



# *National Agromet Advisory Service Bulletin*



***Friday 18<sup>th</sup> March 2016***  
***(For the period 18<sup>th</sup> to 22<sup>nd</sup> March 2016)***

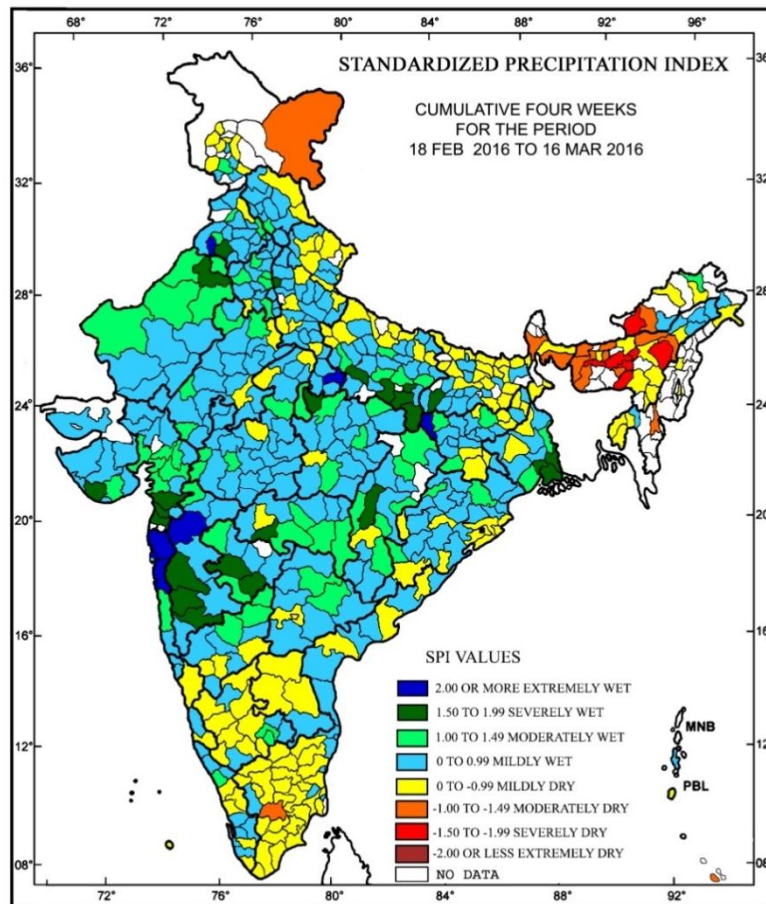


***Issued by***  
***National Agrometeorological Advisory Service Centre,***  
***Agricultural Meteorology Division,***  
***India Meteorological Department, Shivajinagar, Pune.***

***Weblink For***  
**District AAS Bulletin:** <http://www.imdagrimet.gov.in/node/3545>  
**State Composite AAS Bulletin:** <http://www.imdagrimet.gov.in/node/3544>

**Standardised Precipitation Index  
Four Weekly for the Period 18<sup>th</sup> February to 16<sup>th</sup> March 2016**

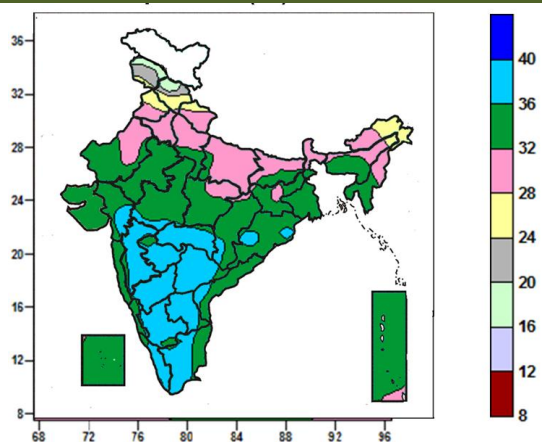
MINISTRY OF EARTH SCIENCES  
INDIA METEOROLOGICAL DEPARTMENT  
HYDROMET SECTION, PUNE



- Extremely/severely wet conditions experienced in few districts of Gujarat Region; Konkan & Goa; Howrah, North 24 Parganas, Kolkata districts of West Bengal; Garhwa district of Jharkhand; Rohtas district of Bihar; Allahabad, Fatehpur, Mirzapur, Sonbhadra, Varanasi, Baghpat, Hamirpur districts of Uttar Pradesh; Bhatinda, Muktsar districts of Punjab; Hanumangarh district of Rajasthan; Tikamgarh district of Madhya Pradesh; Junagarh district of Saurashtra; Nashik, Pune, Sangli, Satara, Beed, Latur, Washim districts of Maharashtra; Durg district of Chhattisgarh.
- Extremely/Severely dry conditions experienced in few districts of Assam; West Kameng district of Arunachal Pradesh; East Khasi Hills district of Meghalaya.
- Moderately dry conditions experienced in many districts of Meghalaya; few districts of Assam; East Kameng district of Arunachal Pradesh; Aizwal district of Mizoram; Cooch Behar, Darjeeling districts of West Bengal; Ladakh(Leh) district of Jammu & Kashmir, Dindigul district of Tamil Nadu.
- Rest of the country experienced moderately wet/ mildly dry/mildly wet conditions.

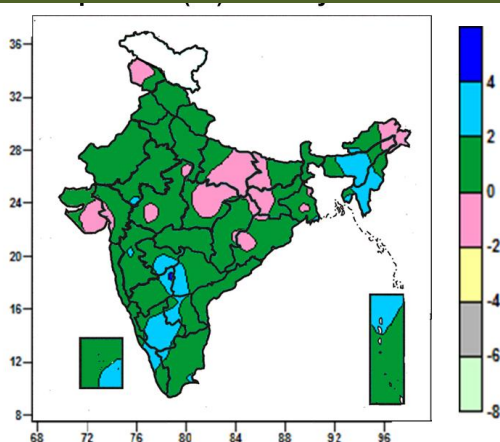
**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 16.03.2016**

**Actual Mean Maximum Temperature (°C) in India for the week ending 16.03.2016**



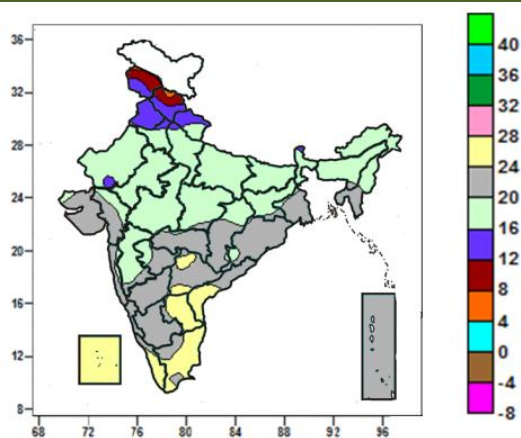
- Mean maximum temperature was between 36 to 40°C over many parts of Madhya Maharashtra, Marathwada, Vidarbha, Interior Karnataka, Telangana, Rayalaseema, Tamil Nadu, Kerala, some parts of Gujarat region, West Madhya Pradesh, Chhattisgarh, Coastal Andhra Pradesh and isolated pockets of Odisha.
- Mean maximum temperature was between 28 to 36°C over rest of the country except Jammu & Kashmir, Himachal Pradesh, many parts of Arunachal Pradesh, some parts of Uttarakhand, Punjab and isolated pockets of Assam and Meghalaya where it was between 16 and 28°C.

**Mean Maximum Temperature (°C) Anomaly in India for the week ending 16.03.2016**



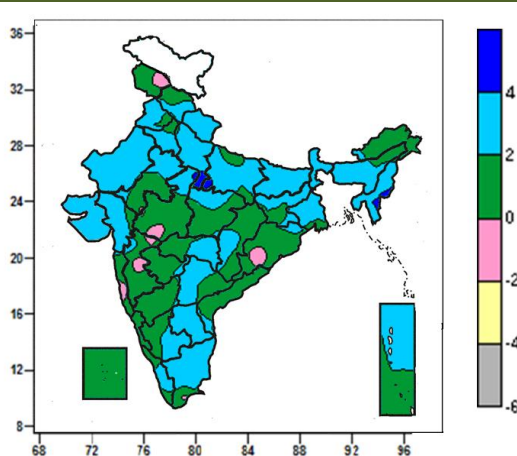
- Mean maximum temperature was above normal by 4 to 6°C over isolated packet of North Interior Karnataka.
- Mean maximum temperature was above normal by 2 to 4°C over Manipur, Mizoram, many parts of Assam and Meghalaya, and South Interior Karnataka, some parts of Rayalaseema, Telangana, Kerala, Marathwada, North Interior Karnataka, Lakshadweep, Andaman & Nicobar Islands and Tripura, isolated pockets of East Rajasthan, Madhya Maharashtra, Arunachal Pradesh and Tamil Nadu
- It was normal to near normal in remaining parts of the Country.

**Actual Mean Minimum Temperature (°C) in India for the week ending 16.03.2016**



- Mean minimum temperature was between 4 to 8°C over isolated pockets of Himachal Pradesh.
- Mean minimum temperature was between 8 to 12°C

**Mean Minimum Temperature (°C) Anomaly in India for the week ending 16.03.2016**



- Mean minimum temperature was above normal by 4 to 6°C over isolated pockets of Uttar Pradesh, Madhya Pradesh, Manipur and Mizoram.

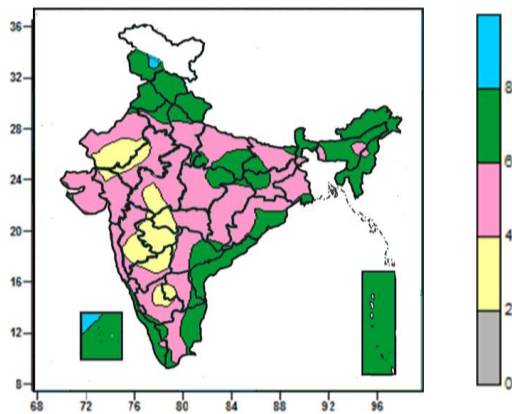
over many parts of Jammu & Kashmir, Himachal Pradesh.

- Mean minimum temperature was between 12 to 16<sup>0</sup>C over Punjab, many parts of Himachal Pradesh, Uttarakhand, some parts of Jammu & Kashmir and isolated pockets of West Rajasthan,.
- Mean minimum temperature was between 16 to 28<sup>0</sup>C over remaining parts of the country.

- Mean minimum temperature was above normal by 2 to 4<sup>0</sup>C over West Rajasthan, Uttarakhand, West Uttar Pradesh, Bihar, Saurashtra and Kutch, Rayalaseema, Sub-Himalayan West Bengal & Sikkim, many parts of Gujarat Region, Punjab, Himachal Pradesh, Haryana & Delhi, East Uttar Pradesh, Jharkhand, Gangetic West Bengal, Andaman & Nicobar Islands, Nagaland, Manipur, Mizoram & Tripura, Assam & Meghalaya, Vidarbha, Telangana, Tamil Nadu and Kerala.
- Mean minimum temperature was normal to near normal by over rest of the country.

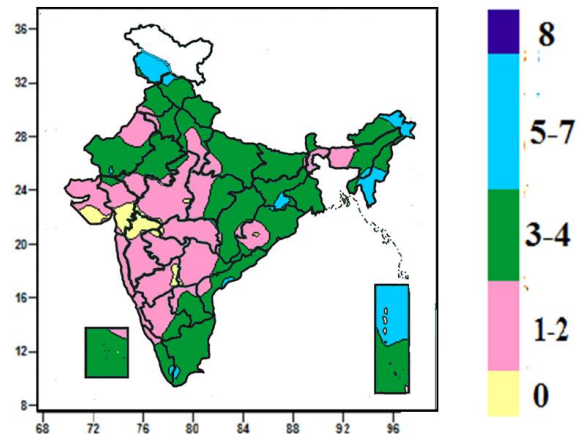
**Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 16.03.2016**

**Relative Humidity (%) over India for the week ending 16.03.2016**



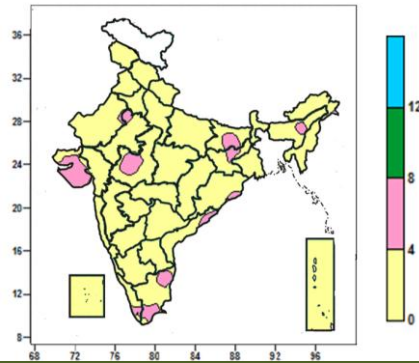
- Mean Relative humidity was above 80% over isolated pockets Jammu & Kashmir & Lakshadweep.
- Mean Relative humidity was between 60 to 80% over Himachal Pradesh, Uttarakhand, Punjab, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Mizoram & Tripura, Andaman & Nicobar Islands, Coastal Andhra Pradesh, many parts of Jammu & Kashmir, Lakshadweep, Assam & Meghalaya, Nagaland, Manipur, Kerala, some parts of Uttar Pradesh, Bihar, Jharkhand, East Madhya Pradesh, Odisha, Rayalaseema, Tamilnadu & Puducherry and isolated pockets of Gangetic West Bengal, South Interior Karnataka and Chhattisgarh.
- Mean Relative humidity was between 40 to 60% over rest of the country except over many parts of West Rajasthan, Marathwada, Madhya Maharashtra, North Interior Karnataka, some parts of South Interior Karnataka, West Madhya Pradesh, Gujarat region, Vidarbha and Rayalaseema, where it was between 20 to 40%.

**Cloud amount (okta) over India for the week ending 16.03.2016**



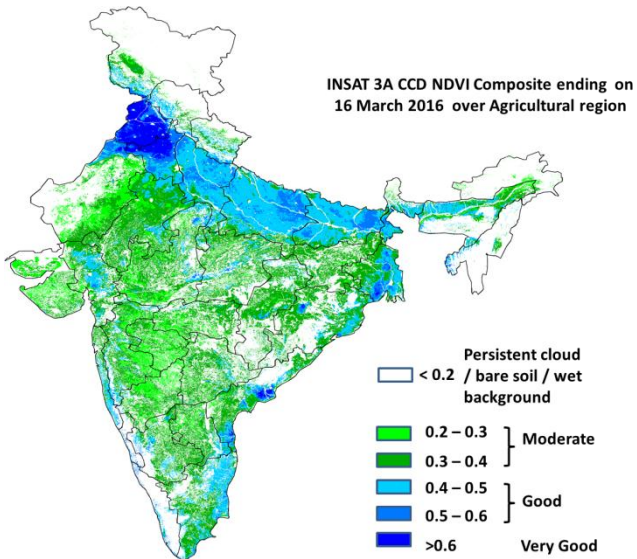
- Sky remained generally cloudy (5-7 okta) over Jammu & Kashmir, Mizoram & Tripura, many parts of Manipur, isolated pockets of Himachal Pradesh, Arunachal Pradesh, Assam & Meghalaya, Jharkhand, Kerala, Tamilnadu, Andaman & Nicobar islands.
- Sky remained partly cloudy (3-4 okta) over rest of the country except over Konkan & Goa, many parts of Marathwada, Vidarbha, Madhya Maharashtra, Coastal Karnataka, Interior Karnataka, Telangana and Madhya Pradesh, some parts of West Rajasthan, Punjab, Haryana, Uttar Pradesh, Odisha, Coastal Andhra Pradesh, Rayalaseema, Gujarat, Assam & Meghalaya, Sub Himalayan West Bengal, isolated pockets of Chhattisgarh, Lakshadweep where sky remained mainly clear/clear sky (1 to 2/0 okta).

**Wind speed (knots) over India for the week ending 16.03.2016**



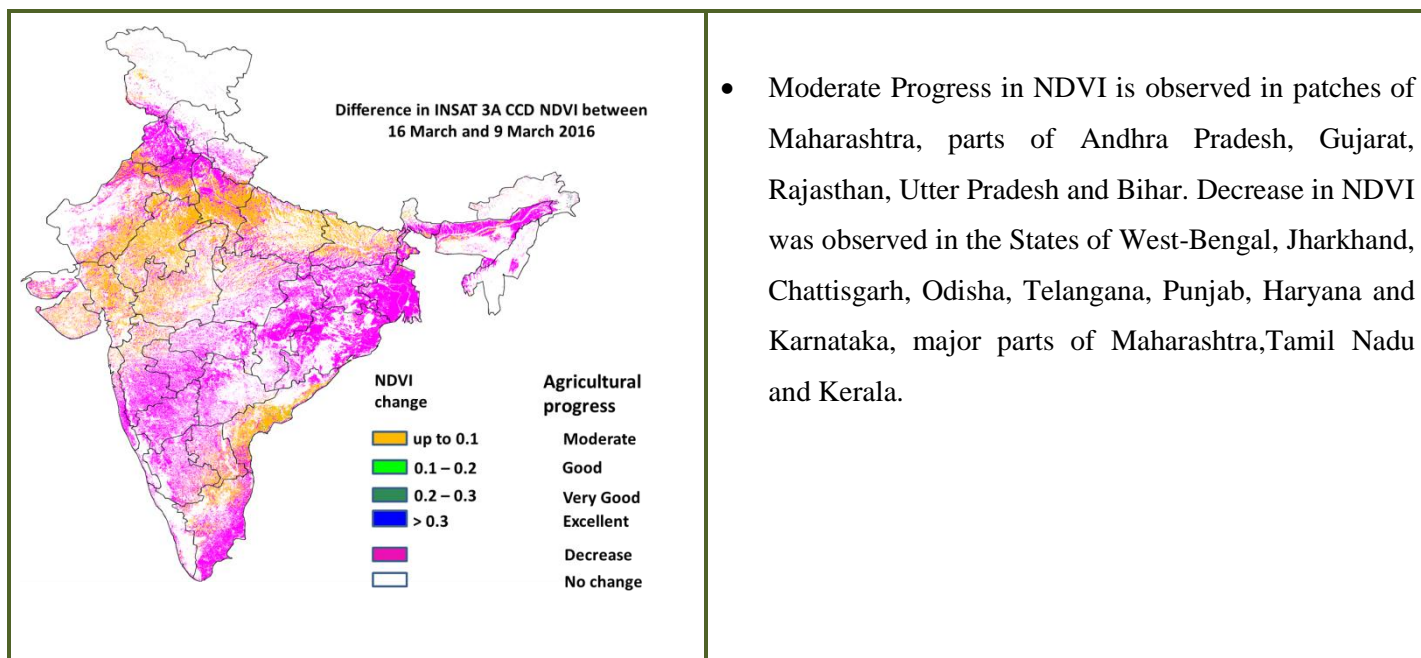
- Mean wind speed was 4 to 8 knots over many parts of Saurashtra & Kutch, some parts of West Madhya Pradesh, Tamil Nadu, Kerala, Bihar, Jharkhand and isolated pockets of Coastal Andhra Pradesh, Odisha, Assam and Meghalaya and Rajasthan. It was less than 4 knots over rest of the country.

