

# National Agromet Advisory Service Bulletin

**Friday 24<sup>th</sup> January 2014**

**(For the period 24<sup>th</sup> to 28<sup>th</sup> January 2014)**



**Issued by**

**National Agrometeorological Advisory Service Centre,**

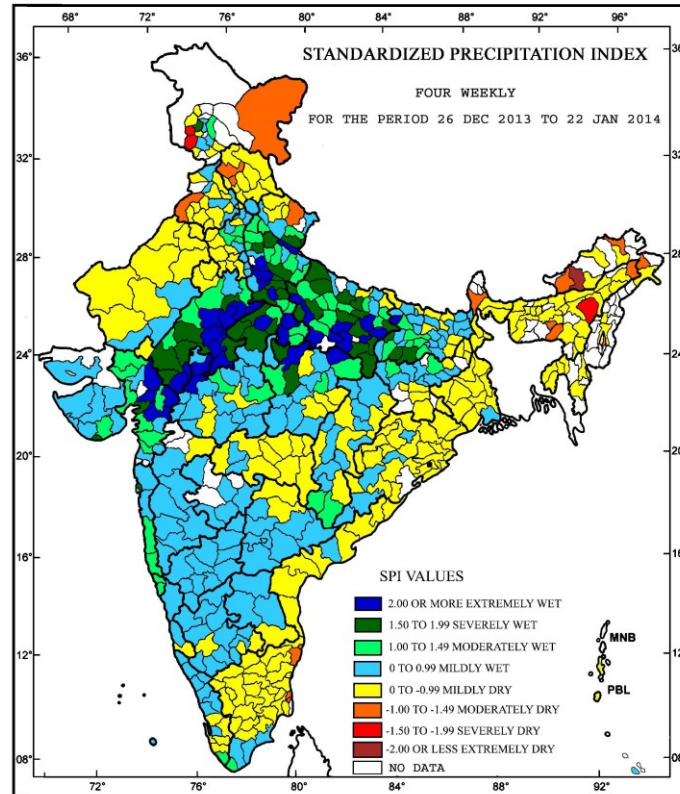
**Agricultural Meteorology Division,**

**India Meteorological Department, Shivajinagar, Pune.**



**Standardised Precipitation Index  
Four Weekly  
for the Period 26<sup>th</sup> December 2013 to 22<sup>nd</sup> January 2014**

MINISTRY OF EARTH SCIENCES  
INDIA METEOROLOGICAL DEPARTMENT  
HYDROMET SECTION, PUNE



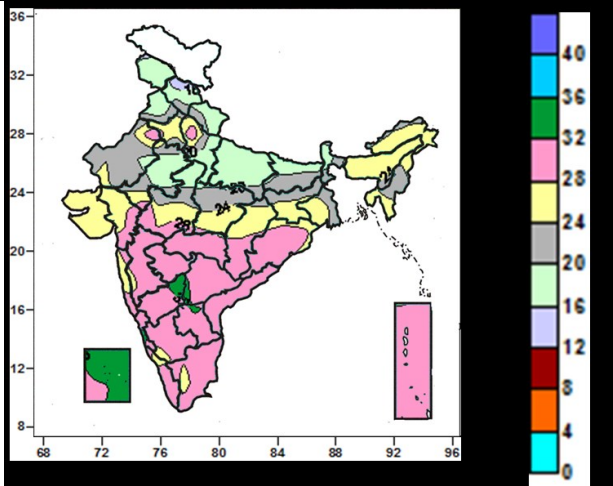
**Four-weekly SPI values (immediate past four week)**

- Extremely wet/severely wet conditions experienced over many parts of Uttar Pradesh, East Rajasthan and few districts of Bihar.
- Moderately dry/ severely dry conditions experienced over some parts of coastal Tamil Nadu, Punjab, Haryana, Jammu & Kashmir, Arunachal Pradesh, Assam, Nainital in Uttarakhand and Darjeeling district of West Bengal.
- Rest of the country experienced mild wet/dry conditions.

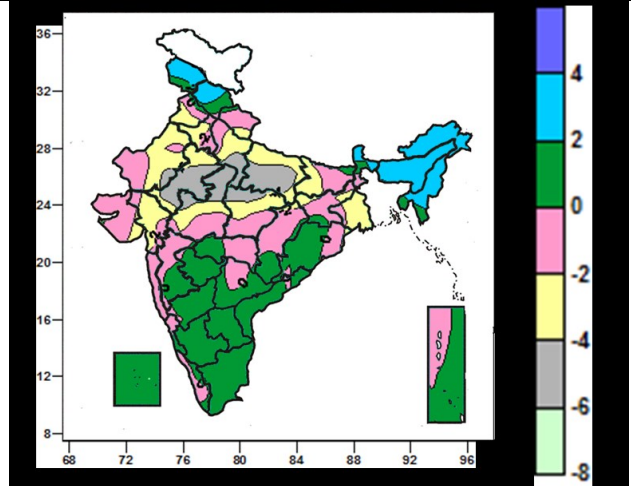


**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 22.01.2014**

**Actual Mean Maximum Temperature ( $^{\circ}\text{C}$ ) in India for the week ending 22.01.2014**



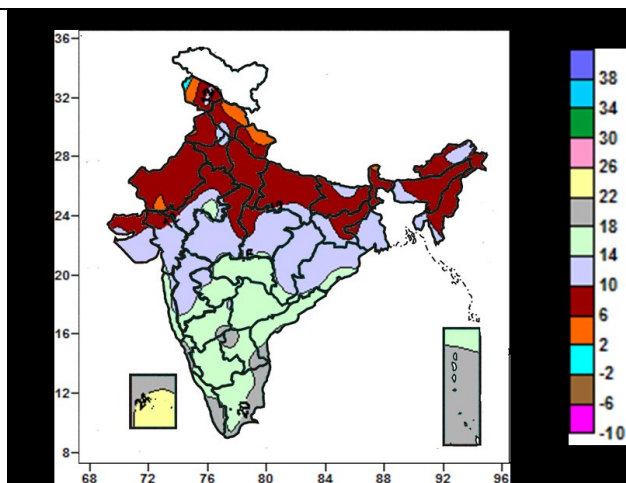
**Mean Maximum Temperature ( $^{\circ}\text{C}$ ) Anomaly in India for the week ending 22.01.2014**



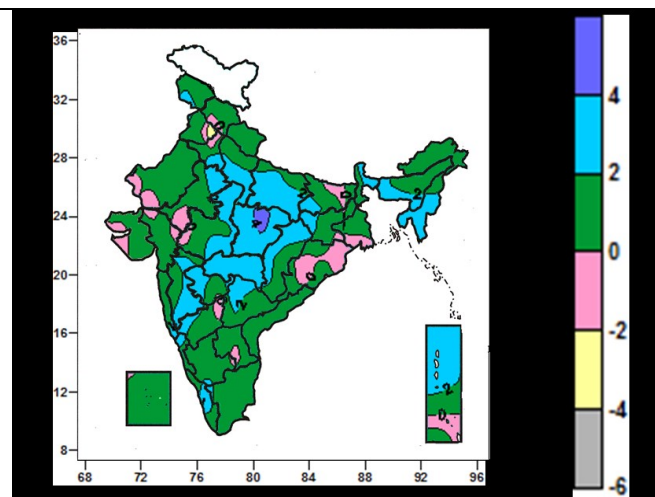
- 32 to 36 $^{\circ}\text{C}$  over many parts of Lakshadweep Island, some parts of North Interior Karnataka, Telangana, Raylaseema and at one or two places over Coastal Karnataka.
- 24 to 32 $^{\circ}\text{C}$  over many parts of West India, South India, Central India, Orissa, Haryana, Delhi, Jharkhand, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Tripura, Andaman & Nicobar Islands, some parts of West Uttar Pradesh, Rajasthan, Gangetic West Bengal.
- 16 to 24 $^{\circ}\text{C}$  over many parts of North India (except Haryana & Delhi), Bihar, Sub-Himalayan West Bengal & Sikkim, Manipur, Mizoram, some parts of Central India, Jharkhand, Gangetic West Bengal, Tripura.
- 12 to 16 $^{\circ}\text{C}$  over some parts of Jammu & Kashmir, Himachal Pradesh.

- 2 to 4 $^{\circ}\text{C}$  over some parts of Jammu & Kashmir, Himachal Pradesh, North East India(except Tripura), Sikkim.
- -2 to 2 $^{\circ}\text{C}$  over many parts of Uttarakhand, Delhi, Chattisgarh East India(except Sub-Himalayan West Bengal & Sikkim), Gangetic West Bengal, Saurashtra & Kutch, Maharashtra, South India, Lakshadweep, Andaman & Nicobar islands, some parts of North India, Sub-Himalayan West Bengal, Madhya Pradesh.
- -6 to -2 $^{\circ}\text{C}$  over many parts of Punja, Haryana, Delhi, Uttar Pradesh, Rajasthan, Gujrat, Gangetic West Bengal, some parts of Uttarakhand, Bihar, Jharkhand, Central India, Saurashtra.

**Actual Mean Minimum Temperature ( $^{\circ}\text{C}$ ) in India for the week ending 22.01.2014**



**Mean Minimum Temperature ( $^{\circ}\text{C}$ ) Anomaly in India for the week ending 22.01.2014**



- -2 to 2 $^{\circ}\text{C}$  over some parts of Jammu & Kashmir.
- 2 to 6 $^{\circ}\text{C}$  over some parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim.
- 6 to 10 $^{\circ}\text{C}$  over many parts of North India, Bihar, Gangetic West Bengal & Sikkim, North East India, some parts of Gangetic West Bengal, Saurashtra & Kutch, Madhya Pradesh, Jharkhand.

- -4 to -2 $^{\circ}\text{C}$  over some parts of Punjab.
- -2 to 2 $^{\circ}\text{C}$  over all parts of country (except many parts of Uttar Pradesh, East Madhya Pradesh, Vidarbha, Madhya Maharashtra, Mizoram, Tripura, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Haryana, Delhi, East Rajasthan, West Madhya Pradesh, Chattisgarh, Bihar,

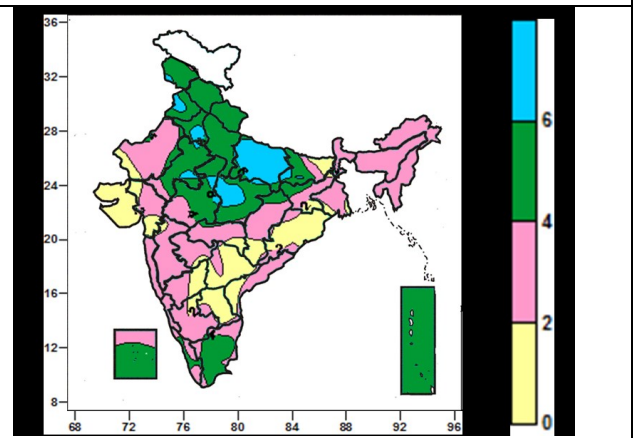
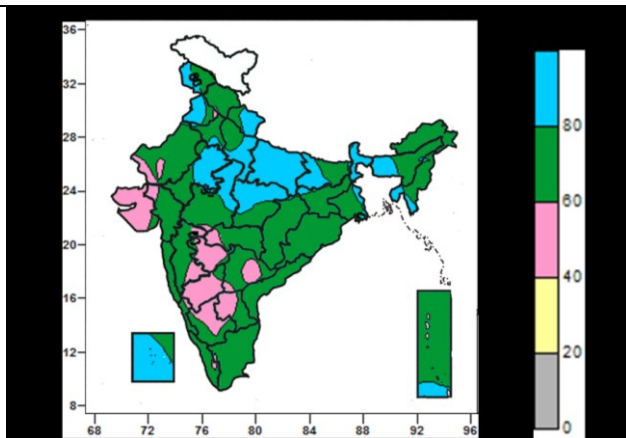
- 10 to 22°C over many parts of South India, West India, Central India, Orissa, south Gangetic West Bengal, Andaman & Nicobar Islands, some parts of Punjab, Haryana, Himachal Pradesh, Bihar, Jharkhand, Lakshadweep Islands.
- 22 to 26°C over many parts of Lakshadweep Island.

- Jharkhand, Sub-Himalayan West Bengal, Assam, Manipur, Marathwada, Karnataka, Telanagana, Tamil Nadu, Kerala).
- 2 to 4°C over many parts of Uttar Pradesh, East Madhya Pradesh, Vidarbha, Madhya Maharashtra, Mizoram, Tripura, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Haryana, Delhi, East Rajasthan, West Madhya Pradesh, Chattisgarh, Bihar, Jharkhand, Sub-Himalayan West Bengal, Assam, Manipur, Marathwada, Karnataka, Telanagana, Tamil Nadu, Kerala.

**Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 22.01.2014**

**Relative Humidity (%) over India for the week ending 22.01.2014**

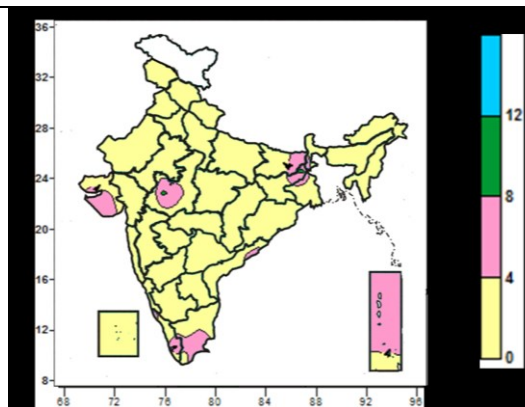
**Cloud amount (okta) over India for the week ending 22.01.2014**



- 80 to 100% over many parts of Uttarakhand, Uttar Pradesh, Punjab, Sub-Himalayan West Bengal & Sikkim, East Rajasthan, East Madhya Pradesh, Lakshadweep Islands, some parts of Jammu & Kashmir, Haryana, Assam, Gangetic West Bengal, Tripura, West Madhya Pradesh, Andaman & Nicobar Islands.
- 40 to 80% over entire country (except Uttarakhand, Uttar Pradesh, Punjab, Sub-Himalayan West Bengal & Sikkim, East Rajasthan, East Madhya Pradesh, Lakshadweep Islands, some parts of Jammu & Kashmir, Haryana, Assam, Gangetic West Bengal, Tripura, West Madhya Pradesh, Andaman & Nicobar Islands).

