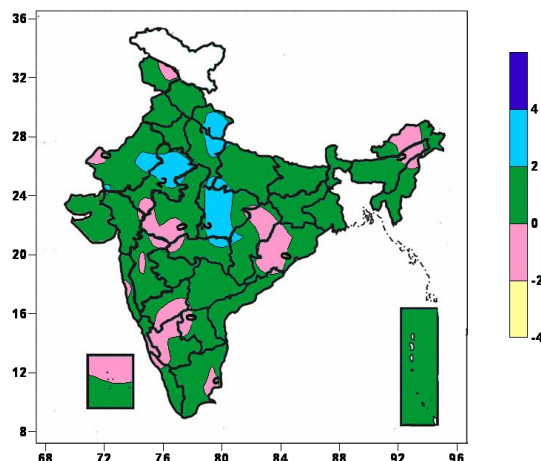
Actual Mean Maximum temperature ranged between 36 to 40°C over some places of West Rajasthan, Coastal Andhra Pradesh, Gujarat, Saurashtra, 28 to 32°C over most parts of Jammu & Kashmir, Himachal Pradesh, Coastal & South Interior Karnataka, Konkan & Goa, , Andaman & Nicobar Islands, some parts of Uttarakhand, Jharkhand, Chattisgarh, Madhya Maharashtra, Madhya Pradesh, Tamil Nadu, Kerala, North Interior Karnataka, 24 to 28°C over some parts of Jammu & Kashmir, Himachal Pradesh, 32 to 36°C over remaining parts of the country.

Actual Mean Maximum temperature 4°C and above over some parts of Sub-Himalayan West Bengal, Arunachal Pradesh, Assam, Nagaland, Andhra Pradesh, 2 to 4°C over most parts of West Bengal & Sikkim, North East India, Orissa, Madhya Pradesh, Andhra Pradesh, Tamil Nadu, Kerala, Marathwada, Lakshadweep, some parts of Jammu & Kashmir, East Rajasthan, Uttar Pradesh, Bihar, Jharkhand, North & South Interior Karnataka, Marathwada, Vidarbha, Gujarat, Andaman & Nicobar Islands, -2 to 0°C over some parts of Punjab, West Rajasthan, Andaman & Nicobar Islands, -0 to 2°C over remaining parts of the country.