**INSAT 3A CCD NDVI COMPOSITE ENDING ON 16<sup>th</sup>MARCH 2016 OVER AGRICULTURAL REGION OF INDIA**



- Agricultural vigour is very good over Punjab, Haryana and patches of Coastal Andhra Pradesh where NDVI is > 0.6. NDVI is good in Uttar Pradesh, Bihar, West Bengal, Gujarat and patches in Madhya Pradesh, coastal Maharashtra, Andhra Pradesh and Tamil Nadu where NDVI varies from 0.4 to 0.6. Agricultural growth was moderate i.e. 0.2 to 0.4 over most parts of Rajasthan, Saurashtra, Telangana, Maharashtra, Karnataka, Jharkhand, Chattisgarh and Odisha.

**Difference in INSAT 3A CCD NDVI between 9<sup>th</sup>and 16<sup>th</sup>March2016**



- Moderate Progress in NDVI is observed in patches of Maharashtra, parts of Andhra Pradesh, Gujarat, Rajasthan, Uttar Pradesh and Bihar. Decrease in NDVI was observed in the States of West-Bengal, Jharkhand, Chattisgarh, Odisha, Telangana, Punjab, Haryana and Karnataka, major parts of Maharashtra, Tamil Nadu and Kerala.

- INSAT 3A CCD NDVI composite maps for the week ending on 16<sup>th</sup> March 2016 for different States are given below in Annexure II.

## Weather Forecast for next 5 days valid upto 0830 hours of 23<sup>rd</sup> March 2016

Meteorological sub-division wise detailed 5 day rainfall forecast is given below.

- No significant change in maximum temperatures over plains of northwest, central & adjoining east India during 24 hours.
- Gradual rise in day temperatures by 2-3°C over Gujarat and Maharashtra during next 2-3 days.

### 5 Day Rainfall Forecast (MID DAY) 18<sup>th</sup> March 2016

Met Sub-divisions	18Mar	19 Mar	20 Mar	21 Mar	22Mar
1. Andaman & Nicobar Islands	DRY	DRY	DRY	DRY	DRY
2. Arunachal Pradesh	ISOL	ISOL	SCT	FWS	WS
3. Assam & Meghalaya	ISOL	ISOL	SCT	FWS	FWS
4. N. M. M. & T.	ISOL	SCT	FWS	FWS	FWS
5. S.H. West Bengal & Sikkim	ISOL	ISOL	ISOL	ISOL	ISOL
6. Gangetic West Bengal	ISOL	ISOL	ISOL	DRY	DRY
7. Orissa	ISOL	ISOL	DRY	DRY	DRY
8. Jharkhand	ISOL	ISOL	DRY	DRY	DRY
9. Bihar	DRY	DRY	DRY	DRY	DRY
10. East Uttar Pradesh	ISOL	DRY	DRY	DRY	DRY
11. West Uttar Pradesh	SCT	ISOL	DRY	DRY	DRY
12. Uttarakhand	FWS	FWS	ISOL	ISOL	DRY
13. Haryana, Chd & Delhi	SCT	ISOL	DRY	DRY	DRY
14. Punjab	SCT	ISOL	ISOL	DRY	DRY
15. Himachal Pradesh	WS	WS	SCT	ISOL	DRY
16. Jammu & Kashmir	WS	WS	FWS	ISOL	DRY
17. West Rajasthan	ISOL	ISOL	DRY	DRY	DRY
18. East Rajasthan	ISOL	ISOL	DRY	DRY	DRY
19. West Madhya Pradesh	ISOL	ISOL	DRY	DRY	DRY
20. East Madhya Pradesh	ISOL	ISOL	DRY	DRY	DRY
21. Gujrat Region	DRY	DRY	DRY	DRY	DRY
22. Saurashtra & Kutch	DRY	DRY	DRY	DRY	DRY
23. Konkan & Goa	DRY	DRY	DRY	DRY	DRY
24. Madhya Maharashtra	DRY	DRY	DRY	DRY	DRY
25. Marathawada	DRY	DRY	DRY	DRY	DRY
26. Vidharbha	ISOL	DRY	DRY	DRY	DRY
27. Chhattisgarh	ISOL	DRY	DRY	DRY	DRY
28. Coastal Andhra Pradesh	DRY	DRY	DRY	DRY	DRY
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	DRY	DRY	DRY
31. Tamilnadu & Puducherry	DRY	DRY	DRY	DRY	DRY
32. Coastal Karnataka	DRY	DRY	DRY	DRY	ISOL
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	ISOL	DRY	DRY	DRY	ISOL
35. Kerala	ISOL	ISOL	ISOL	ISOL	ISOL
36. Lakshadweep	DRY	ISOL	DRY	DRY	DRY

% Stations	Category	% Stations	Category
76-100	Widespread (WS/ Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespread (FWS/ Many Places)	1-25	Isolated (ISOL)
No Rain	Dry		

### Weather Warning during next 5 days

**18 March (Day 1):** Heavy rain/snow very likely at isolated places over Jammu & Kashmir and Himachal Pradesh.

Thunderstorm accompanied with squall/hail very likely at isolated places over Uttarakhand, Haryana, Chandigarh & Delhi, West Uttar Pradesh and northwest Madhya Pradesh.

Thunderstorm accompanied with squall very likely at isolated places over Jammu division and Himachal Pradesh.

**19 March (Day 2):** Thunderstorm accompanied with squall likely at isolated places over Gangetic West Bengal, north Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

**20 March (Day 3):** Thunderstorm accompanied with squall likely at isolated places over Sub-

Himalayan West Bengal & Sikkim, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

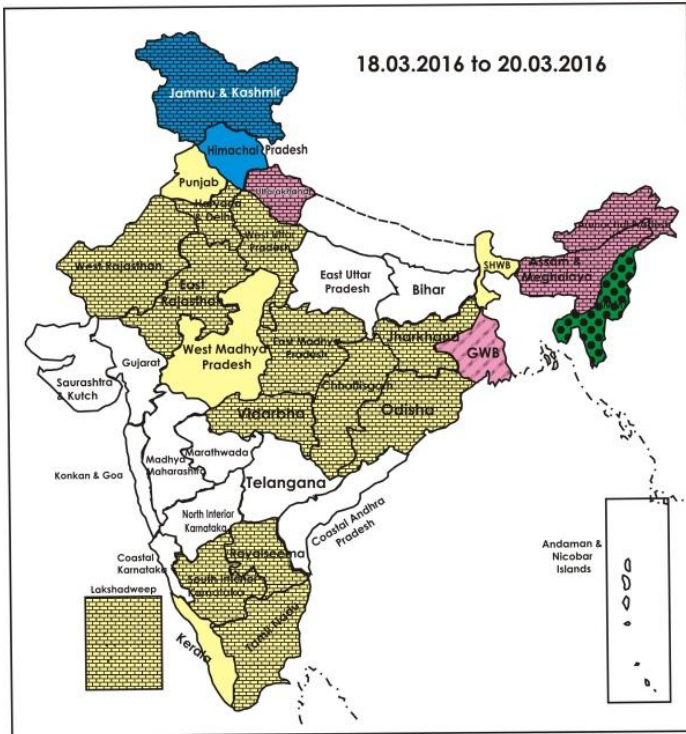
**21 March (Day 4):**No weather warning.

**22 March (Day 5):**No weather warning.

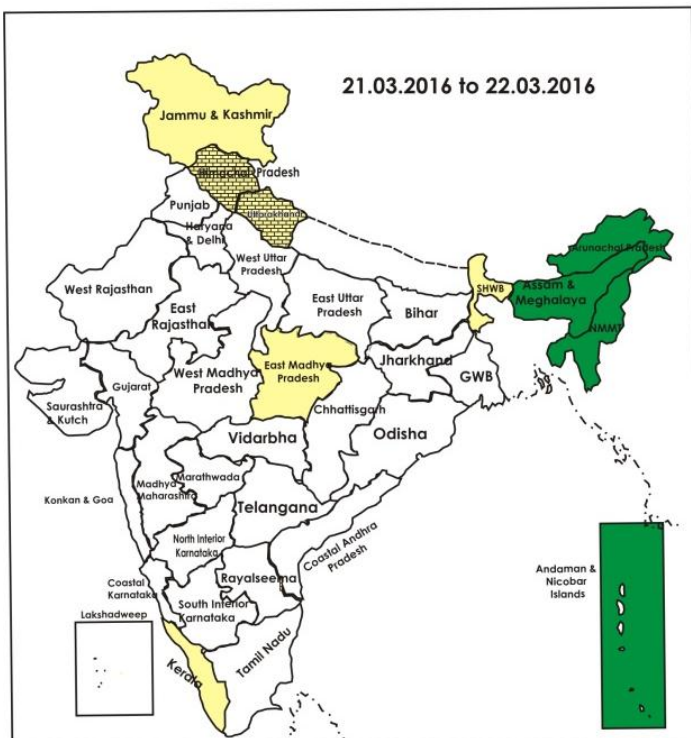
**Weather Outlook for subsequent 2 days from 23<sup>rd</sup> to 25<sup>th</sup> March 2016**

- Rain/thundershowers likely at many places over northeastern states and at isolated places over south Peninsular India.

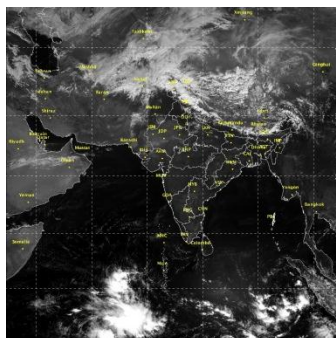
**Weather Forecast Map (Valid upto 0830 hours of 23<sup>rd</sup> March, 2016)**



- Most places
- Most/Few/Dry places
- Most places/few places
- Most / Many places
- Most / Many places/ isolated places
- Most / Isolated places
- Most / Many/ Few places
- Most / Few places/ isolated places
- Most/Many/ Dry
- Most/isolated/ Dry
- Many places
- Many / Few places
- Many / Isolated places
- Many / Few/ Isolated places
- Many / few/ Mainly dry
- Many / Isolated/ Mainly dry
- Many/ Dry
- Few places
- Few / Isolated places
- Few / Isolated places/dry
- Few/Mainly Dry/Dry
- Isolated places
- Isolated / Mainly Dry / Dry
- Mainly Dry/Dry
- Dry







### Salient Advisories

- As thunderstorm accompanied with squall/hail very likely at isolated places over **Uttarakhand, Haryana, Chandigarh & Delhi, West Uttar Pradesh and northwest Madhya Pradesh** on 18<sup>th</sup> March, farmers are advised to use hail nets/hail caps for orchard crops to protect from mechanical damage. Provide mechanical support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Undertake propping in sugarcane and keep harvested produce at safer places.
- As thunderstorm accompanied with squall likely at isolated places over **Jammu division and Himachal Pradesh on 18<sup>th</sup>**, over **north Odisha and Gangetic West Bengal on 19<sup>th</sup>** and over **Sub- Himalayan West Bengal & Sikkim** on 20<sup>th</sup> March, arrange for mechanical support to banana and young fruit plants, staking in vegetables and propping up in sugarcane to prevent the crops from lodging due to strong winds. Keep already harvested produce at safer places.
- As rain/snow would occur at most/many places over **Jammu & Kashmir** from 18<sup>th</sup> to 20<sup>th</sup> March over **Himachal Pradesh** on 18<sup>th</sup> & 19<sup>th</sup> and over **Uttarakhand** on 18<sup>th</sup> & 19<sup>th</sup> March along with heavy rain / snow very likely at isolated places over Jammu & Kashmir and Himachal Pradesh on 18<sup>th</sup> March, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Postpone harvesting of matured crop and keep already harvested produces at safer places. Provide adequate drainage in standing crop fields in Jammu & Kashmir and Himachal Pradesh to avoid water stagnation.
- As thunderstorm accompanied with squall very likely at isolated places over **Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura** from 19<sup>th</sup> & 20<sup>th</sup> March, provide mechanical support banana and young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds.
- As rain/thundershowers likely at most/many places over **Arunachal Pradesh, Assam & Meghalaya** on 21<sup>st</sup> and 22<sup>nd</sup> and over **Nagaland, Manipur, Mizoram & Tripura** from 20<sup>th</sup> to 22<sup>nd</sup> March, farmers are advised to postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Harvest the matured crop immediately and keep the harvested produces at safer places.
- Undertake land preparation/sowing of the following summer crops:
  - In **Assam**, continue sowing of *capsularis* jute, early *ahu* rice and sowing of summer green gram & black gram.
  - In **West Bengal**, in Hill Zone, continue field preparation and sowing of maize, planting of ginger and turmeric and in New Alluvial Zone and Coastal Saline Zone, continue sowing of sesame.
  - In **Odisha**, in North Eastern Ghat Zone, continue sowing summer sunflower and groundnut. In North Eastern Plateau Zone, complete sowing of green gram & black gram.
  - In **Uttar Pradesh**, continue planting of sugarcane, land preparation and sowing of cowpea, maize, urad, mung.
  - In South Saurashtra Zone of **Gujarat**, continue sowing of green gram, black gram, groundnut and sesame.
  - In **Bihar**, continue sowing of summer maize and in **Jharkhand**, continue sowing of green gram/black gram, maize and vegetables.
  - In Southern Zone of **Kerala**, continue sowing of cucurbits and in Northern Zone, undertake cultivation of vegetables as inter crops in coconut gardens.
  - Undertake cultivation of cotton under irrigated conditions in the North Western Zone of **Tamil Nadu**.

- As mainly dry weather would prevail, continue harvesting of matured mustard, gram, pea, lentil in **Uttar Pradesh**, continue harvesting of mustard, cotton and castor in **North Gujarat**, onion and wheat crops in Madhya Maharashtra and Marathwada, complete harvesting of late *Samba* rice in Ariyalur, Karur and Perambalur districts in Cauvery Delta Zone of Tamil Nadu and rice in Problem Area Zone of **Kerala**. In North East Transition Zone of **Karnataka**, complete harvesting of sorghum, wheat and safflower.
- In Central and Undulating Plain Zone of **Punjab**, there is chance for occurrence of yellow rust in wheat fields in the present weather condition. Monitor the crop and if symptoms are noticed, spray with Tilt/Shine/Bumper/Compass/Markzole @ 200 ml in 200 litres of water/acre.

### Detailed Zonewise Agromet Advisories

#### SOUTH INDIA [TAMIL NADU, TELANGANA, ANDHRA PRADESH, KARNATAKA, KERALA]



*Banana*



*Groundnut*



*Sugarcane*



*Cotton*

- **Realised Rainfall:** Significant rainfall occurred over Ernakulam, Kollam, Kottayam, Kozhikode and Pathanamthitta districts of Kerala. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - **Tamil Nadu:**
    - In the Cauvery Delta Zone, continue harvesting of late samba rice in Ariyalur, Karur and Perambalur districts utilizing the expected mainly dry weather. Apply Gypsum @ 160 kg per acre to encourage pod formation and better pod filling 40 to 60 days after sowing depending on soil moisture on rainfed groundnut. In Tanjavur and Trichy districts in rice fallow blackgram, undertake foliar spray of Pulse Wonder @ 2 kg/ acre at flowering or 2% DAP solution once at flowering and 15 days thereafter.
    - In the Western Zone, dry land may be brought under summer ploughing and irrigated fallow land may be prepared for sowing of pearl millet (cumbu) and planting of rainfed tapioca during first week of April. Undertake filling up the gaps in mid-season planted sugarcane fields with sprouted setts followed by irrigation. Provide irrigation to sesame (seedling stage).
    - In the North Western Zone, undertake cultivation of cotton under irrigated conditions.
    - In the High Altitude Hilly Zone, spray 0.5% Urea @ 5 g/litre of water or 1% Potassium nitrate @ 10 g /litre of water to induce flowering in mango crop.
    - In the High Rainfall Zone, provide irrigation to banana, cloves and coconut regularly to increase yield. Undertake harvesting of pineapple.
    - In the Cauvery Delta Zone, due to dew in the morning hours, powdery mildew disease is prevailing in rice fallow blackgram. For the managing the disease, spray Carbendazim @ 200g/ acre or wettable Sulphur @ 600g/ acre.
    - In Karaikal, prevailing weather condition (dry and partly cloudy) is congenial for incidence of hairy caterpillar in groundnut. To control hairy caterpillar, spray Emamectin Benzoate 5 SG @ 220 g/ha
    - In the South Zone, prevailing dry weather conditions (cloudy and humid) is congenial for incidence of thrips in chilli. Flowering and fruit bearing will be affected due to this pest incidence. Spray Dimethoate @ 500 ml/ ha to control this pest.
    - Suitable varieties for sowing are given in Annexure III.
  - **Andhra Pradesh:**
    - In the Krishna Godavari Zone, continue harvesting of Bengal gram and rabi black gram. In view of the prevailing hot weather, continue providing irrigation to rabi jowar at flowering to grain formation stage.
    - In the North Coastal Zone, continue planting of sugarcane using single budded setts/bud chip seedlings and give irrigations at frequent interval to keep the soil moist. Spray Diafenphouiron @ 1.6g /litre of water on chilli to prevent upward and down ward leaf curling.
    - In the Southern Zone, due to the present dry weather conditions, give frequent irrigations in mango orchards to get synchronized flowering.
    - In the Scarce Rainfall Zone, continue harvesting of rabi groundnut in Anantapur district.
    - In the Southern Zone, prevailing dry weather conditions are congenial for attack of yellow vein mosaic virus in

green gram and black gram. To control yellow vein mosaic virus causing sucking pests, spray Monocrotophos @ 1.6 ml. or acephate 1.5 g. or Fipronil 2 ml./litre of water.

