



# *National Agromet Advisory Service Bulletin*



*Friday 18<sup>th</sup> December 2015*

*(For the period 18<sup>th</sup> to 22<sup>nd</sup> December 2015)*



*Issued by*

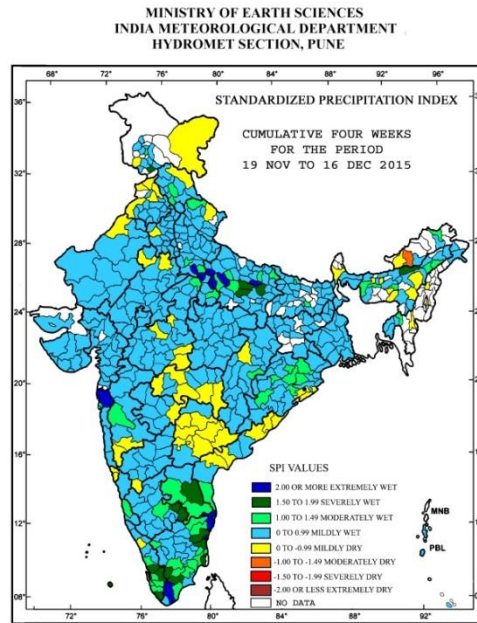
*National Agrometeorological Advisory Service Centre,  
Agricultural Meteorology Division,  
India Meteorological Department, Shivajinagar, Pune.*

**Weblink For**

**District AAS Bulletin:** <http://www.imdagrimet.gov.in/node/3545>

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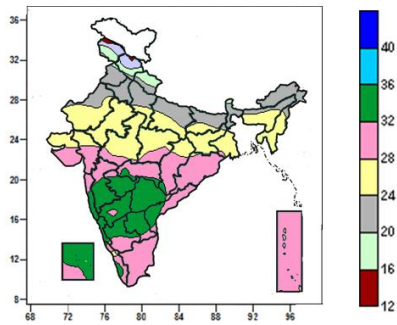
## Standardised Precipitation Index Four Weekly for the Period 19<sup>th</sup> November to 16<sup>th</sup> December 2015



- Extreme/severe wet conditions experienced in few districts of Tamil Nadu & Puducherry; Sonitpur district of Assam; Ambedkar Nagar, Azamgarh, Kannauj, Kanpur Dehat, Pratapgarh, Sultanpur, Unnao, Etawah, Firozabad districts of Uttar Pradesh; Udhampur district of Jammu & Kashmir; Thane district of Konkan & Goa; Cuddapah district of Andhra Pradesh; Kolar, Chickballapur districts of Karnataka; Ernakulam, Trivandrum, Idukki districts of Kerala; Lakshadweep district of Lakshadweep.
- Moderately dry conditions experienced in East Kameng district of Arunachal Pradesh.
- Rest of the country experienced moderately wet/mildlydry/wet conditions.

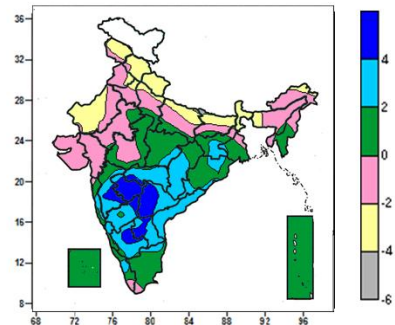
**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 16.12.2015**

**Actual Mean Maximum Temperature (°C) in India for the week ending 16.12.2015**



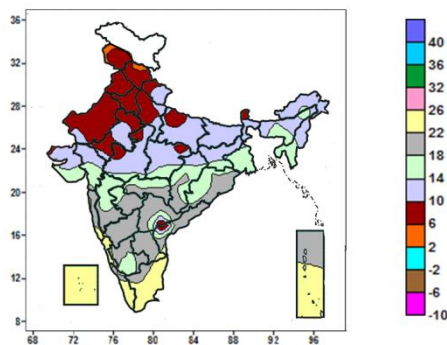
- Mean maximum temperature was between 32 to 36°C over Telangana, many parts of Konkan & Goa, Madhya Maharashtra, Marathwada, Karnataka, Rayalaseema and Lakshadweep, some parts of Coastal Andhra Pradesh and isolated pockets of Vidarbha, Chhattisgarh and Kerala.
- Mean maximum temperature was between 20 to 32°C over rest of the country except Jammu & Kashmir, many parts of Himachal Pradesh, Uttarakhand, Sikkim and isolated pockets of Punjab where it was between 12 to 20°C.

**Mean Maximum Temperature (°C) Anomaly in India for the week ending 16.12.2015**



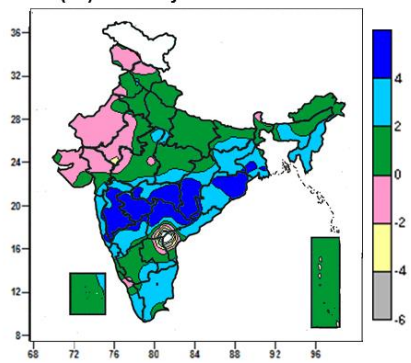
- Mean maximum temperature was above normal by 4 to 6°C over many parts of Marathwada, Telangana some parts of Madhya Maharashtra, Interior Karnataka, Rayalaseema and isolated pockets of Vidarbha.
- Mean maximum temperature was above normal by 2 to 4°C over Coastal Andhra Pradesh, many parts of Chhattisgarh, Vidarbha, Madhya Maharashtra, Rayalaseema, Interior Karnataka, some parts of Jharkhand, Odisha, Telangana and isolated pockets of Gangetic West Bengal, East Madhya Pradesh, Konkan, Tamil Nadu, Coastal Karnataka and Kerala.
- Mean maximum temperature was below normal by 2 to 4°C over Uttarakhand, Sub-Himalayan West Bengal & Sikkim, many parts of Jammu & Kashmir, Himachal Pradesh, West Rajasthan, some parts of Uttar Pradesh, Bihar and isolated pockets of Punjab, Haryana, Assam & Meghalaya and Arunachal Pradesh.
- It was normal to near normal in remaining parts of the Country.

**Actual Mean Minimum Temperature (°C) in India for the week ending 16.12.2015**



- Mean minimum temperature was between 2 to 6°C over isolated pockets of Jammu & Kashmir and Himachal Pradesh.
- Mean minimum temperature was between 6 to 10°C over Punjab, Haryana & Delhi, many parts of Jammu & Kashmir, Himachal Pradesh, West Uttar Pradesh, Rajasthan, Sikkim, some parts of East Uttar Pradesh, West Madhya Pradesh and isolated pockets of East Madhya Pradesh, Telangana, Coastal Andhra Pradesh.
- Mean minimum temperature was between 10 to 22°C over rest of the country except Lakshadweep, many parts of Tamil Nadu, Kerala, Goa, Andaman & Nicobar

**Mean Minimum Temperature (°C) Anomaly in India for the week ending 16.12.2015**



- Mean minimum temperature was above normal by 4 to 6°C over many parts of Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Telangana, some parts of Odisha, Goa and isolated pockets of Gangetic West Bengal and Konkan.
- Mean minimum temperature was above normal by 2 to 4°C over Manipur, Mizoram, Tripura, many parts of Jharkhand, Gangetic West Bengal, Nagaland, Odisha, Konkan & Goa, North Interior Karnataka, Coastal Andhra Pradesh, Tamil Nadu, Kerala, some parts of Bihar, Assam & Meghalaya, Madhya Pradesh, Vidarbha, Chhattisgarh, Telangana and isolated pockets of West Uttar Pradesh, Gujarat region,

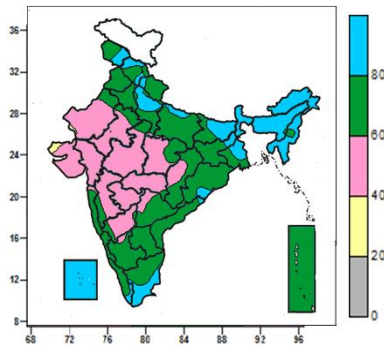
Islands, Coastal Karnataka and isolated pockets of Konkan, Rayalaseema and Coastal Andhra Pradesh where it was between 22 to 26°C.

Coastal & South Interior Karnataka, Rayalaseema and Lakshadweep.

- Mean minimum temperature was below normal by 2 to 4°C over isolated pockets of East Rajasthan.
- It was normal to near normal in remaining parts of the country.

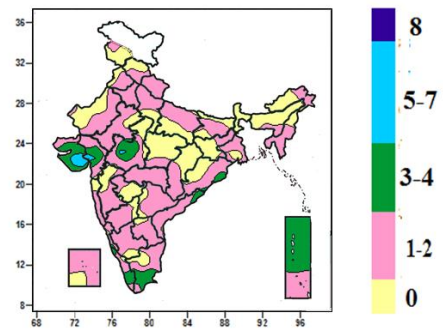
**Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 16.12.2015**

**Relative Humidity (%) over India for the week ending 16.12.2015**



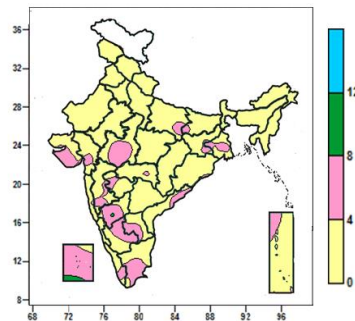
- Mean Relative humidity was above 80% over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Mizoram, Tripura, Lakshadweep, many parts of Nagaland, Manipur, Assam & Meghalaya, West Uttar Pradesh, Bihar, some parts of Jammu & Kashmir, Himachal Pradesh, Gangetic West Bengal, Tamil Nadu and isolated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

**Cloud amount (okta) over India for the week ending 16.12.2015**



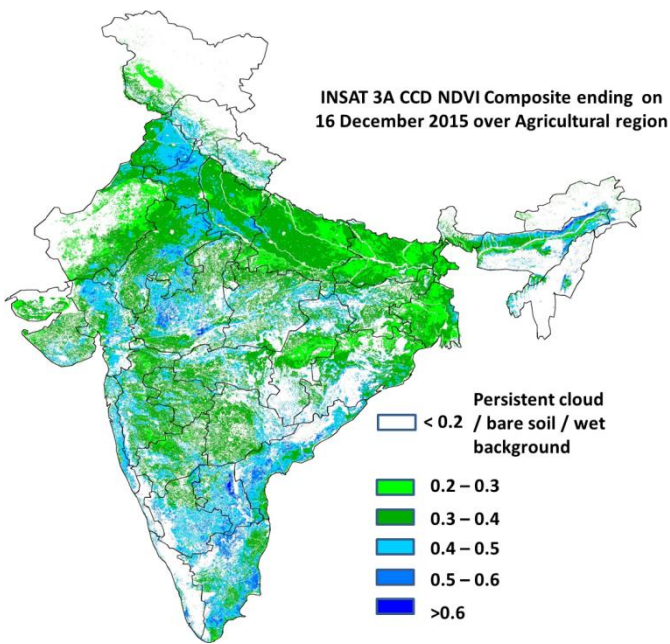
- Sky remained cloudy (5-7okta) over some parts of Saurashtra and isolated pockets of Gujarat region, West Madhya Pradesh.
- Sky remained partly cloudy (3 to 4) over many parts of Saurashtra & Kutch, Andaman & Nicobar Islands, some parts of Gujarat region, West Madhya Pradesh, Tamil Nadu, Kerala and isolated pockets of Odisha, Coastal Andhra Pradesh.
- Sky remained mainly clear/clear sky (1 to 2/0 okta) over rest of the country.

**Wind speed (knots) over India for the week ending 16.12.2015**



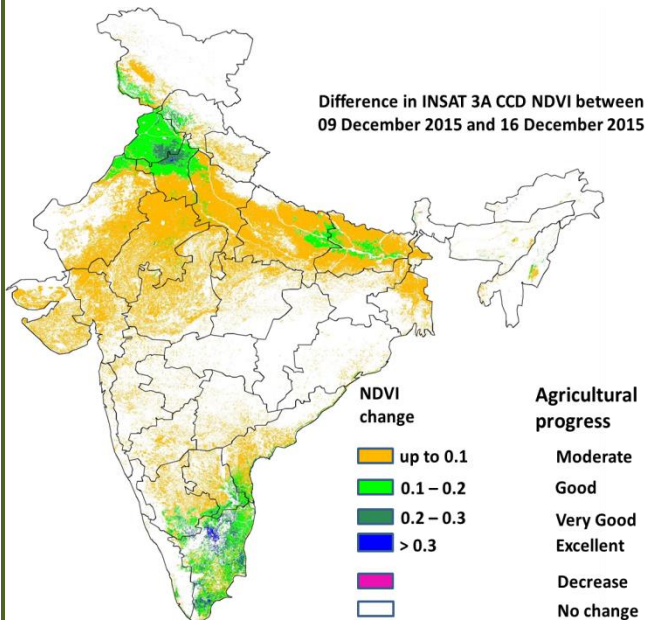
- Mean wind speed was 8 to 12 knots over isolated pockets of Lakshadweep and North Interior Karnataka.
- Mean wind speed was 4 to 8 knots over many parts of Saurashtra, Interior Karnataka, Lakshadweep, some parts of Gangetic West Bengal, Gujarat region, West Madhya Pradesh, Madhya Maharashtra, Rayalaseema, Tamil Nadu, Kerala and isolated pockets of East Uttar Pradesh, Bihar, Jharkhand, Odisha, Vidarbha, Marathwada, Coastal Andhra Pradesh and Andaman & Nicobar Islands.
- It was less than 4 knots over rest of the country.

**INSAT 3A CCD NDVI COMPOSITE ENDING ON 16<sup>th</sup> December 2015 OVER AGRICULTURAL REGION OF INDIA**



- Agricultural vigour is good over Andhra Pradesh, Assam, Coastal Maharashtra, patches in Vidarbha, West Madhya Pradesh, Gujarat, South Interior Karnataka, Eastern Rajasthan, Punjab, Northern Haryana, patches in South East Uttar Pradesh, where NDVI varies from 0.4 to 0.6. Agricultural growth was moderate 0.2 to 0.4 over most parts of West Rajasthan, Saurashtra, Telangana, remaining parts of Haryana, Uttar Pradesh, West Bengal, Bihar, Odisha and Madhya Maharashtra.

**Difference in INSAT 3A CCD NDVI between 9<sup>th</sup> and 16<sup>th</sup> December 2015**



- A good progress (0.1-0.2) in NDVI is observed over Punjab, Northern Haryana, Northern Rajasthan, and patches in Central Bihar and East Uttar Pradesh, Tamil Nadu, Southern parts of Coastal Andhra Pradesh, Coastal Kerala and South Interior Karnataka. A moderate progress in NDVI was observed in states of Rajasthan, Haryana and West Madhya Pradesh, Uttar Pradesh, remaining parts of Bihar, Gujarat and Northern parts of West Bengal. No change in NDVI was observed in Maharashtra, East Madhya Pradesh, Chhattisgarh, Telangana and Odisha.

- INSAT 3A CCD NDVI composite maps for the week ending on 16<sup>th</sup> December 2015 for different States are given below in Annexure II.

## Weather Forecast for next 5 days valid upto 0830 hours of 23<sup>rd</sup> December 2015

- Meteorological sub-division wise detailed 5 day rainfall forecast is given below.
- Moderate fog would occur at a few places with isolated dense fog over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 2 days. Moderate fog would occur at isolated pockets of north Madhya Pradesh, during next 2 days.
- Fall in minimum temperatures by 2-4°C over central & East India during next 1-2 days.

