



# *National Agromet Advisory Service Bulletin*



*Friday 4<sup>th</sup> December 2015*

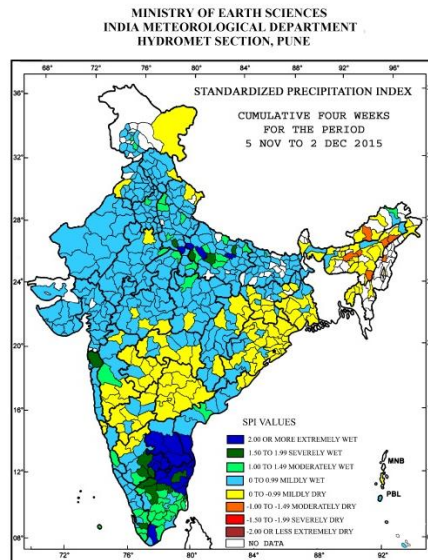
*(For the period 4<sup>th</sup> to 8<sup>th</sup> December 2015)*



*Issued by*

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

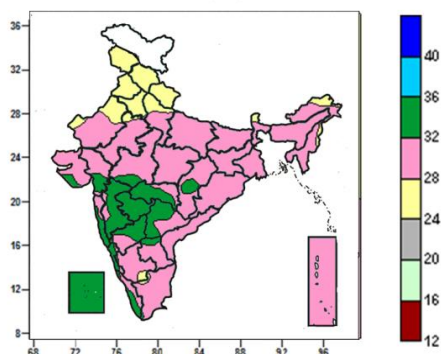
## Standardised Precipitation Index Four Weekly for the Period 5<sup>th</sup> November to 2<sup>nd</sup> December 2015



- Extremely/severely wet conditions experienced in few districts of Andhra Pradesh, Tamil Nadu & Puducherry, Karnataka; Ambedkar Nagar, Kannauj, Kanpur Dehat, Rae Bareli, Sant Kabir Nagar, Unnao, Etawah, Firozabad districts of Uttar Pradesh; Thane district of Konkan & Goa; Pathanamthitta district of Kerala.
- Moderately dry conditions experienced in few districts of Assam, East Kameng district of Arunachal Pradesh, Kohima district of Nagaland.
- Rest of the country experienced moderately wet/mildly dry/wet conditions.

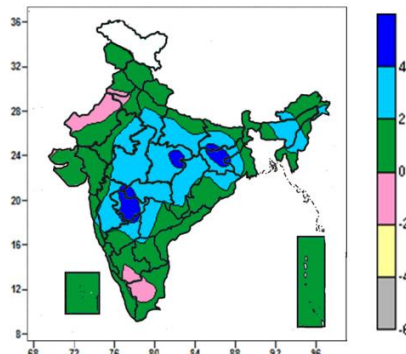
**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 02.12.2015**

**Actual Mean Maximum Temperature (°C) in India for the week ending 02.12.2015**



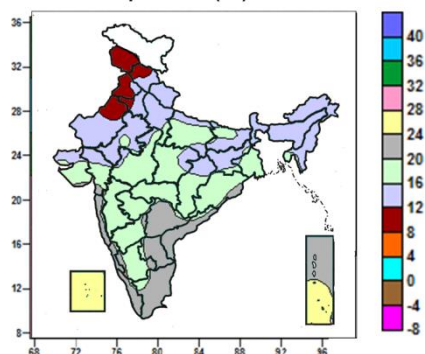
- Mean maximum temperature was between 32 to 36°C over Lakshadweep, Marathwada, many parts of Konkan & Goa, Madhya Maharashtra, Vidarbha, Telangana, Coastal and North Interior Karnataka some parts of Gujarat region, Saurashtra, West Madhya Pradesh, Kerala and isolated pockets of Chhattisgarh and Rayalaseema.
- Mean maximum temperature was between 28 to 32°C over rest of the country except Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana & Delhi, Sikkim, some parts of West Rajasthan, West Uttar Pradesh, Arunachal Pradesh, isolated pockets of East Rajasthan, Nagaland, Manipur, South Interior Karnataka and Tamil Nadu where it was between 24 to 28°C.

**Mean Maximum Temperature (°C) Anomaly in India for the week ending 02.12.2015**



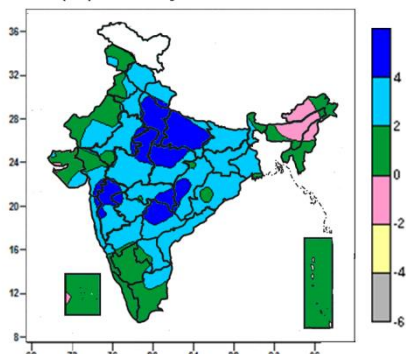
- Mean maximum temperature was above normal by 4 to 6°C over many parts of Marathwada, some parts of Jharkhand and isolated pockets of Bihar, Gangetic West Bengal, East Madhya Pradesh, Madhya Maharashtra, Vidarbha and North Interior Karnataka.
- Mean maximum temperature was above normal by 2 to 4°C over many parts of Uttar Pradesh, Madhya Pradesh, Bihar, Jharkhand, Assam & Meghalaya, Manipur, Chhattisgarh, Madhya Maharashtra, some parts of East Rajasthan, Gangetic West Bengal, Nagaland, Odisha, Telangana and North Interior Karnataka, isolated pockets of Arunachal Pradesh, Konkan, Marathwada and Rayalaseema.
- It was normal to near normal in remaining parts of the Country.