- In the North Coastal Zone, prevailing dry weather conditions are congenial for incidence of cob borer in maize. To control, spray Flubendamide @ 0.2 g/litre of water.
- In the Scarce Rainfall Zone, prevailing weather conditions are congenial for incidence of mango hoppers in mangoes. For control, spray Monocrotophos @ 1.6-2ml/litre of water or Dimethoate @ 2ml/litre of water at the time of flowering and Phosphomidaon @ 1ml/litre of water or Methyl Dematon 1 ml/litre of water from peanut size to marble size fruit formation.
- In the High Altitude Tribal Zone, hispa incidence was noticed in rabi rice(active tillering stage). To control, spray Profenophos @ 2.0 ml or chlorpyriphos @ 2.5 ml or monocrotophos @ 1.6 ml/litre of water.

#### ▪ **Telangana:**

- In the Northern Telangana Zone, continue harvesting of bhendi and tomato. Due to the prevailing dry weather conditions, give frequent irrigations in mango orchards to get synchronized flowering.
- In the Northern Telangana Zone, ring spot virus incidence was noticed in papaya. To control the vectors like aphids and whiteflies (transmit the disease), spray Dimethoate @ 2ml/litre of water.
- In the Southern Telangana Zone, prevailing weather conditions are congenial for the incidence of hoppers and anthracnose in mango. To control, spray Lambda Cyhalothrin @ 1.0 ml + Carbendazim @ 1 g/ litre of water.

#### ▪ **Karnataka:**

- In North Transition Zone, complete harvesting of sorghum, chickpea, wheat, chilli, brinjal, tomato and matured fruits of sapota.
- In Southern Transition Zone, complete planting of ginger/turmeric.
- In Southern Dry Zone, after harvesting the rabi crops, take up ploughing which will facilitate conservation of rainwater during premonsoon showers.
- In North East Transition Zone, complete harvesting of sorghum, wheat and safflower. Apply irrigation in mango at an interval of 15-20 days interval if sufficient water is available. Dip the lemon fruit size watermelon in to 20 ppm (20 mg in 1 litre of water) Gibberellic acid to increase size and quality of the fruit.
- In North East Dry Zone, as dry weather is prevailing, complete harvesting of wheat, Bengal gram sorghum and safflower at the earliest.
- The infestation of root grub in arecanut was observed in Hill Zone; pour 3 litres of Chloropyriphos solution (3 ml per litres of water) to base of arecanut.
- Due to cloudy weather followed by rising temperature attack of tea mosquito bug is noticed in cashew in Coastal Zone; spray the affected cashew plants with Rogar/Chloropyriphos / Quinolphos @ 2 ml/litre solution.
- In the present weather conditions, there is chance of infestation of fruit spot in pomegranate in Central Dry Zone; spray the crop with Chlorothonil @ 2 ml dissolved in one litre of water.
- Attack of hoppers was noticed in mango crop in North East Dry Zone and North East Transition Zone; for effective control, take up spraying of Carbaryl 50WP @ 4 g or Malathion 50EC @ 2 ml or Monocrotophos 36SL @ 1.5 ml in one litre of water.

#### ▪ **Kerala:**

- In the Problem Area Zone, undertake harvesting of matured rice. Mulching may be done in nutmeg and banana basins to reduce soil evaporation.
- In the Northern Zone, continue cultivation of vegetables as intercrops in coconut gardens and harvesting of black pepper and early fruit setting varieties of cashew.
- In the Southern Zone, increased in humidity may accelerate the incidence of fungal diseases in cucurbitaceous vegetables. If fungal disease is noticed, apply Indofil M 45 @ 4g/ litre of water.
- In the Problem Area Zone, prevailing hot weather condition is congenial for incidences of sucking pest like mites and thrips in vegetables. To control, spray Oberon @ 0.6g/litre of water.
- In the Central Zone and Southern Zone, increase in temperature is congenial for attack of Sigatoka disease in banana. To control, spray 10-15 gms of Pseudomonas in 1 litre of water in the initial stage. In severe attack, apply 2 gm of SAAF in 1 litre of water.
- In the Northern Zone, prevailing dry and humid weather condition is congenial for incidence of gundhi bug attack in late sown rice crop. Apply Azadiractin @3000ppm stock after diluting in water @ 3ml/litre of water immediately after sunset. To have better control, add and stir one to two ml. of Malathion @ 50EC per litre of the diluted Azadiractin solution before applying.

#### ▪ **Animal Husbandry**

- In the Northern Telangana Zone, vaccinate animals to prevent pneumonia, blue tongue disease in sheep and goats, birds to prevent kokkera disease, provide clean and fresh water daily & undertake deworming at regular intervals.
- In the North Western Zone of Tamil Nadu, expected day time temperature of 39.0°C and reduced wind speed will increase summer stress in poultry. Feed intake and egg weight will decrease. Avoid feeding during hot hours (11

- AM to 5 PM). Ensure that cool water is available to birds for drinking throughout the day.
- In Southern Transition Zone of Karnataka, vaccinate the animals (cow, buffalo and bullock) before onset of monsoon against foot and mouth disease (FMD vaccination), BC vaccination against Black Quarter and also vaccinate against Haemorrhagic Septicaemia. Vaccinate (ET vaccine) sheep and goats against Enterotoxemia before onset of monsoon.
- In Southern Dry Zone of Karnataka, apply 4-6 inch thick hay thatch as a roofing material. Water can be used for spraying the floor and roof of shelter periodically during peak hot hours to reduce the heat load on animals. Proper ventilation should be maintained for free circulation of air in the animal sheds. Provide clean drinking water to animals and clean water troughs regularly.

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



*Mustard*



*Rice*



*Okra*



*Cabbage*

- **Realised Rainfall:** Rainfall occurred in Changlang, Lohit, Papumpare, Tawang, Tirap, Upper Siang districts of Arunachal Pradesh, Karimganj, Tinsukia districts of Assam and Imphal west district of Manipur. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - As rain/thundershowers likely at most/many places over Arunachal Pradesh, Assam & Meghalaya on 21<sup>st</sup> and 22<sup>nd</sup> and over Nagaland, Manipur, Mizoram & Tripura from 20<sup>th</sup> to 22<sup>nd</sup> March, advised to postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Harvest the matured crop immediately and keep the harvested produce in safer places.
  - As thunderstorm accompanied with squall very likely at isolated places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura from 19<sup>th</sup> & 20<sup>th</sup> March, provide mechanical support banana and young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds.
- **Assam, Meghalaya & Arunachal Pradesh:**
  - In Hill Zone of Assam, continue sowing of recommended high yielding varieties of bhindi, bottle guard, bitter guard. Continue nursery sowing of normal ahu rice and main land preparation for transplanting of early ahu rice utilising the expected rainfall. Undertake land preparation for planting of ginger, summer sesame and spring sugarcane.
  - In Lower Brahmaputra Valley Zone of Assam, continue sowing of early ahu rice (direct seeded) and nursery raising for transplanted early ahu rice. Undertake sowing of maize, summer pulses like green gram, black gram and planting of spring sugarcane.
  - In Upper Brahmaputra Valley Zone of Assam, continue nursery raising of transplanted Ahu rice and prepare land for cultivation of bao rice. Undertake planting of spring sugarcane. Complete harvesting of toria immediately.
  - In Barak Valley Zone of Assam, maintain 6 cm standing water in the boro rice fields at tillering stage. Continue transplanting of summer vegetables, tomato and brinjal.
  - In Central Brahmaputra Valley Zone of Assam, continue land preparation and sowing of green gram/black gram, summer vegetables and Capsularis jute. Undertake nursery bed preparation for transplanted early ahu. Undertake harvesting of matured rabi pulses. Undertake land preparation and planting of ginger, turmeric and spring sugarcane.
  - In North Bank Plain Zone of Assam, continue sowing of direct seeded ahu rice and main land preparation for transplanting of early ahu crop. Prepare land for sowing of green gram/black gram. Farmers of flood affected low lying areas are advised to prepare land and undertake sowing of bao rice as March-April is the ideal time of sowing. Undertake sowing of ridge gourd and sponge guard.
  - In Meghalaya, continue land preparation for sowing of maize in high and mid altitude region. Start land preparation and sowing of summer potato in high altitude region. Undertake nursery bed preparation for brinjal and tomato. Undertake sowing of bottle guard and ash guard.
  - In Arunachal Pradesh, continue sowing of summer vegetables like cucumber, sponge gourd, bottle gourd, ladies finger and early maize and cowpea utilising the realised rainfall. Complete harvesting of matured mustard, toria, rabi maize & potato immediately and keep harvested produce in safer places.
  - In Barak Valley Zone of Assam there may be stem borer attack in the boro rice field; to control the pest apply Chloropyrifos @ 1 ml/litre of water after current spells of rain.

- In Upper Brahmaputra Valley Zone and North Bank Plain Zone, soil and air temperatures are becoming favourable for the attack of stem borer in boro rice. If eggs of the pests are noticed, apply 'Darsban' or 'Monocrotophos' @2 ml per litre of water in the fields after current spells of rain.
- In Arunachal Pradesh, in prevailing weather condition, there is chance of incidence of powdery mildew in pea, spray Carbendazim 50WP @ 1g/litre of water or Difenconazole 5EC @ 0.5 ml/litre of water after current spells of rain.
- **Nagaland, Manipur, Mizoram and Tripura:**
  - In Nagaland, undertake harvesting of chickpea, lentil, linseed and maize immediately and keep the harvested produces at safer places.Undertake land preparation and sowing of okra, cowpea and cucurbits.
  - In Manipur, undertake land preparation for sowing of French bean and okra. Undertake harvesting of turmeric.
  - In Mizoram, undertake harvesting of pea, mustard and toria immediately and keep the harvested produces at safer places. Undertake transplanting of brinjal and chilli in the main fields. Undertake sowing of French bean and cow pea.
  - In Tripura, undertake transplanting of summer brinjal and tomato in the main field. Maintain 4 -5cm standing water in the boro rice fields.
  - In Manipur, due to humid weather condition there is chance of attack of aphids and powdery mildew in lentil/pea. Spray Cypermethrin @ 2ml/litre of water or Nuvan @ 0.5ml/litre of water against aphids.SprayBayleton ( Triademofon 25%WP) @ 7.5 g/pump (15litre capacity) or Dinocap (Karathane 46% EC) @ 7.5ml/pump against powdery mildew after current spells of rain.
  - In Tripura, there is chance of attack of yellow stem borer on boro rice apply Fipronil @ 2g per litre of water to manage the attack. At flowering stage there may be attack of hopper in mango plants, spray Malathion @ 2ml/litre in water after current spells of rain.
  - Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry:**
  - In Barak Valley Zone of Assam, increase of temperature may cause stress in animals. Under these conditions, farmers are advised to feed their animals at night time and feed as much as green grass with small pieces. In Meghalaya farmers are advised to vaccinate all newly born piglets against swine fever of age 3 months followed by annual booster dose. In epidemic areas vaccinate 6 months pigs with FMD vaccine once in a year. Vaccinate 6-9 months calves with brucella abortus cotton strain-19 @ 5ml subcutaneous on the neck
  - In Manipur give vaccination against PPR to sheeps and goats. Give vaccination to cattles against black quarter, haemorrhagic septicaemia and foot and mouth disease.
- **Pisciculture:**
  - In Barak Valley Zone of Assam, as the temperature is rising, farmers can start feeding their fishes with available fish feed or they can feed their fishes with a mixture Rice bran and MOC in 1:1 ratio @3% of body weight of the total biomass in their ponds. To avoid bacterial disease liming should be done @10kg/kani.

## WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



*Gram*



*Sugarcane*



*Groundnut*



*Wheat*

- **Realised Rainfall:**Weather remained mainly dry over Vidarbha and Saurashtra & Kutch, dry over rest part of the region.
- **Advisories:**
  - **Maharashtra:**
    - In Konkan, maintain water level of 10 cm at panicle initiation stage in rabi rice in Sindhudurg. Continue sowing of seasonal fodder crops like cowpea, maize (African Tall), multicut sorghum and rice bean. Undertake intercultural operations and fertilizer application in vegetables. Apply irrigation to groundnut, orchards, vegetable crops and pulses. Harvest the matured pods of cowpea, kulthi and wal during morning hours. Undertake harvesting of matured cashewnuts. As mango is at fruit formation stage (pea/marble size) and considering the crop canopy, apply 80-100 litres of water per tree at fortnightly interval to avoid fruit dropping and increase the size of fruits.

- In Madhya Maharashtra, apply irrigation to summer crops. Continue cultivation of summer vegetable crops like bitter gourd, cucumber, ridge gourd, bottle gourd, water melon, musk melon. Continue harvesting of onion and wheat crops. Complete sowing of summer mung in Western Ghat Region. Apply Single Super Phosphate @ 100 kg or Gypsum 200 kg in summer groundnut at the time of flowering & complete earthing up for better pod development. Undertake mulching with trash in seasonal and ratoon sugarcane crop by using 5-6 ton of trash per hectare and Considering water stress condition, apply irrigation in alternate furrow.
- In Marathwada, continue sowing of fodder crops like maize, jowar and bajra. Undertake harvesting of matured wheat during morning hours to avoid shattering. Apply irrigation to citrus orchards by drip irrigation as well as apply the nutrients with the help of sprays i.e. water soluble nutrients to overcome the adverse effect of less water. During summer season due to prevailing high temperature, the loss of water through evaporation and transpiration is more. Irrigate Banana crop as per their requirement. To reduce the loss of water from leaves of sugarcane by transpiration, spray Kaolin 6 g per 10 liter of water. Maximum temperature is increasing. If the temperature rises up to 35 to 40 OC immediately spray Potassium Nitrate or Muriate of Potash 500 g per 100 liter of water so that the transpiration losses can be reduce in citrus crops.
- In Vidarbha, harvest the matured fruits and vegetables in clear weather and keep at safer place. Maintain water level of 5-8 cm in summer rice field in East Vidarbha. Continue sowing of summer green gram under irrigation facilities. Undertake harvesting of timely sown matured wheat crop during morning hours. Apply gypsum @ 200 kg/acre in groundnut when the crop is at initial flowering /pegging (45 days.)
- Due to sudden rise in temperature in Konkan, there is a possibility of incidence of thrips on pea stage & marble stage mango fruits; spray Spinosad @ 2.5 ml per 10 liters of water on the whole tree.
- In Vidarbha, due to cloudy weather and rainfall late sown wheat crop may affect by earhead borer, to control spray Emametin benzoate @4 g per 10 liter of water.

▪ **Gujarat:**

- In Middle Gujarat Zone, complete sowing of green gram, vegetable cowpea and ladies finger. Select Meha variety of green gram to avoid yellow vein mosaic virus disease.
- In Bhal and Coastal Zone, complete sowing of green gram, pearl millet, cow pea, vegetable crops like ladies finger, bitter gourd, bottle gourd and small gourd. Apply irrigation in wheat at dough stage; stop irrigation after hard dough stage to maintain grain quality.
- In South Saurashtra Zone, apply irrigation to onion, garlic (bulb development stage), sesame, green gram, black gram and groundnut. Avoid irrigation to wheat crop at the time of maturity as due to excess irrigation the quality of seeds may deteriorate.
- In North Gujarat Zone and North West Zone, complete sowing of pearl millet, green gram, cluster bean and cowpea. Stop irrigation to wheat after hard dough stage. Continue picking of matured fruits of sapota in North Gujarat Zone.
- In South Gujarat Heavy Rainfall Zone, maintain 5 cm water level in transplanted rice fields. Apply irrigation in sugarcane, green gram groundnut, sweet corn as per requirement and light irrigation in cluster bean, cowpea, okra, amaranth, pigeon pea and mango. Continue intercultural operations in rice, groundnut and green gram.
- In North Saurashtra Zone, apply irrigation in already sown crops and vegetables.
- In South Gujarat Zone, for the control of damping-off in vegetable crops in nursery, drenching with Ridomil M-Z @ 8 gm/ 20 litre of water or 0.6 % Bordeaux mixture or Soil solarization of nursery beds with 100 gauge LLDPE clear plastic film in hot summer(April-May) for 15 days is advised.
- In present weather conditions severe attack of thrips has been reported in chilli in North Saurashtra Zone; spray Spinosad @3 ml in 10 litres of water for control. Also thrips infestation is observed above ETL in black gram and groundnut; spray 500 ml of 5 % neem seed extract or neem seed oil 50 ml with Profenofos @20 ml or Imidacloprid 30.5 SC 3 ml /10 litres of water for control.
- Suitable varieties for sowing are given in Annexure III.

• **Animal Husbandry**

- Vaccinate cattle for Brucellosis in Middle Gujarat Zone and for FMD and other diseases in South Saurashtra Zone.

**EAST INDIA [JHARKHAND, BIHAR, ODISHA, WEST BENGAL & SIKKIM, ANDAMAN & NICOBAR ISLANDS]**



*Rice*



*Wheat*



*Maize*



*Mustard*

- **Realised Rainfall:** Significant Rainfall occurred in North Sikkim of Sikkim; Lohardaga and Palamu districts of Jharkhand, Rohtas district of Bihar; Kandhamal and Nawarangpur districts of Odisha. Mainly dry weather prevailed over rest of the region.

- **Advisories:**

- As thunderstorm accompanied with squall likely at isolated places over north Odisha and Gangetic West Bengal on 19<sup>th</sup> and over Sub- Himalayan West Bengal & Sikkim on 20<sup>th</sup> March, arrange for mechanical support to banana and young fruit plants, staking in vegetables and propping up in sugarcane to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.

- **West Bengal:**

- In Hill Zone, continue land preparation for sowing of maize, bhindi and French bean and planting of ginger, turmeric and round chilli.
- In New Alluvial Zone, undertake land preparation for sowing of sesame.
- In Coastal Saline Zone, continue land preparation for sowing of sesame. Apply Azophos @ 3kg/bigha for land preparation. Seed rate should be followed for broadcasting @ 800g/bigha and for line sowing @ 600g/bigha.
- In Hill Zone, due to hot and mainly dry weather condition, powdery mildew disease may attack tomato at fruiting stage. Spray Wettable Sulphur @ 2g/litre of water to control powdery mildew disease.
- In Laterite and Red soil Zone, in the prevailing weather condition, stem borer may damage boro rice at panicle initiation stage and shoot and fruit borer may attack brinjal. Spray Methyl Parathion @ 1ml/litre of water to control stem borer and spray neem seed Kernal Extract @ 50ml/litre of water to control shoot and fruit borer.
- In New Alluvial Zone, in the prevailing weather condition, stem borer attack may be found in rice at tillering stage. To control stem borer, apply Cartap 4 G @ 25 kg/ha or Phorate 10 G @ 10 kg/ha.
- In Terai and Old Alluvial Zone, weather is congenial for attack of fruit and shoot borer in brinjal. Use 6-8 pheromone traps/bigha or apply Acephate + Fenvelarate mixture @ 1ml/litre water with 2g of detergent powder as sticker.