### 5 Day Rainfall Forecast (MID DAY) 18<sup>th</sup> December 2015

Met Sub-divisions	18 Dec	19 Dec	20 Dec	21 Dec	22 Dec
1. Andaman & Nicobar Islands	ISOL	ISOL	ISOL	ISOL	SCT
2. Arunachal Pradesh	SCT	DRY	ISOL	ISOL	DRY
3. Assam & Meghalaya	ISOL	DRY	DRY	DRY	DRY
4. N. M. M. & T.	ISOL	DRY	DRY	DRY	DRY
5. S.H. West Bengal & Sikkim	ISOL	ISOL	DRY	DRY	DRY
6. Gangetic West Bengal	SCT	DRY	DRY	DRY	ISOL
7. Orissa	SCT	ISOL	DRY	SCT	ISOL
8. Jharkhand	ISOL	DRY	DRY	ISOL	ISOL
9. Bihar	DRY	DRY	DRY	DRY	DRY
10. East Uttar Pradesh	DRY	DRY	DRY	DRY	DRY
11. West Uttar Pradesh	DRY	DRY	DRY	DRY	DRY
12. Uttarakhand	DRY	DRY	DRY	DRY	DRY
13. Haryana, Chd & Delhi	DRY	DRY	DRY	DRY	DRY
14. Punjab	DRY	DRY	DRY	DRY	DRY
15. Himachal Pradesh	DRY	DRY	DRY	DRY	ISOL
16. Jammu & Kashmir	DRY	ISOL	ISOL	DRY	ISOL
17. West Rajasthan	DRY	DRY	DRY	DRY	DRY
18. East Rajasthan	DRY	DRY	DRY	DRY	DRY
19. West Madhya Pradesh	DRY	DRY	DRY	DRY	DRY
20. East Madhya Pradesh	DRY	DRY	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. Marathwada	DRY	DRY	DRY	DRY	DRY
26. Vidharbha	DRY	DRY	DRY	ISOL	DRY
27. Chhattisgarh	ISOL	DRY	DRY	ISOL	ISOL
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	SCT	SCT	ISOL	ISOL	ISOL
32. Coastal Karnataka	DRY	DRY	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	DRY	DRY	DRY	DRY	DRY
35. Kerala	ISOL	ISOL	ISOL	DRY	DRY
36. Lakshadweep	SCT	ISOL	ISOL	DRY	DRY

#### % Station Reporting Rainfall

% 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 December (Day 1):** Dense fog would occur at isolated pockets of Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura. Ground frost would occur at isolated places over Punjab, Haryana and north Rajasthan where minimum temperature would remain 4°C or less.
- **19 December (Day 2):** Dense fog would occur at isolated pockets of Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura. Ground

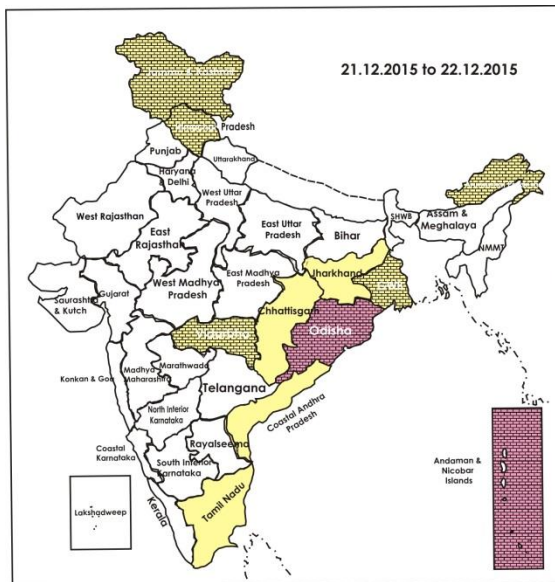
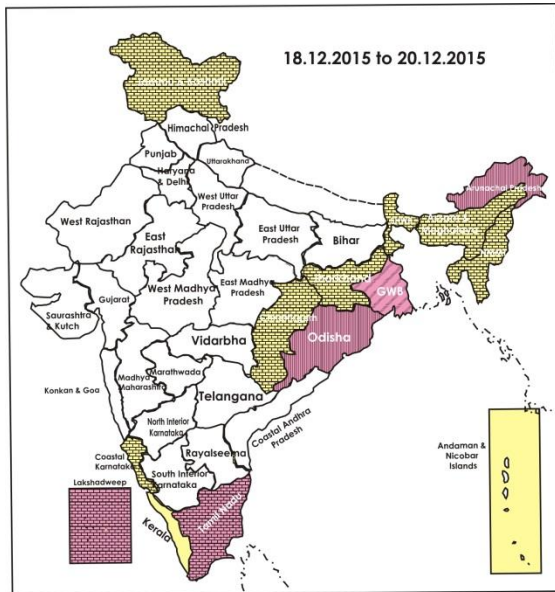
frost would occur at isolated places over Punjab, Haryana and north Rajasthan where minimum temperature would remain 4°C or less.

- **20 December (Day 3):** No weather warning.
- **21 December (Day 4):** No weather warning.
- **22 December (Day 5):** No weather warning.

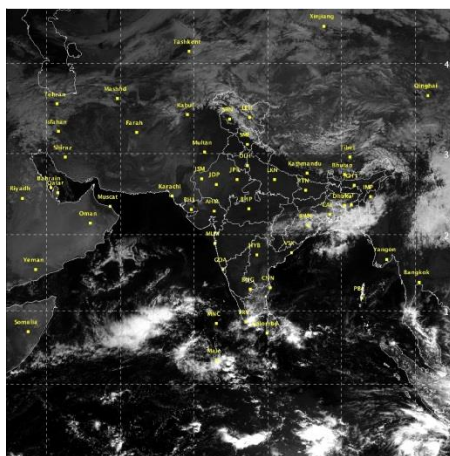
### Weather Outlook for subsequent 2 days from 23<sup>rd</sup> to 25<sup>th</sup> December 2015

- A fresh Western Disturbance would affect western Himalayan region from 22<sup>nd</sup> December.
- Rain/thundershower would occur at isolated places over peninsular India, Odisha and northeastern states.

### Weather Forecast Map (Valid upto 0830 hours of 23<sup>rd</sup> December, 2015)



## Satellite image dated, 18.12.2015 0545 UTC



### Salient Advisories

- As ground frost would occur at isolated places over **Punjab, Haryana and North Rajasthan** where minimum temperature would remain 4°C or less on 18<sup>th</sup> and 19<sup>th</sup> December, arrange for smoking around the fields during night, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from frost/cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/gunny bags.
- As moderate fog would occur at a few places with isolated dense fog over **Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura**; moderate fog would occur at isolated pockets of north Madhya Pradesh during next 2 days and dense fog would occur at isolated pockets of **Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura** on 18<sup>th</sup> and 19<sup>th</sup> December, monitor standing crops for incidence of pest and diseases and potato, tomato and onion crops for early blight disease. If symptoms are noticed undertake plant protection measures.
- In the Cauvery Delta Zone of **Tamil Nadu**, zinc deficiency is noticed in late *samba/thaladi* rice fields. Undertake foliar spray of 0.5 % ZnSO<sub>4</sub> + 1 % urea to reduce the deficiency. In the North Eastern Zone, apply a mixture of Urea @ 10kg + Potash @ 6kg + Neem Cake 2 kg /acre for the flood affected rice crop and undertake foliar spray of Urea @ 1% + Zinc Sulphate 0.5 % (200 litres of water + 2 kg Urea +1 kg Zinc Sulphate/acre) in the morning and evening hours in water stagnation areas.
- In the Krishna Godavari Zone of **Andhra Pradesh**, undertake sowing of chickpea in Prakasam and Guntur districts, continue sowing of *rabi* black gram, green gram and Bengal gram and harvesting of *kharif* rice, maize and cotton. In the Southern Zone, continue sowing of *rabi* groundnut (Dharani, Kadiri-6, Narayan, TAG-24, ICGV-9114, TLG-45), sunflower, red gram, jowar and other fodder crops and new rice nurseries (NLR-34449, MTU-1010) in areas where nurseries were damaged due to heavy rains.
- As dry weather is prevailing, apply irrigation in wheat at CRI stage in **Rajasthan, Madhya Pradesh, Gujarat, Chhattisgarh, Uttar Pradesh, Punjab and Uttarakhand**.
- Continue sowing of mustard/rapeseed in **Assam & Meghalaya, West Bengal & Sikkim, Bihar, Jharkhand, Odisha, Chhattisgarh, Uttar Pradesh and Uttarakhand** with irrigation facilities. Continue sowing of late varieties of wheat in **Punjab, Haryana, Rajasthan, Madhya Pradesh, Jammu & Kashmir and Uttar Pradesh** under assured irrigation.
- In Western Zone and Undulating Plain Zone of **Punjab**, due to prevailing foggy weather condition, there is chances of attack of late blight in potato crop, for control, spray Indofil-M-45/Kavach /Antracol @ 500-700 g per acre or Blitox @ 750-1000 g per acre in 250-350 litres of water per acre at weekly interval.



## Detailed Zonewise Agromet Advisories

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



**Banana**



**Groundnut**



**Land preparation/sowing**



**Cotton**

- **Realised Rainfall:** Rainfall occurred in Cuddalore, Kanyakumari, Nagapattinam, Sivaganga, Tirunelveli, Thiruvarur, Toothukudi and Virudhunagar districts of Tamil Nadu; all districts of Kerala except Cannur, Kasargod, Kollam and Kozhikode. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - **Tamil Nadu:**
    - In the North Eastern Zone, apply a mixture of Urea @ 10kg + Potash @ 6kg + Neem Cake 2 kg /acre for the flood affected rice crop and undertake foliar spray of Urea @ 1% + Zinc Sulphate 0.5 % (200 litres of water + 2 kg Urea + 1 kg Zinc Sulphate/acre) in the morning and evening hours in water stagnation areas.
    - In the Cauvery Delta Zone, zinc deficiency is noticed in late *samba/thaladi* rice fields. Undertake foliar spray of 0.5 % ZnSO<sub>4</sub> + 1 % urea to reduce the deficiency.
    - In the Western Zone, since dry spell is anticipated, harvest early planted *samba* rice and early planted turmeric rhizome, provide top dressing of 25 kg Nitrogen and 25 kg Potassium per hectare and undertake cotton picking early in the morning.
    - In Karaikal and Puducherry districts, continue draining out excess water from the rice fields maintaining a thin film of water and gap filling by thinning excess seedlings tillers or using fresh *Thaladi* seedlings. Undertake foliar spray of 1% Urea (5 kg Urea in 500 litres of water/ha) along with 0.5 % ZnSO<sub>4</sub> (2.5 kg in 500 litres of water) on a non rainy day and apply top dressing with 80 kg of urea, 20 kg of Potash and 25 kg of ZnSO<sub>4</sub> (separately) for one hectare of rice after recovery.
    - In the South Zone, in areas where lodging occurred due to continuous rains received in the last weeks, harvest sugarcane which are in good condition and go for ratooning of the crop. In areas where the rice, banana and sugarcane crops were damaged completely due to floods, go for alternate crops in places where irrigation facility is available. In places where water gets drained easily, go for short duration rice, pulses and vegetables and in areas where drainage is a problem go for short duration rice crop. Due to water stagnation on account of continuous rains received in the last few weeks, nutrient deficiency may occur in the standing crops. For reducing the deficiency, spray Zinc Sulphate @ 0.5%+ Ferrous Sulphate @ 0.2%+ Copper sulphate @ 0.2%+ Borax 0.1% solution and continue harvesting of matured blackgram and greengram crops in clear weather.
    - In the High Rainfall Zone, continue planting of bananas and harvesting of pepper.
    - In the Southern Zone, prevailing cloudy weather conditions are congenial for incidences of white fly and jassids in cotton. To control, spray Imidacloprid 17.8 % @ 5 ml or Thiomethoxam @ 6 g in 10 litres of water on a non rainy day.
    - In the North Western Zone, prevailing change in the climatic conditions is congenial for incidences of mealy bug and spiraling white fly in tapioca. Release *Acerophagus Papayae* @100 nos/acre to control mealy bug and if these pest problems are more than the economic threshold level, undertake foliar spraying of Profenophose @ 2 ml/litre of water with 10 ml of adjuvant/tank on a non rainy day.
  - **Andhra Pradesh:**
    - In the Krishna Godavari Zone, undertake sowing of chickpea in Prakasam and Guntur districts, continue sowing of rabi black gram, green gram and Bengal gram and harvesting of *kharif* rice, maize, black, red and green gram and cotton.
    - In the North Coastal Zone, undertake harvesting of rice and sowing of blackgram, greengram and maize in rice fallows, apply 20 kg Muriate of Potash by pocketing and spread dried leaves in between rows as mulch in rainfed sugarcane to prevent weed infestation.
    - In the Southern Zone of Andhra Pradesh, continue sowing of *rabi* groundnut (Dharani, Kadiri-6, Narayan, TAG-24, ICGV-9114, TLG-45), sunflower, redgram, jowar and other fodder crops and new rice nurseries (NLR-34449, MTU-1010) in areas where nurseries were damaged due to heavy rains.
    - Drain out excess water from blackgram and greengram fields and apply Copper Oxychloride @ 3g and Mancozeb @ 2.5 g/litre of water at vegetative stage to avoid leaf spot and root rot diseases in the Southern Zone.
  - **Telangana:**
    - In the Southern Telangana Zone, continue nursery sowing of short duration varieties of rice upto end of December.

- In the Northern Telangana Zone, continue nursery sowing of rice and rice fallow maize under zero tillage.
- In the Northern Telangana Zone, incidence of powder mildew is noticed in bhendi. To control spray Wettable Sulphur @ 1g or Hexaconazole @ 2ml per litre.
- In the Southern Telangana Zone, prevailing dry weather conditions are congenial for incidence of leaf blight in maize. To control, spray Mancozeb @ 2.5 g/litre of water 1-2 times at weekly intervals, if noticed.
- **Karnataka:**
  - Continue harvesting of ragi and groundnut in the Eastern Dry Zone. Continue harvesting of rice in Coastal Zone and Southern Dry Zone.
  - Undertake harvesting of pigeonpea, chickpea and chilli in the North Dry Zone.
  - Continue harvesting of rice and maize in the Southern Transition Zone on bright sunny days.
  - Continue planting of sugarcane in the North East Dry Zone, harvesting of rice and cotton picking in the North East Dry and Hill Zone.
  - Continue land preparation for sowing of pulses like black gram and green gram after harvesting of rice in the Southern Dry Zone and Hill Zone.
  - There is a chance of leaf reddening in cotton due to low temperature in North Transition Zone, undertake spraying of 1% MgSo<sub>4</sub> or 2% Urea/DAP to control leaf reddening in cotton.
- **Kerala:**
  - Undertake cultivation of winter vegetables like tomato, brinjal and chilli (bacterial wilt resistant varieties of tomato like sakthi, mukthi, anagha and vellayani vijay, brinjal varieties like Surya, Swetha, Haritha and Neelima and chilli varieties like Ujwala and Anugraha) in the Central Zone.
  - Undertake harvesting of nutmeg and ginger in Pathanamthitta district in the Southern Zone.
  - In the Problem Area Zone, prevailing weather conditions are congenial for incidences of bacterial wilt in bitter gourd, cowpea and solanaceous vegetables and downy mildew in cucurbits. To control bacterial wilt, undertake drenching with 1% Bleaching Powder solution @ 10g/litre of water and spray Indofil @ 4g/litre of water to control downy mildew.
  - In the Central Zone, in rice fields, there is chance of bug attack in rice (milking stage) due to continuous rain. When the bug is seen in large numbers, apply one of the insecticides like Malathion 50% EC @ 2ml/litre of water or Sevin 50 WP @ 3-4 g/litre water.
  - In the Southern Zone, there is chance of attack of leaf curl disease and leaf spot in vegetables due to prevailing weather conditions. To control virus disease in brinjal and tomato and *Septoria* leaf spot spray Imidachloprid @ 0.3 ml/litre of water, Mancozeb @ 3 g/litre of water.
  - Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
  - In the North Eastern Zone of Tamil Nadu, allow animals to graze in the morning only after the dew dries off in order to prevent endoparasitic infestation, undertake fumigation of livestock shed by using neem and notchi leaves to keep mosquitoes and other vectors away from the animals, sheep and goats should be in elevated area to avoid foot rot, apply neem oil to the foot and avoid stagnation of water nearby animal shed to prevent vector born diseases in animals.
  - Vaccinate the live stock for Black Quarter and foot and mouth diseases in the North East Transition Zone of Karnataka.
  - Due to low temperature in morning and night hours, maintain the optimum room temperature in Sericulture, Poultry and Dairy unit by providing electric bulb for creating warm room temperature in the Southern Dry Zone of Karnataka.

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



*Mustard*



*Wheat*



*Okra*



*Cabbage*

- **Realised Rainfall:** Rainfall occurred in Dibang Valley, Lohit, Lower Dibang Valley, Upper Siang and West Siang districts of Arunachal Pradesh and Chirang, Jorhat and Sibsagar districts of Assam. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - As moderate fog would occur at a few places with isolated dense fog over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 2 days and dense fog would occur at isolated pockets of Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura on 18<sup>th</sup> and 19<sup>th</sup> December, monitor standing crops for

incidence of pest and diseases and potato, tomato and onion crops for early blight disease. If symptoms are noticed undertake plant protection measures.