- 6 to 8 okta over many parts of East Uttar Pradesh, some parts of Jammu & Kashmir, Punjab, Haryana, East Rajasthan, Madhya Pradesh.
- 4 to 6 okta over many parts of North India (except West Rajasthan & East Uttar Pradesh), Bihar, Madhya Pradesh, Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands, some parts of Jharkhand, Chattisgarh, Vidarbha, East Rajasthan, Kerala.
- 0 to 4 okta over entire country (except many parts of North India (except some places in West Rajasthan), Bihar, Madhya Pradesh, Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands, some parts of Jharkhand, Chattisgarh, Vidarbha, Kerala).

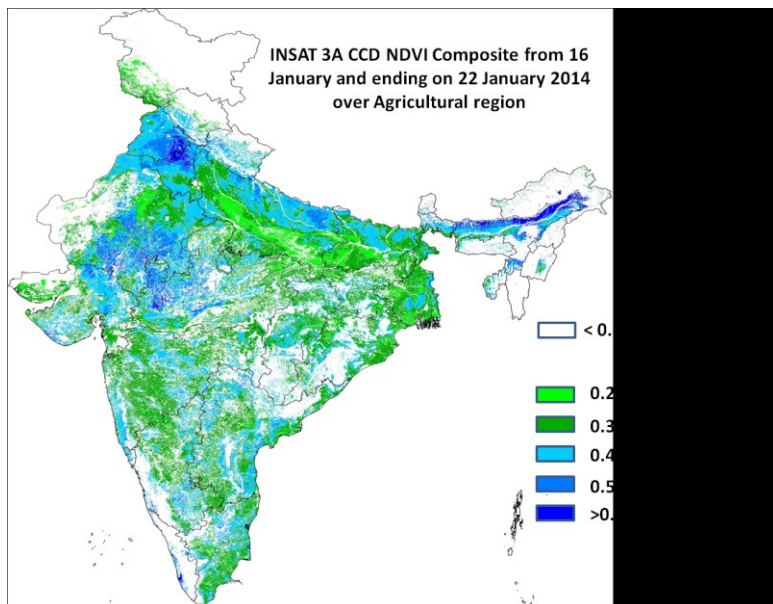
**Wind speed (knots) over India for the week ending 22.01.2014**



- 4 to 8 knots over many parts over Saurashtra, West Madhya Pradesh, Andaman & Nicobar Islands, some parts of, Bihar, Jharkhand, West Bengal, Coastal Andhra Pradesh, Kerala, Tamil Nadu.
- 0 to 4 knots over entire country (except many parts over Saurashtra, Lakshadweep, Andaman & Nicobar Islands, some parts of, Bihar, Jharkhand, West Bengal, Manipur, Gujarat, West Madhya Pradesh, Kerala, Tamil Nadu).

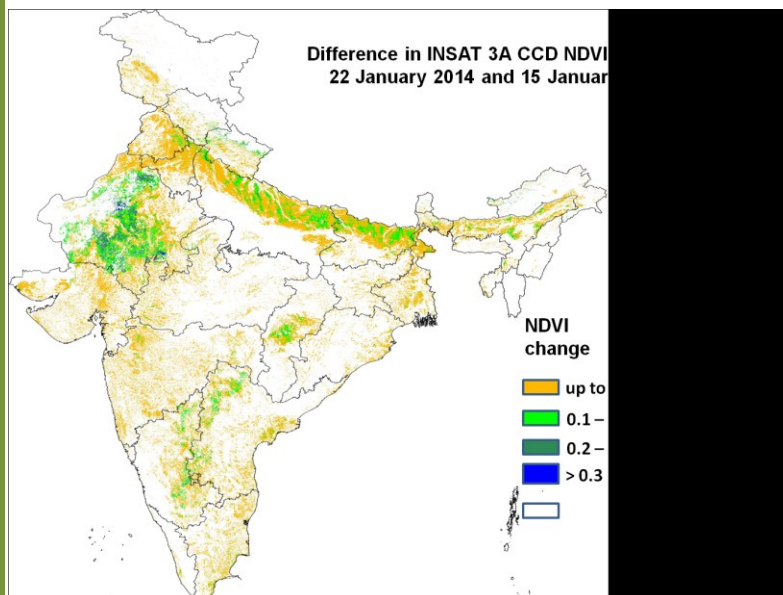
## INSAT 3A CCD NDVI COMPOSITE OVER AGRICULTURAL REGION

16<sup>th</sup> - 22<sup>nd</sup> January 2014



Source: SAC, Ahmedabad

Agricultural vigour is in general very good over pockets of central and south-east Punjab and adjoining Haryana, major part of eastern and southern Rajasthan and adjoining MP and Gujarat, central and western MP, pockets of eastern and northern UP and in Assam as NDVI exceeds 0.5. Agricultural vigour is moderate in pockets of southern and western parts of UP, eastern MP, northern pocket of Rajasthan, central and south Gujarat, parts of eastern Maharashtra, central part of West Bengal, north pocket of Bihar, parts of north-eastern India, pockets south Karnataka, southern peninsula covering AP and Tami Nadu where NDVI is in the range of 0.4 to 0.5 upto 22nd January 2014. The NDVI remains low within range of 0.2 to 0.3 over central part of UP, part of western Bihar.



Source: SAC, Ahmedabad

Agricultural progress was found to be good over northern part of UP and Bihar, pockets of Haryana, central Rajasthan, parts of north Karnataka and north AP and central Chhattisgarh where NDVI showed positive change from previous week of the order of 0.1 to 0.2. Rest of India shows moderate progress.



## Weather Forecast

### Weather Forecast for next 3 days (upto 0830 hours IST of 27<sup>th</sup> January, 2014)

- Rain/snow would occur at isolated places over Jammu & Kashmir, Himachal Pradesh and Uttarakhand.
- Rain/thundershowers would occur at isolated places over east Madhya Pradesh, Madhya Maharashtra, Gujarat region and Konkan & Goa, Marathwada and coastal & north interior Karnataka during next 24 hours and mainly dry weather thereafter.
- Rain/thundershowers would occur at isolated places over east Uttar Pradesh, west Madhya Pradesh, Vidarbha, Bihar, Sub-Himalayan West Bengal & Sikkim and south Tamilnadu during next 24 hours and mainly dry weather thereafter.
- Rain/thundershowers would occur at isolated places over Assam & Meghalaya and Arunachal Pradesh during next 48 hours and mainly dry thereafter.
- Weather would be mainly dry/dry over rest of the country.
- No significant change in minimum temperatures over northwest and adjoining central India during next 24 hours and fall by 1-2° C thereafter.
- Dense to moderate fog would occur at a few places over Punjab, Haryana & Delhi, north Rajasthan, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal during next 48 hours. Moderate fog would occur at a few places over north Madhya Pradesh, south Assam and Tripura.

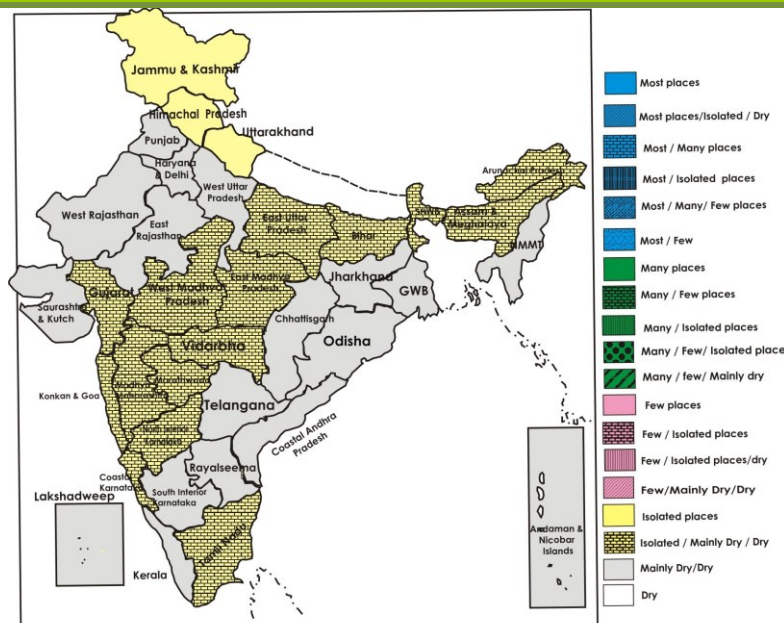
### Weather Warning during next 3 days

- 24 January (Day 1):** Dense fog (visibility < 200 M) would occur at isolated places over Punjab, Haryana, north Rajasthan, west Uttar Pradesh, Bihar and Sub-Himalayan West Bengal.
- 25 January (Day 2):** Dense fog (visibility < 200 M) would occur at isolated places over Punjab, Haryana, north Rajasthan, west Uttar Pradesh, Bihar and Sub-Himalayan West Bengal.
- 26 January (Day 3):** Dense fog (visibility < 200 M) would occur at a isolated places over Punjab, Haryana, Uttar Pradesh, north Rajasthan, Bihar and Sub-Himalayan West Bengal.

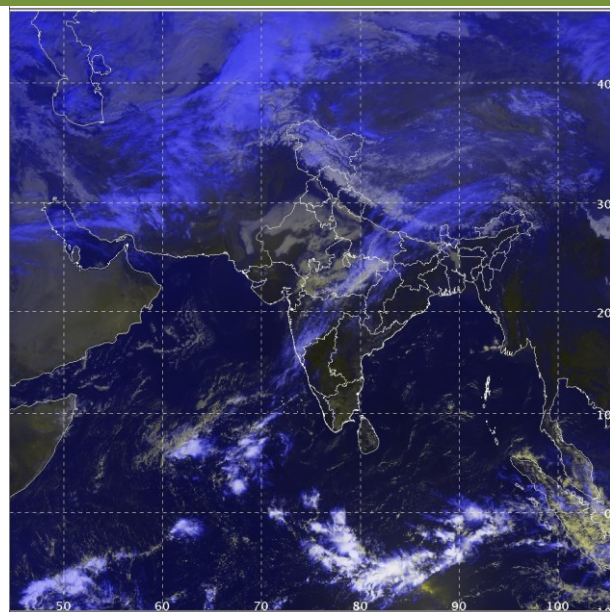
### Weather Outlook for subsequent 4 days from 27<sup>th</sup> January 2014 to 31<sup>st</sup> January, 2014:

- Rain/thundershowers would occur at isolated places over extreme south peninsular India, Lakshadweep and Andaman & Nicobar Islands.
- Rain/snow would occur at isolated places over western Himalayan region.
- Mainly dry weather would prevail over rest of the country.
- Rise in maximum and minimum temperatures over northwest and adjoining central India.

### Weather Forecast Map (Valid upto 0830 hours of 27<sup>th</sup> January, 2014)



### Satellite image dated 24.01.2014, 0600 UTC



## Salient Advisories

### North Region

- Due to prevailing low temperature conditions in some parts of Punjab, Haryana, Himachal Pradesh, Uttarakhand and Rajasthan, apply light and frequent irrigation in the standing crops to safeguard from cold injury. Young plants of fruit trees and tomato should be protected from cold injury by covering with polythene sheets or straw thatches.
- In Central Plain Zone in Punjab, undertake transplanting of onion in the main field.
- In Intermediate Zone of Jammu & Kashmir, farmers are advised to apply second dose of urea in normal sown wheat and continue transplanting of onion.
- In Bhabar and Tarai and Hill Zone of Uttarakhand, due to low temperature conditions, farmers are advised to burn straw during morning hours near the wheat fields and give irrigation in vegetables in order to protect from cold injury or arrange for smoking during night hours. Undertake nursery sowing of tomato and capsicum under optimum soil moisture.
- In Himachal Pradesh, undertake planting of potato, transplanting of onion and also application of first dose of urea along with earthing up in one month old transplanted cole crops.
- In East Uttar Pradesh, due to foggy and cloudy conditions, early/late blight is expected in potato; it is advised to spray Redomil M-Z @ 2.5 g per litre of water. Also, there is possibility of attack of aphids in mustard crop, spray of Methyl Dematon 25 E.C. or Dimethoate 30 E.C. @ 2.0 ml. per litre of water for their control.

### Central Region

- As dry weather is prevailing for last few weeks, apply irrigation in wheat, gram and vegetables in Madhya Pradesh except in the districts of Rewa, Chattarpur, Damoh, Sidhi, Sagar, Seoni and Umaria districts of east Madhya Pradesh and Gwalior, Mandsaur, Morena Raisen and Shivpuri districts of west Madhya Pradesh where sufficient rainfall was received during last week.
- In Chhattisgarh Plain Zone, temperature conditions are favorable for nursery and dry sowing of rice. Apply light irrigation after dry sowing of rice. Undertake harvesting of mature cauliflower.
- In Bundelkhand Zone of Madhya Pradesh, due to foggy and cloudy conditions there is possibility of attack of aphids in the mustard crop, monitor the crop. If found, it is advised to spray of Methyl Dematon 25 E.C. or Dimethoate 30 E.C. @ 2.0 ml. per litre of water for their control.