- **Andaman and Nicobar Islands:**

- In South, North and Middle Andaman, mulch the interspaces of vegetables with paddy straw to conserve soil moisture as no rainfall is expected during next five days.

- **Odisha:**

- In East and South Eastern Coastal Plain Zone, continue sowing of sunflower, groundnut and summer maize. Continue harvesting of matured mustard in clear weather.
- In North Eastern Ghat Zone, continue sowing summer sunflower (PAC-36, MSFH-8 & SFH-17) and groundnut (Smurti, Phule Pragati, ICGS-44, TAG-24, TG-3, TMV-2 & TG-38).
- In Mid Central Table Land Zone, continue sowing of summer vegetables like pumpkin, bitter gourd, bottle gourd, okra etc.
- In Mid Central Table Land Zone, at present mango crop is at fruit setting stage, at this stage infestation of mango hopper are commonly observed. Keep the mango orchards clean and if necessary, spray Methyl Dematon @ 2 ml/litre water. To reduce the fruit dropping, spray Potassium Nitrate solution @ 1% (100g in 10 litre of water) or spray Fantac Plus @ 10-15ml/ 10 litres of water.
- In East and South Eastern Coastal Plain Zone, increased temperature may favour the egg laying of stem borer in rice in the main field. To attract the butterflies, place 4 Pheromone Traps/acre, collect the adults and destroy them by burning them under soil or by burying. Apply Triazophos @ 2ml/litre of water when pest population reaches at ETL level. Increased difference between daily maximum and minimum temperature favours the infestation of blast in rice in main fields. Spray Beam @ 1 g /one litre of water.
- In East and South Eastern Coastal Plain Zone, the prevailing partly cloudy weather may aggravate the infestation of aphids in pulses and powdery mildew in pulses and cole crops. Spray Imidachloprid @ 5 ml or Metacystox @ 20 ml per 10 litres of water to control aphids and spray Sulfex @ 50 g per 10 litre of water to control powdery mildew.
- In South Eastern Ghat Zone, variation in day and night temperature may lead to buildup of stem borer in rice .

Monitor the fields, when the insect incidence crosses the ETL level (ETL: 1 eggmass or 1-2 moths/m<sup>2</sup>), apply granular insecticide Carbofuran 3% @ 12 kg/acre or Cartap hydrochloride 4% @ 10 kg/acre.

- In Eastern Ghat High Land Zone, to control leaf curl in sesame, remove infected plant and destroy it. Spray Dimethoate 30% EC @ 2 ml/litre of water for control of vector.

▪ **Bihar:**

- In South Bihar Alluvial zone, continue harvesting of matured sweet potato which was sown earlier. Complete planting of spring season Arvi crop. Undertake sowing of summer vegetables. Apply Nitrogenous fertilizer in spring season maize.
- In North West Alluvial Plain Zone, continue sowing of green gram and black gram and fodder crops and undertake planting of elephant foot yam. Apply light irrigation in standing vegetable crops such as pea, tomato, brinjal, chilli, cabbage and onion.
- In North East Alluvial Zone, undertake land preparation for sowing of moong. Complete transplanting of boro rice. Undertake harvesting of matured mustard and potato crop.
- In North West Alluvial Plain Zone, regular monitoring is advised for infestation of fruit and shoot borer in brinjal crop. If pest population is above ETL, then spraying of Spinosad 48 EC @ 1ml/4 litres of water or Quinalphos @ 1.5ml/L of water is advised.
- In South Bihar and North East Alluvial Zone, there is chance of attack of pod borer in chickpea, apply profenofos in 1.5 lit water to protect the crop from pod borer.
- In North Bihar Alluvial Zone, due to fluctuation in temperature, population of aphids will increase in wheat. To control, spraying of Imidacloprid 17.8 SL @ 1ml/3litres of water or Thiomethoxam 25WDG @ 1g /3litres of water is advised.

▪ **Jharkhand:**

- In Western Plateau Zone, continue sowing of vegetables like sponge gourd, bottle gourd, pumpkin, water melon, musk melon etc utilizing the realized rainfall. Continue sowing of green gram and broadcasting of urea in standing vegetable crops. To conserve the moisture, undertake intercultural operations in vegetables.
- In South Eastern Plateau Zone, continue sowing of summer moong.
- In Western Plateau Zone, harvest matured gram and lentil crops immediately, otherwise high wind speed & temperature may cause shattering of pods.
- In South Eastern Plateau, Central and North Eastern Plateau Zone, prevailing high wind speed, humidity and cloudy sky, which favours the movement of loose smut spores hence, there is a chance of spread of disease (loose smut) in wheat in a more speedy way. If loose smut is seen on earhead, uproot the affected plants and bury it deep in the soil.
- In South Eastern Plateau Zone, humid weather during morning hours and later on sunny weather favours infestation of white rust in late sown mustard (at flowering stage) crop and attack of aphids in timely sown crop at pod development stage. Monitor the crops frequently. In early stage, farmers are advised to remove and destroy the infected parts of the plants.
- In South Eastern Plateau Zone, to control hoppers in Mango, Litchi and Jack fruit, spray Metasystox @ 1ml or Kung-fu or Karate or Matador (Lambda Cyhalothrin) @ 2 g along with 0.5 g Carbendazim per litre of water before or just after flowering in to minimize the attack.
- Suitable varieties for sowing are given in Annexure III.

▪ **Animal Husbandry**

- In South, North and Middle Andaman, provide cold drinking water treated with lime or bleaching powder and supplemented with vitamin C or electrolyte powder to prevent heat stress to all livestock and poultry.

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



*Cauliflower*



*Gram*



*Okra*



*Wheat*

- **Realised Rainfall:** Significant rainfall occurred over Rewa and Tikamgarh district of East Madhya Pradesh; over Bastar, Dhamtari and Durg districts of Chhattisgarh. Weather remained dry over rest part of the region.
- **Advisories:**



- **Madhya Pradesh:**
- As thunderstorm accompanied with squall likely at isolated places over northwest Madhya Pradesh on 18<sup>th</sup> March, arrange mechanical support to young fruit plants, staking in vegetables and propping up in sugarcane to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
- In Malwa Plateau Zone, continue nursery sowing of tomato, brinjal and chilli. Arrange the seed and inputs for sowing of summer cucurbits and bhindi. Continue harvesting of matured gram, potato, cauliflower and cabbage in clear weather. Continue land preparation for sowing of summer cucurbits and okra.
- In Kymore Plateau and Satpura Hill Zone, continue harvesting of early sown wheat, matured lentil, field pea, linseed and sunflower in clear weather.
- In Central Narmada Valley Zone, undertake harvesting of matured wheat, continue digging of matured potato.
- In Nimar Valley Zone, undertake sowing of seeds of okra and treat seeds with Tricoderma @5g/kg of seed.
- In Jhabua Hill Zone, continue harvesting of early sown mustard, gram and matured wheat in clear weather. Continue transplanting of summer vegetables. Irrigate in tomato, chilli, brinjal, okra, onion crops. Undertake land preparation and sowing of summer moong, okra and cucurbits.
- In Bundelkhand Zone, continue sowing of vegetables like pumpkin, bitter gourd, okra etc. Continue harvesting of matured lentil, linseed and mustard crops.
- In Vindya Plateau Zone, continue nursery preparation of summer vegetables and sowing of cucurbits, okra, cowpea and cluster bean. Continue harvesting of matured gram in clear weather.
- In Satpura Plateau Zone, continue sowing of okra, groundnut, maize and cucurbits. Continue harvesting of matured potato and undertake harvesting of early sown wheat and matured mustard in clear weather. Keep harvested produce at safer places.
- Due to rise in temperature and increase of morning humidity, there may be attack of hopper and powdery mildew disease in mango. Monitor the mango orchards and consult nearest KVK for control measures.
- In Kymore Plateau and Satpura Hill Zone, due to increase in temperature and humidity, there may be increased attack of fruit borer and white flies in tomato, egg plant, and okra. For control of white flies, apply Malathion @ 2 ml/litre water and for borer, apply Triazophos @ 750 ml per 500-600 litres of water.
- **Chhattisgarh:**
- In North Hill Zone, complete sowing of green gram. Continue harvesting of matured mustard, gram, wheat, pea and lentil in clear weather.
- In Bastar Plateau Zone, continue sowing of summer moong and urad. Continue harvesting of matured pea.
- In Chhattisgarh Plain Zone, continue sowing of green gram and harvesting of lathyrus, mustard and toria.
- Presently mango crop is at flowering/fruit setting stage in North Hill Zone, at this stage powdery mildew is commonly observed in mango, which causes poor fruit setting and later on fruit dropping. Hence, it is advised to keep watch over the crop and whenever the symptom appears, spray Carbendazim (Bavistin) @1.5g or Sulphex @3g per litre of water.
- In North Hill Zone, in the present weather condition, there is chance of stem borer in summer rice. Farmers are advised for monitoring of stem borer in rice fields.
- In Bastar Plateau Zone, present weather condition is favourable for incidence of powdery mildew disease in bottle gourd, snake gourd, pumpkin and ridge gourd, for control spray Karathan @ 1gm/liter of water.
- **Animal Husbandry**
- In Madhya Pradesh and Chhattisgarh, vaccinate animals to prevent Hemorrhagic Septicaemia (H.S.), Black quarter (B.Q.) and Anthrax diseases.

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



*Wheat*



*Sugarcane*



*Cauliflower*



*Mustard*

- **Realised Rainfall:** Rainfall occurred in all districts of Jammu & Kashmir except Ladakh (Leh); in all districts of Himachal Pradesh; in all districts of Uttarakhand except Champawat, Garhwal Pauri, Haridwar and Udham Singh Nagar; in all districts of Punjab except Barnala, Ferozpur, Hoshiarpur, Ludhiana, Mansa and Sangrur; in Chandigarh, Kaithal, Karnal, Panipat, Sonapat and Yamunanagar districts of Haryana; in Sant Ravidas Nagar, Sonbhadra districts of East Uttar Pradesh; in Baghpat, Ghaziabad, Jyotiba Phule Nagar, Moradabad, Muzzaffarnagar districts of West

Uttar Pradesh during the week.

• **Advisories:**

- As Thunderstorm accompanied with squall/hail very likely at isolated places over **Uttarakhand, Haryana, Chandigarh & Delhi and West Uttar Pradesh** on 18<sup>th</sup> March, farmers are advised to use hail nets/hail caps for orchard crops to protect from mechanical damage. Provide mechanical support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Undertake propping in sugarcane and keep harvested produce at safer places.
- As thunderstorm accompanied with squall likely at isolated places over **Jammu division and Himachal Pradesh** on 18<sup>th</sup> March, arrange for mechanical support to young fruit plants, staking in vegetables and propping up in sugarcane to prevent the crops from lodging due to strong winds. Keep already harvested produce at safer places.
- As rain/snow would occur at most/many places over **Jammu & Kashmir** from 18<sup>th</sup> to 20<sup>th</sup> March over **Himachal Pradesh** on 18<sup>th</sup> & 19<sup>th</sup> and over **Uttarakhand** on 18<sup>th</sup> & 19<sup>th</sup> March along with heavy rain / snow very likely at isolated places over Jammu & Kashmir and Himachal Pradesh on 18<sup>th</sup> March, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Postpone harvesting of matured crop and keep already harvested produces at safer places. Provide adequate drainage in standing crop fields in Jammu & Kashmir and Himachal Pradesh to avoid water stagnation.

▪ **Jammu & Kashmir:**

- In Valley Temperate Zone, maintain drainage channels in garlic/onion to avoid water logging. Continue nursery sowing of tomato, brinjal, chilli, capsicum, knol khol, kale in hot beds as well as in raised beds under open conditions and continue sowing of cucurbits in polybags after current spells of heavy rain. Continue transplanting of cauliflower, cabbage and knol khol after current spells of heavy rain.
- In Intermediate Zone, continue nursery sowing of cucurbits (Cucumber, Bottle gourd and Bitter gourd) and transplanting tomato, brinjal and chilli after current spells of heavy rain.
- In Intermediate Zone, keep strict vigil on yellow rust infestation in the wheat crop. If observed, spray Propiconazole (Tilt) 25 E.C. @ 1ml per litre of water after current spells of rain, repeat the spray after 10-15 days interval if the disease persists. Also if alternaria blight is observed in the mustard crops. Apply Mancozeb @ 2.5 g/litre of water and Redomil MZ @ 2.5 g/litre of water alternately as a curative measure after current spells of rain.
- In Intermediate Zone, present weather is congenial for attack of aphid in mustard crop, for control spray Rogor (Dimethoate) 30 E.C. @ 1 ml per litre of water on clear sunny day at 15 days of interval, if more than 8–10 aphid population is observed per plant after current spells of rain.
- In Sub Tropical Zone, present weather is congenial for attack of leaf miner, citrus psyllid and lemon butterfly in citrus plants, for control spray Dimethoate @ 1mg per litre of water after current spells of rain.

▪ **Uttarakhand:**

- In Bhabar and Tarai Zone, continue planting of potato with varieties like Kufri Jyoti, Kufri Ashok & Kufri Anand etc, sugarcane and nursery sowing of brinjal and tomato utilizing the realized rainfall.
- In Sub Humid Sub Tropic zone, undertake harvesting of matured mustard on a non rainy day.
- In Hill Zone, continue field preparation for sowing of vegetable pea, okra, French bean, lady finger and also for planting of potato in mid hill region.
- In Hill Zone, in the present weather, there may be incidence of thrips in garlic and onion, spray Imidacloprid @ 6 -8 ml in 10 litres of water in garlic and onion after current spells of rain.
- In Hill Zone, keep strict vigil in the wheat crop on yellow rust infestation. If observed, spray Propiconazole @ 10ml in 20 litre of water after current spells of rain, repeat the spray after 10-15 days interval if the disease persists.

▪ **Himachal Pradesh:**

- In Sub-Montane and Low Hills Sub-Tropical Zone, continue sowing of fodder crops such as chari and bajra, cucurbits such as cucumber, bitter gourd, bottle gourd and summer squash, ageti okra, French bean and radish. Complete nursery sowing of tomato, brinjal, chilli and capsicum after current spells of heavy rain.
- In Sub-Montane and Low Hills Sub-Tropical Zone, under prevailing weather conditions, there may be chances of attack of yellow rust in wheat and attack of caterpillars in gram. For control of yellow rust, spray Tilt @ 1ml per litre of water and spray Carbaryl-50WP @ 2 g per litre of water for caterpillars after current spells of rain.
- In Mid Hills sub-Humid Zone, weather is conducive for attack of pod borer in pea crop, apply Carbaryl @ 2gms/litre of water after current spell of rain.

▪ **Rajasthan:**

- In East Rajasthan, continue field preparation for zaid moong in Southern Humid Plain Zone. In Flood Prone

Eastern Plain Zone, continue harvesting of mustard crop during morning hours when 75 % pods turn yellow. Continue sowing of summer okra in Semi-Arid Eastern Plain Zone.

- In Sub Humid Southern Plain and Aravali Hill Zone, undertake sowing of summer okra, complete harvesting of matured normal sown wheat crop in clear weather and keep harvested produce at safer places. Undertake FIELD preparation for transplanting of brinjal.
- In West Rajasthan, in Arid Western Zone, continue sowing of green fodder viz. sorghum and pearl millet. Undertake harvesting of matured rabi crops, apply irrigation in garlic and onion in Barmer, Churu, Jalore, Jodhpur and Pali districts.
- In Transitional Plain Zone of Inland drainage, continue sowing of zaid moong, vegetables like loki, torai, kerela, tinda, (variety Bikaneri green, dilpasand) kakri (variety Lakhnau ageti and Arkasital), kharbuja (variety Durgapura madhu, Punjab sunehri, Punjab hybrid and pusa madhuras) tarbuja (variety sugar baby, Durgapura mitha, Durgapura lal) and khira.
- In Flood Prone Eastern Plain Zone, in the prevailing temperature condition, there is a chance of attack of loose smut disease in wheat, spray 2% Mencozeb 75 WP solution to control loose smut.
- In Arid Western Plain Zone, in Barmer, Churu, Jalore, Jodhpur and Pali districts, in the prevailing weather conditions, there is a chance of attack of red pumpkin beetle in cucurbit vegetables, apply Malathion 5% dust @ 25kg per hectare.
- In Semi-Arid Eastern Plain Zone, there is a chance of attack of aphids in cumin and coriander, spray Dimethoate 30 EC or Malathion 50 EC @ 1.0 ml per litre water.
- In Transitional Plain Zone of Inland drainage, in the prevailing temperature conditions, there is a chance of infestation of aphids on mustard and cumin, rust in wheat and barley and attack of pod borer in gram, spray Dimethoate 30 EC or Methyl Demeton 25 EC @ 1 litre/ha dissolved in water to control aphids, dust Sulphur powder @ 25 kg per ha to control rust in wheat and barley and spray Azadirachtin @ 5 ml per litre water at the time of flowering and pod formation or Dimethoate 30 EC or Methyl Demeton 25 EC @ 1 litre/ha dissolved in 500 litre of water for control of pod borer. Undertake plant protection measures on a non rainy day.
- Punjab, Haryana and Delhi:
- In Western Plain Zone of Punjab, continue sowing of okra, spring maize and planting of sugarcane. Undertake transplanting of chilli and cucurbits on the ridges utilizing the rainfall water.
- In Central and Undulating Plain Zone of Punjab, continue planting of sugarcane.
- In Central, Western and Undulating Plain Zone of Punjab, continue planting of peach, plum, pear, pomegranate and ber plants.
- In Western Zone of Punjab, prepare the field for transplanting summer vegetables of chilli, tomato, bell pepper and planting of evergreen fruit plants of kinnow, lemon, guava ber and Amla.
- In Western Zone of Haryana, continue sowing of green gram and black gram. Undertake harvesting and threshing of early sown matured mustard crop. In Eastern Zone, complete the planting of sugarcane.
- In Western Semi-Arid Zone of Delhi, continue sowing of green gram, black gram and transplanting of marigold
- In Western Semi-Arid Zone of Delhi, monitor the wheat crop against brown and black rust. If symptoms appears, spray Dithane M- 45 @ 2.5 grams or Carbendazim @ 2 gm or Propiconazole @ 1 gm per litre of water.
- In Central and Undulating Plain Zone of Punjab, there is chance for occurrence of yellow rust in wheat fields in the present weather condition. Monitor the crop and if symptoms are noticed, spray with Tilt/Shine/Bumper/Compass/Markzole @ 200 ml in 200 litres of water/acre.
- In Central, Western, Sub-Montane Plain Zone of Punjab, there may be chances of aphids in mustard crop; to control spray 40g Actara 25 WG or 400 ml Rogor 30EC in 80-125 litre of water per acre. In Undulating Plain Zone of Punjab, there may be chances of alternaria blight in mustard, spray Indofil M 45 @ 25 gm/acre in 100 litres of water.
- Due to favourable weather condition, there may be attack of pod borer in gram in Western Zone of Haryana, spray Carbaril 50 W.P. @ 400 gram or Monocrotophas 36 SL @ 200 ml per 100 liter water per acre and there may be attack of stalk rot in mustard crop, spray of Carbendzin 0.1% solution. Due to increase in temperature there may be attack of aphids/jassids in wheat, spray Malathion 50 E.C. @ 400 ml. in 250 liter water per acre.