▪ **Assam, Meghalaya & Arunachal Pradesh:**

- In Hill Zone of Assam, continue nursery sowing of boro rice, planting of potato and harvesting of matured cotton balls preferably in morning hours.
- In Lower Brahmaputra Valley Zone, continue nursery sowing of *boro* rice with varieties IR50, Cauvery, Banglami, Joymati, Bishnuprasad, Jyotiprasad, Kanaklata Swarnav etc. are suitable particularly for LBVZ for December sowing. Complete harvesting of *Sali* rice. Undertake transplanting of seedlings of age about 45 days or with 5-6 leave stage of hybrid *boro* rice in the main field.
- In Barak Valley Zone of Assam, continue nursery bed preparation for *boro* rice.
- In Central Brahmaputra Valley Zone of Assam, continue nursery sowing of *boro* rice, sowing of wheat, *rabi* pulses. Continue the harvesting and threshing of matured *Sali* rice. Relay cropping with pea, linseed, lathyrus etc. in the rice field may be a profitable practice for farmers. For, relay cropping, farmers are advised to sow suitable varieties of pea, linseed, lathyrus etc in standing crop of *Sali* paddy at 20-25 days before harvesting of the crop.
- In North Bank Plain Zone, Complete sowing of rapeseed & mustard, nursery sowing of cabbage, cauliflower, brinjal, tomato and knol khol and planting of potato. Continue transplanting of early sown varieties like Boro-1, Boro-2, Dinanath and Swarnabh for low lying area. Complete sowing of wheat.
- In Upper Brahmaputra Valley Zone of Assam, undertake transplanting of *boro* rice and harvesting of sugarcane.
- In Meghalaya, continue sowing of pea, lentil & toria under zero tillage in harvested rice fields. Continue nursery preparation of boro rice.
- In Arunachal Pradesh, weather is congenial for infestation of leaf miner & sap-sucking insect in citrus fruits, to control spray Cypermethrin 4ml/10 litre against leaf miner and spray Dimethoate 30EC @ 3ml/litre against sap-sucking insect.
- In North Bank Plain Zone of Assam, cloudy and humid weather is favorable for attack of aphids and saw fly in rapeseed/mustard. To control aphids and saw fly, spray Dimethoate (Rogar) 30EC or Chloropyriphos @ 0.5 litre/ha with a spray volume 500-700 litre/ha for hand sprayer & 200-250 litre/ha for power sprayer.
- In Upper Brahmaputra Valley Zone, Central Brahmaputra Valley Zone and Barak Valley Zone of Assam, humid weather is favorable for attack of aphid/saw fly in rapeseed/ mustard. To control saw fly, spray Chloropyriphos 20 EC @ 5 ml/litre of water. Also spray Malathion 50 EC @ 1.5 ml/litre against leaf eating caterpillars in cole crops. Spray potato with Mancozeb @ 2.5 gm per litre of water or Zineb @ 25 gm per 10 litre of water against late blight in Upper Brahmaputra Valley Zone.
- In Barak Valley Zone of Assam, temperature condition is favourable for incidence of late blight in potato field, to control spray Redomil @ 2ml/litre of water.
- In Meghalaya, weather is congenial for incidence of late & early blight disease in potato, apply Mancozeb 75% WP @ 1.5- 2.0 kg/ha or Copper Oxy Chloride 50% WP @ 2.5 kg/ha. Also spray wettable Sulphur @ 2 g/litre or Dinocap @ 1 ml/litre or Tridemorph @ 0.5 ml/litre or dust Sulphur @ 25 kg/ha against powdery mildew in pea.

▪ **Nagaland, Manipur, Mizoram and Tripura:**

- In Manipur, continue transplanting of onion, nursery raising and transplanting of tomato, cole crops and sowing of *rabi* maize.
  - In Mizoram, continue transplanting of tomato, brinjal and chilli. Continue sowing of pea, mustard and toria and harvesting of banana.
  - In Nagaland, apply mulching to mustard and cole crops.
  - In Tripura, complete planting of potato at the earliest. Continue sowing of *rabi* legumes like mustard, lentil. Apply mulching after irrigation in cole crop and tomato.
  - In Manipur, prevailing weather condition there is chance of attack of whip tail in cauliflower & leaf eating caterpillar in cole crops, spray Borax @ 3g/litre of water or Tracel (Micronutrient @ 5 g/litre of water) against whip tail in cauliflower. Also spray Flubendiamide (Fame) @ 2ml/10 litre of water against leaf eating caterpillar in cole crops.
  - In Mizoram, in banana, apply neem powder against comb weevil and stem weevil.
  - In Tripura, due to cloudy and humid weather, prevailing weather condition there is chance of attack of early or late blight in potato. Spray Ridomil or Indofil or Mancozeb @ 2 gm per litre of water.
  - Suitable varieties are given in Annexure III.
- **Animal Husbandry**
- In Tripura, cover poultry house with gunny bags/polythene sheet to prevent the expose of animal to cool night. Heating during night may also be given to chicks less than 21 days old chicks.
  - In Arunachal Pradesh and Meghalaya, provide artificial heating through lighting of electric bulb @ 2 watt/chick in damp cold areas or during night time to protect the poultry birds (day old to 25 days old) from low temperature.

## WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



*Cotton*



*Sugarcane*



*Groundnut*



*Wheat*

- **Realised Rainfall:** Weather remained dry over the region.
- **Advisories:**
  - **Maharashtra:**
    - In Konkan, complete sowing of *rabi* rice and *Nagli*. Complete sowing of groundnut, sunflower and mustard. Apply light irrigation to groundnut crop three days after sowing. Irrigation interval should be 10-12 days for this stage. Also apply irrigation to sunflower and mustard crop. Undertake planting of seasonal forage crops like cowpea, maize (African Tall), multicut sorghum and rice bean.
    - In Madhya Maharashtra, undertake intercultural operations such as light hoeing and weeding in irrigated wheat. Continue harvesting of old adsali and preseasonal sugarcane. Apply protective irrigation to *rabi* crops and continue intercultural operations like weeding and fertilizer application in sugarcane, vegetables, *rabi* jowar, gram, wheat and safflower. Apply irrigation to orchard crops like banana and grapes. Also apply mulch with crop residue.
    - In Marathwada, apply protective irrigation and continue intercultural operations like weeding and fertilizer application to sugarcane, *rabi* jowar, gram, wheat and vegetables. As per the availability of water, farmers are advised to prepare nursery for the vegetable crops like chilli, tomato and brinjal. The nursery should be prepared in shade. Use shadenet for shade. Continue harvesting of old adsali and preseasonal sugarcane. Apply micro irrigation through drip and sprinkler irrigation for orchard crops like banana, pomegranate, sweet lime and orange. Also apply mulch of crop residue.
    - In Vidarbha, continue picking of matured cotton bolls in West Vidarbha during morning hours in 15-20 days interval. Avoid irrigation during boll bursting. Keep the harvested produce in safer places. Apply protective irrigation to vegetable crops, gram, sugarcane and orchards like orange and sweet lime in Central Vidarbha region. Continue intercultural operations such as light hoeing in *rabi* crops like gram, safflower, mustard and sesame. Also use farm waste as mulch to conserve moisture in orchards.
    - Due to cloudy weather conditions in West Vidarbha region, there may be attack of pod borer in gram; spray 5% neemark or H.A.N.P.V. @ 500 ml per hectare.
    - Due to cloudy weather conditions in Konkan region, there may be attack of mango hopper in mango crop; spray 25% Cypermethrin @ 4 ml per 10 litres of water.
  - **Gujarat:**
    - In Gujarat, under cold and dry weather condition apply irrigation to wheat (CRI stage) in South Saurashtra Zone, to vegetable, fennel crops during evening hours in North Gujarat Zone, to mustard and castor (flower initiation stage) and (light irrigation) to vegetables in North West Zone and to cotton at 15- 20 days interval according to the type of soil, light irrigation to vegetable crops during evening hours and regular irrigation to castor in Bhal and Coastal Zone and to gram, cabbage/cauliflower in South Gujarat Heavy rainfall Zone.
    - Carry out hand weeding in castor in Bhal and Coastal Zone. Carry out intercultural operations in vegetable (brinjal, chilli, tomato, cabbage, and cauliflower), mustard and castor crops in North Gujarat Zone and in vegetable crops in North West Zone and in Fennel Rabi and Mustard in Bhal and Coastal Zone.
    - Undertake nipping in chickpea for high more tillering in Middle Gujarat Zone. Apply light irrigation in furrows and flatbed potato field. Also apply irrigation in wheat crop.
    - Due to cloudy weather there is chance of early blight in early sown cumin in North Gujarat Zone and NorthWest Zone; spray Mencozeb @ 30 g/10 litres of water as preventive measure.
    - Due to cold weather condition in Bhal and Coastal Zone and due to dew formation in North Gujarat Zone and NorthWest Zone, there are chances of powdery mildew in cucurbits; dust 300 mesh Sulphur @ 20 kg/ha to manage the disease.
    - Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
  - Protect animals from cold in Gujarat. Provide luke warm water to lactating animals. Keep young calves indoors during night time to avoid cold stress.

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



**Groundnut**



**Wheat**



**Gram**



**Mustard**

- **Realised Rainfall:** Rainfall occurred in Nayagarh district of Odisha; Nicobar district of Andaman & Nicobar Islands. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
  - As moderate fog would occur at a few places with isolated dense fog over Bihar, Sub-Himalayan West Bengal & Sikkim during next 2 days and dense fog would occur at isolated pockets of Bihar on 18<sup>th</sup> and 19<sup>th</sup> December, monitor standing crops for incidence of pest and diseases and potato, tomato and onion crops for early blight disease. If symptoms are noticed undertake plant protection measures.
  - **West Bengal:**
    - Taking advantage of prevailing mainly dry weather, complete harvesting of *Aman* rice in West Bengal.
    - In Terai Zone, undertake land preparation and sowing of wheat, mustard, lentil and planting of potato.
    - In Old Alluvial Zone, undertake seed bed preparation of *boro* rice. Continue land preparation and sowing of wheat, lentil and planting of potato.
    - In Hill Zone, undertake land preparation for sowing of mustard and planting of potato.
    - In Coastal Saline Zone, continue nursery bed preparation of *boro* paddy. Prepare upland fields for planting of potato.
    - In Laterite and Red soil Zone and New Alluvial Zone, continue sowing of wheat, mustard and complete planting of potato by middle of December. Give light irrigation to maintain the optimum moisture content in the soil.
  - **Andaman and Nicobar Islands:**
    - In North, Middle & South Andaman, undertake intercultural operations and weeding in vegetables.
    - In North, Middle & South Andaman, due to humid weather, there may be attack of shoot and fruit borer and thrips in brinjal and chilli. To control shoot and fruit borer, apply Chlorpyrifos @ 2 ml/litre of water and for control of thrips, apply Acephate @ 1 g/litre of water.
  - **Odisha:**
    - In Western undulating Zone, continue transplanting of onion. Undertake sowing of green gram and black gram & nursery preparation for raising seedlings for summer paddy.
    - In North Central Plateau Zone, continue sowing of linseed and gram, planting of potato and continue sowing/transplanting of onion.
    - In East and South Eastern Coastal Plain Zone, continue sowing of wheat, Bengal gram, mustard and planting of potato.
    - In Eastern Ghat High Land Zone, continue sowing of wheat and planting of potato. undertake pyra cropping of green gram, black gram, lentil and mustard etc.
    - In East and South Eastern Coastal Plain Zone, the prevailing cloudy weather may aggravate the infestation of aphids in pulses and powdery mildew in pulses and cole crops. Spray 5 ml Imidachloprid or 20 ml Metacystox per 10 litre of water to control aphid and spray 50 g Sulfex per 10 litre water to control powdery mildew on a non rainy day.
    - In Western Undulating Zone, due to cloudy weather condition there may be chances of aphids in mustard crops, to control spray Imidachloprid 0.25ml/litre of water or Thiomethaxome 0.4g/litre of water on a non rainy day.
    - In Eastern Ghat High Land Zone, present weather condition is conducive for the attack of powdery mildew and leaf spot in pulses to control, spray Carbendazim 50% WP @ 1g/litre of water on a non rainy day.
    - In East and South Eastern Coastal Plain Zone, mustard crops may be affected by *Crociodollema* and aphids. Spray Dimethoiate 400 ml in 200 litres of water for controlling aphids and Ethofenprox or to control *Crociodollema* apply Deltamethrin 200 ml in 200 litres of water per acre on a non rainy day.
  - **Bihar:**
    - In South Alluvial Plain Zone, continue weeding in tobacco, gram, lentil, pea, toria, mustard & rai after 25-30 days of sowing and irrigate the crop as per requirement, continue sowing of wheat. Undertake cutting of fodder crops like berseem, oats and lucern after 25-30 days interval.
    - In North West Alluvial Plain Zone, complete sowing of gram and continue sowing of wheat. Continue weeding in potato, maize, garlic and in vegetable crops such as brinjal, cauliflower, tomato, pea and cabbage. Apply irrigation in wheat & potato crops, undertake cutting the leaf of berseem/lucern in every 20-30 days of intervals.
    - In North East Alluvial Plain Zone, continue sowing of wheat and gram, complete the sowing of pea & lentil

crops, complete planting of potato, continue sowing of maize, garlic, rajma. Continue inter-cultural operations in vegetables and other crops.

- In North West Alluvial Plain Zone, present weather condition is conducive for the attack of fruit and shoot borer in brinjal crops, to control, spray Quinalfos 25EC@1ml/litre of water on a non rainy day.
- In North West Alluvial Plain Zone, present weather condition is conducive for the infestation of leaf feeders in cabbage & cauliflower crops, if pest population is above ETL, to control spray Dimethoate 30 EC@1ml/litre or Spinosad @1 ml/3 litre of water.
- In North East Alluvial Plain Zone, present weather is conducive for attack of fruit fly infestation in Cucurbits. To control, use four Nomate cube Pheromone traps per acre or apply Monocrotophos @ 2 ml + 100g Jaggery (gur) per litre of water.

▪ **Jharkhand:**

- In South Eastern Plateau Zone, continue sowing of *rabi* crops like wheat, chickpea, mustard, lentil, linseed and sunflower & undertake raising of seedlings of winter season vegetables like onion, brinjal, cabbage, cauliflower, tomato, capsicum etc., short duration French bean and leafy vegetables. Continue intercultural operation in horse gram, toria, pigeon pea, safflower, lobia, urad and moong bean.
- In North Eastern Plateau Zone, continue sowing of pea, mustard, lentil and improved wheat variety under irrigated condition, continue weeding and inter cultural operation in gram, potato. Apply irrigation in mustard crop at regular interval. Continue harvesting of matured pigeon pea.
- In Western Plateau Zone, continue land preparation for sowing of gram, linseed, mustard, rapeseed, barley, pea & rainfed wheat and continue transplanting of winter vegetables like cauliflower, cabbage, chilli, tomato & brinjal,
- In Western Plateau Zone, present weather is conducive for the occurrence of powdery mildew in green pea crop, to control, spray Karathen @ 1 ml/litre of water or Sulfex @ 3 gm/litre of water.
- In North Eastern Plateau Zone, present weather is conducive for the occurrence of pod borer in pigeon pea crop, to control, Spray of Endoxcarb and Monocrotophos @ 2 ml/litre water solution in 15 days interval.
- In South Eastern Plateau Zone, due to humid weather condition, if infestation of early and late blight intensity will become more prominent in potato crops, to control, spray, Krilaksil or Ridomil chemical @ 1.5g/litre of water.
- Suitable varieties for sowing are given in Annexure III.

• **Animal Husbandry:**

- In Sub-Himalayan West Bengal & Bihar, low temperature condition may adversely affect the milk production and performance of domestic animals. Farmers are advised to give protein enriched diet to the animals & do not keep the animal in the open during night hours.

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



*Cauliflower*



*Gram*



*Okra*



*Wheat*

- **Realised Rainfall:** Weather remained mainly dry/dry over the region.

• **Advisories:**

▪ **Madhya Pradesh:**

- As moderate fog would occur at isolated pockets of north Madhya Pradesh during next 2 days, monitor standing crops for incidence of pest and diseases and potato, tomato and onion crops for early blight disease. If symptoms are noticed undertake plant protection measures.
- In Madhya Pradesh, apply irrigation in wheat at CRI stage.
- In Satpura Hill Zone undertake transplanting of onion and earthing up in potato. Apply irrigation in gram and mustard crops.
- In Malwa Plateau Zone, continue earthing up in potato and transplanting of onion. Undertake nursery preparation of summer vegetables like tomato, brinjal, chilli etc.
- In Kymore Plateau and Satpura Hill Zone, continue sowing of wheat and harvesting of early sown vegetable pea.
- In Bundelkhand Zone, continue sowing of late varieties of wheat (GW 173, DI 7082, HI 1454 and HI 1418) and intercultural operations in gram, mustard and lentil crops.
- In Jhabua Hill Zone, apply irrigation in gram, mustard and vegetables and undertake picking up of matured vegetables.
- Continue sowing of late variety (JW-173, MP 40 10) of wheat in Grid Zone. Apply irrigation in mustard and green pea.

- In Bundelkhand Zone, due to humid weather there are chances of leaf blight disease in tomato, spray Methyl Dematon 25 E.C. @ 2.0 g per litre of water.
- In Vindya Plateau Zone, in the prevailing weather there are chances of attack of fruit and stem borer in vegetables, spray Triazophos 40 EC @ 80 ml per hectare.
- **Chhattisgarh:**
- Apply irrigation in wheat at CRI stage in Chhattisgarh.
- In North Hill Zone, complete sowing of wheat under irrigated conditions. Continue sowing of autumn sugarcane and late varieties of gram and toria.
- In Plain Zone, apply irrigation in gram, lathyrus and lentil crops and undertake thinning in mustard and safflower. Undertake seedling preparation of cucurbitaceous crops in polythene bags.
- Suitable varieties are given in Annexure III.
- **Animal Husbandry**
- Provide green fodder, minerals etc. along with balance feed and fresh water to milch animals. As temperature is decreasing keep animals in shed and provide light in poultry farms in Madhya Pradesh.