### East Region

- In Odisha, undertake transplanting of summer rice and in Western Undulating Zone of Odisha, as dry weather is prevailing, apply irrigation in sugarcane and continue picking of cotton.
- In Laterite and Red Soil Zone and in old Alluvial Zone of West Bengal, to protect the seedlings of *boro* rice from cold injury, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially in the night time.
- In New Alluvial Zone of West Bengal, start preparation of the main field for transplanting of *boro* rice. In view of prevailing dry weather, apply light and frequent irrigation to potato crop.
- In North West Alluvial Plain Zone of Bihar, undertake harvesting of potato from the fields of maize-potato intercropping. Undertake land preparation for planting of sugarcane, onion and sowing of sweet potato and summer vegetables.
- In Western Plateau Zone of Jharkhand, as dry weather is prevailing during last few weeks, apply irrigation to wheat. Continue nursery raising and transplanting of rice. Continue sowing/transplanting of summer vegetables like sponge gourd, Bottle gourd, pumpkin, water melon, Musk melon etc.
- In North Eastern Plateau Zone Odisha, due to cloudy weather prevailed during last week, there is chance of thrips in groundnut, apply Imidachloprid 17.8 SL @ 50 ml in 200 liters of water per acre.
- In Terai Zone of West Bengal, due to prevailing foggy conditions, there is chance of occurrence of late blight in potato; spray a mixture of Cymoxnil 8% and Mancozeb 64% @ 2.5 g / litre of water in afternoon hours.

### Northeast Region:

- As night temperature is low, the young seedlings in rice nurseries in Assam, Meghalaya and Tripura should be applied with irrigation water during night to protect the seedlings from low temperature and drain out the water in the next morning.
- In Central Bramhaputra Valley Zone, Lower Bramhaputra Valley Zone, Hill Zone and North Bank Plain Zone of Assam, continue transplanting of *boro* rice seedlings at 4 to 5 leaf stage (45 days old seedlings).
- In Sub Tropical Hill Zone of Arunachal Pradesh, in view of prevailing dry weather condition, apply life saving irrigation to potato and tomato.
- In Meghalaya, continue nursery raising of *boro* rice. Provide light irrigation in tomato and potato as dry weather is prevailing.
- As dry weather is prevailing, in Sub Tropical Plain Zone of Manipur, apply irrigation in rapeseed, mustard and

pulses and light irrigation in potato. Continue sowing of French bean. Complete sowing of *rabi* maize as inter crop with mustard or pulses.

- In Mild Tropical Hill Zone of Nagaland, taking the advantage of dry weather, continue harvesting of ginger, vegetables and matured cabbage.
- In Mild Tropical Plain Zone of Tripura, apply mulching in maize and maintain moisture in the field through irrigation at tasseling stage.
- In Central Brahmaputra Valley Zone of Assam, incidence of aphids in rapeseed / mustard crop is observed and is likely to continue due to humid and cloudy weather conditions. Farmers are advised to monitor the crop and apply Dimethoate 30 EC or Chloropyrifos 20EC @ 1 ml per litre of water. Cloudy and foggy weather condition is congenial for appearance and spread of leaf blight disease in potato. Spraying with Mancozeb 75% a.i. @ 2.5 g / litre of water is advised.
- In Mild Tropical Plain Zone of Tripura, cloudy and foggy weather condition is congenial for appearance and spread of leaf blight disease in potato. Spray with Mancozeb @ 2.5 g / litre of water. Due to prevailing foggy condition there may be increase of population of white flies in tomato and brinjal. Spray Monocrotophos @ 3ml per litre of water or Imidachloroprid @ 2g per litre of water to manage the attack.

#### **West Region:**

- As mainly dry weather prevailed during last few weeks and no significant rain is expected during next 3 days, apply irrigation to groundnut at 10-12 days interval, orchards, vegetable crops and pulses, Mango is at fruit formation stage (pea size); considering the crop canopy, apply 150-200 litres of water per tree at 15 days interval in Konkan, to gram at pod development stage, wheat at booting / flowering stage, jowar at grain formation stage, sugarcane, vegetable crops and maize in Madhya Maharashtra.
- As dry weather prevailed since last few weeks in Marathwada, apply irrigation to gram at pod development stage, wheat at booting / flowering stage, jowar at grain formation stage, sugarcane, vegetable crops and maize. Under prevailing weather continue planting of *suru* sugarcane, sowing of summer groundnut and watermelon.
- As dry weather prevailed during last few weeks in Vidarbha, apply irrigation to gram at pod development stage, wheat at booting / flowering stage and vegetable crops. Continue preparatory tillage for sowing of summer groundnut in Central Vidarbha Zone and complete transplanting of 30-35 days old summer rice seedling and maintain 2-3 cm water level in already transplanted rice field.
- As mainly dry weather is prevailing in South Gujarat Zone, apply irrigation in wheat.
- Considering the high humidity, there are chances of incidence of downy mildew in grapes in Nasik region; spray Dithianon 75 % WP @ 15 g per 10 litres of water.
- Due to cloudy weather, there is possibility of incidence of mango hoppers and powdery mildew in mango in Konkan; spray Imidachloprid 7.8% @ 3 ml + Carbendazim @ 10 g per 10 litres of water.
- Prevailing increasing temperature and humidity is congenial for outbreak of aphids in cumin, potato, mustard and vegetables in North Gujarat Zone and in cumin, mustard and vegetables in North West Zone of Gujarat; spray Dimethoate @ 10 ml or Monocrotophos @ 10 ml adding in 10 litres of water for managing aphids. Due to cloudy weather condition, there is outbreak of powdery mildew in fenugreek and mustard; spray Soluble Sulphar (50%) @ 40 kg/ha or Soluble Sulphar (80%) @ 25 kg/ha or Dinocap (48%) @ 5 ml in 10 liters of water for control.

#### **South Region:**

- In the prevailing low soil moisture conditions, for withstanding water stress situation in cotton varieties and hybrids having more than 160 days duration, remove the terminal bud beyond the 20th node (85 - 90 DAS) for arresting terminal growth in the South Zone of Tamil Nadu.
- Undertake harvesting of red gram and Bengal gram in the Scarce Rainfall Zone of Rayalaseema.
- Undertake harvesting of red gram, Bengal gram and safflower; continue planting of sugarcane after proper set treatment; apply irrigation to wheat crop which is at grain filling stage in the North East Transition Zone of Karnataka.
- Undertake sowing of groundnut, cowpea and green gram under irrigated conditions in Bijapur and Bagalkote districts of North Dry Zone of Karnataka.
- Provide irrigation to banana and undertake mulching of the soils with dried leaves to conserve soil moisture in coconut basins and banana field in the Problem Area Zone of Kerala.
- Prevailing dry and cool weather is favourable for pod borer incidence in Bengal gram and ear head bug incidence in paddy crop in the Western Zone of Tamil Nadu. Monitor the crops and dust Malathion or Fenthion 5% dust @ 10 kg / acre when sufficient soil moisture is available to manage pod borer incidence and spray Dichlorvos @ 2 ml/liter of water to manage ear head bug incidence.



## Detailed Zonewise Agromet Advisories

**NORTH INDIA [Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh & Rajasthan]**



**Wheat**



**Sugarcane**



**Late blight on potato**



**Mustard**

- **Realised Rainfall:** Significant rainfall occurred in Sirmaur, Solan in Himachal Pradesh; Kapurthala, Mohali in Punjab; Ambala, Chandigarh, Karnal, Panipat, Yamunanagar in Haryana; Anantnag, Jammu, Ramban, Reasi, Samba in Jammu & Kashmir; Allahabad, Ambedkar Nagar, Azamgarh, Banda, Barabanki, Basti, Faizabad, Farrukhabad, Gazipur, Gonda, Hardoi, Jaunpur, Kannauj, Kanpur City, Kanpur Dehat, Kaushambi, Kheri, Lucknow, Mirzapur, Pratapgarh, Rai Bareilly, Sahuji Maharajnagar, Sant Kabirnagar, Sant Ravidas Nagar, Sitapur, Sultanpur, Unnao, Varanasi in East Uttar Pradesh; Agra, Aligarh, Badaun, Baghpat, Bareilly, Bijnor, Bulandsahar, Etah, Firozabad, GBNagar, Hamirpur, Jalaun, Jhansi, Jotirba Phule Nagar, Kanshiramnagar, Mahamaya Nagar, Mahoba, Mainpur, Meerut, Moradabad, Muzzaffarnagar, Saharanpur, Shahjahanpur in West Uttar Pradesh; in all the districts of Uttarakhand except Uttarkashi, Rudraprayag, Chamoli; Banaswara, Baran, Bhilwara, Bundi, Chittorgarh, Dausa, Dholpur, Jhalawar, Karauli, Kota, Pratapgarh, Swai Madhopur and Tonk in East Rajasthan. Weather remained mainly dry / dry over rest of the districts of region.
- **Weather Forecast:**
  - Rain/snow would occur at isolated places over Jammu & Kashmir, Himachal Pradesh and Uttarakhand.
  - Rain/thundershowers would occur at isolated places over east Uttar Pradesh during next 24 hours and mainly dry weather thereafter.
  - No significant change in minimum temperatures over northwest India during next 24 hours and fall by 1-2°C thereafter.
  - Dense to moderate fog would occur at a few places over Punjab, Haryana & Delhi, north Rajasthan, Uttar Pradesh, during next 48 hours.
- **Weather Warning during next three days:** Dense fog (visibility < 200 M) would occur at isolated places over Punjab, Haryana and north Rajasthan on 24<sup>th</sup>, 25<sup>th</sup> and 26<sup>th</sup> January, over west Uttar Pradesh on 24<sup>th</sup>, 25<sup>th</sup> January and over Uttar Pradesh 26<sup>th</sup> January.
- **Weather Outlook:** Rain/snow would occur at isolated places over western Himalayan region.
- **Advisories :**
  - Due to prevailing low temperature conditions in some parts of Punjab, Haryana, Himachal Pradesh, Uttarakhand and Rajasthan, apply light and frequent irrigation in the standing crops to safeguard from cold injury. Young plants of fruit trees and tomato should be protected from cold injury by covering with polythene sheets or straw thatches.
  - In Western and Central Zone of Punjab, undertake planting of deciduous plants such as pear, peach, plum, pomegranate etc.
  - In Central Plain Zone in Punjab, undertake transplanting of onion in the mainfield.
  - In Delhi, undertake transplanting of late varieties of cabbage, cauliflower, knolkhol etc. on ridge beds and sowing of spinach, coriander, fenugreek. Also nursery preparation should be done for chilli, tomato and brinjal crops in poly house.
  - In some parts of East Uttar Pradesh, due to prevailing low minimum temperature, arrange for smoking around the crop fields during night time to protect the crop from cold injury.
  - In west Rajasthan, arrange for smoke around the field after midnight or apply light irrigation to protect the crop from cold injury.
  - In Valley Temperate Zone of Jammu & Kashmir, suspend agricultural activities for next 5 days as the fields are still not in workable condition and there is likelihood of more precipitation. Make/clean drainage channels if not cleaned yet to avoid water logging in fields.
  - In Intermediate Zone of Jammu & Kashmir, it is advised to apply second dose of urea in normal sown wheat, also continue transplanting of onion.
  - In Bhabar and Tarai and Hill Zone of Uttarakhand, due to low temperature conditions, farmers are advised to burn straw during morning hours near the wheat field crops and give irrigation in vegetables in order to protect from cold injury or arrange for smoking during night hours. Undertake sowing of tomato in nursery and also capsicum under optimum soil moisture.
  - In Transitional Plain Zone of Rajasthan, protect sensitive crops like mustard, gram, vegetables and others from frost attack, spray dilute Sulphuric acid @ 0.1 % (1 litre H<sub>2</sub>SO<sub>4</sub> in 1000 litre water) or Thiourea @ 500

ppm (500 gm Thiourea in 1000 litre water ) at flowering stage of these crops or give light irrigation to these crops.

- In semi Arid Eastern plain Zone of Rajasthan, it is advised to start field preparation for the sowing of early cucurbits like muskmelon, watermelon, ridge gourd, bitter gourd, round gourd etc.
- In Himachal Pradesh, it is advised to undertake planting of potato, transplanting of onion and also application of one month old transplanted cole crops with first dose of urea along with earthing up operation.
- In East Uttar Pradesh, due to foggy and cloudy conditions, early/late blight is expected in potato; it is advised to spray Redomil M-Z @ 2.5 g per litre of water. Also, there is possibility of attack of aphids in mustard crop, spray of Methyl Dematon 25 E.C. or Dimethoate 30 E.C.@ 2.0 ml. per litre of water for their control.
- In view of high humidity and foggy weather in Punjab and Haryana, it is advised to monitor wheat for incidence of yellow rust. If symptoms observed, apply Tilt or Shine or Bumper or Folicur @ 200 ml in 200 litre of water or Bayleton @ 200 gram in 200 litres of water.
- In Sub-humid sub-tropic zone of Uttarakhand, due to high humidity and minimum temperature there is chance to attack of aphid in mustard crop, it is advised to arrange for smoke near the field to avoid the infestation. Also to control of mustard aphid, spray Phosphomidone 40% SL or Dimethoate 30 EC.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- In Sub-Tropical Zone of Jammu & Kashmir, protect the pregnant and mulch animal from cold and feed them with mineral mixture regularly. Keep the animals inside the sheds/ shelters during night hours and take them out during sunshine hours in the day time. Cover the poultry shed with gunny bags in order to protect the birds from cold weather.
- In Punjab and Haryana, suitable measures like doubling of curtains should be taken in poultry birds sheds. Poultry ration should have more energy. Therefore, increase cereals by 5-8% in the ration and adjust the rice bran content. Protect animals from low night temperature by providing protected shelters. Dry bedding to animals helps to save them from cold. Entry of very cold winds inside the shed should be minimized.
- In Himachal Pradesh, as temperature is falling and a cold wave has gripped the area, so protect the newly born calves and animals from cold. Keep the animals inside the sheds/ shelters during night hours and take them out during sunshine hours in the day time.