▪ **Uttar Pradesh:**

- In Central Pain Zone, continue sowing of summer fodder crops and sowing of urad, mung, lobia, bhindi as inter crop in sugarcane, land preparation and sowing of cowpea, maize, transplanting of onion, tomato, chili. Complete sowing of bhindi, tinda, cucurbits, water melon and bottle guard.
- In Eastern Plain Zone, continue sowing of bhindi, tinda, torai, cucurbits, and bottle guard, continue sowing of lobia, maize, urad, mung and cucurbits and transplanting of onion.
- In Western Plain Zone, continue transplanting of tomato, chilli and sowing of bhindi, cucurbits, planting of autumn sugarcane and sowing of sunflower, urad, mung, maize.
- In Bundelkhand Zone, continue harvesting of matured mustard, gram, pea, lentil. Undertake sowing of bhindi, torai and continue sowing of cucurbits, transplanting of cabbage, cauliflower, tomato, brinjal and chilli and land preparation for sowing of groundnut.
- In Central Plain Zone, due to prevailing weather condition, there may be chances of attack of pod borer/semi looper in gram, for control, spray Fenvalerate 0.4% D.P. @ 20 to 25 gm. or Quinalphos 25% EC @ 2 litres or

- Malathion 50 EC @ 2 litres in 500 to 600 litres of water per hectare.
- In North Eastern Plain Zone, due to prevailing weather condition, there may be chances of attack of aphids in gram, for control, spray 0.2 % Mencozeb @ 400 gm. or 0.2% Carbendezim @ 400 gm. in 200 litres of water per acre.
  - In Central Plain Zone, due to prevailing weather condition, there may be chances of attack of thrips in onion, for control, spray Mencozeb 0.2 % or Dimethoate @ 1 ml per litre of water.
  - In Central Plain Zone, due to prevailing weather condition, there may be chances of attack of leafhopper in sunflower, for control spray Phosphomidon @ 250ml per hectare.
  - In Bundelkhand Zone, due to prevailing temperature conditions, there may be chances of attack of pod borer in gram, for control spray Dimethoate or Cypermethrin @ 1 litre in 600 litres of water per hectare in clear weather.
  - Horticulture:
    - In Sub-Montane and Low Hills Sub-Tropical Zone of Himachal Pradesh, Undertake monitoring mango orchard for mango hopper and destroy infected inflorescence if mango malformation is found, also there is a chance of attack of leaf curl in peach, spray Metasystox @ 1ml per litre + Blitox @ 3gm. per litre of water.
    - In Mid Hills sub-Humid Zone of Himachal Pradesh, complete planting of new varieties of apple & pear and stone fruits, walnut, pecan nut and grapes. In stone fruits apply Bavistin (100gms) or Metasystox (100ml) in 100litres of water to control leaf curl disease at pink bud stage. Put anti hail nets on fruit trees.
    - Complete the pruning operations in apple orchard in High Hill Temperate Dry Zone of Himachal Pradesh and Mild Hills sub-Humid Zone of Himachal Pradesh.
    - In Mild Hills sub-Humid Zone of Himachal Pradesh, weather is conducive for infestation of canker diseases in apple, stone fruit and pomegranate, spray Bordeaux mixture (Copper sulphate 1.6Kg + Lime 1.6Kg + 200L water)
    - In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of maggot in mango, for control, spray 17.8 % Emidacloprid S.L. @ 1 ml in 3 litres of water or 25 % Quinalphos EC @ 2 ml per litre of water.
    - In North Eastern Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of mango hopper and mealy bug in mango trees for control spray mixture of 0.2 % Emidacloprid @ 400 ml and 0.2 % Carbendazim @ 400 g per 200 litres of water per 20 plants.
    - In Central Plain Zone of Uttar Pradesh, undertake transplanting of papaya plants in new orchard.
    - In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of fruit drop in mango, for control spray Naphthalene acetic acid @ 20 gm per litre of water.
  - **Animal Husbandry**
    - In High Hill Temperate Dry Zone of Himachal Pradesh, give daily 40-50g Minerals mixture per cow and protect newly born calves to protect from cold.
    - In Mid Hills sub-Humid Zone of Himachal Pradesh, spray Cypermethrin (2-2.5ml/litre of water) on the body of animals to protect them from attack of parasites.
    - In Sub-Montane and Low Hills Sub-Tropical Zone of Himachal Pradesh, for milch animals, follow schedule of 1 kg feed+50 g mineral mixtures per 2 litres of milk. Get the animals vaccinated against Foot and Mouth disease.
  - **Floriculture**
    - In Sub Montane and Low Hills Sub Humid Zone of Himachal Pradesh, as there is a chance of attack of aphids in winter flower plants, spray Malathion @ 0.05% for the control after current spells of rain.

**Districtwise realised rainfall and % departure for past three weeks is given below in Annexure I**

### Annexure I

#### Week by week Rainfall Distribution

Sub-Divisions	02.03.16		09.03.16		16.03.16	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>						
Anjaw	**	**	**		**	**
Changlang	1.2	-98	16.5	-75	62.4	-32
Dibang Valley	15.0	-59	5.0	-92	**	**
East Kameng	0.0	-100	0.0	-100	3.2	-87
East Siang	1.7	-91	23.8	1	15.0	-15
Kurung Kumey	**	**	**	**	**	**

Lohit	11.1	-52	89.1	216	32.6	-1
Lower Dibang Valley	3.8	-90	4.0	-94	11.9	-85
Lower Subansari	**	**	**	**	**	**
Papumpare	3.5	-77	20.3	107	44.5	26
Tawang	6.0	-8	48.0	478	48.0	264
Tirap	4.2	-74	14.0	-51	27.4	34
Upper Siang	11.6	-76	48.8	-44	181.0	116
Upper Subansari	0.0	-100	27.4	191	10.2	-51
West Kameng	0.0	-100	1.6	-81	0.0	-100
West Siang	2.0	-88	22.0	-9	15.0	-2
<b>Assam&amp;Meghalaya</b>						
<b>Assam</b>						
Baksa	0.0	-100	5.4	20	1.0	-90
Barpeta	0.0	-100	8.9	98	0.0	-100
Bongaigaon	0.0	-100	2.2	-63	0.0	-100
Cachar	19.1	17	4.2	-82	16.6	-33
Chirang	0.0	-100	1.4	-76	0.0	-100
Darrang	**	**	**	**	**	**
Dhemaji	4.0	-69	15.0	44	2.0	-88
Dhubri	0.0	-100	0.0	-100	0.0	-100
Dibrugarh	8.1	-45	42.7	151	19.7	-19
Goalpara	0.0	-100	0.0	-100	0.0	-100
Golghat	1.2	-79	2.1	-72	4.7	-51
Hailakandi	35.2	300	0.0	-100	8.7	-64
Jorhat	0.8	-89	21.1	83	1.2	-92
Kamrup(Rural)	0.0	-100	0.1	-98	0.0	-100
Kamrup(Metro)	0.0	-100	1.7	-73	0.0	-100
Karbi Anglong	0.4	-94	0.6	-92	0.4	-97
Karimganj	7.6	-28	9.5	-68	20.0	-15
Kokrajhar	0.0	-100	0.3	-92	0.0	-100
Lakhimpur	0.0	-100	72.5	597	9.5	-43
Morigaon	0.0	-100	0.2	-96	0.0	-100
N.C.Hills	3.4	-77	0.0	-100	0.0	-100
Nowgong	14.2	209	3.4	-26	3.3	-63
Nalbari	0.0	-100	5.5	-13	0.0	-100
Sonitpur	0.0	-100	3.3	-44	0.0	-99
Sibsagar	5.7	6	42.7	209	18.6	1
Tinsukia	4.9	-72	61.0	261	34.5	38
Udalgiri	0.0	-100	3.9	-58	0.0	-100
<b>Meghalaya</b>						
East Garo Hills	0.0	-100	0.0	-100	0.0	-100
East Khasi Hills	5.5	-21	1.9	-94	0.3	-98
Jaintia Hills	5.0	-29	13.0	-22	0.0	-100
Ribhoi	0.0	-100	0.5	-87	0.0	-100
South Garo Hills	0.0	-100	0.0	-100	0.0	-100
West Garo Hills	0.0	-100	0.0	-100	0.0	-100
West Khasi Hills	2.0	-76	1.9	-94	0.0	-100
<b>NMMT</b>						
<b>Mizoram</b>						

Aizwal	1.5	-86	4.5	-62	0.0	-100
Champhai	**	**	**	**	**	**
Kolasib	0.0	-100	0.0	-100	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	**	**	**	**	**	**
Mamit	**	**	**	**	**	**
Saiha	8.0	321	0.0	-100	0.0	-100
Serchhip	6.0	-18	0.0	-100	0.0	-100
<b>Manipur</b>						
Bishnupur	**	**	**	**	**	**
Chandel	0.0	-100	0.0	-100	1.0	-70
Churachandpur	**	**	**	**	**	**
Imphal east	10.2	-15	0.0	-100	3.8	-58
Imphal west	15.2	21	24.2	70	33.2	515
Senapati	**	**	**	**	**	**
Tamenglong	**	**	**	**	**	**
Thoubal	**	**	**	**	**	**
Ukhrul	**	**	0.0	-100	0.0	-100
<b>Nagaland</b>						
Dimapur	2.6	8	0.0	-100	0.0	-100
Kephire	**	**	**	**	**	**
Kohima	2.0	-74	3.8	-56	6.0	-47
Longleng	**	**	**	**	**	**
Mokokchung	2.0	-66	1.0	-81	0.0	-100
Mon	**	**	**	**	**	**
Paren	**	**	**	**	**	**
Phek	**	**	8.0	-8	3.0	-73
Tuensang	**	**	**	**	**	**
Wokha	1.0	-93	1.0	-93	1.0	-94
Zunheboto	**	**	**	**	**	**
<b>Tripura</b>						
Dhalai	36.0	275	1.5	-89	0.0	-100
NorthTripura	42.1	141	17.5	25	10.9	-34
SouthTripura	5.2	-53	0.7	-89	0.0	-100
West Tripura	12.4	47	1.6	-79	0.7	-94
<b>Himachal Pradesh</b>						
Bilaspur	0.0	-100	35.6	158	35.8	307
Chamba	0.0	-100	19.8	-46	132.8	504
Hamirpur	0.0	-100	19.5	47	34.1	133
Kangra	0.1	-99	17.0	7	49.3	141
Kinnaur	0.0	-100	2.1	-88	34.0	27
Kullu	0.4	-99	28.3	6	76.1	125
Lahaul and Spiti	0.0	-100	3.3	-90	55.0	18
Mandi	2.5	-84	20.0	42	54.0	160
Shimla	2.3	-86	19.0	33	55.6	190
Sirmaur	0.0	-100	5.3	-28	34.1	284
Solan	0.0	-100	23.5	118	76.2	411
Una	0.0	-100	10.5	-4	50.7	496
<b>Punjab</b>						

Amritsar	0.0	-100	4.0	-38	25.4	205
Barnala	0.0	-100	0.0	-100	0.0	-100
Bhatinda	0.0	-100	10.0	317	26.5	703
Faridkot	0.0	-100	3.5	21	34.7	567
Fatehgarh Sahib	0.0	-100	4.0	-29	30.0	392
Ferozpur	0.0	-100	0.4	-90	13.2	180
Gurdaspur	0.0	-100	7.3	-40	48.9	301
Hoshiarpur	0.0	-100	1.3	-88	16.3	88
Jalandhar	0.0	-100	1.6	-77	24.0	242
Kapurthala	0.0	-100	2.5	-62	53.7	842
Ludhiana	0.0	-100	3.0	-53	14.3	165
Mansa	0.0	-100	6.8	278	3.6	24
Moga	0.0	-100	4.2	50	20.0	388
Muktesar	0.0	-100	24.2	612	43.0	900
Nawashahar	0.0	-100	5.1	-40	26.8	185
Patiala	0.0	-100	16.0	213	21.7	361
Ropar	0.0	-100	1.3	-71	29.9	21
Sangrur	0.0	-100	12.1	317	19.5	428
Mohali	0.0	-100	2.0	-63	45.0	417
TarnTaran	0.0	-100	0.0	-100	32.0	482
<b>Haryana,Chd,Delhi</b>						
<b>Haryana</b>						
Ambala	0.0	-100	6.0	34	16.4	80
Bhiwani	0.0	-100	6.3	384	2.8	25
Chandigarh	0.0	-100	4.6	-13	49.4	606
Faridabad	0.0	-100	3.0	-23	8.5	372
Fatehabad	0.0	-100	5.7	608	17.3	590
Gurgaon	0.0	-100	5.2	174	7.2	414
Hissar	0.0	-100	19.3	1507	5.7	216
Jhajar	0.0	-100	4.0	102	12.1	425
Jind	0.0	-100	11.0	511	10.8	112
Katihah	0.0	-100	5.4	146	22.9	781
Karnal	0.0	-100	4.2	27	23.0	400
Kurukshetra	0.0	-100	3.8	1	14.2	145
Mahendragarh	0.0	-100	5.3	78	0.0	-100
Mewat	0.0	-100	10.5	855	8.2	310
Palwal	0.0	-100	2.0	67	3.8	275
Panchkkula	0.0	-100	6.0	13	13.7	185
Panipat	0.0	-100	1.2	-20	42.5	1533
Rewari	0.0	-100	3.6	200	4.8	245
Rohtak	0.0	-100	4.6	5	10.4	181
Sirsa	0.0	-100	5.0	233	16.3	803
Sonepat	0.0	-100	5.4	93	36.9	738
Yamunanagar	0.0	-100	6.7	42	23.7	133
<b>Delhi</b>						
Central Delhi	0.0	-100	4.0	33	2.0	-57
East Delhi	0.0	-100	3.0	0	4.0	-13
New Delhi	0.0	-100	5.2	73	10.4	127
North Delhi	0.0	-100	4.2	40	8.0	73

North East Delhi	0.0	-100	4.0	33	0.0	-100
North West Delhi	0.0	-100	3.5	17	6.0	30
South Delhi	0.0	-100	3.9	28	17.0	270
South West Delhi	0.0	-100	7.0	132	17.2	274
West Delhi	0.0	-100	5.0	67	8.0	74
<b>Jammu &amp; Kashmir</b>						
Anantnag	0.0	-100	3.9	-89	62.7	106
Badgam	0.0	-100	2.0	-91	50.3	173
Bandipore	**	**	**	**	**	**
Baramula	0.0	-100	3.1	-88	81.2	51
Doda	0.0	-100	5.8	-88	95.6	132
Ganderbal	0.0	-100	4.4	-77	65.4	176
Jammu	0.0	-100	11.5	-18	89.3	632
Kargil	**	**	**	**	**	**
Kathua	0.0	-100	20.9	15	58.5	312
Kistwar	**	**	**	**	**	**
Kulgam	0.0	-100	1.6	-96	68.9	126
Kupwara	0.0	-100	4.0	-91	114.9	121
Ladakh(Leh)	0.0	-100	0.0	-100	0.0	-100
Poonch	**	**	**	**	**	**
Pulwama	0.0	-100	3.1	-85	43.8	153
Rajouri	0.0	-100	15.0	46	92.2	1518
Ramban	0.0	-100	17.1	-63	142.7	246
Reasi	0.0	-100	30.9	14	107.3	254
Samba	0.0	-100	5.2	-63	36.3	198
Shopian	**	**	**	**	**	**
Srinagar	0.0	-100	3.0	-84	45.9	93
Udhampur	0.0	-100	42.0	55	88.0	190
<b>East Madhya Pradesh</b>						
Anuppur	0.0	-100	2.2	-43	9.8	46
Balaghat	3.6	6	0.6	-73	9.7	193
Chhatarpur	0.0	-100	3.1	285	17.1	716
Chindwara	9.6	167	11.1	235	5.8	4
Damoh	0.0	-100	3.0	67	5.5	104
Dindori	0.0	-100	20.2	330	6.0	122
Jabalpur	0.0	-100	19.3	1106	0.9	-63
Katni	2.0	-26	0.0	-100	2.0	67
Mandla	4.3	-13	11.5	283	3.9	-31
Narsingpur	0.4	-85	1.0	-9	0.4	-69
Panna	0.0	-100	0.0	-100	8.3	276
Rewa	0.0	-100	3.1	179	29.4	1447
Sagar	0.0	-100	0.0	-100	4.3	64
Satna	0.0	-100	4.4	303	11.1	361
Seoni	18.0	275	17.2	310	10.2	88
Shahdol	0.0	-100	8.0	220	0.1	-98
Sidhi	0.0	-100	4.6	188	7.0	100
Singrauli	3.7	208	10.0	355	0.0	-100
Tikamgarh	0.0	-100	0.0	-100	21.5	1855