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



*Wheat*



*Sugarcane*



*Mustard*



*Cabbage*

- **Realised Rainfall:** Rainfall occurred in all districts of Himachal Pradesh except Kinnaur, Lahaul & Spiti, Sirmour and Una; all districts of Jammu & Kashmir except Kathua, Ladakh(Leh) and Samba; Uttarkashi district of Uttarakhand. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
  - As moderate fog would occur at a few places with isolated dense fog over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh during next 2 days and dense fog would occur at isolated pockets of Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh on 18<sup>th</sup> and 19<sup>th</sup> December, monitor standing crops for incidence of pest and diseases and potato, tomato and onion crops for early blight disease. If symptoms are noticed undertake plant protection measures.
  - As ground frost would occur at isolated places over Punjab, Haryana and North Rajasthan where minimum temperature would remain 4°C or less on 18<sup>th</sup> and 19<sup>th</sup> December, arrange for smoking around the fields during night, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from frost/cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/gunny bags.
  - **Jammu & Kashmir:**
    - In Sub Tropical Zone, undertake sowing of late varieties of wheat (WH-1021, PBW-590, PBW-373, Raj-3077, Raj-3765, DBW-16) at optimum soil moisture condition. Treat the seed with carboxin/carbendazim @ 2g/kg or tebuconazole @ 1.25g/kg of seed to reduce seed borne diseases. Apply full DAP, MOP and ZnSO<sub>4</sub> along with 50% urea as basal dose at the time of sowing. Continue sowing of mid and late season pea varieties viz P-88, P-89, MatarAgeta.
    - In Valley Temperate Zone, continue sowing of wheat and oat, brown sarson, peas, pulses, lentil and berseem as fodder crops.
    - In Valley Temperate Zone, spray of Mancozeb @ 2.5 g/litre of water during cloudy days to prevent from alternaria infection in mustard, gobi sarson, cabbage, cauliflower and also to manage late and early blight in potato and tomato crops.
  - **Uttarakhand:**
    - In Bhabar and Tarai Zone, complete sowing of wheat, barley, oats, mustard and planting of potato and onion planting of Autumnsugarcane, garlic & vegetable pea. Apply irrigation in coriander, spinach, radish, mustard, at CRI stage in wheat and garlic. Undertake weeding and thinning operations in standing crops like pea, chickpea, rajmash etc.
    - In Hill Zone, continue sowing of methi, corriander, palak and toria and transplanting of radish, broccoli, cabbage, cauliflower, garlic. Also continue transplanting of onion, planting of potato. Complete sowing of wheat, mustard, gram and lentil in unirrigated high hill region.
    - In Sub humid Sub tropic Zone, complete sowing of wheat, mustard, pea and lentil.

▪ **Himachal Pradesh:**

- In Sub-Montane and Low Hills Sub-Tropical Zone, complete sowing of late wheat, barley, gobhisarson and sarson. Continue transplanting of tomato in raised bed and cauliflower (early group & late group), cabbage, knolkhol, broccoli and Chinese cabbage. Continue sowing of pulses and oilseeds as intercrop with wheat. Continue training and pruning work in tea gardens.
- In Mid Hills sub-Humid Zone, continue harvesting of ginger, cole crops sown in September or October, early variety of pea sown in August – September.
- Under prevailing weather conditions, there are chances of attack of cutworms in vegetables in Sub-Montane and Low Hills Sub-Tropical Zone. For control, spray Chlorpyrifos 20 EC @ 2.5 ml/litre of water. For the control of damping off disease in vegetable crops mix thoroughly Dithane M 45 dust @10-15 g for 1 x 3m beds and for downy mildew in cruciferous vegetables, spray Redomil M-Z @ 25 g per litre of water at 15 days interval.

▪ **Rajasthan:**

- In West Rajasthan, continue land preparation for late sown wheat and undertake hoeing and weeding operations, 10 days after first irrigation to wheat, cumin and vegetables in Arid Western Plain Zone. Continue sowing of barley, fenugreek and lucern. Also in Transitional Plain Zone of Inland Drainage, continue sowing of wheat, barley, gram, garlic, fenugreek, mustard, fennel, onion, carrot, lucern and taramira.
- Continue harvesting of matured kinnow fruits. Continue sowing of wheat and gram and apply first irrigation to wheat and barley after 20- 25 days of sowing, in gram after 50 – 55 days and in mustard after 35 – 40 days, apply irrigation in sugarcane in Irrigated Northwestern Plain Zone.
- In East Rajasthan, continue sowing of wheat, barley, gram, mustard, lentil, lucern, apply irrigation in wheat crop at CRI stage and in potato within 10 – 15 days interval, also continue nipping in gram to enhance branching in Flood Prone Eastern Plain Zone. Continue sowing of wheat in Southern Humid Plain Zone. Continue sowing of late sown wheat.
- Continue late sowing of wheat, barley, flax seeds and coriander and undertake intercultural operation in maize crop in South-eastern Humid Plain Zone. Apply irrigation in barley at 30 – 35 days, mustard at 35- 40 days, gram and vegetables, and garlic, continue nursery preparation of chilli, brinjal and tomato along with hoeing and weeding in vegetables, in Sub Humid Southern Plain and Aravali Hill Zone.
- In Flood Prone Eastern Plain Zone, due to prevailing weather, there is a chance of incidence of white rust in mustard crop, to control spray Mancozeb or Ridomil MZ 72 WP @ 2.0 Kg in 800 litre of water/ha and also there is a chance of attack of cut worm in gram, to control dust Methyl Parathion 2% with the help of duster .
- In Sub Humid Southern Plain and Aravali Hill Zone, due to low temperature condition, there is a chance of incidence of shoot fly in wheat. Spray Monocrotophos 36 SL @ 500 ml per acre for control.
- In South-eastern Humid Plain Zone, due to prevailing weather there may be attack of pod borer in gram, dust Methyl Parathion 2% dust @ 25kg/ha before flowering or spray Acephate 75SP @ 650g/ha and also for stem borer in maize, whorl application of Phorate 10G or Carbofuran 3G @ 5-7.5kg/ha for control.
- In Arid Western Zone, due to humid condition, there may be attack of fruit fly in ber, spray Quinolphos 25 EC @ 1 ml per litre.

▪ **Punjab, Haryana and Delhi:**

- In Western Plain Zone of Punjab, continue harvesting of early maturing variety of sugarcane. Continue sowing of wheat, gram, kabuli gram, mustard, radish, carrot, turnip, onion, tomato, planting of sugarcane under assured irrigation. As there is gradual fall in minimum temperature, frost would harm the crop, to protect the crop from frost, one irrigation around mid-December is advised and use straw for mulching the soil.
- In Western Zone of Punjab, continue sowing of late varieties of wheat. Continue nursery sowing of rabi onion, tomato and sowing of radish, turnip and carrot, land preparation for sowing of potato and transplanting of tomato, cauliflower, brinjal and cabbage.
- In Undulating Plain Zone of Punjab, continue sowing of late variety of wheat, raya, planting of fruit plants viz. citrus, mango, litchi, guava, loquat, ber, amla and papaya. Undertake intercultural operations in all vegetable crops as per their requirement. Undertake first irrigation in timely sown wheat crop at CRI stage as per requirement.
- In Central Plain Zone of Punjab, continue harvesting of early maturing varieties of sugarcane like CoJ-64, CoJ-85 and Co 118. Continue sowing of wheat, gobhi sarson, lentil, raya, gram, onion, pea, fodder crops lucerne, oats and senji.
- In Sub-Montane Undulating Zone of Punjab, continue sowing of raya, gobisarson and taramira.
- In Western Zone of Haryana, continue sowing of wheat, Bengal gram kabulichana and vegetables like pea, potato, carrot and sowing of mustard and berseem, oat as fodder crops. Complete picking of cotton after sunrise when dew is completely evaporated.
- In Eastern zone of Haryana, complete sowing of wheat, barseem and mustard. Undertake intercultural operations in barseem, mustard, all vegetables and irrigation as per requirement. Undertake transplanting of mature seedlings of tomato, cauliflower, cabbage. Apply irrigation to timely sown wheat crop, which are about 21-25 days old and mustard crop, as per requirement.
- In Western Semi-Arid Zone of Delhi, continue sowing of late variety of wheat, gram, oat, lentil, early mustard and sowing of barseem for fodder. Complete sowing of sarson sag, spinach, coriander, fenugreek, turnip, radish,



carrot and pea. Continue transplanting of rabi onion, tomato, cabbage, broccoli and early cauliflower on raised bed. Also continue sowing of garlic in raised bed. Apply irrigation as per requirement to timely sown wheat crop, which are about 21-25 days old and are at CRI stage. Undertake thinning and weeding operations and apply light irrigation in timely sown mustard crop which is about 35 days old is advised as per requirement. Undertake earthing up in potato, if plants has attained height of 15–20 cm.

- In Western Zone and Undulating Plain Zone of Punjab, due to prevailing foggy weather condition, there may be chances of attack of late blight in potato crop, for control, spray Indofil-M-45 / Kavach / Antracol @ 500-700 gm per acre or Blitox @ 750-1000 g per acre in 250-350 litres of water per acre at weekly interval.
- In Undulating Plain Zone of Punjab, due to humid weather condition, there may be chances of attack of pink stem borer in wheat, for control, spray Quinalphos 25 EC @ 800 ml in 100 litres of water per acre.
- In Western Zone of Punjab, there is chances of attack of diamond back moth or tobacco caterpillar in cauliflower and cabbage, for control, spray Dipel 8L @ 300 ml per acre or Halt WP 7 @ 300 gm or Success 2.5 SC @ 250 ml per acre or Proclaim @ 70 g or Avant @ 130 ml per acre or Ekalux @ 200-400 ml or Fenvalerate @ 100 ml in 80-100 litres of water, in the evening at 7 days interval.
- In Western Zone of Punjab, there is chance of incidence of the powdery mildew in ber plantation, to control, spray Karathane 40 EC @ 50 ml or Bayleton 25 WP @ 50 gm per 100 litres of water.
- In Western Semi-Arid Zone of Delhi, due to present weather condition, there may be chance of incidence of leaf feeder in cole crop, if pest population is above ETL than, spray B.T. @ 1 gm per litre of water or Spinosad @ 1 ml per 3 litre of water.

#### ▪ **Uttar Pradesh:**

- In Central Pain Zone, complete planting of potato and continue planting of cabbage, capsicum, chilli, brinjal, tomato and cauliflower. Continue nursery sowing/transplanting of *rabionion*, cauliflower and tomato. Undertake sowing/transplanting of crops under assured irrigation.
- In Central Pain Zone, apply first irrigation in wheat crop at CRI stage after 20-35 days of sowing. Apply second irrigation in mustard crop at onset of flowering stage after 55-65 days of sowing. Apply light irrigation in vegetable pea at onset of flowering stage and second irrigation before pod formation stage. Apply light irrigation in toria at pod formation stage. Undertake intercultural operation in late sown potato crop and apply 80-107 kg urea at the time of earthing. Undertake weeding and thinning operation in pea, mustard, gram, lentil, linseed.
- In Eastern Plain Zone, continue sowing of late variety of wheat, gram, lentil and mustard. Continue sowing of vegetable pea and toria and sowing of winter vegetables, fenugreek, coriander, garlic, carrot, radish, spinach.
- In Western Plain Zone, continue harvesting of early maturing variety of sugarcane. Continue sowing of wheat, linseed, gram, mustard, barseem and nursery sowing of tomato, cauliflower, onion, planting of autumn sugarcane and potato. Continue sowing of toria and transplanting of brinjal and tomato. Irrigate wheat crop at 21 days after sowing and standing crops of sugarcane at 15 days interval.
- In Bundelkhand Zone, continue late sowing of wheat. Apply irrigation in linseed, flaxseed, mustard, gram, palak, coriander, carrots, vegetable pea, pea, lentil, jou crops as per requirment. Undertake planting/transplanting of cauliflower, cabbage, tomato, chilli and brinjal. Apply first Irrigate in timely sown wheat crop after sowing of 21 days. Undertake thinning operation in mustard crop.
- In North Eastern Plain Zone, continue sowing of wheat, toria, mustard, pea, gram, rabi maize, potato, linseed and lentil under assured irrigation.
- In Central Plain Zone, under prevailing weather condition, there may be chances of attack of painted bug in mustard, for control, spray Dimethoate 30 EC or Methyl-o- Demeton 25 EC or Chlorpyrifos 20 EC @ 1 litre or Monocrotophos 36 SL @ 500 ml in 600-700 liters of water per hectare.
- In Central Plain Zone, under prevailing weather condition, there may be chances of attack of aphids and late blight in potato, for control aphid, spray Mancozeb @ 2 gm or Phosphamidon @ 0.6 ml per liter of water at 10 to 12 days intervals, 2 to 3 times; for control late blight, spray Indofil-M-45/Kavach/Antracol @ 500-700 gm or Blitox @ 750-1000 gm in 250 to 350 liters of water per acre at weekly interval 2-3 times.
- In Central Plain Zone, under prevailing weather condition, there may be chances of attack of mosaic in brinjal, chilly, tomato, for control, spray Methyl-o- Demeton 25 EC @ 2 litres in 700-800 litres of water per hectare.
- Suitable varieties are given in Annexure III.

#### • **Horticulture**

- In Central Plain Zone of Uttar Pradesh, for control of fruit drop in ber, spray Superfix Hormone @ 1 ml per 4.5 litres of water.
- In Mild Hills Sub Humid Zone and High Hill Temperate Dry zone, continue preparation of tree basins for apple and stone fruits and for pomegranate also in Mild Hills Sub Humid Zone.
- In Sub Montane and Low Hills Sub Humid Zone of Himachal Pradesh, weather is conducive for the attack of leaf minor in new growth of citrus, spray Matasystox or Malathion @ 10 ml in 10 litre of water.

#### • **Floriculture**

- Continue nursery preparation of winter flowers in polyhouses. Blue beetle attack is seen in roses and balsam in Sub Montane and Low Hills Sub Humid Zone of Himachal Pradesh. For control spray Cypermethrin @ 0.05 ml per litre of water.

- **Animal Husbandry**

- In Undulating Plain Zone of Punjab, protect animals from low night temperature. Spread straw / gunny bags on the floor during night time.
- In High Hill Temperate Dry Zone of Himachal Pradesh, give daily 40-50g Minerals mixture to a cow and protect animals from low night temperature.

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

### Annexure I

#### Week by week Rainfall Distribution

Sub-Divisions	02.12.15		09.12.15		16.12.15	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>						
Anjaw	**	**	**	**	**	**
Changlang	0.0	-100	7.8	-10	14.4	-45
Dibang Valley	**	**	**	**	31.0	27
East Kameng	0.0	-100	3.4	-21	0.0	-100
East Siang	0.0	-100	9.2	156	19.4	63
Kurung Kumey	**	**	**	**	**	**
Lohit	0.0	-100	8.7	81	20.4	208
Lower Dibang Valley	0.0	-100	28.8	443	41.3	69
Lower Subansari	**	**	**	**	**	**
Papumpare	0.0	-100	17.1	3320	8.6	95
Tawang	3.0	-61	4.0	43	9.0	-41
Tirap	0.0	-100	18.0	429	12.0	88
Upper Siang	0.0	-100	11.8	93	38.6	43
Upper Subansari	0.0	-100	**	**	19.6	206
West Kameng	0.0	-100	8.0	186	0.0	-100
West Siang	**	**	**	**	33.0	177
<b>Assam&amp;Meghalaya</b>						
<b>Assam</b>						
Baksa	0.0	-100	15.0	1567	3.4	-28
Barpeta	0.0	-100	2.4	161	4.3	-9
Bongaigaon	0.0	-100	5.0	4901	0.0	-100
Cachar	0.0	-100	7.4	638	0.3	-93
Chirang	0.0	-100	20.6	20502	26.0	567
Darrang	**	**	**	**	**	**
Dhemaji	**	**	4.0	167	3.0	-57
Dhubri	0.0	-100	11.0	3567	0.0	-100
Dibrugarh	0.0	-100	6.3	133	13.0	137
Goalpara	0.0	-100	32.4	3140	0.0	-100
Golghat	0.0	-100	15.5	932	9.6	92
Hailakandi	0.0	-100	12.8	12700	0.0	-100
Jorhat	0.0	-100	18.1	624	21.1	230
Kamrup(Rural)	0.0	-100	11.0	2100	12.6	223
Kamrup(Metro)	0.0	-100	20.0	3900	0.9	-77
Karbi Anglong	0.0	-100	4.7	135	2.5	-29

Karimganj	0.0	-100	17.0	169400	2.8	15
Kokrajhar	0.0	-100	5.6	833	0.0	-100
Lakhimpur	0.0	-100	9.3	522	8.7	24
Morigaon	0.0	-100	15.8	15702	0.6	-85
N.C.Hills	0.0	-100	0.0	-100	2.1	-74
Nowgong	0.0	-100	8.0	1228	0.7	-84
Nalbari	0.0	-100	2.2	2100	4.4	37
Sonitpur	0.0	-100	48.9	2124	7.5	49
Sibsagar	0.0	-100	16.2	523	22.8	430
Tinsukia	0.0	-100	11.7	586	14.3	232
Udalgiri	0.0	-100	13.5	744	3.2	-32
<b>Meghalaya</b>						
East Garo Hills	0.0	-100	0.0	-100	0.0	-100
East Khasi Hills	0.0	-100	3.4	324	4.3	-10
Jaintia Hills	0.0	-100	2.0	300	0.0	-100
Ribhoi	0.0	-100	0.4	-82	0.0	-100
South Garo Hills	**	**	**	**	0.0	-100
West Garo Hills	0.0	-100	12.0	5901	0.0	-100
West Khasi Hills	0.0	-100	1.0	150	0.0	-100
<b>NMMT</b>						
<b>Mizoram</b>						
Aizwal	0.0	-100	1.1	-79	0.0	-100
Champhai	**	**	**	**	**	**
Kolasib	**	**	**	**	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	**	**	**	**	**	**
Mamit	**	**	**	**	**	**
Saiha	**	**	**	**	**	**
Serchhip	**	**	**	**	**	**
<b>Manipur</b>						
Bishnupur	**	**	**	**	**	**
Chandel	**	**	**	**	**	**
Churachandpur	**	**	**	**	**	**
Imphal east	0.0	-100	0.2	-98	0.0	-100
Imphal west	0.0	-100	11.2	600	0.0	-100
Senapati	**	**	**	**	**	**
Tamenglong	**	**	**	**	**	**
Thoubal	0.0	-100	**	**	**	**
Ukhrul	**	**	**	**	**	**
<b>Nagaland</b>						
Dimapur	0.5	-71	4.6	207	0.2	-97
Kephire	**	**	**	**	**	**
Kohima	0.0	-100	2.2	1000	0.6	-74
Longleng	**	**	**	**	**	**
Mokokchung	0.0	-100	6.0	186	6.0	2
Mon	**	**	**	**	**	**
Paren	**	**	**	**	**	**
Phek	**	**	**	**	**	**
Tuensang	**	**	**	**	**	**