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



*Wheat*



*Sugarcane*



*Chilli*



*Mustard*

- **Realised Rainfall:** Significant rainfall occurred in Rewa, Chattarpur, Damoh, Sidhi, Sagar, Seoni and Umaria districts of east Madhya Pradesh and Gwalior, Mandsaur, Morena Raisen, Sheopur and Shivpuri districts of west Madhya Pradesh.
- **Weather forecast:** Rain/thundershowers would occur at isolated places over Madhya Pradesh during next 24 hours and mainly dry thereafter. Weather would be mainly dry over Chhattisgarh.
- No significant change in minimum temperatures over the region during next 24 hours and fall by 1-2<sup>o</sup>C thereafter. Moderate fog would occur at few places over north Madhya Pradesh.
- **Weather Warning during next three days:** Nil
- **Weather Outlook:** Mainly dry weather would prevail over central India.
- **Advisories:**
  - As dry weather is prevailing for last few weeks, apply irrigation in wheat, gram and vegetables in Madhya Pradesh except in the districts of in Rewa, Chattarpur, Damoh, Sidhi, Sagar, Seoni and Umaria districts of east Madhya Pradesh and Gwalior, Mandsaur, Morena Raisen and Shivpuri districts of west Madhya Pradesh where sufficient rainfall was received during last week.
  - In Jabua Hill Zone of Madhya Pradesh taking advantage of dry weather, harvest matured tomato, cauliflower, brinjal, chilli etc.
  - In Chhattisgarh Plain Zone, temperature conditions are favorable for nursery and dry sowing of rice. Apply light irrigation after dry sowing of rice. Undertake harvesting of mature cauliflower.
  - In Bundelkhand Zone of Madhya Pradesh, due to foggy and cloudy conditions there is possibility of attack of aphids in the mustard crop, monitor the crop. If found, it is advised to spray of Methyl Dematon 25 E.C. or



Dimethoate 30 E.C.@ 2.0 ml. per litre of water for their control.

- In Satpura Plateau Zone of Madhya Pradesh, due to foggy and cloudy weather there is possibility of attack of caterpillar in gram, farmers are advised to monitor the crop.
- In Northern Hill Zone of Chhattisgarh, there is chance of infestation of pod borer in pea, spray Prophenofos @ 1.5ml per liter of water. In Northern Hill Zone of Chhattisgarh, due to foggy and humid weather, there is chance of occurrence of late blight in potato. Spray Ridomil/planto @ 2-3 g per liter of water.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III
- **Animal Husbandry**
- In Jhabua Hill Zone, to control of Ranikhet disease in poultry, vaccinate F-1 or Lasota strain vaccine. For maintaining temperature at 38°C close windows and door with gunny bags/ sackcloth and at night and use 100 – 200 volt bulb for heating.
- In Kymore Plateau and Satpura Hill Zone of Madhya Pradesh, provide concentrated feed to cattle, mix with dry and green fodder and enrich diet with protein, carbohydrate, fat, vitamins etc. Due to cold condition the poultry birds should be protected from cold injury using electric bulb (300 watt for 10sq.ft.) to prevent coryza disease.

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



**Mustard**



**Sugarcane**



**Transplanting of rice**



**Cole crops**



**Onion**

- **Realised Rainfall:** Significant rainfall occurred in Saran district of Bihar and weather remained mainly dry/dry over rest of the region.
- **Weather forecast:** Rain/thundershowers would occur at isolated places over Bihar and Sub-Himalayan West Bengal & Sikkim during next 24 hours and mainly dry weather thereafter. Weather would be mainly dry/dry over rest of the region. Dense to moderate fog would occur at a few places over Bihar, Sub-Himalayan West Bengal during next 48 hours.
- **Weather Warning during next three days :** Dense fog (visibility < 200 M) would occur at isolated places over Bihar and Sub-Himalayan West Bengal.
- **Weather Outlook:** Mainly dry weather would prevail over the region.
- **Advisories:**
  - In Odisha, undertake transplanting of summer rice and in Western Undulating Zone of Odisha, as dry weather is prevailing, apply irrigation in sugarcane and continue picking of cotton.
  - In Laterite and Red Soil Zone and in old Alluvial Zone of West Bengal, to protect the seedlings of *boro* rice from cold injury, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially in the night time.
  - In Coastal Saline Zone of West Bengal, complete transplanting of *boro* rice in main field. Complete transplanting of chilli seedlings in main field.
  - In New Alluvial Zone of West Bengal, complete preparation of the main field and undertake transplanting of *boro* rice. Undertake sowing of sunflower and apply 1<sup>st</sup> irrigation just after sowing and 2<sup>nd</sup> irrigation 3 days after sowing. In view of prevailing dry weather, apply light and frequent irrigation to potato crop to protect from cold.
  - In North West Alluvial Plain Zone of Bihar, undertake harvesting of potato tubers from the fields of maize-potato intercropping. Undertake land preparation for planting of sugarcane, onion and sowing of sweet potato and summer vegetables.
  - In North East Alluvial Plain Zone of Bihar, undertake land preparation for sowing of early cucurbits cucumber, bottle gourd, musk melon, water melon, bitter gourd and ridge gourd.
  - In Western Plateau Zone of Jharkhand, as dry weather is prevailing during last few weeks, apply irrigation to wheat. Continue nursery raising and transplanting of rice. Continue sowing/transplanting of summer vegetables like sponge gourd, Bottle gourd, pumpkin, water melon, Musk melon etc. Apply urea in 10 - 12 days old seedlings of summer rice and maintain the soil moisture of nursery bed.
  - In South Eastern Plateau Zone of Jharkhand, as dry weather is prevailing during last few weeks, apply irrigation



to wheat. Continue nursery raising and transplanting of rice.

- In North West Alluvial Plain Zone of Bihar, due to prevailing dense foggy conditions, there is chance of occurrence of early blight in potato and tomato; spray Dithane M-45 @ 2 g / litre or Carbendazim @ 2 g / litre of water. Due to partial cloudy sky and prevailing temperature condition there are chances of aphid infestation in mustard; spray Metasystox @ 1.0 ml / litre of water.
- In North East Alluvial Zone, due to prevailing dense foggy conditions, there is chance of occurrence of white rust in mustard; spray Sulfex @ 3 g / litre of water.
- In South Eastern Plateau Zone of Jharkhand, dry with cool temperature may favour the attack of leaf eating insects in pigeon pea; spray imidaclopride @ 2 ml / litre of water two times at an interval of 10-12 days. Mustard crop is at flowering stage and aphid attack is observed which is likely to be more in coming days; spray Methyl demeton or Dimethoate @ 1 ml per liter mixed with teepol @ 5 ml per liter of water. Also attack of powdery mildew disease in green pea is likely to be more prominent; spray Karathen @ 1 ml per litre of water or Sulfex @ 3 g per litre of water.
- In East and South Eastern Coastal Plain Zone of Odisha, due to cool weather and formation of dew, powdery mildew may occur in pulses; hence spray Wettable Sulphur @ 1 kg per acre.
- In East and South Eastern Coastal Plain Zone of Odisha, maximum and minimum temperature conditions are congenial for occurrence of termites, thrips and aphids on groundnut during the vegetative stage. For termites, treat the soil with Sevidol granules @ 20 kg or Methyl parathion 2% D dust @ 25 kg/ha and maintain moisture in the field. For thrips, apply Imidacloprid 17.8 SL @ 125 ml in 500 litres of water per hectare. For aphids, spray Dimethoate @ 1 litre / ha in 500 litres of water.
- In North Eastern Plateau Zone Odisha, due to cloudy weather prevailed during last week, there is chance of thrips in groundnut; apply Imidacloprid 17.8 SL @ 50 ml in 200 liters of water per acre.
- In Terai Zone of West Bengal, due to prevailing foggy conditions, there is chance of occurrence of late blight in potato; spray a mixture of Cymoxnil 8% and Mancozeb 64% @ 2.5 g / litre of water in afternoon hours.
- Due to increase in temperature in Terai Zone, aphid attack can be seen in mustard and likely to persist. Apply Imidacloprid 17.8 SL @ 3 ml / 10 litres or Quinalphos 25 EC @ 2 ml / litres of water or Dimethoate 1.5 g per litre of water / acre.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
  - Low temperature condition may adversely affect the milk production and performance of domestic animals. Farmers in North West Alluvial Plain Zone of Bihar are advised to give protein enriched diet to the animals. Do not keep the animals in the open air during night.

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



**Chilli**



**Transplanting of rice**



**cole crops**



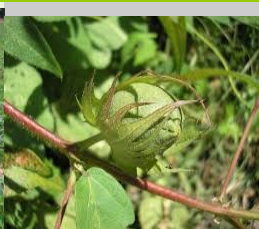
**Late blight in Potato**

- **Realised Rainfall:** Significant rainfall occurred in Mokokchung district of Nagaland. Weather remained mainly dry / dry over rest of the region.
- **Weather Forecast:** Rain / thundershowers would occur at isolated places over Assam and Meghalaya and Arunachal Pradesh during next 24 hours and mainly dry thereafter. Weather would be dry / mainly dry during the period. Moderate fog would occur at a few places over south Assam and Tripura.
- **Weather Warning during next three days :** Nil.
- **Weather Outlook:** Weather would be mainly dry / dry over the region.
- **Advisories:**
  - As night temperature is low, the young seedlings in rice nurseries in Assam, Meghalaya and Tripura should be applied with irrigation water during night to protect the seedlings from low temperature and drain out the water in the next morning.
  - In Central Brahmaputra Valley Zone, Lower Brahmaputra Valley Zone, Hill Zone and North Bank Plain Zone of Assam, continue transplanting of *boro* rice seedlings at 4 to 5 leaf stage (45 days old seedlings).
  - In Sub Tropical Hill Zone of Arunachal Pradesh, in view of prevailing dry weather condition, apply life saving irrigation to potato and tomato.
  - In Meghalaya, continue nursery raising of *boro* rice. Provide light irrigation in tomato and potato as dry weather is prevailing.
  - As dry weather is prevailing, in Sub Tropical Plain Zone of Manipur, apply irrigation in rapeseed, mustard and

pulses and light irrigation in potato. Continue sowing of French bean. Complete sowing of *rabi* maize as inter crop with mustard or pulses.

- In Mild Tropical Hill Zone of Nagaland, taking the advantage of dry weather, continue harvesting of ginger, vegetables and matured cabbage.
- In Mild Tropical Plain Zone of Tripura, apply mulching in maize and maintain moisture in the field through irrigation at tasseling stage.
- In Hill Zone and Lower Brahmaputra Valley Zone of Assam, humid and foggy weather is congenial for occurrence of late blight in tomato and potato. Apply Ridomil MZ-72 (2 g / litre of water) and Dithane M-45 (2.5 g / litre of water) alternately at 15 days interval to manage late blight in tomato. For late blight of potato, spray Ridomil MZ-27 (2 g / litre) as prophylactic measure or Dithane M-45 @ 2.5 g / litre of water.
- In North Bank Plain Zone of Assam, humid and cloudy weather conditions are favourable for incidence of aphids and saw fly in rapeseed and mustard. Hence, monitor the crop and apply Dimethoate 30 EC or Chloropyrifos @ 2 ml / litre of water with a spray volume of 500-700 litres / ha for hand sprayer & 200-250 litres / ha for power sprayer. Also cloudy and foggy weather is favourable for appearance of late blight in potato; spray Mancozeb @ 2.5 g / litre of water as protective measure.
- In Central Brahmaputra Valley Zone of Assam, incidence of aphids in rapeseed / mustard crop is observed and is likely to continue due to humid and cloudy weather conditions. Farmers are advised to monitor the crop and apply Dimethoate 30 EC or Chloropyrifos 20EC @ 1 ml per litre of water. Cloudy and foggy weather condition is congenial for appearance and spread of leaf blight disease in potato. Spraying with Mancozeb 75% a.i. @ 2.5 g / litre of water is advised.
- In Mild Tropical Plain Zone of Tripura, cloudy and foggy weather condition is congenial for appearance and spread of leaf blight disease in potato. Spray with Mancozeb @ 2.5 g / litre of water. Due to prevailing foggy condition there may be increase of population of white flies in tomato and brinjal. Spray Monocrotophos @ 3ml per litre of water or Imidachloroprid @ 2g per litre of water to manage the attack.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- In Nagaland, Mizoram and Tripura, cover or tie cattle with gunny bags during night to protect from cold. Also cover poultry house with gunny bags / polythene sheet and provide heating during night using electric bulb of 300 watt per 100 sq. ft. space.
- In North Bank Plain Zone, Central Brahmaputra Valley and Upper Brahmaputra Valley Zone of Assam, protect poultry birds from cold by using electric bulbs (300 Watt for 100 sq. ft.) to prevent *Coryza* disease.

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



*Transplanting of rice*

*Groundnut*

*Cotton*

*Grape vine*

- **Realised Rainfall:** Significant rainfall occurred in Kheda and Sabarkantha districts of Gujarat region. Mainly dry / dry weather prevailed over rest parts of Gujarat State. No significant rainfall occurred over Maharashtra State during last week.
- **Weather Forecast:** Rain / thundershowers would occur at isolated places over Konkan & Goa, Madhya Maharashtra, Marathwada, Vidarbha and Gujarat region during next 24 hours and mainly dry weather thereafter. Weather would be mainly dry / dry over rest of the region.
- **Weather Warning during next three days:** Nil.
- **Weather Outlook:** Mainly dry weather would prevail over the region.
- **Advisories:**
  - As mainly dry weather prevailed during last few weeks in Konkan and no significant rain is expected during next 3 days, apply irrigation to groundnut at 10-12 days interval, orchards, vegetable crops and pulses. Mango is at fruit formation stage (pea size); considering the crop canopy, apply 150-200 litres of water per tree at 15 days interval. To avoid fruit dropping and to enhance the fruit setting spray *Amrashakti*. Maintain 2-3 cm water level for first 8-10 days in transplanted rice and increase the water level upto 5 cm thereafter.
  - As dry weather prevailed since last few weeks in Madhya Maharashtra and no significant rain is expected during next 3 days, apply irrigation to gram at pod development stage, wheat at booting / flowering stage, jowar

at grain formation stage, sugarcane, vegetable crops and maize. Continue planting of *suru* sugarcane and water melon. Complete the preparatory tillage and undertake sowing of summer groundnut.