Umaria	2.6	-50	30.2	1338	11.2	129
<b>West Madhya Pradesh</b>						
Agar	0.0	-100	0.0	-100	0.0	-100
Alirajpur	0.0	-100	1.5	667	0.0	-100
Asoknagar	0.0	-100	3.0	500	6.0	400
Badwani	0.0	-100	0.0	-100	0.0	-100
Betul	8.8	213	0.2	-85	0.3	-87
Bhind	0.0	-100	0.3	-61	0.0	-100
Bhopal	0.0	-100	0.0	-100	5.2	373
Burhanpur	0.0	-100	0.0	-100	0.0	-100
Datia	0.0	-100	0.0	-100	0.8	33
Dewas	0.0	-100	0.0	-100	0.0	-100
Dhar	0.0	-100	0.2	100	0.1	-52
Guna	0.0	-100	0.1	-92	1.5	15
Gwalior	0.0	-100	7.8	761	1.6	7
Harda	0.0	-100	0.0	-100	1.1	-39
Hosangabad	0.0	-100	2.4	33	3.1	7
Indore	0.0	-100	0.0	200	4.9	513
Jhabua	0.0	-100	0.3	200	0.0	-100
Khandwa	0.7	-17	0.0	-100	1.0	-23
Khargone	0.0	-100	0.0	-100	0.0	-100
Mandsaur	0.0	-100	0.0	-100	0.0	-100
Morena	0.0	-100	1.0	-17	0.8	-33
Neemuch	0.0	-100	0.0	-100	0.0	-100
Raisen	0.0	-100	0.3	-77	5.7	281
Rajgarh	0.0	-100	0.1	-89	0.0	-100
Ratlam	0.0	-100	0.0	-100	0.0	-100
Sehore	0.0	-100	0.0	-100	3.2	167
Shajapur	0.0	-100	0.0	-100	1.1	10
Sheopur Kalani	0.0	-100	0.0	-100	0.0	-100
Shivpuri	0.0	-100	0.0	-100	2.8	244
Ujjain	0.0	-100	0.2	-67	0.3	-63
Vidisha	0.0	-100	0.4	-43	6.6	291
<b>Chhattisgarh</b>						
Bastar	2.2	-17	0.9	-69	37.6	916
Bijapur	5.1	537	0.0	-100	0.0	-100
Bilaspur	3.7	-19	7.8	170	6.6	38
Dantewara	0.0	-100	0.0	-100	4.0	400
Dhamtari	0.8	-65	0.0	-100	21.2	1827
Durg	23.4	1069	0.0	-100	22.6	1226
Janjgir	0.5	-83	0.0	-100	17.5	465
Jashpurnagar	14.9	122	0.5	-86	2.9	16
Kanker	0.0	-100	0.0	-100	0.0	-100
Korba	18.7	273	19.0	805	9.5	158
Koriya	0.0	-100	**	**	17.8	560
Kawardha	5.4	46	1.0	-50	7.0	106
Mahasumund	5.5	83	0.0	-100	16.8	1296
Narayanpur	6.6	83	0.0	-100	10.9	289
Raigarh	4.7	27	**	**	3.4	70

Raipur	2.2	-26	0.4	-83	10.0	426
Rajnandgaon	29.6	919	0.0	-100	16.2	440
Surguja	3.0	-22	10.9	372	14.7	286
<b>East Uttar Pradesh</b>						
Allahabad	0.0	-100	11.0	687	16.3	1065
Ambedkar Nagar	0.0	-100	3.0	76	6.0	131
Azamgarh	0.0	-100	6.6	136	3.0	58
Bahraich	0.0	-100	2.7	-21	0.0	-100
Ballia	0.0	-100	2.7	128	0.5	-77
Balrampur	0.0	-100	0.0	-100	0.0	-100
Banda	0.0	-100	1.9	208	4.5	162
Barabanki	0.0	-100	4.1	139	7.9	367
Basti	0.0	-100	0.0	-100	4.2	100
Chandauli	0.0	-100	3.0	50	1.0	-29
Deoria	0.0	-100	0.0	-100	0.0	-100
Faizabad	0.0	-100	0.0	-100	18.0	1100
Farrukhabad	0.0	-100	0.0	-100	0.5	-79
Fatehpur	0.0	-100	17.3	3353	7.6	230
Gazipur	0.0	-100	3.0	75	13.1	2083
Gonda	0.0	-100	0.3	-86	0.0	-100
Gorakhpur	0.0	-100	0.0	-100	0.2	-93
Hardoi	0.0	-100	0.0	-100	0.0	-100
Jaunpur	0.0	-100	6.1	370	6.3	317
Kannauj	0.0	-100	0.0	-100	0.0	-100
Kanpur City	0.0	-100	9.3	617	3.0	103
Kanpur Dehat	0.0	-100	1.0	43	2.0	82
Kaushambi	0.0	-100	4.9	600	4.1	173
Kheri	0.0	-100	0.0	-100	0.8	-58
Kushi nagar	0.0	-100	0.0	-100	3.0	76
Lucknow	0.0	-100	2.1	38	12.5	419
Maharajganj	0.0	-100	0.0	-100	11.0	214
Mau	0.0	-100	0.0	-100	0.0	-100
Mirzapur	0.0	-100	22.0	948	12.5	862
Pratapgarh	0.0	-100	15.0	1150	1.0	-29
RaiBareilly	0.0	-100	3.7	308	0.5	-70
Sahuji Maharajnagar	0.0	-100	1.5	150	7.5	213
Sant Kabirnagar	0.0	-100	0.0	-100	1.0	-55
Sant Ravidas Nagar	0.0	-100	26.0	1200	26.0	1757
Shrawasti	**	**	**	**	**	**
Sidharthnagar	0.0	-100	0.0	-100	0.0	-100
Sitapur	0.0	-100	0.0	-100	4.3	88
Sonbhadra	0.0	-100	9.6	229	20.8	529
Sultanpur	0.0	-100	4.3	381	0.0	-100
Unnao	0.0	-100	3.0	131	0.0	-100
Varanasi	0.0	-100	17.3	915	13.0	829
<b>West Uttar Pradesh</b>						
Agra	0.0	-100	6.6	187	0.1	-97
Aligarh	0.0	-100	3.3	108	0.8	-71

Auraiya	0.0	-100	1.0	-29	0.0	-100
Badaun	0.0	-100	5.2	108	5.8	45
Baghpat	0.0	-100	1.3	-24	29.1	628
Bareilly	0.0	-100	1.5	-46	7.0	193
Bijnor	0.0	-100	1.8	-63	12.6	90
Bulandsahar	0.0	-100	1.3	-30	5.1	-1
Etah	0.0	-100	13.7	469	1.0	-71
Etawah	0.0	-100	0.0	-100	0.0	-100
Firozabad	0.0	-100	2.7	47	1.8	13
GBNagar	0.0	-100	0.0	-100	0.0	-100
Ghaziabad	0.0	-100	1.2	-43	20.2	512
Hamirpur	0.0	-100	12.3	1956	16.0	1233
Jalaun	0.0	-100	0.7	33	8.3	589
Jhansi	0.0	-100	0.3	-50	8.0	563
Jotiba Phule Nagar	0.0	-100	2.0	-23	22.0	547
Kanshiramnagar	0.0	-100	5.0	100	0.0	-100
Lalitpur	0.0	-100	0.0	-100	16.2	750
Mahamaya Nagar	0.0	-100	1.5	-25	0.0	-100
Mahoba	0.0	-100	0.0	-100	2.6	117
Mainpuri	0.0	-100	3.1	63	0.0	-100
Mathura	0.0	-100	0.0	-100	0.0	-100
Meerut	0.0	-100	1.4	-60	14.8	312
Moradabad	0.0	-100	2.0	-27	22.0	779
Muzzaffarnagar	0.0	-100	1.8	-31	20.8	572
Pilibhit	0.0	-100	0.0	-100	0.0	-100
Rampur	0.0	-100	1.9	-43	15.1	358
Saharanpur	0.0	-100	5.3	27	13.0	128
Shahjahanpur	0.0	-100	0.0	-99	2.4	-45
<b>Uttarakhand</b>						
Almora	0.0	-100	0.8	-92	56.9	493
Bageshwar	0.0	-100	0.0	-100	50.4	424
Chamoli	0.0	-100	9.3	-42	52.0	256
Champawat	0.0	-100	0.0	-100	13.0	97
Dehradun	0.0	-100	1.5	-84	30.4	179
Garhwal Pauri	0.0	-100	0.0	-100	17.8	155
Garhwal Tehri	0.0	-100	2.5	-81	28.4	134
Haridwar	0.0	-100	0.8	-85	18.1	144
Nainital	0.0	-100	0.0	-100	53.4	748
Pithorgarh	3.6	-74	4.1	-72	25.4	103
Rudraprayag	0.1	-99	6.8	-66	21.6	3
Udham Sing Nagar	0.0	-100	1.3	-63	2.3	5
Uttarkashi	6.8	-44	8.9	-55	36.2	113
<b>Bihar</b>						
Araria	0.0	-100	0.0	-100	0.6	-71
Arwal	0.0	-100	0.0	-100	4.2	317
Aurangabad	0.0	-100	0.0	-100	7.4	313
Banka	0.0	-100	0.0	-100	0.0	-100
Begusarai	0.0	-100	0.0	-100	0.0	-100
Bhabua	0.0	-100	0.0	-100	10.1	1022

Bhagalpur	0.9	-67	0.0	-100	1.6	-13
Bhojpur	0.0	-100	0.0	-100	4.2	133
Buxar	0.0	-100	0.0	-100	**	**
Darbhanga	0.0	-100	0.0	-100	3.0	36
East Champaran	0.0	-100	0.0	-100	0.0	-100
Gaya	0.3	-80	0.0	-100	11.6	406
Gopalganj	0.0	-100	0.0	-100	**	**
Jahanabad	0.0	-100	0.0	-100	3.6	100
Jamui	0.0	-100	0.0	-100	0.8	-33
Kathihar	0.0	-100	0.0	-100	0.0	-100
Khagadia	3.2	357	**	**	0.0	-100
Kishanganj	0.0	-100	0.0	-100	0.0	-100
Lakhisarai	0.0	-100	0.0	-100	7.3	387
Madhepura	0.0	-100	0.0	-100	0.0	-100
Madhubani	0.0	-100	0.0	-100	0.0	-100
Monghyar	0.0	-100	0.0	-100	**	**
Muzaffarpur	5.9	351	0.0	-100	0.0	-100
Nalanda	0.0	-100	0.0	-100	9.3	567
Nawada	0.0	-100	0.0	-100	3.7	267
Patna	0.0	-100	0.0	-100	2.4	7
Purnea	0.0	-100	17.5	1650	0.0	-100
Rohtas	1.7	-51	12.0	606	20.3	1594
Saharsha	0.0	-100	0.0	-100	0.0	-100
Samstipur	0.0	-100	0.0	-100	0.0	-100
Saran	0.0	-100	0.0	-100	0.0	-100
Sheikpura	0.0	-100	0.0	-100	**	**
Sheohar	0.0	-100	0.0	-100	0.0	-100
Sitamarhi	0.0	-100	0.0	-100	0.0	-100
Siwan	0.0	-100	0.0	-100	0.0	-100
Supaul	0.0	-100	0.0	-100	0.0	-100
Vaishali	0.0	-100	0.0	-100	3.4	100
West Champaran	0.0	-100	0.0	-100	2.9	-5
<b>Jharkhand</b>						
Bokaro	2.4	-12	3.5	118	6.8	31
Chatra	0.0	-100	0.0	-100	15.3	752
Deoghar	0.0	-100	0.0	-100	2.4	24
Dhanbad	15.4	294	2.1	-26	0.5	-88
Dumka	0.0	-100	0.0	-100	5.4	93
East Singbhum	3.5	-49	3.1	-10	1.3	-75
Garhwa	0.0	-100	95.0	5488	0.0	-100
Giridih	14.9	367	2.2	21	8.0	134
Godda	0.0	-100	0.0	-100	0.3	-64
Gumla	42.3	540	11.8	246	7.3	114
Hazaribagh	0.0	-100	4.8	60	9.9	521
Jamtara	5.5	150	1.6	-45	1.0	-63
Khunti	0.0	-100	0.0	-100	0.0	-100
Koderrna	0.0	-100	0.0	-100	4.1	154
Latehar	0.0	-100	17.3	302	12.7	170
Lohardagga	0.0	-100	11.5	149	20.4	410

Pakur	0.0	-100	2.1	-28	0.0	-100
Palamau	0.0	-100	6.2	210	20.1	616
Ramgarh	0.0	-100	9.0	329	4.4	76
Ranchi	0.8	-89	9.0	118	11.7	150
Sahebganj	0.0	-100	8.4	394	0.0	-100
Saraikela	3.6	-42	0.0	-100	0.0	-100
Simdega	26.1	235	13.1	275	17.9	518
West Singhbhum	5.2	-22	0.0	-100	1.6	-74
<b>East Rajasthan</b>						
Ajmer	0.0	-100	0.2	125	0.0	-100
Alwar	0.0	-100	14.4	932	0.2	-80
Banswara	0.0	-100	0.0	-100	0.0	-100
Baran	0.0	-100	0.7	122	1.8	192
Bharatpur	0.0	-100	0.2	-87	0.0	-100
Bhilwara	0.0	-100	2.6	761	0.0	-100
Bundi	0.0	-100	0.3	-17	0.0	-100
Chittorgarh	0.0	-100	1.3	200	0.0	-100
Dausa	0.0	-100	4.8	243	0.0	-100
Dholpur	0.0	-100	9.3	567	0.0	-100
Dungarpur	0.0	-100	0.0	-100	0.0	-100
Jaipur	0.0	-100	1.7	247	0.0	-100
Jhalawar	0.0	-100	0.0	-100	0.2	-50
Jhunjhunu	0.0	-100	7.9	465	0.0	-100
Karauli	0.0	-100	0.0	-100	0.0	-100
Kota	0.0	-100	0.0	-100	0.0	-100
Pratapgarh	0.0	-100	0.0	-100	0.0	-100
Rajsamand	0.0	-100	5.4	1244	0.0	-100
Sawai Madhopur	0.0	-100	0.0	-100	0.5	25
Sikar	0.0	-100	10.4	848	0.0	-100
Sirohi	0.0	-100	1.7	200	0.0	-100
Tonk	0.0	-100	1.1	278	0.0	-96
Udaipur	0.0	-100	1.3	200	0.0	-100
<b>West Rajasthan</b>						
Barmer	0.0	-100	0.0	-100	1.8	1653
Bikaner	0.0	-100	7.6	856	6.7	379
Churu	0.0	-100	10.4	943	4.6	252
Hanumangarh	0.0	-100	8.7	1145	10.6	861
Jaisalmer	0.0	-100	2.4	2271	0.7	138
Jalore	0.0	-100	0.1	200	0.3	200
Jodhpur	0.0	-100	1.4	381	0.2	100
Nagaur	0.0	-100	2.4	300	0.0	-100
Pali	0.0	-100	1.9	200	0.0	-100
Sri Ganganagar	0.0	-100	2.7	67	11.9	375
<b>Gujarat Region</b>						
Ahmedabad	0.0	-100	1.2	200	0.0	-100
Anand	0.0	-100	0.3	200	0.0	-100
Banaskantha	0.0	-100	0.0	-100	0.0	-100
Baroda	0.6	200	0.0	-100	0.0	-100
Broach	0.0	-100	1.1	200	0.0	-100

DNH	**	**	**	**	**	**
Dahod	0.0	-100	0.0	-100	0.0	-100
Daman	0.0	-100	0.0	-100	**	**
Dangs	0.0	-100	0.0	-100	0.0	-100
Gandhinagar	0.0	-100	1.6	200	0.0	-100
Kheda	0.0	-100	0.5	200	0.0	-100
Mehsana	0.0	-100	0.0	-100	0.0	-100
Narmada	0.0	-100	0.0	-100	0.0	-100
Navsari	0.0	-100	1.4	200	0.0	-100
Panchmahal	0.0	-100	0.7	200	0.0	-100
Patan	0.0	-100	0.0	-100	0.0	-100
Sabarkantha	0.0	-100	0.0	-100	0.0	-100
Surat	0.0	-100	1.9	200	0.0	-100
Tapi	0.0	-100	1.8	200	0.0	-100
Valsad	0.0	-100	0.4	200	0.0	-100
<b>S K &amp; Diu region</b>						
Amreli	0.0	-100	0.1	200	0.0	-100
Bhavnagar	0.0	-100	0.1	200	0.0	-100
Diu	0.0	-100	0.4	200	0.0	-100
Jamnagar	0.0	-100	0.0	-100	0.1	33
Junagarh	0.0	-100	0.3	200	0.0	-100
Kutch	0.0	-100	0.0	-100	0.5	33
Porbandar	0.0	-100	0.0	-100	0.0	-100
Rajkot	0.0	-100	0.0	-100	0.0	-100
Surendranagar	0.0	-100	0.0	-100	0.0	-100
<b>Maharashtra</b>						
<b>Konkan &amp; Goa</b>						
Mumbai City	0.0	-100	0.0	-100	0.0	-100
Mumbai Suburban	0.0	-100	10.0	200	0.0	-100
North Goa	0.0	-100	0.0	-100	0.0	-100
Raigad	0.0	-100	4.4	200	0.0	-100
Ratnagiri	0.1	200	0.1	200	0.0	-100
Sindhudurg	0.0	-100	0.0	-100	0.0	-100
South Goa	0.0	-100	0.0	-100	0.0	-100
Thane	0.0	-100	6.5	200	0.0	-100
<b>Madhya Maharashtra</b>						
Ahmednagar	0.1	-38	1.2	96	0.0	-100
Dhule	1.5	200	2.5	317	0.0	-100
Jalgaon	3.2	688	0.4	-57	0.0	-100
Kolhapur	1.4	364	4.4	532	0.0	-100
Nandurbar	0.6	200	1.3	200	0.0	-100
Nasik	3.5	1669	8.4	1998	0.0	-100
Pune	2.9	2843	2.1	200	0.0	-100
Sangli	5.0	2380	10.4	1976	0.0	-100
Satara	10.8	3508	1.9	526	0.0	-100
Solapur	1.2	71	4.9	2359	0.0	-94
<b>Marathwada</b>						
Aurangabad	1.0	14	6.7	1233	0.0	-100