Wokha	0.0	-100	17.0	3300	2.0	-73
Zunheboto	**	**	**	**	**	**
<b>Tripura</b>						
Dhalai	0.0	-100	2.7	440	0.0	-100
NorthTripura	0.0	-100	34.0	1600	2.3	-39
SouthTripura	0.0	-100	0.4	-61	0.1	-98
West Tripura	0.0	-100	6.2	671	0.2	-93
<b>Himachal Pradesh</b>						
Bilaspur	1.8	-47	0.0	-100	28.4	491
Chamba	6.1	10	0.0	-100	45.0	215
Hamirpur	5.6	27	0.0	-100	27.9	372
Kangra	1.9	-62	0.0	-100	26.3	213
Kinnaur	6.0	28	0.0	-100	17.5	154
Kullu	12.1	81	0.0	-100	35.0	343
Lahaul and Spiti	2.5	-66	0.0	-100	13.6	5
Mandi	6.9	156	0.0	-100	34.3	452
Shimla	9.3	257	0.0	-100	20.5	280
Sirmaur	0.5	-81	0.0	-100	8.2	13
Solan	12.2	230	0.0	-100	28.3	267
Una	0.0	-100	0.0	-100	16.3	378
<b>Punjab</b>						
Amritsar	0.0	-100	0.0	-100	0.2	-97
Barnala	0.0	-100	0.0	-100	0.0	-100
Bhatinda	0.0	-100	0.0	-100	0.0	-100
Faridkot	0.0	-100	0.0	-100	0.0	-100
Fatehgarh Saheb	0.0	-100	0.0	-100	0.0	-100
Ferozpur	0.0	-100	0.0	-100	0.0	-100
Gurdaspur	0.0	-100	0.0	-100	3.3	-57
Hoshiarpur	0.0	-100	0.0	-100	1.2	-66
Jalandhar	0.0	-100	0.0	-100	0.0	-100
Kapurthala	0.0	-100	0.0	-100	0.0	-100
Ludhiana	0.0	-100	0.0	-100	1.0	-50
Mansa	0.0	-100	0.0	-100	0.0	-100
Moga	0.0	-100	0.0	-100	0.0	-100
Muktesar	0.0	-100	0.0	-100	0.0	-100
Nawashahar	0.0	-100	0.0	-100	7.5	104
Patiala	0.2	-78	0.0	-100	0.0	-100
Ropar	0.0	-100	0.0	-100	4.3	12
Sangrur	0.0	-100	0.0	-100	0.0	-100
Mohali	0.0	-100	0.0	-100	0.0	-100
TarnTaran	0.0	-100	0.0	-100	0.0	-100
<b>Haryana,Chd,Delhi</b>						
<b>Haryana</b>						
Ambala	0.1	-98	0.0	-100	1.6	-69
Bhiwani	0.0	-100	0.0	-100	0.0	-100
Chandigarh	0.2	-85	0.0	-100	0.3	-93
Faridabad	0.0	-100	0.0	-100	0.0	-100
Fatehabad	0.0	-100	0.0	-100	0.0	-100
Gurgaon	0.0	-100	0.0	-100	0.0	-100

Hissar	0.0	-100	0.0	-100	0.0	-100
Jhajar	0.0	-100	0.0	-100	0.0	-100
Jind	0.0	-100	0.0	-100	0.0	-100
Katihah	0.0	-100	0.0	-100	0.0	-100
Karnal	0.0	-100	0.0	-100	0.0	-100
Kurukshetra	0.0	-100	0.0	-100	1.0	-66
Mahendragarh	0.0	-100	0.0	-100	0.0	-100
Mewat	0.0	-100	0.0	-100	0.0	-100
Palwal	0.0	-100	0.0	-100	0.0	-100
Panchkkula	0.7	-86	0.0	-100	3.0	20
Panipat	0.0	-100	0.0	-100	0.0	-100
Rewari	0.0	-100	0.0	-100	0.0	-100
Rohtak	0.0	-100	0.0	-100	0.0	-100
Sirsa	0.0	-100	0.0	-100	0.0	-100
Sonepat	0.0	-100	0.0	-100	0.0	-100
Yamunanagar	0.0	-100	0.0	-100	2.3	-50
<b>Delhi</b>						
Central Delhi	0.0	-100	0.0	-100	0.0	-100
East Delhi	0.0	-100	0.0	-100	0.0	-100
New Delhi	0.0	-100	0.0	-100	0.0	-100
North Delhi	0.0	-100	0.0	-100	0.0	-100
North East Delhi	0.0	-100	0.0	-100	0.0	-100
North West Delhi	0.0	-100	0.0	-100	0.0	-100
South Delhi	0.0	-100	0.0	-100	0.0	-100
South West Delhi	0.0	-100	0.0	-100	0.0	-100
West Delhi	0.0	-100	0.0	-100	0.0	-100
<b>Jammu &amp; Kashmir</b>						
Anantnag	0.9	-91	0.0	-100	41.5	125
Badgam	3.4	-39	0.0	-100	27.8	181
Bandipore	**	**	**	**	**	**
Baramula	0.1	-98	0.0	-100	44.9	12
Doda	13.0	-14	0.0	-100	35.0	36
Ganderbal	0.0	-100	0.0	-100	21.6	37
Jammu	0.0	-100	0.0	-100	20.9	61
Kargil	**	**	**	**	**	**
Kathua	0.0	-100	0.0	-100	1.6	-77
Kistwar	**	**	**	**	**	**
Kulgam	0.0	-100	0.0	-100	54.9	197
Kupwara	0.0	-100	0.0	-100	42.1	157
Ladakh(Leh)	0.0	-100	0.0	-100	0.3	-73
Poonch	**	**	**	**	**	**
Pulwama	3.5	-34	0.0	-100	28.4	124
Rajouri	0.0	-100	0.0	-100	30.2	119
Ramban	1.7	-89	0.0	-100	59.4	130
Reasi	0.0	-100	0.0	-100	30.8	141
Samba	0.0	-100	0.0	-100	18.0	38
Shopian	**	**	**	**	**	**
Srinagar	4.5	-10	0.0	-100	23.2	47

Udhampur	0.0	-100	0.0	-100	108.2	745
<b>East Madhya Pradesh</b>						
Anuppur	0.0	-100	0.0	-100	0.0	-100
Balaghat	0.0	-100	0.0	-100	0.0	-100
Chhatarpur	8.4	139	1.2	-66	0.0	-100
Chindwara	0.0	-100	0.0	-100	0.0	-100
Damoh	0.0	-100	0.0	-100	0.0	-100
Dindori	0.0	-100	0.0	-100	0.0	-100
Jabalpur	0.0	-100	0.0	-100	0.0	-100
Katni	0.0	-100	0.0	-100	0.0	-100
Mandla	0.0	-100	0.0	-100	0.0	-100
Narsingpur	0.0	-100	0.0	-100	0.0	-100
Panna	0.0	-100	0.0	-100	0.0	-100
Rewa	0.0	-100	0.0	-100	0.0	-100
Sagar	0.0	-100	0.0	-100	0.0	-100
Satna	0.0	-100	0.0	-100	0.0	-100
Seoni	0.0	-100	0.0	-100	0.0	-100
Shahdol	0.0	-100	0.0	-100	0.0	-100
Sidhi	0.0	-100	0.0	-100	0.0	-100
Singrauli	0.0	-100	2.3	28	0.0	-100
Tikamgarh	0.0	-100	0.0	-100	0.0	-100
Umaria	0.0	-100	0.0	-100	0.0	-100
<b>West Madhya Pradesh</b>						
Agar	0.0	-100	0.0	-100	0.0	-100
Alirajpur	0.0	-100	0.0	-100	0.0	-100
Asoknagar	0.0	-100	0.5	-92	0.0	-100
Badwani	0.0	-100	0.0	-100	0.0	-100
Betul	0.0	-100	0.0	-100	0.0	-100
Bhind	5.7	528	0.0	-100	0.0	-100
Bhopal	0.0	-100	0.0	-100	0.0	-100
Burhanpur	0.0	-100	0.0	-100	0.0	-100
Datia	7.0	367	0.0	-100	0.0	-100
Dewas	0.0	-100	0.0	-100	0.0	-100
Dhar	0.0	-100	0.0	-100	0.0	-100
Guna	0.0	-100	0.0	-100	0.0	-100
Gwalior	3.3	154	0.0	-100	0.0	-100
Harda	0.0	-100	0.0	-100	0.0	-100
Hosangabad	0.0	-100	0.0	-100	0.0	-100
Indore	0.0	-100	0.0	-100	0.0	-100
Jhabua	0.0	-100	0.0	-100	0.0	-100
Khandwa	0.0	-100	0.0	-100	0.0	-100
Khargone	0.0	-100	0.0	-100	0.0	-100
Mandsaur	0.0	-100	0.0	-100	0.0	-100
Morena	4.6	820	0.0	-100	0.0	-100
Neemuch	0.0	-100	0.0	-100	0.0	-100
Raisen	0.0	-100	0.0	-100	0.0	-100
Rajgarh	0.0	-100	0.0	-100	0.0	-100
Ratlam	0.3	-88	0.0	-100	0.0	-100

Sehore	0.0	-100	0.0	-100	0.0	-100
Shajapur	0.0	-100	0.0	-100	0.0	-100
Sheopur Kalani	6.0	445	0.0	-100	0.0	-100
Shivpuri	3.5	84	0.0	-100	0.0	-100
Ujjain	3.0	-23	0.0	-100	0.0	-100
Vidisha	0.0	-100	0.0	-100	0.0	-100
<b>Chhattisgarh</b>						
Bastar	0.0	-100	2.6	219	0.0	-100
Bijapur	0.0	-100	0.0	-100	0.0	-100
Bilaspur	0.0	-100	0.0	-100	0.0	-100
Dantewara	0.0	-100	0.0	-89	0.0	-100
Dhamtari	0.0	-100	0.0	-100	0.5	-55
Durg	0.0	-100	0.0	-100	0.0	-100
Janjgir	0.0	-100	0.0	-100	0.0	-100
Jashpurnagar	0.0	-100	0.0	-100	0.0	-100
Kanker	0.0	-100	0.0	-100	0.0	-100
Korba	0.0	-100	0.0	-100	0.0	-100
Koriya	0.0	-100	0.0	-100	0.0	-100
Kawardha	0.0	-100	0.0	-100	0.0	-100
Mahasumund	0.0	-100	0.0	-100	0.0	-100
Narayanpur	0.0	-100	0.0	-100	0.0	-100
Raigarh	0.0	-100	0.0	-100	1.5	-14
Raipur	0.0	-100	0.0	-100	0.1	-92
Rajandgaon	0.0	-100	0.0	-100	2.6	35
Surguja			0.0	-100	0.0	-100
<b>East Uttar Pradesh</b>						
Allahabad	0.0	-100	1.2	22	0.0	-100
Ambedkar Nagar	22.0	10900	5.0	1567	0.0	-100
Azamgarh	1.3	-13	16.8	5500	0.0	-100
Bahraich	0.0	-100	0.0	-100	0.1	-95
Ballia	0.0	-100	0.0	-100	0.0	-100
Balrampur	0.0	-100	0.0	-100	0.0	-100
Banda	3.0	20	3.2	102	0.0	-100
Barabanki	3.5	332	0.6	-18	0.0	-100
Basti	0.0	-100	0.0	-100	0.0	-100
Chandauli	0.0	-100	0.0	-100	0.0	-100
Deoria	0.0	-100	0.0	-100	0.0	-100
Faizabad	0.0	-100	0.0	-100	0.0	-100
Farrukhabad	0.5	-17	0.0	-100	0.0	-100
Fatehpur	1.9	14	5.6	328	0.0	-100
Gazipur	0.0	-100	0.1	-87	0.0	-100
Gonda	0.0	-100	1.0	25	0.0	-100
Gorakhpur	0.0	-100	0.0	-100	0.0	-100
Hardoi	1.9	109	0.0	-100	0.0	-100
Jaunpur	0.0	-100	1.2	50	0.0	-100
Kannauj	22.0	2344	0.0	-100	0.0	-100
Kanpur City	12.5	1977	0.5	-46	0.0	-100
Kanpur Dehat	22.0	3571	3.8	860	0.0	-100
Kaushambi	0.0	-100	0.0	-100	0.0	-100

Kheri	0.0	-100	0.0	-100	0.0	-100
Kushi nagar	0.0	-100	0.0	-100	0.0	-100
Lucknow	8.6	757	0.2	-83	0.0	-100
Maharajganj	0.0	-100	0.0	-100	0.0	-100
Mau	0.0	-100	0.0	-100	0.0	-100
Mirzapur	0.0	-100	0.7	30	0.0	-100
Pratapgarh	6.0	500	10.0	1900	0.0	-100
RaiBareilly	6.9	1280	2.3	275	0.0	-100
Sahuji Maharajnagar	2.5	178	6.0	650	0.0	-100
Sant Kabirnagar	0.0	-100	0.0	-100	0.0	-100
Sant Ravidas Nagar	0.0	-100	0.0	-100	0.0	-100
Shrawasti	**	**	**	**	**	**
Sidharthnagar	0.0	-100	0.0	-100	0.0	-100
Sitapur	0.0	-100	0.0	-100	0.0	-100
Sonbhadra	0.0	-100	4.6	658	0.0	-100
Sultanpur	4.6	1042	0.7	47	0.0	-100
Unnao	23.5	3817	0.0	-100	0.0	-100
Varanasi	0.0	-100	0.7	-41	0.0	-100
<b>West Uttar Pradesh</b>						
Agra	2.9	617	0.0	-100	0.0	-100
Aligarh	4.7	689	0.0	-100	0.0	-100
Auraiya	0.0	-100	0.0	-100	0.0	-100
Badaun	2.4	300	0.0	-100	0.0	-100
Baghpat	0.0	-100	0.0	-100	0.0	-100
Bareilly	0.0	-100	0.0	-100	0.0	-100
Bijnor	0.0	-100	0.0	-100	0.0	-100
Bulandsahar	0.0	-100	0.0	-100	0.0	-100
Etah	2.3	112	0.0	-100	0.0	-100
Etawah	28.5	5600	0.0	-100	0.0	-100
Firozabad	16.8	3250	0.0	-100	0.0	-100
GBNagar	0.0	-100	0.0	-100	0.0	-100
Ghaziabad	0.0	-100	0.0	-100	0.0	-100
Hamirpur	5.3	385	4.0	400	0.0	-100
Jalaun	3.7	267	0.0	-100	0.0	-100
Jhansi	0.3	-84	0.0	-100	0.0	-100
Jotiba Phule Nagar	0.0	-100	0.0	-100	0.0	-100
Kanshiramnagar	0.0	-100	0.0	-100	0.0	-100
Lalitpur	0.0	-100	4.0	167	0.0	-100
Mahamaya Nagar	6.5	983	0.0	-100	0.0	-100
Mahoba	6.0	362	0.0	-100	0.0	-100
Mainpuri	9.7	870	0.0	-100	0.0	-100
Mathura	3.0	329	0.0	-100	0.0	-100
Meerut	0.0	-100	0.0	-100	0.0	-100
Moradabad	0.0	-100	0.0	-100	0.0	-100
Muzzaffarnagar	0.0	-100	0.0	-100	0.0	-100
Pilibhit	0.0	-100	0.0	-100	0.7	-71
Rampur	0.0	-100	0.0	-100	0.0	-100
Saharanpur	0.0	-100	0.0	-100	0.0	-100