- As dry weather prevailed since last few weeks in Marathwada, apply irrigation to gram at pod development stage, wheat at booting / flowering stage, jowar at grain formation stage, sugarcane, vegetable crops and maize. Under prevailing weather continue planting of *suru* sugarcane, sowing of summer groundnut and watermelon.
- As dry weather prevailed during last few weeks in Vidarbha, apply irrigation to gram at pod development stage, wheat at booting / flowering stage and vegetable crops. Due to prevailing dry weather condition, harvesting of already matured red gram may be completed. Continue preparatory tillage for sowing of summer groundnut in Central Vidarbha Zone and complete transplanting of 30-35 days old summer rice seedling and maintain 2-3 cm water level in already transplanted rice field.
- As mainly dry weather is prevailing in South Gujarat Zone, apply irrigation in wheat.
- Taking advantage of dry weather, carryout hand weeding and intercultural operations in castor crop in Bhal and Coastal Zone of Gujarat.
- Considering the high humidity, there are chances of incidence of downy mildew in grapes in Nasik region; spray Dithianon 75 % WP @ 15 g per 10 litres of water.
- Due to cloudy weather, there is possibility of incidence of mango hoppers and powdery mildew in mango in Konkan; spray Imidachloprid 7.8% @ 3 ml + Carbendazim @ 10 g per 10 litres of water.
- Under prevailing cloudy and humid weather, there may be incidence of rust in wheat in Marathwada region; spray Mancozeb @ 20 g per 10 litres of water.
- Prevailing increasing temperature and humidity is congenial for outbreak of aphids in cumin, potato, mustard and vegetables in North Gujarat Zone and in cumin, mustard and vegetables in North West Zone of Gujarat; spray Dimethoate @ 10 ml or Monocrotophos @ 10 ml adding in 10 litres of water for managing aphids. Due to cloudy weather condition, there is outbreak of powdery mildew in fenugreek and mustard; spray Soluble Sulphur (50%) @ 40 kg/ha or Soluble Sulphur (80%) @ 25 kg/ha or Dinocap (48%) @ 5 ml in 10 liters of water for control.
- Due to cloudy weather condition, there is chance of thrips in onion and aphids in mustard in South Gujarat Heavy Rainfall Zone. Spray Prophenophos @ 20 ml in 10 litres of water for thrips and spray Methyl-o-Dematone @ 10 ml or Dimethoate @ 10 ml or Phosphamidon @ 3 ml in 10 litres of water.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
  - In Gujarat, avoid transportation of poultry birds during noon time. Put curtains on the west side of poultry house. Keep young calves indoors during night time.

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



**Pulses(flowering/pod formation)**



**Sugarcane( cane maturity)**



**Onion (bulb development)**



**Sucking pest on Groundnut**

- **Realized rainfall:** Weather remained mainly dry/dry over the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at isolated places over coastal & north interior Karnataka and south Tamil Nadu during next 24 hours and mainly dry weather. Weather would be mainly dry/dry over rest of the region.
- **Weather Warning during the next three days:** Nil
- **Weather Outlook:** Rain/thundershowers would occur at isolated places over extreme south peninsular India
- **Advisory:**
  - In the prevailing low soil moisture conditions, for withstanding water stress situation in cotton varieties and hybrids having more than 160 days duration, remove the terminal bud beyond the 20th node (85 - 90 DAS) for arresting terminal growth in the South Zone of Tamil Nadu.
  - Farmers in Krishna Godavari Zone of Andhra Pradesh are advised to apply MgSO<sub>4</sub> @ 2 g per liter of water in cotton to prevent leaf reddening due to lack of Mg caused due to low temperatures.
  - Undertake harvesting of red gram and Bengal gram in the Scarce Rainfall Zone of Rayalaseema.
  - Undertake harvesting of red gram, Bengal gram and safflower; continue planting of sugarcane after proper set treatment; apply irrigation to wheat crop which is at grain filling stage in the North East Transition Zone of Karnataka.



- Undertake sowing of groundnut, cowpea and green gram under irrigated conditions in Bijapur and Bagalkote districts of North Dry Zone of Karnataka.
- Undertake harvesting of chilli and chickpea in the North Transition Zone of Karnataka.
- Undertake sowing of maize and transplanting of summer rice under irrigated condition in the Southern Transition Zone of Karnataka.
- Undertake foliar spraying of Urea 1% + DAP 2% + MOP 1% during flowering stage in thaladi paddy to increase the seed setting. Also undertake harvesting of matured samba paddy and sowing of rice fallow pulses in the Cauvery Delta Zone of Tamil Nadu.
- Provide irrigation to banana and undertake mulching of the soils with dried leaves to conserve soil moisture in coconut basins and banana field in the Problem Area Zone of Kerala.
- Undertake planting of vegetables like bitter gourd, bottle gourd, cucumber & watermelon and provide sufficient quantity of water to the coconut field through drip irrigation in the Southern Zone of Kerala.
- Prevailing dry and cool weather is favourable for pod borer incidence in Bengal gram and ear head bug incidence in paddy crop in the Western Zone of Tamil Nadu. Monitor the crops and dust Malathion or Fenthion 5% dust @ 10kg / acre when sufficient soil moisture is available to manage pod borer incidence and spray Dichlorvos @ 2ml/liter of water to manage ear head bug incidence.
- Present dry weather is most favourable for incidence of mosaic diseases and powdery mildew in cucurbit and sigatoka disease, attack of skippers, hairy caterpillar & leaf swarming caterpillar in bananas in the Problem Area Zone of Kerala. Undertake plant protection measures and spraying of Bordeaux mixture to control mosaic diseases and powdery mildew.
- Due to increase in temperature, there is increase in the attack of insects such as aphids, white flies, hoppers, etc.in vegetables in the Central Zone of Kerala. As a result of this, there is a chance of stunted growth. Apply Verticillium or Metarhizium @ 5 g in 1 litre of water and add neem cake as manure and Neem based insecticides. Cut and remove the severely affected leaves, apply 15 gm of *Pseudomonas* in cleared cow dung water after harvesting and *Trichoderma* mixed with cowdung in soil.
- Prevailing conditions (increasing day temperatures) are congenial for incidence of leaf miner, tobacco cutworm, sucking pest and pea nut bud necrosis virus (PBNB) in rabi groundnut, pink borer in maize crop and hoppers in mango crop in the Scarce Rainfall Zone of Andhra Pradesh. Monitor the crops and undertake plant protection measures.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- Ensure periodic vaccination of animals against FMD, Brucellosis, Haemorrhagic Septicaemia, Anthrax and small ruminants against PPR and Sheep and Goat Pox in the Scarce Rainfall Zone of Andhra Pradesh.
- Vaccinate the dairy cow against the mastitis diseases in the Eastern Dry zone of Karnataka.

**Annexure I**  
**Stages of Major Crops**

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

- Wheat (crown root initiation/vegetative), barley, oat, late peas (early vegetative/ vegetative), early peas, gobhi sarson (vegetative/pod formation), cauliflower (transplanting/vegetative), radish, carrot, turnip, beet leaf and fenugreek (germination/ vegetative), onion (transplanting), potato (planting) in Himachal Pradesh.
- Wheat, barley, oat (CRI/ vegetative), ginger (vegetative), sugarcane (grand growth/ harvesting), sesame in low land area (early vegetative / vegetative), vegetable pea (germination/ vegetative), tomato (vegetative/fruitletting), potato (late vegetative), Autumn sugarcane (planting), sarson, masoor (early vegetative/vegetative) in Uttarakhand.
- Wheat, barley (crown root initiation/vegetative), toria (pod maturity/harvesting), gobi sarson, mustard (flowering/ siliqua formation), brown sarson, oat, lentil, berseem, gram, field pea (pod formation/maturity), potato (flowering/ tuberization), methi palak, radish, carrot, turnip(vegetative/fruitletting), onion, garlic (vegetative), pole type beans (vegetative), cole crops (transplanting/early vegetative), fruit crops (planting) in Jammu & Kashmir.
- Wheat, barley (crown root initiation/vegetative), lentil (vegetative), toria (pod maturity/ harvesting), gram and mustard (pod formation/maturity), tomato, brinjal, Shimla mirch (flowering/maturity), new sugarcane (grand growth/harvesting), castor (flowering/spike formation), cucurbits (sowing/germination), radish, Desi carrot (vegetative/fruitletting), cabbage and cauliflower (vegetative/flowering), onion(transplanting/vegetative), cumin, ajwain, methi, Isabgol (germination/early vegetative) in Rajasthan.
- Wheat( vegetative ), pea (vegetative), mustard (flowering & pod initiation), onion (vegetative), cabbage, cauliflower, Knol khol (transplanting), spinach, coriander, fenugreek (sowing), chilli, tomato and brinjal ( nursery raising) in Delhi.
- Wheat (crown root initiation/vegetative), Maize (knee height), barley (crown root initiation/ vegetative ), mustard (flowering/ siliqua formation ) pea/chickpea/lentil/Linseed (Flowering/ pod formation), potato (tuberization), Jowar, bajra, (grain filling/maturity), tomato, brinjal, chilli (fruitletting/harvesting), pigeon pea, black gram, green gram (flowering/pod formation/ ), spring sugarcane (grand growth/harvesting), toria (pod formation/maturity) in Uttar Pradesh.
- Sugarcane (grand growth), wheat (vegetative), gram (branching / flowering), onion (transplanting), mustard (flowering / pod formation) in Punjab.
- Wheat (vegetative), New sugarcane (vegetative), mustard (flowering / pod formation), gram (branching / flowering) in Haryana.

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

- Sugarcane (grand growth), winter sugarcane (planting), vegetables (flowering/ fruitletting ),wheat, (vegetative), safflower, mustard, gram and linseed (branching/flowering) , potato (early vegetative), onion (vegetative) in Madhya Pradesh.
- Sugarcane (elongation), pigeon pea (pod formation/pod filling), ragi and kodo millet (vegetative), ginger, turmeric, papaya (vegetative), onion (vegetative), vegetable crops (flowering/ fruitletting), wheat (CRI/vegetative), safflower and gram (vegetative), potato (early vegetative) in Chhattisgarh.

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

- Onion (vegetative), arhar (flowering/pod formation), maize (silking/tasseling), mustard, toria(Flowering), sunflower, pea, lentil, gram, rajmah (flowering), cauliflower, cabbage, chilli, tomato, brinjal (vegetative/flowering), wheat(crown root initiation), boro rice (sowing), potato (tuber formation) in Bihar.
- Arhar (flowering/pod formation), onion (vegetative), tomato, cauliflower, cabbage (vegetative/flowering), mustard(Flowering/capsule formation), sweet potato (tuber formation), potato (vegetative), green peas, bell pepper (vegetative), wheat (crown root initiation) in Jharkhand.
- Pigeon pea (pod formation / pod maturity), groundnut( flowering/ pegging), turmeric, ginger (rhizome formation), rabi vegetables (vegetative), sugarcane (grand growth), banana (vegetative), mustard (pod formation stage), onion, cluster bean, green pea (vegetative) in Odisha.
- Boro rice (seedling/ transplanting), ginger, turmeric (rhizome formation), tomato, brinjal (vegetative), cabbage and cauliflower (vegetative), wheat (crown root initiation), mustard (flowering/pod formation), potato (vegetative), winter vegetables (early vegetative/ vegetative) in West Bengal.
- Wheat (active tillering), rabi vegetables (fruitletting / harvesting), mustard (flowering/capsule formation), potato (vegetative/tuber formation) in Sikkim.

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

- *Boro* rice (seedling / transplanting), *ahu* rice (nursery sowing), sugarcane (elongation), rapeseed and mustard (flowering / pod formation), *rabi* pulses like lentil, rajmah, pea, lathyrus etc. (flowering / pod formation), wheat (tillering / booting), winter vegetables (flowering / fruitletting), potato (tuber formation), cole crops (head formation

/ maturity), tomato (flowering / fruiting), okra (sowing) in Assam.

- Carrot (maturity / harvesting), mustard (flowering / pod formation), pea (pod formation / maturity/ harvesting), French bean (sowing) and potato (tuber formation / maturity) in Arunachal Pradesh.
- Rapeseed and mustard (flowering / pod formation), pea, pulses (vegetative / flowering), maize (sowing (inter crop) / vegetative), *rabi* vegetables (flowering / fruiting), cole crops (vegetative / head formation), potato (vegetative / tuber formation), onion (vegetative), cucurbits (sowing) in Manipur.
- Potato (tuber formation), *boro* rice (seedling/transplanting), rapeseed and mustard (pod development / maturity), cauliflower and other winter vegetables (flowering / fruiting) in Meghalaya.
- Ginger and turmeric (vegetative / rhizome formation), mustard (flowering / pod formation), cole crops (vegetative / head formation) in Mizoram.
- Mustard (flowering / pod formation), potato (vegetative / tuber formation), rajmah (vegetative), tomato (vegetative), ginger (maturity / harvesting) in Nagaland.
- *Rabi* maize (active vegetative / tasselling / silking), *boro* rice (seedling / transplanting), potato (vegetative / tuber formation), banana (vegetative / fruiting / harvesting), toria (pod formation / pod filling), tomato, brinjal and radish (flowering / fruiting / maturity / harvesting) in Tripura.