Actual Mean Minimum Temperature (°C) in India for the week ending 12.10.11

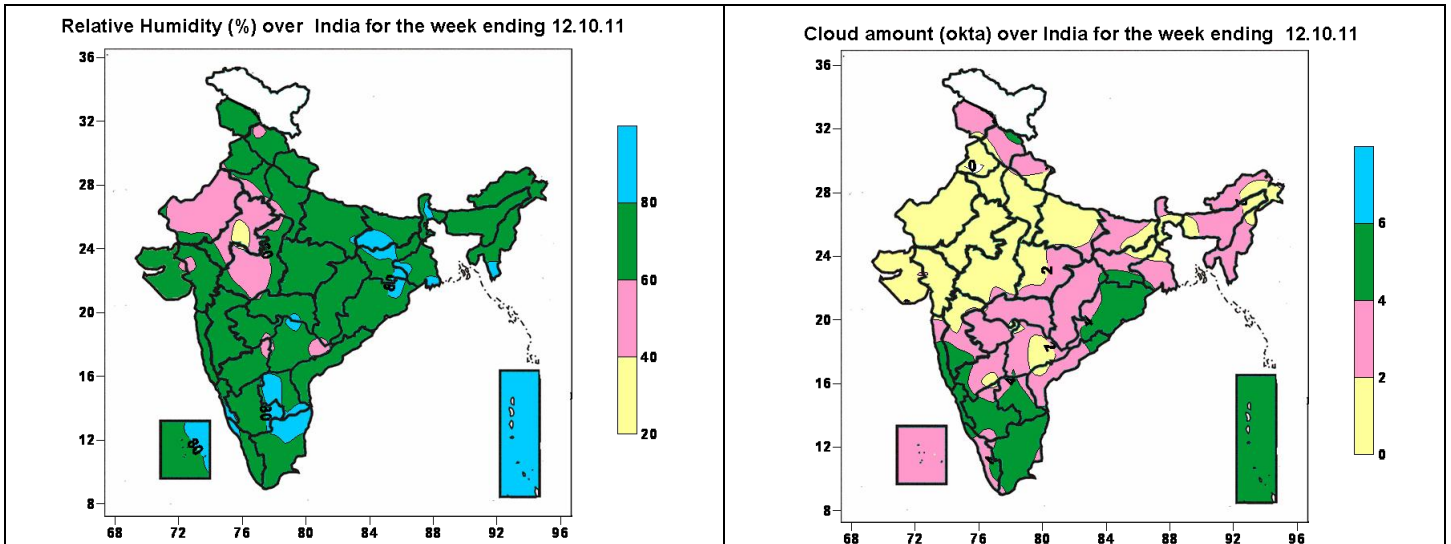


Minimum Temperature (°C) Anomaly in India for the week ending 12.10.11



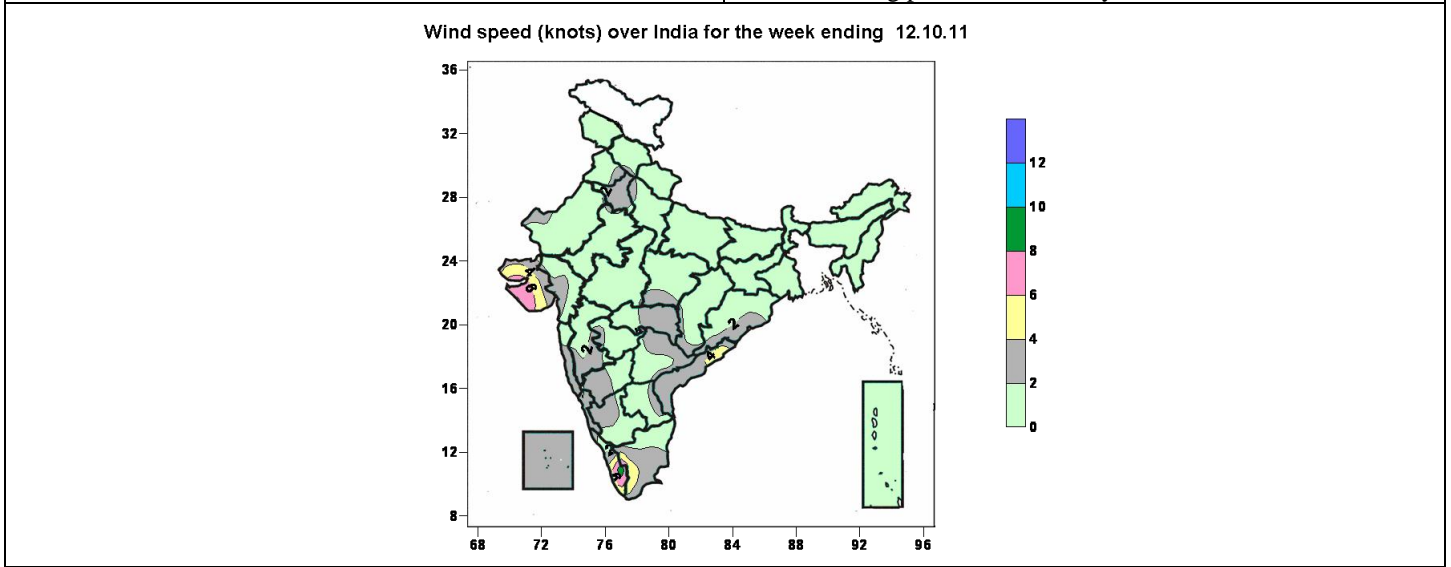
Actual Mean Minimum Temperature ranged between 24 to 28°C over most parts of Bihar, Gangetic West Bengal, Mizoram, Tripura, Coastal Andhra Pradesh, Rayalaseema, Lakshadweep, Andaman & Nicobar Islands, some parts of East Uttar Pradesh, Jharkhand, Assam & Meghalaya, Manipur, Tamil Nadu, Konkan, Gujarat, Kutch, 16 to 20°C over most parts of West Madhya Pradesh, some parts of Jammu & Kashmir, Himachal Pradesh, East Rajasthan, East Madhya Pradesh, Chattisgarh, Madhya Maharashtra, Marathwada, Vidarbha, 12 to 16°C over some parts of Jammu & Kashmir, Himachal Pradesh, 20 to 24°C over remaining parts of the Country..

Minimum Temperature anomaly between 2 to 4°C over most parts Uttarakhand, East Madhya Pradesh, some parts of Uttar Pradesh, Rajasthan, West Madhya Pradesh, Vidarbha, Chattisgarh, -2 to 0°C over most parts of Arunachal Pradesh, South Orissa, some parts of Jammu & Kashmir, Assam, Nagaland, Rajasthan, Madhya Pradesh, Chhatisgarh, Konkan, Madhya Maharashtra, Vidarbha, Karnataka, Rayalaseema, Kerala, Tamil Nadu, Lakshdweep Islands, 0 to 2°C over remaining parts of the Country.



Relative humidity between 80% and above over most parts of Andaman & Nicobar Islands, some parts of East Uttar Pradesh, Bihar, Jharkhand, West Bengal, Orissa, Mizoram, Telangana, Raylaseema, Tamil Nadu, Kerala Coastal Karnataka, Vidarbha, Lakshadweep Island, 40 to 60% over most parts of Rajasthan, West Madhya Pradesh, some parts of Himachal Pradesh, Punjab, Haryana, West Uttar Pradesh, Gujarat, Saurashtra, Vidarbha, North Interior Karnataka, Telangana, , 60 to 80% over remaining parts of the country.

Cloud amount 4 to 6 okta over most parts of Orissa, Konkan & Goa, Rayalaseema, Coastal & South Interior Karnataka, Tamil Nadu, Andaman & Nicobar Islands, some parts of Himachal Pradesh, Jharkhand, Chattisgarh, Coastal Andhra Pradesh, South Madhya Maharashtra, North Interior Karnataka, Kerala, 0 to 2 okta over most parts of Punjab, Haryana, Delhi, Uttar Pradesh, Rajasthan, West Madhya Pradesh, Gujarat, Saurashtra & Kutch, some parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Bihar, Jharkhand, West Bengal, Arunachal Pradesh, Assam, Nagaland, East Madhya Pradesh, Madhya Maharashtra, Telangana, North Interior Karnataka, 2 to 4 okta over remaining parts of the country.



Wind speed ranged between 8 to 10 knots over some parts of Kerala, 6 to 8 knots over some parts of Saurashtra & Kutch, Tamil Nadu, Kerala, 4 to 6 knots over some parts of Coastal Andhra Pradesh, Tamil Nadu, Kerala, Saurashtra & Kutch, 2 to 4 knots over most parts of Haryana, Delhi, Vidarbha, Coastal Andhra Pradesh, Tamil Nadu, Karnataka, Konkan & Goa, Lashadweep Islands, some parts of Punjab, Rajasthan, East Madhya Pradesh, Chattisgarh, Orissa, Telengana, Raylaseema, Kerala, Madhya Maharashtra, Marathwada, Gujarat, Saurashtra & Kutch, 0 to 2 knots over remaining parts of the country.