Shahjahanpur	0.0	-100	0.0	-100	0.0	-100
<b>Uttarakhand</b>						
Almora	1.1	-48	0.0	-100	3.6	-31
Bageshwar	0.0	-100	0.0	-100	0.0	-100
Chamoli	0.3	-92	0.0	-100	2.1	-69
Champawat	0.0	-100	0.0	-100	1.0	-88
Dehradun	2.0	-3	0.0	-100	12.7	201
Garhwal Pauri	0.2	-90	0.0	-100	0.0	-100
Garhwal Tehri	3.1	343	0.0	-100	7.2	7
Haridwar	0.8	-47	0.0	-100	0.8	-72
Nainital	0.5	-76	0.0	-100	2.2	-54
Pithoragarh	0.8	-69	0.0	-100	8.9	51
Rudraprayag	0.8	-83	0.0	-100	8.7	129
Udham Sing Nagar	0.0	-100	0.0	-100	0.4	-83
Uttarkashi	5.9	556	0.0	-100	24.9	211
<b>Bihar</b>						
Araria	0.0	-100	0.0	-100	0.0	-100
Arwal	0.0	-100	0.0	-100	0.0	-100
Aurangabad	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100
Bhagalpur	0.0	-100	0.0	-100	0.0	-100
Bhojpur	0.0	-100	0.0	-100	0.0	-100
Buxar	0.0	-100	0.0	-100	0.0	-100
Darbhanga	0.0	-100	0.0	-100	0.0	-100
East Champaran	0.0	-100	0.0	-100	0.0	-100
Gaya	0.0	-100	0.0	-100	0.0	-100
Gopalganj	0.0	-100	0.0	-100	0.0	-100
Jahanabad	0.0	-100	0.0	-100	0.0	-100
Jamui	0.0	-100	0.0	-100	0.0	-100
Kathihar	0.0	-100	0.0	-100	0.0	-100
Khagadia	0.0	-100	0.0	-100	0.0	-100
Kishanganj	0.0	-100	0.0	-100	0.0	-100
Lakhisarai	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100
Muzaffarpur	0.0	-100	0.0	-100	0.0	-100
Nalanda	0.0	-100	0.0	-100	0.0	-100
Nawada	0.0	-100	0.0	-100	0.0	-100
Patna	0.0	-100	0.0	-100	0.0	-100
Purnea	0.0	-100	0.0	-100	0.0	-100
Rohtas	0.0	-100	0.0	-100	0.0	-100
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	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	0.0	-100
West Champaran	0.0	-100	0.0	-100	0.0	-100
<b>Jharkhand</b>						
Bokaro	0.0	-100	0.0	-100	0.0	-100
Chatra	0.0	-100	0.0	-100	0.0	-100
Deoghar	0.0	-100	0.0	-100	0.0	-100
Dhanbad	0.0	-100	0.0	-100	0.0	-100
Dumka	0.0	-100	0.0	-100	0.0	-100
East Singbhum	0.0	-100	6.2	3000	0.0	-100
Garhwa	0.0	-100	0.0	-100	0.0	-100
Giridih	0.0	-100	0.0	-100	0.0	-100
Godda	0.0	-100	0.0	-100	0.0	-100
Gumla	0.0	-100	**	**	**	**
Hazaribagh	0.0	-100	**	**	**	**
Jamtara	0.0	-100	**	**	**	**
Khunti	0.0	-100	**	**	0.0	-100
Koderrna	0.0	-100	0.0	-100	0.0	-100
Latehar	0.0	-100	15.0	1264	0.0	-100
Lohardagga	0.0	-100	1.1	22	0.0	-100
Pakur	0.0	-100	0.0	-100	0.0	-100
Palamau	0.0	-100	10.2	101900	0.0	-100
Ramgarh	0.0	-100	**	**	0.0	-100
Ranchi	0.0	-100	2.1	75	0.0	-100
Sahebganj	0.0	-100	0.0	-100	0.0	-100
Saraikela	0.0	-100	0.0	-100	0.0	-100
Simdega	0.0	-100	**	**	0.0	-100
West Singbhum	0.0	-100	4.2	740	0.0	-100
<b>East Rajasthan</b>						
Ajmer	0.0	-100	0.0	-100	0.0	-100
Alwar	0.0	-100	0.0	-100	0.0	-100
Banswara	0.0	-100	0.0	-100	0.0	-100
Baran	1.6	-29	0.0	-100	0.0	-100
Bharatpur	3.7	311	0.0	-100	0.0	-100
Bhilwara	0.5	-67	0.0	-100	0.0	-100
Bundi	0.0	-100	0.0	-100	0.0	-100
Chittorgarh	0.0	-100	0.0	-100	0.0	-100
Dausa	0.0	-100	0.0	-100	0.0	-100
Dholpur	7.2	696	0.0	-100	0.0	-100
Dungarpur	0.0	-100	0.0	-100	0.0	-100
Jaipur	0.0	-100	0.0	-100	0.0	-100
Jhalawar	0.0	-100	0.0	-100	0.0	-100
Jhunjhunu	0.0	-100	0.0	-100	0.0	-100
Karauli	9.0	800	0.0	-100	0.0	-100
Kota	0.9	-53	0.0	-100	0.0	-100
Pratapgarh	0.0	-100	0.0	-100	0.0	-100
Rajsamand	0.0	-100	0.0	-100	0.0	-100

Sawai Madhopur	2.8	293	0.0	-100	0.0	-100
Sikar	0.0	-100	0.0	-100	0.0	-100
Sirohi	0.0	-100	0.0	-100	0.0	-100
Tonk	0.0	-100	0.0	-100	0.0	-100
Udaipur	0.0	-100	0.0	-100	0.0	-100
<b>West Rajasthan</b>						
Barmer	0.0	-100	0.0	-100	0.0	-100
Bikaner	0.0	-100	0.0	-100	0.0	-100
Churu	0.0	-100	0.0	-100	0.0	-100
Hanumangarh	0.0	-100	0.0	-100	0.0	-100
Jaisalmer	0.0	-100	0.0	-100	0.0	-100
Jalore	0.0	-100	0.0	-100	0.0	-100
Jodhpur	0.0	-100	0.0	-100	0.0	-100
Nagaur	0.0	-100	0.0	-100	0.0	-100
Pali	0.0	-100	0.0	-100	0.0	-100
Sri Ganganagar	0.0	-100	0.0	-100	0.0	-100
<b>Gujarat Region</b>						
Ahmedabad	0.0	-100	0.0	-100	0.0	-100
Anand	0.0	-100	0.0	-100	0.0	-100
Banaskantha	0.0	-100	0.0	-100	0.0	-100
Baroda	0.0	-100	0.0	-100	0.0	-100
Broach	0.0	-100	0.0	-100	0.0	-100
DNH	**	**	**	**	**	**
Dahod	0.0	-100	0.0	-100	0.0	-100
Daman	0.0	-100	0.0	-100	0.0	-100
Dangs	0.0	-100	0.0	-100	0.0	-100
Gandhinagar	0.0	-100	0.0	-100	0.0	-100
Kheda	0.0	-100	0.1	-82	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	0.0	-100	0.0	-100
Panchmahal	0.0	-100	0.0	-100	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	0.0	-100	0.0	-100
Tapi	0.0	-100	0.0	-100	0.0	-100
Valsad	0.0	-100	0.0	-100	0.0	-100
<b>S K &amp; Diu region</b>						
Amreli	0.0	-100	0.0	-100	0.0	-100
Bhavnagar	0.0	-100	0.0	-100	0.0	-100
Diu	0.0	-100	0.0	-100	0.0	-100
Jamnagar	0.0	-100	0.0	-100	0.0	-100
Junagarh	0.0	-100	0.0	-100	0.0	-100
Kutch	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100	0.0	-100
North Goa	0.0	-100	0.0	-100	0.0	-100
Raigad	0.0	-100	0.0	-100	0.0	-100
Ratnagiri	0.0	-100	0.0	-100	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	0.0	-100	0.0	-100
<b>Madhya Maharashtra</b>						
Ahmednagar	0.0	-100	0.0	-100	0.0	-100
Dhule	0.0	-100	0.0	-100	0.0	-100
Jalgaon	0.0	-100	0.0	-100	0.0	-100
Kolhapur	0.0	-100	0.0	-100	0.0	-100
Nandurbar	0.0	-100	0.0	-100	0.0	-100
Nasik	0.0	-100	0.0	-100	0.0	-100
Pune	0.0	-100	0.0	-100	0.0	-100
Sangli	0.0	-100	0.0	-100	0.0	-100
Satara	0.0	-100	0.0	-100	0.0	-100
Solapur	0.0	-100	0.5	-75	0.0	-100
<b>Marathwada</b>						
Aurangabad	0.0	-100	0.0	-100	0.0	-100
Beed	0.0	-100	0.0	-100	0.0	-100
Hingoli	0.0	-100	0.0	-100	0.0	-100
Jalna	0.0	-100	0.0	-100	0.0	-100
Latur	0.0	-100	0.0	-100	0.0	-100
Nanded	0.0	-100	0.0	-100	0.0	-100
Usmanabad	0.0	-100	0.0	-100	0.0	-100
Parbhani	0.0	-100	0.0	-100	0.0	-100
<b>Vidarbha</b>						
Akola	0.0	-100	0.0	-100	0.0	-100
Amraoti	0.0	-100	0.0	-100	0.0	-100
Bhandara	0.0	-100	0.0	-100	0.0	-100
Buldhana	0.0	-100	0.0	-100	0.0	-100
Chandrapur	0.0	-100	0.0	-100	0.0	-100
Gadchiroli	0.0	-100	0.0	-100	0.0	-100
Gondia	0.0	-100	0.0	-100	0.0	-100
Nagpur	0.0	-100	0.0	-100	0.0	-100
Wardha	0.0	-100	0.0	-100	0.0	-100
Washim	0.0	-100	0.0	-100	0.0	-100
Yeotmal	0.0	-100	0.0	-100	0.0	-100
<b>Odisha</b>						
Angul	0.0	-100	0.0	-100	17.7	2423
Balasore	0.0	-100	3.4	1040	10.0	259
Bargarh	0.0	-100	0.0	-100	1.9	37
Bhadrak	0.0	-98	0.1	-91	0.9	-49
Bolangir	0.0	-100	0.0	-100	6.2	208
Boudh	0.0	-100	0.0	-100	0.0	-100
Cuttack	0.0	-100	0.0	-100	5.4	168

Deogarh	0.0	-100	0.0	-100	18.2	1038
Dhenkanal	0.0	-100	0.0	-100	11.0	684
Gajapati	0.1	-62	0.1	-83	8.0	166
Ganjam	0.0	-100	0.1	-99	16.8	573
Jagatsingpur	0.0	-100	1.2	521	1.1	-82
Jajpur	0.0	-100	0.0	-100	5.5	118
Jharsuguda	0.0	-100	0.0	-100	11.1	594
Kalahandi	0.0	-100	0.0	-100	8.3	313
Kandhamal	0.0	-100	0.0	-100	18.0	681
Kendrapara	0.0	-100	0.0	-100	0.0	-100
Keonjhar	0.0	-100	2.4	307	11.4	571
Khurda	0.0	-100	0.0	-99	0.7	-53
Koraput	2.4	20	1.2	-18	0.0	-100
Malkangiri	1.0	-23	0.0	-100	0.0	-100
Mayurbhanj	0.0	-100	2.3	200	5.8	116
Nawapara	0.0	-100	0.0	-100	0.0	-100
Nawarangpur	0.0	-100	0.0	-100	8.6	2775
Nayagarh	0.0	-100	0.0	-100	20.5	2829
Puri	0.0	-100	0.0	-100	0.0	-100
Rayagada	0.3	-38	0.0	-100	4.2	180
Sambalpur	0.0	-100	0.1	-78	0.7	-57
Sonepur	0.0	-100	0.0	-100	10.3	392
Sundargarh	0.0	-100	0.0	-100	3.3	136
<b>West Bengal &amp; Andaman Nicobar Islands</b>						
<b>A &amp; N ISLAND</b>						
Nicobar	131.7	120	41.7	-44	96.3	57
North & Middle Andaman	52.3	63	79.2	174	0.0	-100
South Andaman	144.7	227	84.5	116	0.1	-99
<b>GWB</b>						
Bankura	0.0	-100	0.2	-33	0.0	-100
Birbhum	0.0	-100	0.0	-63	0.0	-100
Burdwan	0.0	-100	0.2	100	0.0	-100
East Midnapore	0.0	-100	0.8	-73	12.1	147
Hooghly	0.0	-100	1.8	200	0.0	-100
Howrah	0.0	-100	1.0	400	0.0	-100
Kolkata	0.0	-100	2.6	86	0.0	-100
Murshidabad	0.0	-100	0.0	-100	0.0	-100
Nadia	0.0	-100	1.1	450	0.0	-100
24 Pargana (N)	0.0	-100	1.9	383	0.0	-100
Purulia	0.0	-100	1.3	151	0.2	-85
24 Pargana (S)	0.3	-94	3.8	112	0.4	-90
West Midnapore	0.0	-100	2.8	830	1.5	-23
<b>SHWB &amp; Sikkim</b>						
Cooch Behar	0.0	-100	2.4	200	0.0	-100
Darjeeling	0.0	-100	3.8	46	0.0	-100
East Sikkim	0.0	-100	1.0	-81	0.0	-100
Jalpaiguri	0.0	-100	7.2	1700	0.0	-100
Malda	0.0	-100	0.0	-100	0.0	-100

North Dinajpur	**	**	**	**	**	**
North Sikkim	0.0	-100	37.5	1072	0.0	-100
South Dinajpur	0.0	-100	0.0	-100	0.0	-100
South Sikkim	0.0	-100	0.0	-100	0.0	-100
West Sikkim	0.0	-100	0.0	-100	1.0	-74
<b>Karnataka</b>						
<b>Coastal Karnataka</b>						
Dakshina Kannada	8.4	47	1.7	-58	19.4	217
Udupi	1.2	-86	2.6	-57	1.5	-79
Uttara Kannada	0.1	-98	0.1	-97	0.0	-100
<b>N I Karnataka</b>						
Bagalkote	0.0	-100	0.0	-100	0.0	-100
Belagavi	0.0	-100	0.0	-100	1.2	-49
Bidar	2.6	-25	0.0	-100	0.0	-100
Dharwad	0.1	-99	0.0	-100	0.9	-65
Gadag	2.2	-44	0.0	-100	0.0	-100
Haveri	0.2	-96	0.1	-95	0.0	-100
Kalaburgi	2.7	1	1.6	-12	0.0	-100
Koppal	0.0	-100	0.0	-100	0.0	-100
Raichur	0.6	-71	2.1	-26	0.0	-100
Vijayapura	0.8	-67	0.0	-100	0.0	-100
Yadgir	9.7	286	0.0	-100	0.0	-100
<b>S I Karnataka</b>						
Ballari	0.3	-91	0.2	-97	0.0	-100
Bangalore Rural	14.2	103	0.2	-96	0.2	-95
Bangalore Urban	4.5	-30	1.3	-82	0.2	-95
Chamarajanagar	19.4	142	7.8	-12	0.1	-99
Chikaballapur	10.9	70	0.0	-100	0.0	-100
Chikkamagaluru	3.7	-17	3.6	3	0.0	-100
Chitradurga	1.5	-47	1.2	-68	0.0	-100
Davangere	0.0	-100	0.7	-83	0.0	-100
Hassan	7.1	123	1.5	-55	0.7	-82
Kodagu	0.6	-91	2.9	-22	9.9	44
Kolar	6.4	-15	1.0	-89	1.6	-72
Mandya	6.0	174	3.8	-37	2.0	-54
Mysuru	3.7	42	7.3	36	2.3	-32
Ramanagara	6.6	14	0.9	-87	0.3	-95
Shivamogga	0.1	-99	0.4	-87	0.0	-100
Tumakuru	3.7	-19	0.9	-81	0.0	-100
<b>Kerala</b>						
Alappuzha	21.8	14	38.9	77	59.7	448
Kannur	7.8	-11	14.0	77	3.0	-57
Ernakulam	11.6	-17	68.7	282	98.2	673
Idukki	21.0	37	67.0	272	48.9	362
Kasaragod	6.9	35	12.1	120	0.1	-98
Kollam	55.8	189	39.0	110	18.0	68
Kottayam	31.8	98	33.3	143	64.2	583
Kozhikode	0.1	-99	1.9	-84	6.9	-17
Malappuram	2.8	-70	6.2	-32	30.1	307

Palakkad	1.5	-87	14.5	43	28.8	372
Pathanamthitta	23.0	43	11.5	-41	62.1	422
Thiruvananthapuram	31.5	67	56.8	140	65.0	447
Thrissur	1.7	-84	34.2	133	48.3	601
Wayanad	7.0	-22	3.5	-53	28.2	292
<b>Tamil Nadu</b>						
Ariyalur	117.0	257	100.1	71	10.7	-62
Chennai	347.3	550	124.4	110	1.8	-95
Coimbatore	10.2	-31	24.7	39	9.4	-31
Cuddalore	156.6	205	271.8	279	24.9	-41
Dharmapuri	34.6	113	10.8	-42	5.0	-59
Dindigul	37.7	72	76.6	194	17.1	-18
Erode	45.5	192	15.2	-13	5.2	-48
Kanchipuram	459.0	898	160.2	194	7.3	-79
Kanyakumari	27.6	31	57.7	185	24.2	88
Karikal	134.2	81	364.7	360	16.1	-76
Karur	26.5	63	40.9	121	1.2	-88
Krishnagiri	17.9	74	4.7	-65	1.5	-82
Madurai	28.5	66	41.7	156	8.9	-43
Nagapattinam	167.3	125	324.2	189	27.8	-48
Namakkal	28.3	88	26.9	101	0.9	-89
Nilgiris	36.4	23	49.4	103	15.0	-24
Perambalur	48.0	78	66.7	90	3.2	-86
Puducherry	426.9	645	302.9	312	4.5	-91
Pudukottai	50.6	74	106.1	227	7.6	-64
Ramanathapuram	47.2	42	90.6	120	14.0	-40
Salem	31.2	61	33.8	49	6.9	-52
Sivaganga	58.1	142	49.1	94	20.4	3
Thanjavur	91.5	138	139.9	145	17.5	-38
Theni	20.1	45	46.2	198	14.6	1
Tirunelveli	67.8	131	123.6	348	54.2	119
Tirupur	30.3	103	48.3	187	1.1	-90
Tiruvallur	342.6	733	67.1	47	1.2	-96
Tiruvannamalai	106.1	338	43.7	26	6.3	-72
Tiruvarur	149.3	150	223.8	173	55.3	39
Toothukudi	39.7	55	40.5	36	46.8	138
Trichy	37.1	80	54.2	91	3.2	-80
Vellore	81.0	326	14.2	-42	1.5	-91
Villupuram	237.3	594	113.1	161	10.4	-66
Virudhunagar	24.0	8	66.0	247	25.3	47
<b>Andhra Pradesh</b>						
<b>Coastal Andhra Pradesh</b>						
East Godavari	8.9	-14	0.0	-100	0.0	-100
Guntur	0.6	-91	0.3	-92	0.0	-100
Krishna	2.3	-62	0.0	-100	0.0	-100
Nellore	130.8	249	30.2	-32	0.6	-98
Prakasam	20.5	95	9.5	-12	0.0	-100
Sirkakulam	0.0	-99	0.0	-100	0.0	-100