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

- Red gram (pod maturity / harvesting in Madhya Maharashtra, Vidarbha and Marathwada), *rabi* jowar (grain formation / maturity in Madhya Maharashtra and Marathwada), safflower (head formation in Madhya Maharashtra, Marathwada and Vidarbha), gram (pod development in Madhya Maharashtra, Marathwada and Vidarbha), wheat (boot stage / flowering in Madhya Maharashtra, Marathwada and Vidarbha), maize (cob initiation in Madhya Maharashtra), *adsali* and pre seasonal sugarcane (maturity / harvesting), *suru* sugarcane (elongation / maturity), New *adsali* sugarcane (early tillering / tillering in Marathwada and Madhya Maharashtra), pre-seasonal sugarcane (early tillering in Marathwada and Madhya Maharashtra), new *suru* sugarcane (planting in Madhya Maharashtra and Marathwada), rice (seedling / transplanting / early tillering in Konkan, seedling / transplanting in East Vidarbha), groundnut (sowing / germination in Konkan) in Maharashtra.
- Wheat (flowering / milk), gram (flowering / pod formation), mustard (flowering / pod formation), castor (spike development / maturity), cotton (picking), sugarcane (grand growth / cane maturity), cumin (flowering / grain formation), fenugreek (flowering / pod formation), vegetables (fruiting / harvesting), potato (tuber formation) in Gujarat.

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

- Cotton (boll formation/maturity/ picking) , sugarcane (Jan-March planted) (cane maturity/harvest), banana (fruit development/maturity), *rabi* crops: rice (tillering), groundnut (pod formation/ development), maize (vegetative/tasseling), red gram (pod maturity/harvest),Bengal gram (pod development/harvesting), jowar (grain filling/dough), chillies (vegetative/flowering), vegetables (vegetative), onion (bulb development /maturity), mango(fruit initiation/pea) and wheat (crown root initiation) in High Altitude Zone in Andhra Pradesh.
- Sugarcane (grand growth), samba rice (panicle initiation to flowering / maturity to harvest ), thaladi rice (flowering), cotton and maize (vegetative to flowering), onion (vegetative), winter cotton (pod bursting), groundnut (germination/ vegetative), rice fallow pulses (sowing), vegetables (vegetative), black gram (flowering), irrigated rice (flowering), rainfed cotton(flowering/boll formation), rainfed maize , pearl millet and sorghum (grain-filling) and pulses (pod development) in Tamil Nadu.
- Mundakan rice (panicle initiation), puncha rice (tillering/panicle initiation in the Problem Area Zone), arecanut (harvesting), sugarcane (grand growth), rubber (tapping), *rabi* vegetables (vegetative to fruiting in the Problem Area Zone/planting in the Southern Zone) pepper (berry maturity), cardamom (harvesting), in Kerala.
- *Rabi* Crops: Bengal gram (maturity/harvesting), sorghum (flowering to grain filling), safflower (maturity/harvesting) wheat (jointing / flowering), sugarcane (planting) and Mango (flowering); Summer crops: Rice (Land preparation / transplanting), maize, groundnut, cowpea and greengram (sowing) in Karnataka



**Annexure II**  
**Week by week Rainfall Distribution**

State/Districts	25.12.13		01.01.14		08.01.14		15.01.14		22.01.14	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>										
Anjaw	**	**	**	**	**	**	**	**	**	**
Changlang	0.0	-100	0.0	-100	0.0	-100	4.6	-59	1.3	-90
Dibang Valley	0.0	-100	0.0	-100	13.0	-26	24.0	189	3.0	-84
East Kameng	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
East Siang	0.0	-100	0.0	-100	17.3	246	1.4	-74	0.0	-100
Kurung Kumey	**	**	**	**	**	**	**	**	**	**
Lohit	0.0	-100	0.0	-100	6.7	42	0.3	-97	0.1	-99
Lower Dibang Valley	0.0	-100	0.0	-100	27.8	59	4.2	-49	0.4	-98
Lower Subansari	3.0	-67	**	**	3.0	-71	6.0	-75	**	**
Papumpara	0.1	-50	0.0	-100	4.6	-30	0.0	-100	0.0	-100
Tawang	0.0	-100	**	**	**	**	4.0	-51	0.0	-100
Tirap	0.0	-100	0.0	-100	1.7	-82	3.4	-62	1.1	-87
Upper Siang	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.8	-85
Upper Subansari	0.0	-100	0.0	-100	4.2	180	4.8	-32	0.0	-100
West Kameng	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West Siang	0.0	-100	0.0	-100	10.3	78	11.7	276	2.7	-26
<b>Assam</b>										
Baksa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Barpeta	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bongaigaon	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Cachar	1.1	-30	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chirang	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Darrang	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.0	-69
Dhemaji	0.0	-100	0.0	-100	11.0	244	0.0	-100	0.0	-100
Dhubri	0.0	-100	0.0	-100	0.0	-100	0.1	-98	1.3	-21
Dibrugarh	0.0	-100	0.0	-100	6.2	130	0.2	-97	0.7	-91
Goalpara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Golghat	0.2	-94	0.0	-100	1.2	-53	0.0	-100	3.8	-16
Hailakandi	1.6	-41	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jorhat	0.3	-81	0.0	-100	3.6	-5	0.0	-100	1.6	-76
Kamrup(Rural)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kamrup(Metro)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.9	32
Karbi Anglong	0.8	-20	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Karimganj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kokrajhar	0.0	-100	0.0	-100	0.0	-100	0.5	-77	0.0	-100
Lakhimpur	0.3	-91	0.0	-100	6.1	89	0.2	-97	2.5	-67
Morigaon	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.1	-59
N.C.Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nowgong	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.4	-29
Nalbari	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.0	-26
Sonitpur	0.2	-85	0.0	-100	0.0	-100	0.0	-100	0.1	-99
Sibsagar	2.0	67	0.0	-100	6.0	445	0.0	-100	0.9	-79
Tinsukia	0.0	-100	0.0	-100	2.0	-17	0.1	-98	0.3	-97

Udalgiri	1.1	38	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Meghalaya</b>										
East Garo Hills	2.0	200	0.0	-100	0.0	-100	0.0	-100	0.0	-100
East Khasi Hills	0.1	-95	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jaintia Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ribhoi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
South Garo Hills	0.0	-100	**	**	0.0	-100	0.0	-100	0.0	-100
West Garo Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West Khasi Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Mizoram</b>										
Aizwal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Champhai	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kolasib	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lawngtlai	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lunglei	0.0	-100	0.0	-100	0.0	-100	0.0	-100	**	**
Mamit	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Saiha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Serchhip	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Manipur</b>										
Bishnupur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chandel	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Churachandpur	**	**	**	**	0.0	-100	0.0	-100	0.0	-100
Imphal east	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Imphal west	0.1	-83	**	**	0.0	-100	0.0	-100	0.0	-100
Senapati	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tamenglong	**	**	**	**	**	**	**	**	**	**
Thoubal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ukhrul	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Nagaland</b>										
Dimapur	0.0	-100	**	**	0.0	-100	0.0	-100	0.0	-100
Kephire	1.0	-68	0.0	-100	0.0	-100	0.0	-100	4.0	-51
Kohima	0.9	-10	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Longleng	**	**	**	**	**	**	**	**	**	**
Mokokchung	3.0	200	0.0	-100	0.0	-100	1.0	-87	23.0	115
Mon	**	**	**	**	**	**	**	**	**	**
Paren	**	**	**	**	**	**	**	**	**	**
Phek	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tuensang	**	**	**	**	**	**	**	**	**	**
Wokha	0.5	-74	0.0	-100	0.0	-100	0.0	-100	18.0	150
Zunheboto	**	**	**	**	**	**	**	**	**	**
<b>Tripura</b>										
Dhalai	1.0	-64	0.0	-100	0.0	-100	0.0	-100	0.0	-100
North tripura	12.6	367	0.0	-100	0.0	-100	0.0	-100	0.0	-100
South tripura	1.0	-33	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West tripura	3.6	90	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Himachal Pradesh</b>										
Bilaspur	22.9	160	6.1	-50	0.0	-100	1.7	-84	7.8	-22
Chamba	36.5	148	40.3	70	12.5	-50	6.9	-68	2.6	-91
Hamirpur	24.1	191	7.7	-54	2.9	-76	0.0	-100	2.3	-79

Kangra	40.7	338	12.7	-37	3.1	-78	1.4	-93	1.4	-91
Kinnaur	6.4	-50	5.8	-77	5.8	-70	37.5	72	1.0	-95
Kullu	22.6	82	6.4	-62	8.6	-44	31.4	81	1.6	-91
Lahaul and Spiti	8.6	-51	5.1	-77	10.3	-57	32.1	11	1.3	-95
Mandi	21.3	232	8.5	-43	2.6	-76	12.7	-5	9.0	-36
Shimla	11.7	54	2.4	-82	1.1	-90	6.5	-56	19.3	31
Sirmaur	23.8	138	3.1	-79	0.0	-100	0.6	-96	45.6	274
Solan	21.6	157	2.9	-79	0.0	-100	1.6	-89	27.6	114
Una	24.9	236	7.3	-28	2.4	-74	0.0	-100	1.1	-87
<b>Punjab</b>										
Amritsar	2.1	-37	0.5	-92	0.0	-100	0.0	-100	14.1	176
Barnala	1.0	-47	0.0	-100	0.0	-100	0.3	-83	0.0	-100
Bhatinda	0.5	-64	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Faridkot	1.0	-41	0.0	-100	0.0	-100	0.5	-64	2.0	-29
Fatehgarh Sahib	0.0	-100	7.0	52	0.0	-100	0.0	-100	1.0	-74
Ferozpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.5	-84
Gurdaspur	5.8	-4	27.8	178	0.0	-100	0.4	-96	18.9	66
Hoshiarpur	11.5	77	12.3	78	0.0	-100	0.0	-100	3.4	-50
Jalandhar	1.0	-82	0.2	-96	0.0	-100	0.0	-100	4.0	1
Kapurthala	17.2	560	2.1	-34	0.0	-100	0.0	-100	23.3	531
Ludhiana	6.3	23	4.1	-13	0.0	-100	0.0	-100	12.2	213
Mansa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.5	-74
Moga	3.5	106	0.0	-100	0.0	-100	0.4	-93	2.8	-45
Muktesar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nawashahar	10.8	24	6.8	-18	0.8	-88	0.2	-97	11.6	97
Patiala	0.9	-86	3.2	-16	0.0	-100	0.0	-100	16.3	319
Ropar	12.7	90	3.5	-62	0.0	-100	0.1	-98	8.3	4
Sangrur	9.1	94	1.7	-58	0.0	-100	0.0	-100	6.8	105
Mohali	2.0	-74	2.0	-76	0.0	-100	0.0	-100	26.0	420
TarnTaran	2.0	18	0.0	-100	0.0	-100	0.0	-100	7.0	133
<b>Haryana</b>										
Ambala	7.1	60	2.0	-80	0.0	-100	0.0	-100	32.2	258
Bhiwani	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.8	-38
Chandigarh	7.7	5	**	**	0.0	-100	0.1	-98	35.0	221
Faridabad	0.0	-100	3.0	76	0.0	-100	0.0	-100	11.0	279
Fatehabad	1.2	-8	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gurgaon	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hissar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.9	-53
Jhajar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.5	-76
Jind	0.0	-100	0.0	-100	0.0	-100	0.0	-100	4.2	81
Katihah	0.0	-100	1.0	-44	0.0	-100	0.0	-100	14.5	325
Karnal	0.0	-100	1.7	-60	0.0	-100	0.0	-100	40.8	538
Kurukshetra	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mahendragarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mewat	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Palwal	0.0	-100	6.0	650	0.0	-100	0.0	-100	9.0	329
Panchkkula	3.7	2	1.2	-91	0.0	-100	0.2	-98	9.8	20
Panipat	0.0	-100	2.8	-20	0.0	-100	0.0	-100	30.5	662
Rewari	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100