Beed	12.4	1141	2.8	458	0.0	-100
Hingoli	10.3	832	1.2	11	0.0	-100
Jalna	5.1	535	1.4	254	0.0	-100
Latur	14.6	1223	13.8	626	0.0	-100
Nanded	8.9	1168	1.6	-34	0.0	-100
Usmanabad	9.4	619	8.4	2003	0.0	-100
Parbhani	9.7	782	0.2	-79	0.0	-100
<b>Vidarbha</b>						
Akola	0.1	-94	0.0	-100	0.0	-100
Amraoti	11.4	777	1.9	16	0.0	-100
Bhandara	10.4	352	0.2	-94	5.5	-8
Buldhana	8.2	725	0.0	-100	0.0	-100
Chandrapur	24.4	875	7.1	104	12.0	252
Gadchiroli	23.0	1540	0.0	-100	0.0	-100
Gondia	12.1	278	0.4	-86	12.5	172
Nagpur	19.9	587	4.2	8	2.4	-49
Wardha	15.1	344	11.5	503	4.9	52
Washim	21.3	1673	0.7	-35	0.0	-100
Yeotmal	9.8	603	8.0	347	1.3	-60
<b>Odisha</b>						
Angul	24.2	285	0.0	-100	10.5	90
Balasore	45.1	402	0.8	-90	2.1	-69
Bargarh	10.8	136	0.0	-100	12.4	376
Bhadrak	39.9	587	0.0	-100	1.4	-85
Bolangir	8.6	139	0.0	-100	5.8	38
Boudh	1.3	-77	0.0	-100	0.0	-100
Cuttack	1.1	-84	0.0	-100	3.6	-54
Deogarh	16.2	305	0.0	-100	1.3	-70
Dhenkanal	36.9	505	0.0	-100	16.9	116
Gajapati	3.6	-49	0.0	-100	2.9	-85
Ganjam	17.3	321	0.0	-100	4.1	-56
Jagatsingpur	1.1	-80	0.0	-100	0.0	-100
Jajpur	31.9	177	0.0	-100	4.7	-51
Jharsuguda	19.5	195	15.2	311	3.4	1
Kalahandi	2.3	-52	0.0	-100	14.0	367
Kandhamal	3.4	-42	0.0	-100	23.2	453
Kendrapara	8.5	-11	0.0	-100	0.0	-100
Keonjhar	58.3	657	2.1	-85	10.1	34
Khurda	3.5	-49	0.0	-100	0.1	-99
Koraput	0.0	-100	0.0	-100	8.3	72
Malkangiri	8.8	200	0.0	-100	0.0	-100
Mayurbhanj	34.4	189	0.7	-90	2.7	-71
Nawapara	2.4	-35	0.0	-100	0.8	-68
Nawarangpur	6.1	371	0.0	-100	25.8	501
Nayagarh	13.6	119	0.0	-100	15.3	200
Puri	1.5	-68	0.0	-100	0.0	-100
Rayagada	7.6	86	0.0	-100	12.4	31
Sambalpur	6.9	72	0.1	-99	4.8	9
Sonepur	15.0	285	0.0	-100	1.0	-75

Sundargarh	12.6	120	0.6	-83	4.4	-13
<b>West Bengal &amp; Andaman Nicobar Islands</b>						
<b>A &amp; N ISLAND</b>						
Nicobar	1.7	-86	0.0	-100	0.0	-100
North & Middle Andaman	0.0	-100	0.0	-100	0.0	-100
South Andaman	0.0	-100	0.0	-100	0.0	-100
<b>GWB</b>						
Bankura	3.5	-1	3.6	6	2.6	-55
Birbhum	6.0	150	0.1	-98	0.6	-85
Burdwan	29.0	780	0.3	-92	1.2	-48
East Midnapore	57.8	750	0.0	-100	0.2	-95
Hooghly	22.2	788	0.0	-100	0.0	-100
Howrah	101.4	1744	0.0	-100	0.0	-100
Kolkata	92.0	1143	0.2	-94	0.0	-100
Murshidabad	6.0	650	1.0	-76	0.0	-100
Nadia	40.6	1663	0.0	-100	0.0	-100
24 Pargana (N)	74.8	2099	0.0	-100	9.9	44
Purulia	10.4	112	0.6	-88	2.5	-39
24 Pargana (S)	60.4	924	0.2	-98	0.0	-100
West Midnapore	37.2	464	4.9	-22	0.3	-96
<b>SHWB &amp; Sikkim</b>						
Cooch Behar	0.0	-100	0.0	-100	0.0	-100
Darjeeling	0.9	-80	1.8	-87	0.0	-100
East Sikkim	1.4	-87	67.0	411	8.6	-48
Jalpaiguri	0.7	-84	8.3	98	0.0	-100
Malda	0.0	-100	1.9	-14	0.2	-93
North Dinajpur	**	**	**	**	**	**
North Sikkim	16.3	-26	48.3	38	56.0	13
South Dinajpur	0.0	-100	0.0	-100	5.2	93
South Sikkim	2.0	-82	10.5	-20	2.3	-86
West Sikkim	1.0	-95	34.0	-3	0.0	-100
<b>Karnataka</b>						
<b>Coastal Karnataka</b>						
Dakshina Kannada	0.0	-100	0.0	-100	0.0	-100
Udupi	0.0	-100	0.0	-100	0.0	-100
Uttara Kannada	0.0	-100	0.0	-100	0.0	-100
<b>NI Karnataka</b>						
Bagalkote	0.0	-100	3.0	406	0.1	-89
Belagavi	1.2	196	4.5	1013	0.0	-100
Bidar	1.8	41	12.8	884	0.5	-86
Dharwad	0.1	-92	0.0	-100	0.0	-100
Gadag	0.0	-100	0.0	-100	0.0	-100
Haveri	0.4	100	0.0	-100	0.0	-100
Kalaburgi	1.2	189	8.5	1114	0.0	-100
Koppal	0.0	-100	0.0	-100	0.0	-100
Raichur	0.0	-100	0.0	-100	0.0	-100
Vijayapura	0.0	-100	8.4	956	0.0	-100
Yadgir	0.0	-100	0.4	33	0.0	-100



<b>S I Karnataka</b>						
Ballari	0.0	-100	0.0	-100	0.0	-100
Bangalore Rural	0.0	-100	0.0	-100	11.3	563
Bangalore Urban	0.0	-100	0.0	-100	14.8	638
Chamarajanagar	0.0	-100	0.0	-100	1.3	-30
Chikaballapur	0.0	-100	0.0	-100	1.4	40
Chikkamagaluru	1.3	163	0.8	-78	0.4	-86
Chitradurga	0.0	-100	0.0	-100	0.0	-100
Davangere	0.0	-100	0.0	-100	0.0	-100
Hassan	0.0	-100	0.0	-100	0.1	-96
Kodagu	0.8	-14	1.7	-57	0.1	-98
Kolar	0.0	-100	0.0	-100	4.1	128
Mandya	0.1	-90	0.0	-100	0.3	-78
Mysuru	2.1	433	0.0	-100	9.0	402
Ramanagara	0.0	-100	0.0	-100	0.0	-100
Shivamogga	0.0	-100	0.0	-100	0.0	-100
Tumakuru	0.0	-100	0.0	-100	0.4	-75
<b>Kerala</b>						
Alappuzha	12.2	104	0.0	-100	18.1	49
Kannur	0.0	-100	0.2	-92	0.6	-66
Ernakulam	39.8	1036	0.0	-100	0.2	-97
Idukki	3.4	-53	0.0	-100	21.5	153
Kasaragod	0.0	-100	0.0	-100	0.0	-100
Kollam	6.5	-16	2.7	-79	23.1	46
Kottayam	13.0	321	0.0	-100	27.9	182
Kozhikode	0.0	-100	9.9	210	22.5	602
Malappuram	0.0	-100	0.0	-100	0.7	-68
Palakkad	0.0	-100	0.0	-100	4.5	13
Pathanamthitta	1.0	-91	0.0	-100	26.6	62
Thiruvananthapuram	0.0	-100	0.0	-100	15.6	123
Thrissur	0.0	-100	0.0	-100	0.0	-100
Wayanad	0.0	-100	0.0	-100	8.6	83
<b>Tamil Nadu</b>						
Ariyalur	0.0	-100	0.0	-100	0.0	-100
Chennai	0.0	-100	0.0	-100	0.0	-100
Coimbatore	0.0	-100	0.0	-100	11.4	107
Cuddalore	0.0	-99	0.0	-100	0.0	-100
Dharmapuri	0.0	-100	0.0	-100	0.0	-100
Dindigul	0.0	-99	0.0	-100	0.1	-99
Erode	0.0	-100	0.0	-100	0.0	-100
Kanchipuram	0.0	-100	0.0	-100	0.0	-100
Kanyakumari	0.0	-92	0.0	-100	7.7	-30
Karikal	0.0	-100	1.0	-85	0.0	-100
Karur	0.0	-100	0.5	-87	0.0	-100
Krishnagiri	0.0	-100	0.0	-100	1.9	13
Madurai	0.0	-99	0.0	-100	0.0	-100
Nagapattinam	0.0	-100	0.0	-100	0.0	-100
Namakkal	0.0	-100	0.0	-100	0.0	-100
Nilgiris	0.0	-100	0.0	-100	4.9	-52

Perambalur	0.0	-100	0.0	-100	0.0	-100
Puducherry	0.0	-100	0.0	-100	0.0	-100
Pudukottai	0.0	-100	0.0	-100	0.0	-100
Ramanathapuram	0.0	-26	0.0	-100	0.0	-100
Salem	0.0	-100	0.0	-100	0.0	-100
Sivaganga	0.0	-43	0.0	-100	0.0	-100
Thanjavur	0.0	-93	0.0	-100	0.0	-100
Theni	0.0	-70	0.0	-100	5.6	-31
Tirunelveli	0.0	-44	0.0	-100	0.1	-99
Tirupur	0.0	-100	0.0	-100	0.0	-100
Tiruvallur	0.0	-100	0.0	-100	0.0	-100
Tiruvannamalai	0.0	-100	0.0	-100	0.0	-100
Tiruvarur	0.0	-100	0.0	-100	0.0	-100
Toothukudi	0.0	-31	0.0	-100	1.3	-86
Trichy	0.0	-100	1.4	-68	0.0	-100
Vellore	0.0	-100	0.0	-100	0.0	-100
Villupuram	0.0	-100	0.0	-100	0.0	-100
Virudhunagar	0.0	-100	0.0	-100	0.0	-100
<b>Andhra Pradesh</b>						
<b>Coastal Andhra Pradesh</b>						
East Godavari	0.5	-87	0.0	-100	0.0	-100
Guntur	0.0	-100	0.0	-100	0.0	-100
Krishna	1.1	33	0.0	-100	0.0	-100
Nellore	0.0	-100	0.0	-100	0.0	-100
Prakasam	0.0	-100	0.0	-100	4.9	76
Sirkakulam	7.4	113	0.1	-97	3.7	-9
Visakhapatnam	10.4	510	2.1	-29	0.0	-100
Vizianagram	1.5	-45	0.0	-100	4.7	-6
West Godavari	0.9	-57	1.8	-40	0.0	-100
<b>Rayalaseema</b>						
Anantapur	0.0	-100	0.0	-100	0.1	-92
Chittoor	0.0	-100	0.0	-100	2.8	102
Cuddapah	0.0	-100	0.0	-100	0.1	-92
Kurnool	0.0	-100	0.0	-100	0.3	-83
<b>Telangana</b>						
Adilabad	12.5	494	3.9	57	0.5	-74
Hyderabad	0.0	-100	0.2	-90	0.0	-100
Karimnagar	20.7	1052	0.8	-59	6.0	66
Khammam	13.4	645	0.0	-100	0.2	-94
Mehabubnagar	0.1	-74	0.8	18	0.0	-100
Medak	0.1	-95	2.6	43	0.0	-100
Nalgonda	0.0	-100	0.0	-100	4.8	100
Nizamabad	9.8	878	3.3	119	0.0	-100
Rangareddy	0.0	-100	1.2	51	0.0	-100
Warangal	17.1	2038	0.0	-100	1.9	-54

#### Legends

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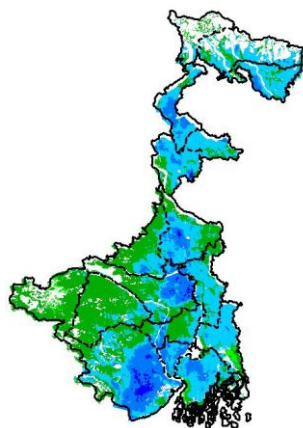
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

### Annexure II

#### INSAT 3A CCD NDVI COMPOSITE MAPS FOR THE WEEK ENDING ON

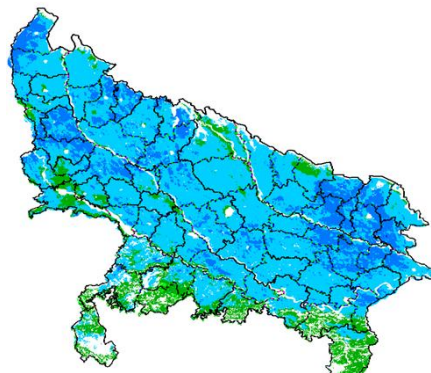
16<sup>th</sup> March 2016 FOR DIFFERENT STATES

#### West Bengal



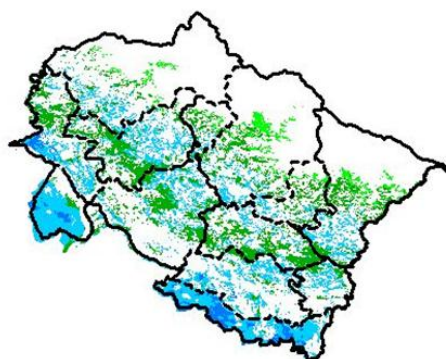
Agricultural vigour is good in central and Northern part of West Bengal, whereas rest of the state shows moderate NDVI.

#### Uttar Pradesh



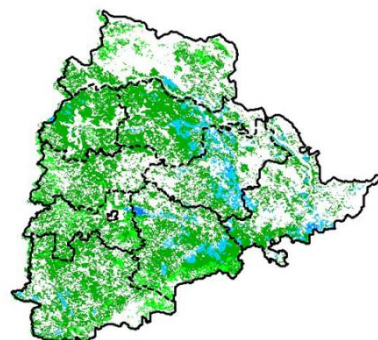
Agricultural vigour is good in major parts of Uttar Pradesh. whereas few patches in southern part shows moderate values of NDVI.

#### Uttarakhand



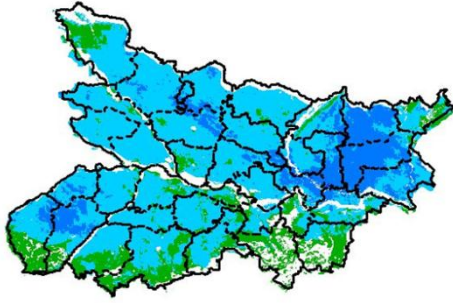
Agricultural vigour is moderate over entire state of Uttarakhand, whereas few patches in south and west part shows good values of NDVI.

#### Telangana



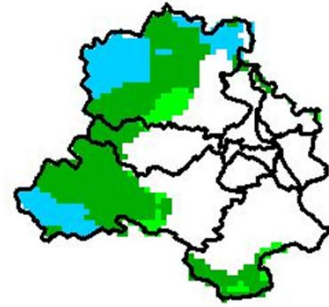
Agriculture vigour is moderate over most parts of Telangana. Few patches in eastern region shows good values of NDVI

## Bihar



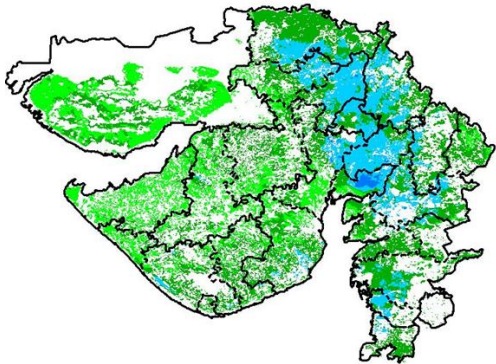
Agriculture vigour is very good over major parts of Bihar whereas south western part shows patches of moderate NDVI values

## Delhi



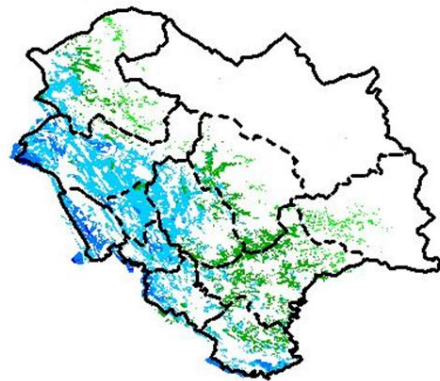
Agriculture vigour is moderate all over Delhi, whereas few patches over west show good vigour of NDVI.

## Gujarat



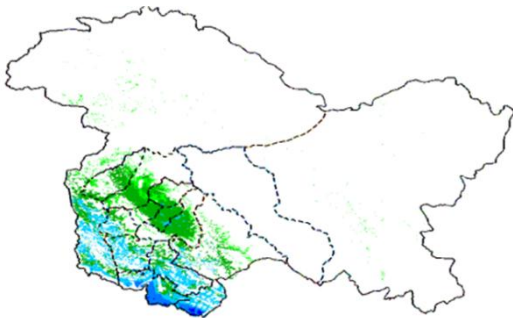
Agriculture vigour is moderate in Kutch and Saurashtra whereas, good agricultural vigour is observed over Gujarat region.

## Himachal Pradesh



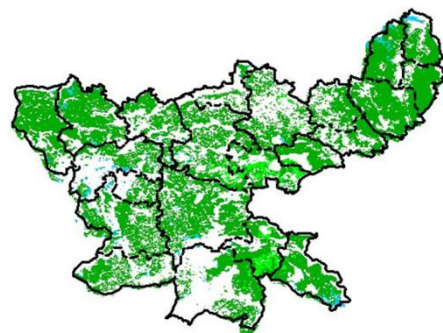
Agriculture vigour is good over western and southern parts of Himachal Pradesh, whereas rest of the state shows moderate values of NDVI.