Visakhapatnam	1.8	-76	0.0	-100	0.0	-100
Vizianagram	0.0	-99	0.0	-99	0.0	-100
West Godavari	4.3	-48	0.0	-100	0.0	-100
<b>Rayalaseema</b>						
Anantapur	8.0	95	0.7	-86	0.0	-100
Chittoor	102.5	370	10.0	-59	0.0	-99
Cuddapah	41.4	376	6.0	-52	0.0	-100
Kurnool	11.2	228	0.1	-96	0.0	-100
<b>Telangana</b>						
Adilabad	0.0	-100	3.4	64	0.0	-100
Hyderabad	0.0	-100	0.0	-100	0.0	-100
Karimnagar	0.0	-100	0.4	-85	0.0	-100
Khammam	0.0	-99	0.0	-100	0.0	-100
Mehabubnagar	4.3	54	0.1	-97	0.0	-100
Medak	0.0	-100	0.0	-100	0.0	-100
Nalgonda	1.1	-55	0.0	-100	0.0	-100
Nizamabad	0.0	-98	0.0	-100	0.6	-35
Rangareddy	0.6	-71	0.0	-100	0.0	-95
Warangal	0.1	-96	0.0	-100	0.0	-100

#### Legends

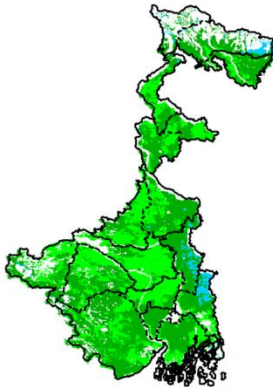
	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available



**Annexure II**

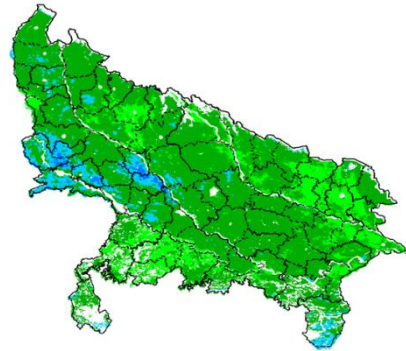
**INSAT 3A CCD NDVI COMPOSITE MAPS FOR THE WEEK ENDING ON  
16<sup>th</sup> December 2015 FOR DIFFERENT STATES**

**West Bengal**



Agricultural vigour is good in South-eastern and Northern part of West Bengal where NDVI is varying from 0.4-0.6, whereas rest of the state shows moderate NDVI (0.2-0.4).

**Uttar Pradesh**



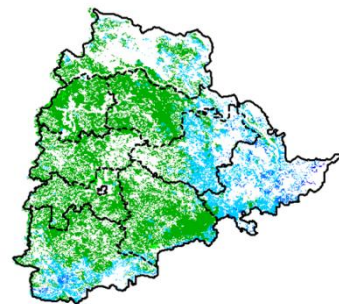
Agricultural vigour is moderate over the entire state of Uttar Pradesh where NDVI value varies from 0.2-0.4, whereas few patches in north-western part shows higher values of NDVI (0.4-0.5)

**Uttarakhand**



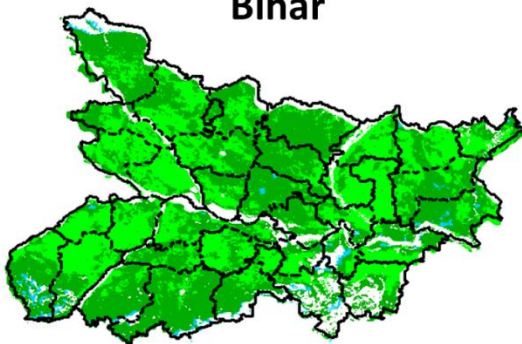
Agricultural vigour is good over entire state of West Bengal where NDVI is varying from 0.4-0.6, whereas few patches in south shows moderate values of NDVI (0.2-0.4).

**Telangana**



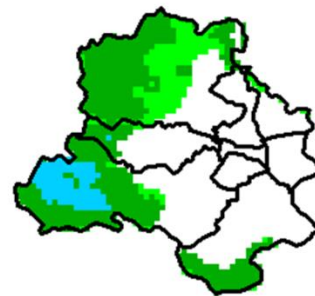
Agriculture vigour is good over South and Eastern parts of Telangana (NDVI 0.4-0.6). Rest of the region shows moderate values of NDVI (0.3-0.4)

**Bihar**



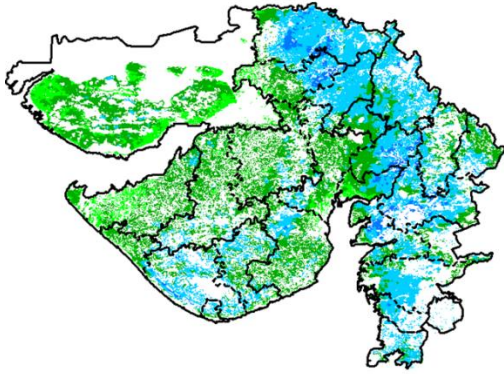
Agriculture vigour is Moderate all over Bihar where NDVI value lies between 0.2-0.4.

**Delhi**



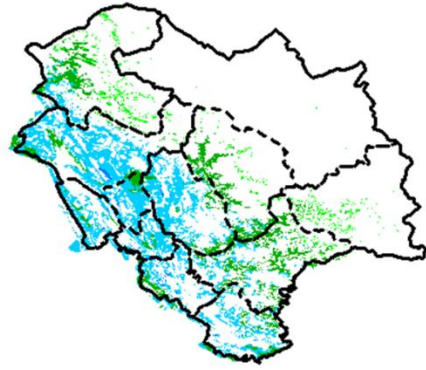
Agriculture vigour is moderate all over Delhi where NDVI value lies between 0.2-0.3, whereas few patches over west shows good values of NDVI (0.4 – 0.5).

### Gujarat



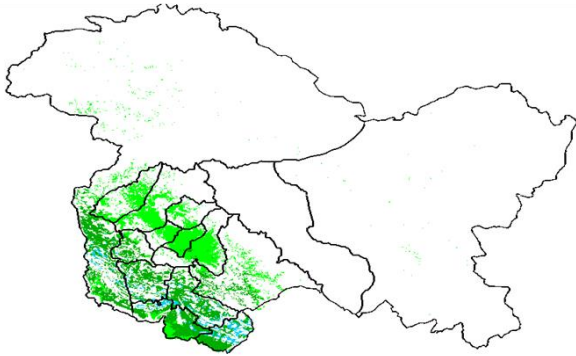
Agriculture vigour is moderate in Kutch and Saurashtra whereas, good agricultural vigour is observed over Gujarat region where NDVI values lies between 0.4-0.5.

### Himachal Pradesh



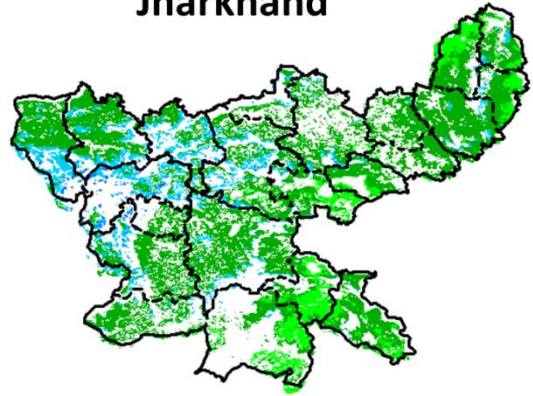
Agriculture vigour is good over eastern and southern part of Himachal Pradesh where NDVI values are 0.2 – 0.4, whereas rest of the state shows moderate values of NDVI.

### Jammu & Kashmir



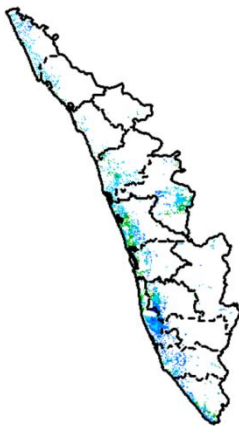
Agriculture vigour is Normal over entire state of Jammu & Kashmir where NDVI values are 0.2 – 0.3.

### Jharkhand



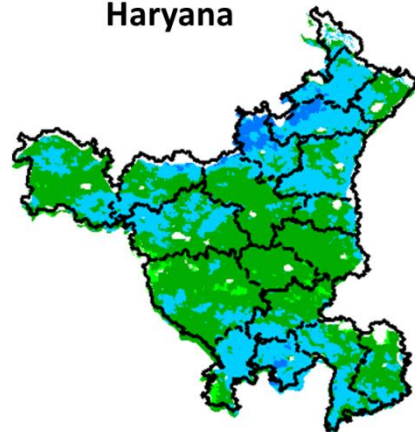
Agriculture vigour is good over western part of the Jharkhand where NDVI values vary from 0.4 - 0.5., whereas rest of the state shows moderate values of NDVI (0.3-0.4) .

### Kerala



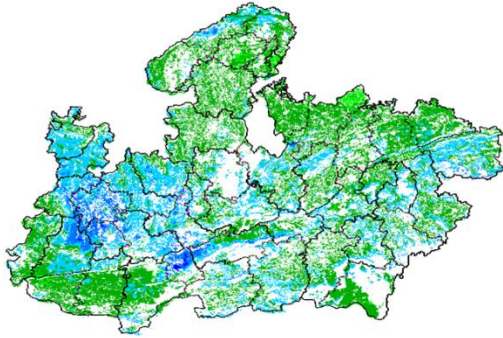
Agriculture vigour is good over entire state of Kerala where NDVI value lies between 0.4-0.6 except few patches in central part shows moderate values of NDVI (0.2 -0.4).

### Haryana



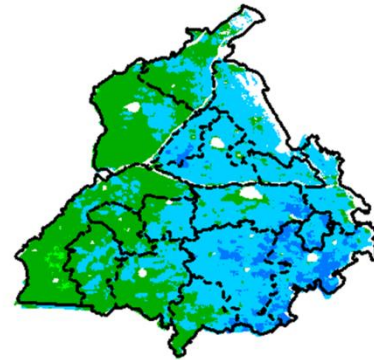
Agriculture vigour is good over northern, southern and western part of Haryana where NDVI value lies between 0.2 – 0.4. whereas rest of the state sows moderate values of NDVI (0.3-0.4)

### Madhya Pradesh



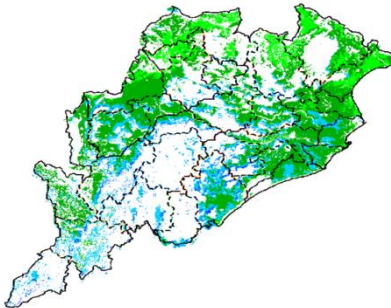
Agriculture vigour is good over western and eastern part of Madhya Pradesh where NDVI varies from 0.4-0.5 and rest of the part shows moderate values of NDVI (0.2 – 0.4).

### Punjab



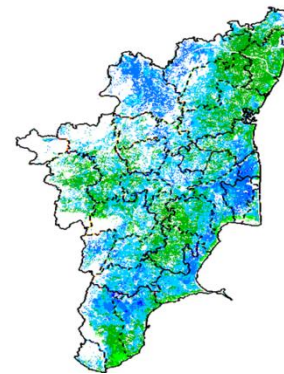
Agricultural vigour is good over central, eastern and southern part of Punjab where NDVI value lies between 0.2-0.4. Whereas rest of the part shows moderate values of NDVI (0.3-0.4).

### Odisha



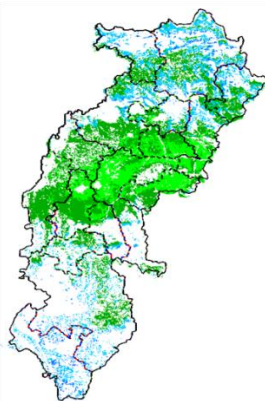
Agricultural vigour is good over central and southern part of Odisha with NDVI value ranging between 0.4 – 0.6. Rest of the part shows moderate values of NDVI (0.2-0.4).

### Tamil Nadu



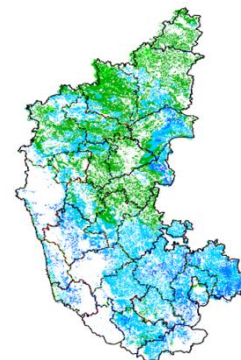
Agricultural vigour is good over entire state of Tamilnadu where NDVI values lies between 0.4-0.5, whereas few patches in central, western and northern part shows moderate values of NDVI (0.3-0.4).

### Chhattisgarh



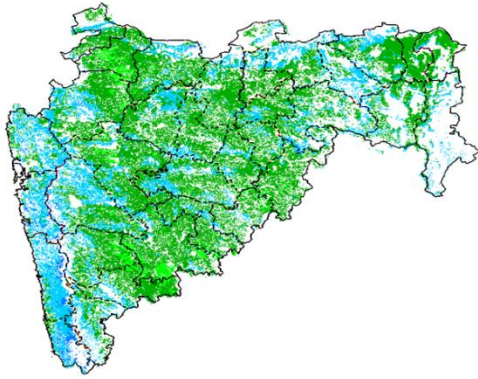
Agriculture vigour is good in northern and southern parts of Chhattisgarh where NDVI values are between 0.4-0.5 except central part which shows moderate values of NDVI.

### Karnataka



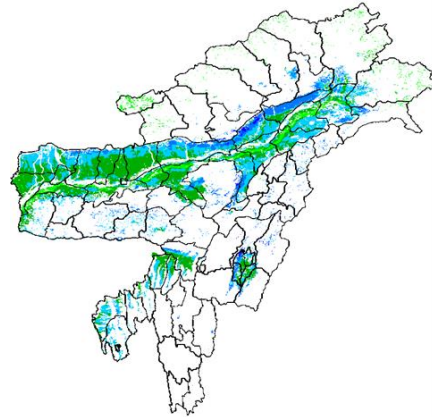
The agriculture vigor is good over the entire state. Higher values of NDVI are observed in interior, southern and eastern part of the State (NDVI 0.4-0.6) whereas few patches in north and north-west show moderate NDVI.

### Maharashtra



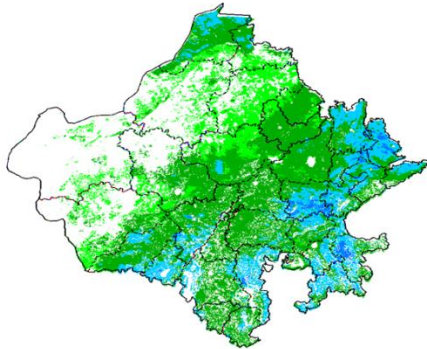
Agricultural vigour is good over Coastal Maharashtra and Vidarbha region with NDVI values from 0.4-0.6, whereas Moderate values of NDVI are observed over Madhya Maharashtra and Marathwada region (0.2-0.4).

### North East Region



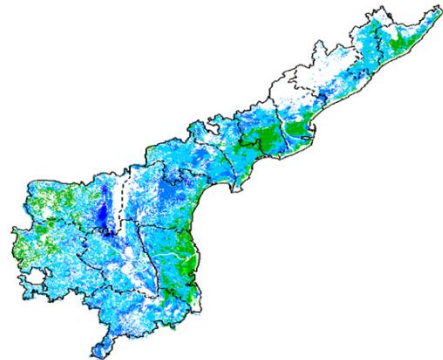
Agriculture vigour is good over entire states North-East Region where NDVI varies from 0.4-0.6, few patches over Assam shows moderate values of NDVI (0.3-0.4).