Rohtak	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.0	-75
Sirsa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sonepat	0.0	-100	2.5	-36	0.0	-100	0.0	-100	11.8	194
Yamunanagar	20.9	397	3.0	-70	0.0	-100	0.0	-100	28.0	189
Delhi	0.0	-100	2.0	-19	0.0	-100	0.0	-100	7.8	71
<b>Jammu &amp; Kashmir</b>										
Anantnag	47.6	258	68.8	270	14.8	10	30.1	118	40.5	144
Badgam	19.7	218	84.4	744	7.6	46	12.3	53	11.3	19
Bandipore	**	**	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Baramula	13.0	-20	8.5	-93	4.7	-80	27.7	73	13.5	-62
Doda	54.4	88	30.8	-13	4.1	-86	5.8	-73	19.4	-30
Ganderwal	34.8	364	2.2	-87	4.5	-55	27.6	221	6.3	-54
Jammu	4.4	-41	6.6	-51	0.0	-100	0.9	-92	22.3	64
Kargil	0.0	-100	0.0	-100	0.0	-100	2.0	-73	0.0	-100
Kathua	39.0	491	21.7	43	0.0	-100	0.0	-100	12.9	-26
Kistwar			0.0	-100	0.0	-100	0.0	-100	**	**
Kulgam	14.0	5	30.8	65	5.1	-62	34.1	147	5.8	-65
Kupwara	3.9	-73	8.0	-61	3.9	-77	11.3	-13	9.2	-54
Ladakh(Leh)	0.3	-76	0.0	-100	0.0	-100	2.9	45	0.0	-100
Poonch	0.2	-99	0.0	-100	0.2	-99	0.0	-100	0.0	-100
Pulwama	25.7	459	18.6	112	7.4	17	6.1	-3	7.7	-36
Rajouri	0.6	-82	0.0	-100	0.0	-100	2.7	-84	8.6	-40
Ramban	38.8	34	59.9	70	6.2	-80	15.1	-29	38.7	39
Reasi	6.3	-69	14.7	-48	0.0	-100	2.3	-85	42.8	113
Samba	4.7	-37	6.8	-50	0.0	-100	0.4	-96	33.6	147
Shopian	3.0	-35	3.0	-66	0.5	-92	6.0	-5	0.0	-100
Srinagar	12.0	60	31.3	86	1.3	-87	12.2	42	12.9	-6
Udhampur	4.8	-76	28.3	1	7.3	-73	3.0	-80	13.5	-33
<b>East Madhya Pradesh</b>										
Anuppur	0.0	-100	0.0	-100	0.2	-94	3.2	-67	5.3	-9
Balaghat	0.0	-100	0.0	-100	4.0	-34	0.0	-100	0.8	-81
Chhatarpur	0.0	-100	9.7	549	7.8	288	8.1	161	36.4	787
Chindwara	0.0	-100	0.0	-100	1.7	-58	0.0	-100	13.3	456
Damoh	0.0	-100	0.0	-100	2.0	-29	3.7	6	43.6	665
Dindori	0.0	-100	0.0	-100	0.0	-100	3.0	-48	0.0	-100
Jabalpur	0.0	-100	0.0	-100	0.0	-100	20.6	415	5.1	12
Katni	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mandla	0.0	-100	0.0	-100	1.6	-51	0.0	-100	6.0	7
Narsingpur	0.0	-100	0.0	-100	0.0	-100	1.8	-29	7.0	250
Panna	0.0	-100	0.0	-100	0.0	-100	1.1	-69	0.0	-100
Rewa	0.0	-100	0.0	-100	1.2	-20	31.8	1225	39.4	497
Sagar	0.0	-100	0.0	-100	2.7	-14	0.0	-100	38.9	783
Satna	0.0	-100	0.0	-100	1.7	-56	10.2	162	10.7	64
Seoni	0.0	-100	0.0	-100	3.5	9	0.0	-100	22.9	893
Shahdol	0.0	-100	0.0	-100	1.0	-60	10.8	112	13.0	73
Sidhi	0.0	-100	0.0	-100	6.0	88	40.8	1175	47.2	638
Singrauli	0.0	-100	0.0	-100	1.0	-41	1.0	-41	14.0	324
Tikamgarh	0.0	-100	27.0	1700	1.0	-68	4.0	38	13.0	91

Umaria	0.0	-100	0.0	-100	0.0	-100	5.4	0	46.4	661
<b>West Madhya Pradesh</b>										
Alirajpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Asoknagar	0.0	-100	0.0	-100	5.6	331	2.0	43	0.1	-95
Badwani	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Betul	0.0	-100	0.0	-100	0.0	-100	0.0	-100	5.6	229
Bhind	0.0	-100	0.0	-100	9.5	373	8.8	265	14.6	461
Bhopal	0.0	-100	0.0	-100	11.7	736	0.1	-97	3.6	71
Burhanpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Datia	0.0	-100	3.3	122	3.7	307	1.6	-47	17.3	1344
Dewas	0.0	-100	0.0	-100	0.0	-100	2.1	-18	0.0	-100
Dhar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	5.0	1150
Guna	0.0	-100	7.6	260	0.0	-100	0.0	-100	5.2	44
Gwalior	0.0	-100	20.7	1280	2.5	-17	1.3	-67	35.1	964
Harda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	8.5	750
Hosangabad	0.0	-100	0.0	-100	0.4	-81	1.6	-36	3.9	44
Indore	0.0	-100	0.1	-73	0.0	-100	0.0	-100	0.4	-50
Jhabua	0.0	-100	0.0	-100	0.0	-100	0.0	-100	4.0	200
Khandwa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Khargone	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.2	-73
Mandsaur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	33.4	4671
Morena	0.0	-100	0.0	-100	0.0	-100	5.0	39	27.8	1750
Neemuch	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Raisen	0.0	-100	0.0	-100	8.0	186	1.5	-41	22.2	823
Rajgarh	0.0	-100	7.0	400	0.3	-82	0.4	-87	3.0	100
Ratlam	0.0	-100	24.8	3443	0.0	-100	0.0	-100	19.5	200
Sehore	0.0	-100	0.0	-100	0.0	-100	0.3	-90	0.3	-83
Shajapur	0.0	-100	18.0	1100	0.0	-100	0.8	-79	4.0	208
Sheopur Kalani	0.0	-100	7.0	678	3.5	6	0.0	-100	34.0	2515
Shivpuri	0.0	-100	8.5	347	3.3	117	2.0	-3	40.3	815
Ujjain	0.0	-100	6.2	593	0.2	-89	0.0	-100	4.0	567
Vidisha	0.0	-100	0.0	-100	0.6	-79	1.2	-78	5.1	155
<b>Chattisgarh</b>										
Bastar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bijapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bilaspur	0.0	-100	0.0	-100	1.0	-61	1.6	-67	2.5	-18
Dantewara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dhamtari	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Durg	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Janjgir	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jashpurnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kanker	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Korba	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Koriya	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kawardha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mahasumund	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Narayanpur	1.0	900	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Raigarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100





Agra	0.0	-100	5.0	213	0.5	-80	0.5	-93	29.4	1298
Aligarh	0.0	-100	11.1	455	0.0	-100	0.0	-100	48.2	1136
Auraiya	0.0	-100	7.0	192	0.0	-100	6.0	150	16.0	310
Badaun	0.6	-77	11.4	500	0.0	-100	0.0	-100	28.0	803
Baghpat	0.0	-100	3.0	-29	0.0	-100	0.0	-100	29.4	526
Bareilly	1.0	-58	9.5	217	0.0	-100	1.5	-66	31.6	690
Bijnor	6.9	16	4.3	-17	0.0	-100	7.4	-9	81.3	1150
Bulandsahar	0.0	-100	4.2	75	0.0	-100	0.0	-100	52.3	1314
Etah	0.0	-100	6.7	294	0.0	-100	1.3	-65	33.3	1233
Etawah	0.0	-100	14.0	438	0.0	-100	5.0	43	16.0	627
Firozabad	0.0	-100	13.2	529	0.0	-100	2.1	-40	66.6	2120
GBNagar	0.0	-100	3.0	25	0.0	-100	0.0	-100	29.0	504
Ghaziabad	0.0	-100	8.3	196	0.0	-100	0.0	-100	9.1	145
Hamirpur	0.0	-100	11.3	371	1.3	-3	4.3	-10	26.1	692
Jalaun	0.0	-100	10.3	281	1.1	3	4.0	74	61.3	1205
Jhansi	0.0	-100	23.7	812	4.4	159	2.3	-10	26.9	571
Jotirba Phule Nagar	1.0	-67	8.0	116	0.5	-84	0.0	-100	41.0	1071
Kanshiramnagar	0.0	-100	13.0	584	0.0	-100	0.0	-100	42.0	1255
Lalitpur	0.0	-100	7.0	233	5.0	163	0.0	-100	18.0	186
Mahamaya Nagar	0.0	-100	11.0	686	0.0	-100	0.0	-100	43.5	1640
Mahoba	0.0	-100	6.0	216	2.0	-5	4.0	5	30.0	538
Mainpuri	0.0	-100	17.0	448	0.0	-100	2.8	-22	27.5	1347
Mathura	0.0	-100	1.0	-9	0.0	-100	0.0	-100	10.5	425
Meerut	0.9	-79	1.5	-65	0.0	-100	0.0	-100	57.6	929
Moradabad	2.0	-46	7.4	118	0.0	-100	0.1	-99	25.5	410
Muzzaffarnagar	2.7	-37	8.8	52	0.0	-100	0.0	-100	35.3	651
Pilibhit	0.0	-100	8.5	130	0.0	-100	3.7	-23	12.5	166
Rampur	0.0	-100	5.8	4	0.0	-100	0.0	-100	17.1	289
Saharanpur	18.7	466	6.0	-29	0.0	-100	0.0	-100	42.0	589
Shahjahanpur	0.7	-80	8.7	149	0.0	-100	1.5	-71	30.1	760
<b>Uttarakhand</b>										
Almora	0.0	-100	9.8	-19	0.0	-100	10.8	22	52.9	587
Bageshwar	0.0	-100	3.9	-68	0.0	-100	0.0	-100	39.8	417
Chamoli	0.0	-100	0.2	-98	0.1	-99	0.0	-100	9.6	-35
Champawat	0.0	-100	7.0	-32	0.0	-100	7.0	-5	71.0	799
Dehradun	4.2	31	0.9	-92	0.0	-100	9.0	-12	34.7	218
Garhwal Pauri	0.0	-100	1.1	-89	0.0	-100	7.0	9	23.4	139
Garhwal Tehri	0.2	-97	1.0	-91	0.8	-93	2.7	-68	20.7	100
Haridwar	4.6	17	3.6	-53	0.0	-100	3.1	-38	53.0	691
Nainital	0.0	-100	11.3	49	0.0	-100	18.1	105	64.2	655
Pithorgarh	0.0	-100	7.5	-18	0.0	-100	4.5	-55	35.0	297
Rudraprayag	0.0	-100	0.0	-100	0.0	-100	0.1	-99	5.6	-61
Udham Sing Nagar	0.0	-100	6.4	56	0.0	-100	2.0	-56	91.4	1658
Uttarkashi	0.4	-91	0.0	-100	0.8	-93	0.3	-98	12.8	-32
<b>Bihar</b>										
Araria	0.0	-100	0.0	-100	0.0	-100	4.0	-4	1.1	-66
Arwal	0.0	-100	0.0	-100	0.0	-100	19.9	452	7.6	203
Aurangabad	0.0	-100	0.0	-100	0.0	-100	33.7	763	16.8	291

Banka	0.0	-100	0.0	-100	0.0	-100	3.2	68	0.0	-100
Begusarai	0.0	-100	0.0	-100	0.0	-100	16.0	1043	0.0	-100
Bhabua	0.0	-100	0.0	-100	0.0	-100	11.2	489	3.0	-76
Bhagalpur	0.0	-100	0.0	-100	0.0	-100	4.6	18	1.0	-85
Bhojpur	0.0	-100	0.0	-100	0.0	-100	6.5	210	4.3	5
Buxar	0.0	-100	0.0	-100	0.0	-100	35.0	846	6.8	42
Darbhangha	0.0	-100	0.0	-100	0.0	-100	6.3	232	3.1	-35
East Champaran	0.0	-100	0.0	-100	0.0	-100	2.5	7	9.4	135
Gaya	0.0	-100	0.0	-100	0.0	-100	27.7	793	10.9	160
Gopalganj	0.0	-100	0.0	-100	0.0	-100	2.8	-22	9.6	146
Jahanabad	0.0	-100	0.0	-100	0.0	-100	10.2	227	7.1	194
Jamui	0.0	-100	0.0	-100	0.0	-100	14.3	791	4.5	5
Kathihar	0.0	-100	0.0	-100	0.0	-100	4.1	94	1.7	-47
Khagadia	0.0	-100	0.0	-100	0.0	-100	6.8	224	0.0	-100
Kishanganj	0.0	-100	0.0	-100	0.0	-100	3.0	20	0.0	-100
Lakhisarai	0.0	-100	0.0	-100	0.0	-100	15.0	525	0.0	-100
Madhepura	0.0	-100	0.0	-100	0.0	-100	6.1	125	1.8	-53
Madhubani	0.0	-100	0.0	-100	0.0	-100	1.6	23	1.4	-56
Monghyar	0.0	-100	0.0	-100	0.0	-100	8.2	242	1.3	-69
Muzaffarpur	0.0	-100	0.0	-100	0.0	-100	3.4	63	12.7	153
Nalanda	0.0	-100	0.0	-100	0.0	-100	20.1	529	10.1	196
Nawada	0.0	-100	0.0	-100	0.0	-100	13.8	306	11.2	251
Patna	0.0	-100	0.0	-100	0.0	-100	19.6	715	5.6	33
Purnea	0.0	-100	0.0	-100	0.0	-100	6.2	158	0.6	-82
Rohtas	0.0	-100	0.0	-100	0.0	-100	27.7	1159	9.2	109
Saharsha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Samstipur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	5.0	39
Saran	0.0	-100	0.0	-100	0.0	-100	5.0	28	20.1	293
Sheikpura	0.0	-100	0.0	-100	0.0	-100	15.3	325	8.1	83
Sheohar	0.0	-100	0.0	-100	0.0	-100	3.0	88	9.6	200
Sitamarhi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Siwan	0.0	-100	0.0	-100	0.0	-100	49.6	1670	13.9	209
Supaul	0.0	-100	0.0	-100	0.0	-100	1.0	-5	1.1	-45
Vaishali	0.0	-100	0.0	-100	0.0	-100	3.9	34	13.3	183
West Champaran	0.0	-100	0.0	-100	0.0	-100	0.0	-100	8.4	9
<b>Jharkhand</b>										
Bokaro	0.0	-100	0.0	-100	5.4	200	11.6	205	0.0	-100
Chatra	0.0	-100	0.0	-100	0.0	-100	17.4	287	0.0	-100
Deoghar	0.0	-100	0.0	-100	0.0	-100	2.1	-37	0.0	-100
Dhanbad	0.0	-100	0.0	-100	1.3	-21	7.0	218	0.0	-100
Dumka	**	**	0.0	-100	0.0	-100	**	**	**	**
East Singbhum	0.0	-100	0.0	-100	0.1	-97	1.2	-64	0.0	-100
Garhwa	0.0	-100	0.0	-100	0.0	-100	18.0	283	10.0	127
Giridih	0.0	-100	0.0	-100	0.2	-92	21.1	628	0.0	-100
Godda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gumla	**	**	0.0	-100	**	**	**	**	**	**
Hazaribagh	0.0	-100	0.0	-100	0.0	-100	23.0	995	1.7	-61
Jamtara	0.0	-100	0.0	-100	0.0	-100	9.1	195	0.0	-100
Khunti	0.0	-100	0.0	-100	0.0	-100	2.0	-57	0.0	-100