## Jammu & Kashmir



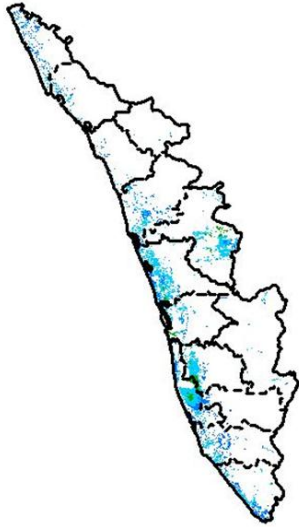
Agriculture vigour is good over entire state of Jammu & Kashmir

## Jharkhand



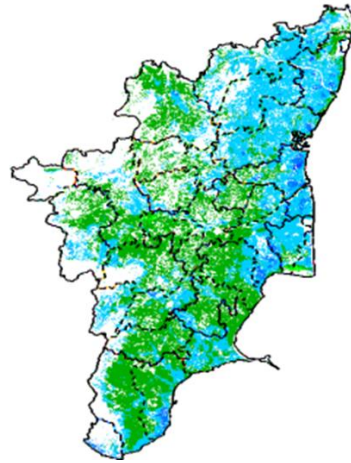
Agriculture vigour is moderate over entire state of Jharkhand

## Kerala



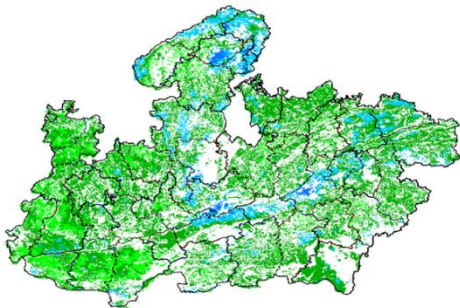
Agriculture vigour is good over entire state of Kerala.

## Tamil Nadu



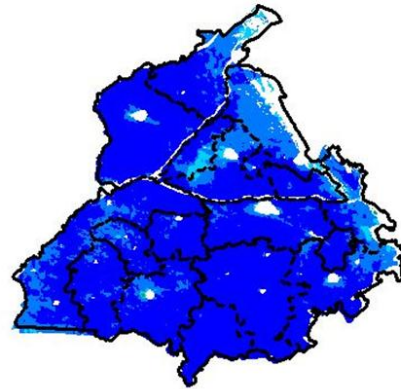
Agricultural vigour is moderate over major part of Tamil Nadu, except for northern region shows good NDVI is observed.

## Madhya Pradesh



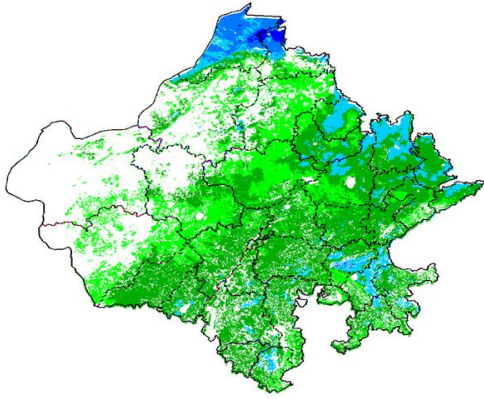
Agriculture vigour shows good values over northern and central part of Madhya Pradesh in few patches and rest of the state shows moderate values of NDVI

## Punjab



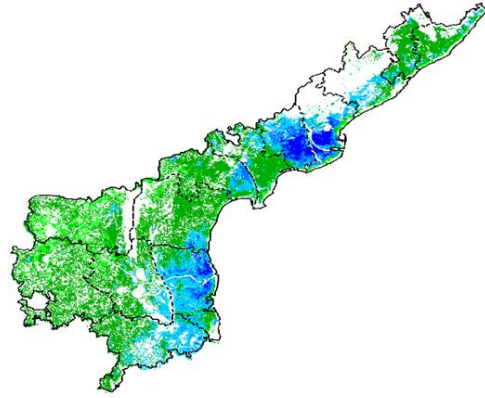
Agricultural vigour is very good over entire state of Punjab.

## Rajasthan



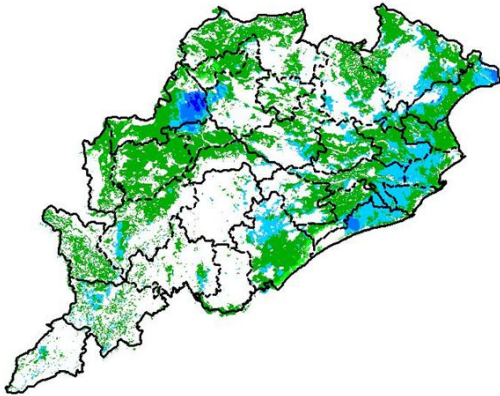
Agriculture vigour is moderate in central part , good agricultural vigour is observed over eastern region in patches and very good in northern parts of Rajasthan

## Andhra Pradesh



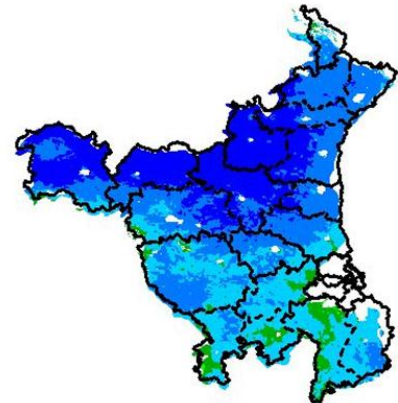
Agriculture vigour is very good over north-eastern part of Andhra Pradesh whereas western parts shows moderate values.

## Odisha



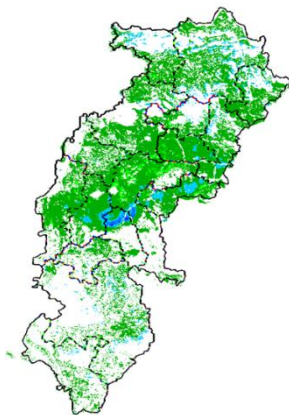
Agricultural vigour is good in patches of coastal parts of Odisha where rest region shows moderate values of NDVI.

## Haryana



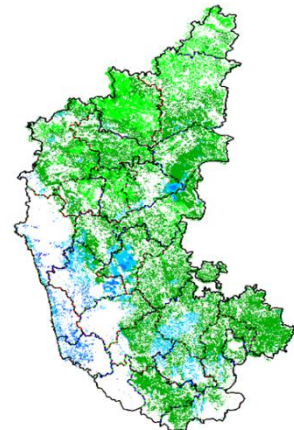
Agriculture vigour is very good over major parts of Haryana and moderate values are observed in patches of southern parts of state.

## Chhattisgarh



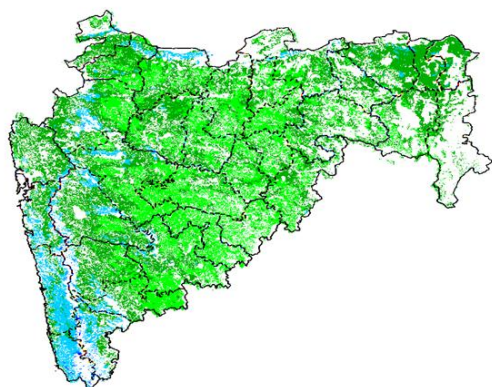
Agriculture vigour is moderate in state of Chhattisgarh.

## Karnataka



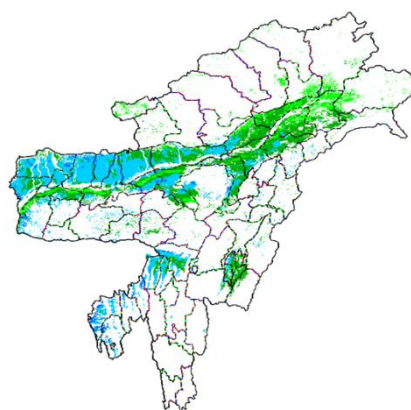
Agriculture vigour is good over western part of Karnataka state. Rest of the state shows moderate values of NDVI.

## Maharashtra

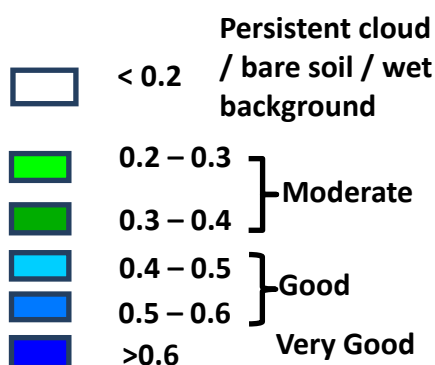


Agricultural vigour is good over Coastal Maharashtra, whereas Moderate values of NDVI are observed over entire state of Maharashtra.

## North East Region



Agriculture vigour is good in patches of Assam whereas, NDVI is moderate over rest of the regions of North-East.



## Annexure III

### Assam

**Early ahurice** :semi dwarf ahu rice varieties like Luit, Kopilee, Cauvery, Culture -1, Rasi, Banglami, Puthichapali, Nilajee, Hasakumra.Lachit, Chilaray, Gopinath, Gobind, IR-50, Culture-1 etc fortransplanted ahu rice.

**Early ahu rice ( for low lying area) :** IR-50, Pusa 2-21, Rasi, Culture -1, Luit, Kopilee (Semi-dwarf varieties); Rongadoria, Dubaichenga, Nilajee (Tall varieties)

**Capsularisjute :** JRC 321 and UPC 94.

**Green gram :**Pratap, T-44, Kopergaon, AAU-39, K-851 and ML-55.

**Black gram :**T-9, Pant-U-19, UG-157.

**Sugarcane :**CO-Jor- 1, CO-Jor- 2, Co 1148.

**Okra:**PusaSawani, ArkaAnamika, ParbhdaniKranti.

**Ridge gourd :**PusaNashdar or other local varieties like AAU-1, AAU-2, AAU-3 etc.

**Sponge gourd:**PusaChikni,Pusa Nasdar, selected local varieties, viz. AAUJ-1, AAUJ-2, AAUC-3 or other local varieties.

**Papaya:**Washington, Haflong, Rasi, KorgHoney Dew, Co-1, Co-2, Pusa Delicious, Pusa Majesty etc.

**Ginger & Turmeric:**HYV of ginger (Nadia, Karkai, Maran, Jorhat, chaina etc.) & turmeric (Shillong type, CL-24, PTS-38, PCT-13, VK-145, etc.) up to April.

### Meghalaya

**Maize ( High and Mid altitude region):**61A, RCM 75, 76, Vivek Hybrid 25, Vivek QPM-1, etc and

## **Odisha**

**Sugarcane:** Nilamadhaha, Sabitri, Co 7508, Co 7704, Co 62175, Co 740, Co 7219, CoJ 8201, Co 975, Co 7706, Co 8402, Co 62175.

**Groundnut:** Smruti, AK 12-24 TAG

## **Jharkhand**

**Lentil:** P.L.-406, P.L.-639, K.L.S -218, K-75

**Barley:** Jyoti, Ratna, D.L.-36, B.R.-32

**Linseed:** Sweta, Shubhra, T-397

**Onion:** N-53, Pusa red, Arka niketan, Arka kalia

## **Jammu & Kashmir**

**Cabbage:** Golden Acre, Pride of India and Pusa Mukta.

**Cauliflower:** Giant Snow Ball, Pant Gobh 2 & 3 and Pusa Synthetic.

## **Uttarakhand**

**Sugarcane:** Pant 84211, Co-238, Co-241, Co Pant 3220, COS-8436, COS-88230 etc. and medium to late sown varieties like Co Pant 90223, Co Pant-96219, COS-97222, COS-767, COS-1148, COS-96268 etc.

**Capsicum:** California Vander, Pus Dipti, Anupam. Heera, Indira, Supriya & Bharat.

**Brinjal:** (brinjal-4, ARU-1 etc ) and potato (Kufri Jyoti, Kufri Ashok & Kufri Anand etc.

**Tomato:** Tomato-3, Pant T-3, Him Sona, Him Shikhar etc variety in nursery).

## **Himachal Pradesh**

**Cauliflower:** snowball and Giant snowball.

**Radish:** Japanese white, Chinese pink and mino early white

**Turnip:** PTWG-1

**Carrot:** Pusakesar

**Fenugreek :** I.C. 74, kasoori.

**Peas :** Mater ageta-6 (early variety).

**Cabbage:** Pride of India, golden achor and hybrid

## **East Uttar Pradesh**

**Sugarcane:** coj-64, cos-96268, cos-98231, cos-767, cos-84, cos-32, copant-84212, Ko.Sha.-88230, 95255, Ko.Sha.-95436, 01235.

**Tomato:** pusa early, pusa ruby, HS 101, Pant Ta-2, Azad Ta-2, Narendra Tamatar-1,2,4,5,6

**Cauliflower:** pusa Dipali.

**Okra:** Pusa Sawani, Varsa Uphar, Azad kranti.

**Brinjal:** Pant Samrat, Pant Rituraj, Pusa hybrid-6.

**Cabbage:** Japani, Pusa Dieepali, Pusa Kartiki

**cowpea:** Lobia-263 & Pusa phaguni

**Chilli:** Pant C-1, Jwala and Sadabahar etc.

**Grapes:** parlet, beauty seedless, pusa seedless.

**Maize:** nawjyoti, kanchan, gaurav, surya, navin, shweta, Azad uttam, prakash, dikalb-7074, payridikalp-8144, dakkan-115, mmh-135, pro-4212, ganga-11, pusa, makka-2, J.H.-3459,

**Urad:** TA-9, narendra urad-1, Azad urad-1, Uttara, azad urad-2, shekhar-2

**Mung:** k-851 and JM-721.

## **West Uttar Pradesh**

**Ladies finger:** VRO-6, VRO-5.

**Sugarcane:** ko.sha 88230, ko.sha 8436, ko 0238, ko.sha 07250 or U.P. 0512.

**Barseem:** V.L.1, V.L.10, maskavi, jai, K-8027, K-9565, Mandakini.

**Onion:** pusa red, pusa white.

**Sugarcane:** The mid and late maturing varieties of sugarcane: CO Pant 211, Co Sa 687 and Co Sa 8436.

The varieties recommended in areas with poor water drainage: B.O.54 and B.O.91.

## **Punjab**

**Sugarcane:** CoJ-85, CoJ-83, CoJ-64 (early maturing), COH-119, CoJ-88, CoS-8436 for and CoJ-89, CO118, COJ85, COJ64.

**Rice:** Pusa-44, T.R-112 and T.R-113.

**Onion:** Punjab Naroya, Punjab White and PRO 6.

**Radish:** Punjab Pasand and Japanese white.

**Turnip:** L-1.

**Carrot:** Punjab Black Beauty, Punjab Carrot Red and PC-34.

**Tomato:** TH-1, Punjab Ratta, Punjab NR 7, Punjab Chuhara, Punjab Upma, Castle Rock.

## **Delhi**

**Oat :** J.H.O-822, O.L.-9, Pusa oat-5.

**Barseem:** Vardan, Buland Barseem-1, Masakavi, J.B-3;

**Radish:** Japani White, Hill queen, French Radish;

**Spinach:** Pusa Bharti.

**Amaranths:** Pusalal Chaulai, Pusa Kiran.

**Ladyfinger:** Pusa A-4.



**Radish:**Japani White, Hill queen, French Radish.

**Spinach:**All Green, PusaBharti;

**Fenugreek:**PusaKasuri;

**Coriander:**PantHaritama, Hybrids.

**Turnip:**Pusa Swati, Local Red variety.

### West Rajasthan

**Isabgol:** RI 89 & GI-2.

**Fenugreek:**RMt 1 &RMt 305.

**Barley:** RD 2052, RD 2035 (suitable for saline and alkali soils) and RD 2715 (dual purpose),RD2058,2503,103,NDB1173.

**cumin:** GC 4, RZ -19, RZ 223, RZ19,209,223and GC4b.

**Cowpea:**RC-19, RC-101, RCP-27.

**Oat:**OS 6, OS 9.

**Berseem:** BL 10, BL 22.

**Cauliflower:**Pusa snow ball K-1, Hisar-1, Dania and.Selection-7.

**Radish:**PusaRashmi.

**Carrot:** PusaKeshar.

**Zaid moong:** K-851, PDM-11,SML-668 Pusa Baisakhi,RMG-62, RMG-268 etc.

**Tinda:** Bikaneri green, dilpasand

**Cucurbit:** Lakhnau ageti and Arkasital,

**Muskmelon:** Durgapura madhu, Punjab sunehri, Punjab hybrid and pusa madhuras

**Watermelon:**sugar baby, Durgapura mitha, Durgapura lal and khira

### East Rajasthan

**Muskmelon Sugar baby:** Durgapura madhu, Punjab sunehri, Punjab hybrid, arkajeet, hara madhu, pusa madhuras.

**Water melon:** Durgapura meetha, durgapura kesar, arka jyoti(hybrid), madhu (hybrid).

**Tinda:** Beekaneri green, Dil pasand, arka tinda.

**Kakri:** Lucknow ageti and arka sheetal.

**Zaid Pearl millet (fodder):**raj bajra chari, rajko Zaint, L-72, L-74.

**Zaid sorghum (fodder):** Raj chari-3, Raj chari-1, Raj chari-2 for single cutting and SSG59-3, M.P. chari for many cutting.

**Okra:**Pusa Savani, Arka anamika, Arka Abhya, Aajad kranti, Prabhni kranti, Pusa-A-4,Pusa Makhmali.

**Cowpea:** Short durC-152, RS-9, FS-68, RC-19 and RC-101, C-152, RS-9.

**Onion:** Punjab safed goal, Udaipur 102, nasik red.

**Lucerne :**Anand-2, LLC-3, RL-88 & Type-9.

**Berseem:**Muskavivardan and PusaJiant.

**Summer groundnut:**T.A.G.24, T.G.37A, G.G.2, D.H.86.

### Gujarat

**Summer Groundnut:** GG2, GG 4 and GG20.

**Summer Sesame:** G.Til-1, G.Til-2, G.Til-3.

**Brinjal:** Junagadh oblong, Junagadh long, Guj. Bringle-2.

**Lady's finger:** Guj. Hy.-1 & 2.

**Ridge gourd:** Pusa nasdar, Jaipuri.

**Bottle gourd:** Junagadh tender long, Pusa summer prolific long.

**Sponge gourd:** Pusa chikni.

**Bitter gourd:** Priya, Pusa domosmi.

**Cluster bean:** Pusa sadabahar, Pusa navbahar, IC-11388.

**Water melon:** Sugar baby, Arka jyoti.

**Pearl millet:** GHB-526 and GHB-558.

**Green gram:**GM-2, 3, GM- 4.

**Black gram:** Guj-1, T-9.

### Madhya Pradesh

**Okra:** Pusa Makhmali, Pusa Sawani, A-4, Parbhani Kranti.

**Moong:** HUM -1, PDM -139,TJM-3, SML-668.

### Tamil Nadu

**Cotton:** Surabhi and SVPR-2