### Rajasthan

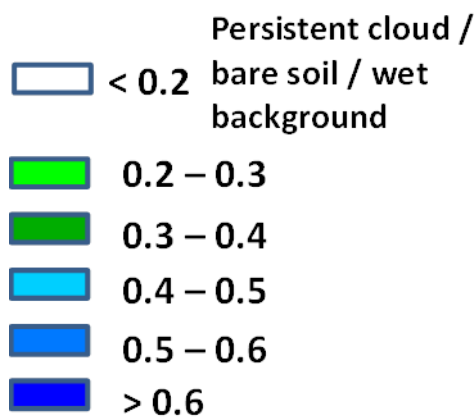


Agriculture vigour is good (0.4-0.6) in some patches over southern and eastern part of Rajasthan whereas moderate values of NDVI are observed over the entire state (0.2-0.4).

### Andhra Pradesh



Agriculture vigour is good over entire state of Andhra Pradesh where NDVI vary between 0.4-0.6. except southern coastal part which shows normal values of NDVI (0.2-0.3).



## Annexure III

### List of varieties

#### North Interior Karnataka

**Pearl millet:** ICTP 8203 and ICMV 221

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

**Rabi sorghum :**Maldandi and Mugati

**Bengal gram:** JJ-11, KAK-2 and Vishal, JG-11, Annigeri-1

**Chickpea:** A-1, JG-11, Jaki-9218

**Safflower:** A-1

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

**Sunflower:** Morden, KBSH-1, KBSH-41, KBSH-42, KBSH-44 and KBSH-53.

**Maize:** Deccan-103, Vijaya composite and Ganga-11

**Cowpea:** TVX-944, KBC-1 , KM-8 and PKB-4 (vegetable purpose)

**Field bean :** HA-1,3 and 4

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

#### Tamil Nadu

**Late Samba/ Thaladi rice:** (ADT 38, ADT 46, ADT 49, Improved white Ponni, IR 20, ASD 19, Paiyur1, TRY 1, TRY 3, Co 48, Co 49, BPT 5204 and Co 50)

#### Kerala

**Rice:** Mundakan

**Banana:**Nendran

#### Telangana

**Rabi red gram:**(LRG 41, ICPL 87119, MRG 66, ICPL 85063, WRG 27, MRG 1004, WRG 53, WRG-65)

**Greengram:**(MGG-295, MGG-348, MGG-347 WGG-2, WGG-37, LGG-460, TM-96-2)

**Black gram:**(LBG-20 (Teja), , LBG-623, WBG-26 (Usha), PBG-1, LBG-752, MBG-207,PU 31)

#### Assam

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

**Mid cauliflower :**Pusa Snowball.

**Brinjal :** Pusa Kranti, Pusa Purple Long, Pusa Purple Cluster, Pusa Bhairav, JC-2, BWR-12.

**Califlower :**Japanese, Pusa synthetic, Pusa snowball and Main Crop Patna.

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

**Tomato :** Punjab Chuhara, S-12, Punjab Kesri, Pusa Early Dwarf, Sioux,Pusa Ruby, VC- 48-1, Arka Abha (BWR-1), Arka Alok (BWR-5), BT-1, Bilahi-1, Bilahi-2.

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

**Broccoli :** Early Danish Giant, De Cicco Green Bud, Sparton Early, Coastal and Atlantic.

**Black gram :** KU 301, USJD 113, PU 19, T-9, T-27, Pant U-19, T-122, Saonia mah.

**Green gram :** Pratap, SG 21-5, T-44, Kopergaon, K-851, ML-56, ML-131,SG-1 (Pratap).

**Kharifsesame :** Gauri, Madhabi, ST-1683, Punjab Til No.1.

**Radish :**Pusa Desi, Pusa Chetki, Pusa Himani.

**Knolkhol:** White Vienna, Purple Vienna.

**Carrot :**Nantes, Pusa Kesar.

**Onion :**Pusa Red, Pusa Ratnar, Pusa white (Round), Pusa white (Flat), N-53, Agrifound Light Red, Punjab Red Round, Pusa Madhuri, Arka Niketan.

#### Meghalaya

**Cauliflower:** Meghalaya Local.

**Cabbage :** Meghalaya: H-139, Pride of India.

**Pea: Arkel (for vegetables),** TRC P8, TRC P9, Prakash, Rachna.

**French bean :** Naga Local.

**Potato:** Kufri Joyti, Kufri Megha, Kufri Giriraj, Kufri Girdhari, Kufri Himsona, Kufri Himalini.

**Broccoli :** Puspa, Aiswarya.

**Carrot :** New Karoda, Nantesh.

**Radish :** Local genotype.

**Mustard :** Varuna, Krishna, TM 4; Rapeseed- M 27, TS 38, TR 48, TR 67.

#### Manipur

**Cauliflower:** White shot, adopt White flash.

**Cabbage:** Rareball.

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

**Pea:** Arkel or Azad.

**Onion :** Nasik Red.

### **West Bengal:**

**Mango:** Himsagar, Mallicka, Langra

**Guava:** Safeda, L-49

**Coconut:** Eastcoastal, Hazari

**Banana :-** Mortoman, Chapa, Kathali, Singapuri,

**Mustard:-** Agrani(B-54), Panchali (T.W.C.-3), B-9, Rai-5 and Bhagiroti (R.W.-351).

### **Bihar**

**Potato:** KufriJyoti.Kufri Ashoka,Pukharaj

**Toria:** R.A.U.T.S.17, Panchali,P.T.303

**Rapeseed:** RAUTS-17, Panchali,PT-303 ,Bhawani

**Pulses:** K-75,PL77,KLS-218

**Lentil:** BR-25,Pant L 406,Malika,Arun

**Rai:** Varuna pusa,Kranti

**Maize:** Dhml17,Shaktiman-1,Dewki&Lakshmi

**Kidney Pea:** PDR-14,IIDR 96-4,IIPR 98-5

**Rai:** Varuna,Pusabold,Kranti

**Sarson:** RajendraSarson,Swarna

**Peas:** Ratna,Apnahaarbajan Malbai mater15

**Garlic:** Jamuna Safed-2(G-50),Jamuna safed-3(G-282) Jamuna-4(G-323)

### **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

**Mustard:** Panchali, Bhavani, Pusa Jaikisan, Sivani, Varuna& Kranti

**Toria:** BR-23,T.-9,P.T.-303

**Chick Pea:** Birsa chana-3,B.G.-372,256,K WR-108

**Field Pea:** Rachna,DDR-23, Swarnrekha

**Onion:** N-53,Pusa red,Arka nketan, Arka kalian

**Gram:** KAK-2, ICC-2,Pusa 256, Pusa-372

### **Odisha:**

**Mango:** Baiganpalli, Totapuri, Bombay green, Suvarnarekha, Neelam, Himsagar,, Langra, Dusheri, Amrapalli, Mallika, Ratna, Ramkella, Alphanso and Keshar, etc.

**Cashewnut:** Vengrulla-1.4, BPP-4, Bhubaneswar-1, VRI-2, Hybrid 2-17

**Green gram:**K 851, PDM 11, PDM 54, OUM 115.

**Black gram:**T 9, PU 11, PU 19 and PU 30.

**Horse gram:** Urmi.

### **Jammu & Kashmir**

**Cabbage:** Golden Acre, Pride of India and PusaMukta.

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

**Pea :** AP-1, Bonnevillea, Rachna and Arkel);

**Chickpea :** K-468, Gourav);

**Lentil :** L-4147, L-9/12,PL-406)

**Wheat :** PBW-175, PBW-396, RSP-81(Jitto)

**Mustard :** Pusa Bold, RSPR-01, RSPR-03, Kranti.

### **Uttarakhand**

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

**Barley :** Jyoti, Vijaya, or Jagrati

**Oat :** UPO-50, UPO-212, JHO-822, Kent

### **Himachal Pradesh**

**Wheat:**Hs-277, HPW-251 and VL-616

**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**

**Sorghum:** Pusa chari-23, SSG-98-8MFSH-3, Pant-5 and MP chari

**Lobia:** Russian Joint , UPC-5286, UPC-5287, NP-3, Bundhel lobia-2, UPC-9202 and UPC-4200

**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.

**Cauliflower:** pusa Dipali.  
**Pearl Millet:** Raj WCC-75, ICMB-155, Pusa-322,23, ICMH-451.  
**Seasame:** T-4,78, Shekhar, Pragati, Tarun.  
**Pigeon Pea:** Bahar, Narendra Arhar-1, Azad, Pusa-9.  
**Jute:** Jute Reshma, NDC (2007), NDC-2028, NDC-9102.  
**Okra:** PusaSawani, VarsaUphar, Azad kranti.  
**Brinjal:** Pant Samrat, Pant Rituraj, Pusa hybrid-6.  
**Guava:** Sardar (Lucknow-49).  
**Kabuli gram:** chamatkar, Puse-1003, Subhra  
**Pea:** Rachna, Pantmatar-5, Aparna, Malviya Matar-2, Malviya Matar-15, Shikha and Sapna.  
**Cabbage:** Japani, Pusa Dieepali, Pusa Kartiki  
**Toria:** TA-9, Bhawani, PT-30 and PT-507  
**Potato:** Kufri Chandramukhi, Kufri Sadabahar, Kufri Ashoka

### West Uttar Pradesh

**Ladies finger:** VRO-6, VRO-5.  
**Pigeon pea:** T-21, UPAS 120.  
**Cotton:** H777, Dhanalakshami, HD107.  
**For fodder Jowar:** JS 120, Lobia 88.  
**gram:** P.D.G.-3, G.P.F.-2, C-235, Gourav, KGD-1168, JG-16, Avrodhi  
**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.  
**onion:** pusa red, pusa white.  
**Mustard:** Varuna, Narendra-Rai 8501, Rohoni (timely sowing), Aashirwaad and Vardan (late sowing), Vaibhav, Maya.  
**Jou:** Manjula, Jagruti, Gitanjali.  
**Pea:** Azad P-3, Jai, Indra, Prakash.  
**Lentil:** KLB-320, K-75, DPL-62.  
**Linseed:** Padmini, Sharda, Laxmi.

### 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.  
**Pea:** Punjab 89 and MithiPhali, Matar Ageta-7, Arkel and Matar Ageta-6.  
**Gram :** PDG-4, PDG-3, GPF-2, PBG 5 and PBG-1, PBG-7.  
**Kabuli gram** (L 552, L 550 & BG-1053)  
**Mustard:** PBR 357, RLC-1, PBR-210, RLM-619, PBR-91, PBR-97, RLC-1, PBR 210 and PBR 91,  
Gobhi sarson GSC-7, GSC-6, GSL-1, GSL-2, Hyola (PAC-401), African sarson PC-5.  
**Radish:** Punjab Pasand and Japanese white.  
**Turnip:** L-1.  
**Carrot:** Punjab Black Beauty, Punjab Carrot Red and PC-34.

### Delhi

**Mustard:** Pusa Sarson-25, Pusa Sarson-26, Pusa Agrni, Pusa Taraka and Pusa Mahak, Pusa Jai Kisan, Pusa Jagannath, Pusa Sarson-25, Pusa Sarson-26, Pusa Agrni, Pusa Taraka, Pusa Mahak. Pusa Saag-1; Bathua- Pusa Bathua-1  
**Radish:** PusaChetki.  
**Spinach:** PusaBharti.  
**Amaranths:** PusalalChaulai, PusaKiran.  
**Ladyfinger:** Pusa A-4.  
**early potato:** Kufri Badshah, Kufri Surya.  
**Pea:** Pusa Pragati, Arkel  
**Carrot:** Pusa Rudhira-;  
**Radish:** Japani White, Hill queen, French Radish;  
**Spinach:** All Green, Pusa Bharti;  
**Fenugreek:** Pusa Kasuri;  
**Coriander:** Pant Haritama, Hybrids;  
**Turnip:** Pusa Swati, Local Red variety

### East Rajasthan

**Radish:** PusaChetki, Japanese white & hill queen.  
**Carrot:** PusaKeshar  
**Cowpea:** Short durC-152, RS-9, FS-68, RC-19 and RC-101, C-152, RS-9.  
**Mustard:** Pusa Jai Kisan (Bio-902), PR-15 (Kranti), T-59 (Varuna), Giriraj, RGN-73, Bio-902 (PusaJaikisan), RH-9304 (Vasundhara), RH-9802 (SwarnJyoti), RH-8812 (Laxmi), RB-50.  
**Gram:** RSG-888 (Anubhav), CSJD-884 (Aakash), RSG-44, Pusa-209, C-235, H-208, Pratap raj chana, RSG-888, Dahod yellow, ICCV-10 and Pratap Chana-1.  
**Cauliflower:** Pusa snow ball K-1, Hisar-1, Dania and Selection-7  
**Onion:** Punjab safed goal, Udaipur 102, nasik red.

### **West Rajasthan**

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

**Mustard:** PusaJai Kisan, RH-30, RH-8812, Pusa Gold and PR-15, RGN-13, 73, 268226, 48, Laxmi, Bio-902, T-59, Pusa bold, Arawali and RGN-48 and late sown RGN145, 236.

**Gram:** GNG-469, 466, GNG-663, RSG-888, RSG-44, RSG-945, RSG-807, GNG-1581 and C-235, GNG-1466, 236.

**Oat :** OS 6, OS 9

**Berseem:** BL 10, BL 22

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

**Radish:** (Pusa Rashmi).

**Carrot:** Pusa Keshar

### **Madhya Maharashtra**

**Rabi jowar:** Selection-3, Phule Mauli, Phule Chitra, Phule Mauli, Maldandi- 35-1, Phule Vasudha, Phule Yashoda, C.S.V.-22, Phule Yashoda, Phule Vasudha, C.S.V. 22.

**Gram:** Vijay, Vishal, Digvijay

**Safflower:** Bhima, Phule Kusuma, Sharada, Girna or D.S.H. 129

**Wheat:** NIAW-301 (Trimbak), NIAW-917 (Tapowan), NIDW-295 (Godavari), Late sowing- NIDW-15 (Panchavati), Irrigated- NIAW-34.

### **Marathwada**

**Rabi jowar:** Selection 3, Phule Malauli, Phule Anuradhada, Phule Vasudha, Phule Yeshodha, Parbhani Moti, CSV-22, PKV-Kranti, CSH-15, CSH-19.

**Safflower:** Shardha, Parbhani-12, Parbhani-40, Nari-6, Annegiri-1, Phule Kusum.

**Gram:** BDN-9-3, BDNG-979, Vishwas, Phule G-12, Vijay, Vishal, Digvijay.

**Fodder jowar:** Ruchira R-4-11, Nilva, MP chari, Pusa Chari, IS 4776, SG-14, MKV Chari.

### **Vidarbha**

**Gram:** Saki 9516, Hirva chafa, Vijay, ICCV-10.

**Wheat:** N 59, NI 5439, AKDW 299716, MACS 1967

### **Konkan**

**Groundnut:** TG-26, TAG-24, TPG-41, Konkan Gaurav, Konkan Tapora

**Mustard:** Pusa bold, Varuna.

**Sunflower:** Modern, S.S.56, B.S.H – 1.

### **Gujarat**

**Wheat:** GW 496, GW 273, GW 173, GW 1 (unirrigated), Lok-1, GW-366, GW- 190.

**Chickpea:** Gujarat chana-2 (unirrigated), Gujarat Gram-1, Gujarat Gram-3 (irrigated), Dahod Pila, ICC-4.

**Mustard:** Varuna, Gujarat Mustard 1, 2, 3 (in high temperature), 4.

**Garlic:** Gujarat Garlic-3, 4 or Local.

**Pea (vegetable):** Pusa Pragati, Pusa Rudhira.

**Onion:** Junagadh local (pili patti), Talaja red, Agri found dark red, Pusa White flat, Pusa Red, Nashik Lal, N 53 & H 48.

**Cumin:** Guj. Cumin- 2 and 4.

**Coriander:** Guj. Cor. -1 & 2.

**Carrot:** Patan Local, Pusa Kesar and Pusa Chamdagni.

**Raddish:** Pusa Hemadri, White ICL, Japanees White, Pusa Rashmi, Pusa Chetaki.

**Cabbage:** Kranti, Golden Acaire Pride of India, Coppin Market.

**Cauliflower:** Pusa Early, Pusa Dipali, Pusa Kartiki, Early Kuvari for early maturity and for medium duration select the Pusa synthetic, Early Snowball, Snowball.

**Brinjal:** Guj. Brinjal 6, P.L.R. 1, Junagadh Lambagoal, Mahicco-11, 16.

**Fennel:** Gujarat fennel-2, 11 and 12.

### **Madhya Pradesh:**

**Wheat:** JW 1203, JW1215, HI 1544 (Irrigated).

JW 3288, JW 3211, JW 3020, HI 1531(1 or 2 irrigation).

JW 3288, JW 3173 (non irrigated).

**Gram:** JG 130, JG 11, JG 315, JG 16.

**Chickpea:** KAK 2, JGK 1.

**Lentil:** RVL 31, JL 2.

**Mustard:** RVM 2, RGN 73, Pusa Jai Kisan.

### **Chhattisgarh:**

**Wheat:** Lok-1, W.H. 147, Kanchan & Raj(irrigated).

C 308, Sujata, H.W. 2004, Ratan, H.I.-8627 & H.I. 1531 (Partially irrigated).

**Linseed:** R.L.C. 92 (Indira Alsi), Dipika (R.L.C.-78), Indira Alsi (R.L.C.-81), Kartika (R.L.C.-76), Jawahar 552 (R.L.C.-552), Kiran (R.L.C.-6).

**Safflower:** J.S.F.-1, J.S.I-7, J.S.H.-129.