Koderna	0.0	-100	0.0	-100	0.0	-100	**	**	6.2	29
Latehar	0.0	-100	0.0	-100	4.1	215	5.4	26	7.0	71
Lohardagga	0.0	-100	0.0	-100	4.9	113	3.4	17	0.0	-100
Pakur	0.0	-100	0.0	-100	0.0	-100	1.0	-82	0.0	-100
Palamau	0.0	-100	0.0	-100	0.2	-88	13.3	209	11.1	226
Ramgarh	0.0	-100	0.0	-100	10.2	1357	0.0	-100	0.6	-85
Ranchi	0.0	-100	0.0	-100	4.7	38	2.9	-25	0.2	-97
Sahebganj	0.0	-100	0.0	-100	0.0	-100	2.0	-31	0.0	-100
Saraikela	**	**	0.0	-100	**	**	0.0	-100	0.0	-100
Simdega	**	**	0.0	-100	**	**	5.4	23	0.0	-100
West Singbhum	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>East Rajasthan</b>										
Ajmer	0.0	-100	0.0	-100	0.0	-100	0.0	-100	8.7	4235
Alwar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	10.2	436
Banswara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	61.8	61687
Baran	0.0	-100	0.0	-100	0.0	-100	0.0	-100	25.6	1014
Bharatpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	17.7	1080
Bhilwara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	28.2	28067
Bundi	0.0	-100	0.3	0	0.3	-80	0.0	-100	39.0	5471
Chittorgarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	32.3	10658
Dausa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	32.2	2583
Dholpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	42.0	2700
Dungarpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	15.4	7608
Jaipur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	17.0	1601
Jhalawar	0.0	-100	0.0	-100	0.1	-95	0.0	-100	36.6	2188
Jhunjhunu	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.6	-48
Karauli	0.0	-100	1.8	800	0.0	-100	0.0	-100	50.3	3256
Kota	0.0	-100	3.2	256	2.2	27	0.0	-100	28.3	1248
Pratapgarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	69.2	69100
Rajsamand	0.0	-100	0.0	-100	0.0	-100	0.0	-100	10.0	200
Sawai Madhopur	0.0	-100	0.1	0	0.6	-74	0.2	-91	37.5	6146
Sikar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sirohi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tonk	0.0	-100	0.4	0	0.0	-100	0.0	-100	34.0	16889
Udaipur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	19.1	18980
<b>West Rajasthan</b>										
Barmer	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bikaner	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Churu	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hanumangarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.9	-7
Jaisalmer	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jalore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jodhpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nagaur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.4	0
Pali	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sri Ganganagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Gujarat Region</b>										
Ahmedabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.5	200
Anand	0.0	-100	0.0	-100	0.0	-100	0.0	-100	9.1	9020





Aurangabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Beed	0.0	-100	0.0	-100	0.0	-100	0.0	-100	**	**
Hingoli	**	**	**	**	**	**	**	**	**	**
Jalna	0.0	-100	0.0	-100	**	**	**	**	**	**
Latur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nanded	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Usmanabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Parbhani	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Vidarbha</b>										
Akola	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.1	7
Amraoti	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.9	-49
Bhandara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Buldhana	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chandrapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gadchiroli	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gondia	0.0	-100	0.0	-100	0.3	-89	0.0	-100	0.0	-100
Nagpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.3	-90
Wardha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Washim	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Yeotmal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Odisha</b>										
Angul	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Balasore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bargarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhadrak	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bolangir	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Boudh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Cuttack	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Deogarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dhenkanal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gajapati	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ganjam	0.0	-100	**	**	0.0	-100	0.0	-100	0.0	-100
Jagatsingpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jajpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jharsuguda	0.0	-100	0.0	-100	0.1	-98	0.0	-100	0.0	-100
Kalahandi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kandhamal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kendrapara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Keonjhar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Khurda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Koraput	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Malkangiri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mayurbhanj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nawapara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nawarangpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nayagarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Puri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rayagada	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sambalpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100

Sonepur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sundargarh	0.0	-100	0.0	-100	0.2	-94	0.1	-99	0.0	-100
<b>West Bengal</b>										
<b>GWB</b>										
Bankura	0.0	-100	0.0	-100	1.1	-64	0.3	-81	0.0	-100
Birbhum	0.0	-100	0.0	-100	0.6	-73	3.5	-31	0.0	-100
Burdwan	0.0	-100	0.0	-100	0.7	-68	1.0	-23	0.0	-100
East Midnapore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hooghly	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Howrah	0.0	-100	0.0	-100	0.0	-100	0.1	-75	0.0	-100
Kolkata	0.0	-100	0.0	-100	0.0	-100	1.0	-64	0.0	-100
Murshidabad	0.0	-100	0.0	-100	0.0	-100	1.0	-87	0.0	-100
Nadia	0.3	-88	0.0	-100	0.0	-100	0.8	-56	0.0	-100
24 Pargana (N)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Purulia	0.0	-100	0.0	-100	0.9	-55	1.1	-63	0.0	-100
24 Pargana (S)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West Midnapore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>SHWB</b>										
Cooch Behar	0.0	-100	0.0	-100	0.0	-100	0.4	-87	0.0	-100
Darjeeling	0.0	-100	0.0	-100	0.0	-100	0.1	-99	0.0	-100
East Sikkim	0.9	-38	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jalpaiguri	0.0	-100	0.0	-100	0.0	-100	0.4	-76	0.0	-100
Malda	0.0	-100	0.0	-100	0.0	-100	0.5	-85	0.0	-100
North Dinajpur	0.0	-100	0.0	-100	0.0	-100	3.0	-58	0.0	-100
North Sikkim	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
South Dinajpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
South Sikkim	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West Sikkim	0.7	-88	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Karnataka</b>										
<b>Coastal Karnataka</b>										
Dakshin Kannada	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Udupi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Uttar Kannada	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>N I Karnataka</b>										
Bagalkote	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Belgaum	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bidar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bijapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dharwad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gadag	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gulbarga	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Haveri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Koppal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Raichur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Yadgir	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>S I Karnataka</b>										
Bangalore Rural	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bangalore Urban	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100



Bellary	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chamarajnar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chichballapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chickmagalur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.8	62
Chitradurga	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.3	-37
Davangere	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.1	-78
Hassan	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kodagu	0.0	-100	0.0	-100	0.0	-100	0.0	-100	3.6	354
Kolar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mandya	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mysore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.4	-58
Ramnagara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Shimoga	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tumkur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Kerala</b>										
Alappuzha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.2	-94
Kannur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.3	-
Ernakulam	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Idukki	0.0	-100	0.0	-100	0.0	-100	1.0	-67	6.6	175
Kasaragod	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kollam	0.0	-100	0.0	-100	0.0	-100	0.4	-91	0.2	-92
Kottayam	0.0	-100	0.0	-100	0.0	-100	0.0	-100	11.1	429
Kozhikode	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Malappuram	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.1	267
Palakkad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Pathanamthitta	0.0	-100	0.0	-100	0.0	-100	2.5	-57	0.4	-85
Thiruvananthapuram	0.3	-97	0.0	-100	5.9	136	20.1	310	13.3	432
Thrissur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Wyanad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Tamil Nadu</b>										
Ariyalur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chennai	0.3	-99	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Coimbatore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.2	71
Cuddalore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.9	-42
Dharmapuri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dindigul	0.0	-100	0.0	-100	0.7	-91	2.5	-67	0.0	-100
Erode	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kanchipuram	0.2	-99	0.0	-100	0.5	-87	0.0	-100	0.0	-100
Kanyakumari	0.7	-93	0.0	-100	10.4	235	38.8	632	0.0	-100
Karikal	0.0	-100	0.0	-100	4.9	-73	2.0	-86	**	**
Karur	0.0	-100	0.0	-100	0.0	-100	0.4	-93	0.0	-100
Krishnagiri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Madurai	0.0	-100	0.0	-100	3.0	-52	3.1	-21	0.0	-100
Nagapattinam	0.0	-100	0.0	-100	12.5	-24	0.5	-98	0.5	-97
Namakkal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nilgiris	0.0	-100	0.0	-100	0.0	-100	0.4	-96	0.9	-81
Perambalur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Puducherry	0.0	-100	0.5	-98	0.0	-100	0.0	-100	**	**
Pudukottai	0.0	-100	0.0	-100	1.3	-85	2.3	-78	0.0	-100

Ramanathapuram	0.0	-100	0.0	-100	21.6	95	18.1	127	0.1	-99
Salem	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sivaganga	0.0	-100	0.0	-100	9.5	50	3.0	-37	0.0	-100
Thanjavur	0.0	-100	0.0	-100	3.0	-64	0.9	-92	0.3	-92
Theni	0.0	-100	0.0	-100	0.2	-96	1.7	-59	0.0	-100
Tirunelveli	0.3	-98	0.0	-100	13.1	62	47.7	294	0.0	-100
Tirupur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tiruvallur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.7	-77
Tiruvannamalai	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tiruvarur	0.0	-100	0.0	-100	3.6	-73	2.7	-82	0.0	-100
Toothukudi	0.0	-100	0.0	-100	7.7	31	16.7	74	0.0	-100
Trichy	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Vellore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.1	-89
Villupuram	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Virudhunagar	0.0	-100	0.0	-100	1.1	-82	2.2	-65	0.0	-100
<b>Andhra Pradesh</b>										
<b>Coastal Andhra Pradesh</b>										
East Godavari	0.1	-50	0.0	-100	0.0	-100	0.3	-76	0.0	-100
Guntur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Krishna	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nellore	0.1	-99	0.1	-99	0.8	-70	0.0	-100	0.2	-93
Prakasam	0.0	-100	0.0	-100	0.0	-100	0.4	-89	0.3	-85
Sirkakulam	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Visakhapatnam	0.0	-100	0.0	-100	0.0	-100	2.0	-4	0.0	-100
Vizianagram	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West Godavari	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.2	16
<b>Telangana</b>										
Adilabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hyderabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Karimnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Khammam	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mehabubnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Medak	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nalgonda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.7	79
Nizamabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rangareddy	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Warangal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.5	-69
<b>Rayalaseema</b>										
Anantapur	0.1	-84	0.1	-91	0.0	-100	0.0	-100	0.0	-100
Chittoor	0.0	-100	0.7	-83	0.0	-100	0.0	-100	0.5	-64
Cuddapah	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kurnool	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100

	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

**Annexure III**  
**List of Varieties**

**Odisha**

**Summer Rice:** Khandagiri, Lalat, MTU-1010, Sahabhagi, Konark

**West Bengal**

**Onion:** Rupsa, Sukhsagar.

**Sunflower:** Surya (90-95days), Pack(104days)KBSH(90-95 days).

**Jharkhand**

**Rice:** IR 36, 64, lallat, Taichung native, Parijat, Birsa Dhan-108, Birsa Vikas Dhan 109, Birsa Vikas Dhan 110, Birsa Vikas Dhan 111, Vandana etc.

**Jammu & Kashmir**

**Berseem :**Mescavi, Pusa Giant, BL-1 and Vardan

**Rajasthan**

**Onion:**Pusa Red, ArkaNiketan, Pusa White & Local Red, Deshi carrot: PusaKeshar,.

**Cumin:** RS-1,RZ-19, RZ-209, RZ-223, GC-4, Gujarat Jira-1, Gujarat Jeera-2, Gujarat jira-3

**Rijka:** Anand-2, LLC-3 (yearly), Type 9, RL-88, Igfree 244 (multiyearly)

**Cucurbits:** Durgapura Madhu, Panjab Sunahari, Punjab Hybrid, Arkajeet, Hara Madhu, Pusa Madhuras , muskmelon and Sugar Baby, Durgapura Meetha, Durgapura Kesar, Arka Jyoti (Hybrid), Madhu (Hybrid) are improved varieties of watermelon and Bikaneri Green, Dil Pasand ,Arka Tinda are improved varieties of round gourd and Lucknow Ageti and Arka Sheetal are improved varieties of cucumber.

**Uttarakhand**

**Onion :**Pusa Red, PusaRatnar, Nasik Red, PusaMadhavi, Punjab Round Red etc.

**Tomato:** VL Tomato-3, Pant T-3, Him Sona, Him Shikhar etc.

**Capsicum:** California Vander

**Uttar Pradesh**

**Potato:**KuphariChanramukhi, KuphariAshoka, KuphariBahar, Kuphari Surya, KuphariSutlaj, KuphariPukharaj

**Onion-** Pusa Red, Pusa White.

**Berseem :** VL- 01, 10, Maskavi

**Himachal Pradesh**

**Barley:** HBL-316 and Dolma

**Potato:** KufriJyoti, KufriGiriraj, KufriChandramukhi

**Punjab**

**Tomato:** (TH-1/TH-2312/TH 802/Punjab NR 7/Punjab Tropic/ PbChhuara/Punjab kesri)

**Assam**

**Ahu rice :** Luit,Kopilee,Rasi

**Boro rice:** Mahsuri, IR-50, Dinanath, Bishnuprasad, Jyotiprasad, Kanaklata, Dinanath, Kalinga 3, Swamabh, Joymati.

**Okra:** Parvani Kranti, Arka Anamika

**Madhya Pradesh**

**Winter Sugarcane:** Co. J. N. 86-572, Co. J. N. 86-141

**Maharashtra**

**Watermelon:** Sugar Baby, Arka Jyoti and Arka Manik.

**Suru sugarcane:** CO – 86032, CO – 94012 and CO M – 0265.

**Tamil Nadu:**

**Groundnut:** TMV 7, Co 2, Co 3, Co 4, VRI 2, VRI 3, VRI 5 and ALR 3.

**Black gram and green gram:** ADT 3

**Karnataka:**

**Cowpea:** C-152

**Greengram:** selection-4 and Pusa Bisaki