**Actual Mean Minimum Temperature (°C) in India for the week ending 02.12.2015**



- Mean minimum temperature was between 8 to 12°C over Jammu & Kashmir, many parts of Punjab, some parts of Himachal Pradesh, Haryana and West Rajasthan.
- It was between 12 to 20°C over rest of the country except Lakshadweep, Andaman & Nicobar Islands, many parts of Konkan & Goa, Telangana, Coastal Andhra Pradesh, Rayalaseema, Tamil Nadu, Coastal Karnataka, Kerala, some parts of Odisha and isolated pockets of Gujarat region, Saurashtra, Madhya Maharashtra, Marathwada and Interior Karnataka,

**Mean Minimum Temperature (°C) Anomaly in India for the week ending 02.12.2015**



- Mean minimum temperature was above normal by 4 to 6°C over many parts of Uttar Pradesh, Telangana, some parts of Madhya Pradesh, Madhya Maharashtra, Vidarbha, Chhattisgarh and isolated pockets of Uttarakhand, Delhi, East Rajasthan, Gujarat region and Marathwada.
- Mean minimum temperature was above normal by 2 to 4°C over rest of the country except North east India, Lakshadweep, Andaman & Nicobar Islands, many parts of Jammu & Kashmir, Punjab, West Rajasthan, Gujarat, Sikkim, Coastal and South

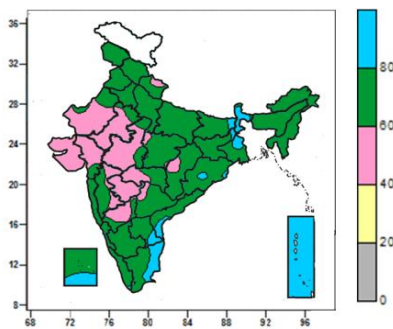


where it was between 20 to 28°C.

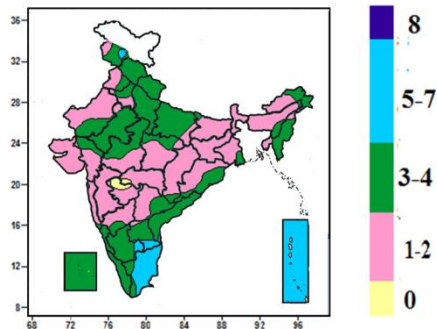
Interior Karnataka, Tamil Nadu, some parts of East Rajasthan, Sub-Himalayan West Bengal, Rayalaseema and isolated pockets of Haryana, Chhattisgarh, Gangetic West Bengal, Odisha, Vidarbha and North Interior Karnataka where it was normal to near normal.

**Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 02.12.2015**

**Relative Humidity (%) over India for the week ending 02.12.2015**



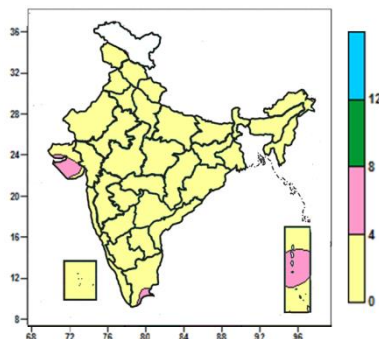
**Cloud amount (okta) over India for the week ending 02.12.2015**



- Mean Relative humidity was above 80% over Andaman & Nicobar Islands, many parts of Sub-Himalayan West Bengal & Sikkim, some parts of Gangetic West Bengal, Tamil Nadu, Coastal Andhra Pradesh, Rayalaseema, Lakshadweep and isolated pockets of Bihar, Jharkhand and Odisha.
- Mean Relative humidity was between 60 to 80% over rest of the country except Marathwada, many parts of Rajasthan, Gujarat, West Madhya Pradesh, Madhya Maharashtra, North Interior Karnataka, some parts of Uttarakhand, Chhattisgarh, Vidarbha, Telangana and isolated pockets of East Madhya Pradesh where it was between 40 to 60%.

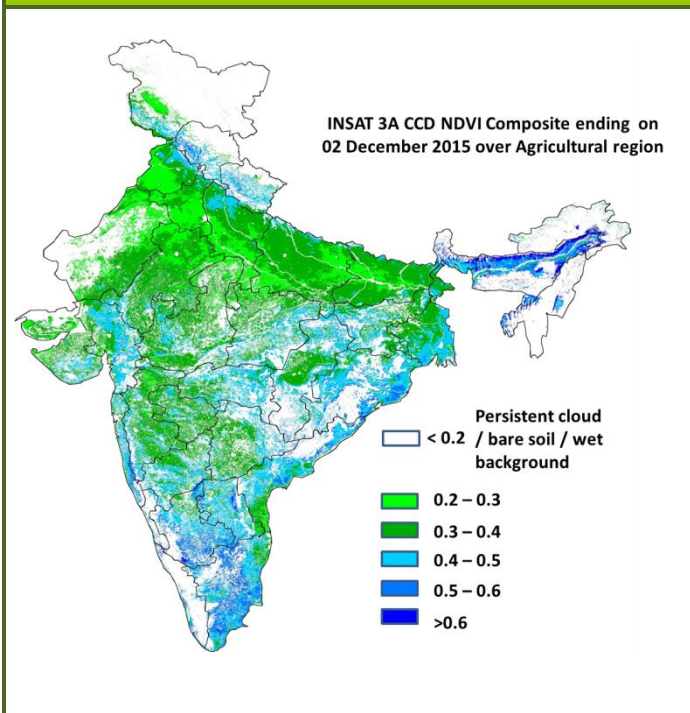
- Sky remained cloudy (5-7okta) over Andaman & Nicobar Islands, many parts of Tamil Nadu, some parts of Rayalaseema, South Interior Karnataka and isolated pockets of Jammu & Kashmir.
- Sky remained partly cloudy/mainly clear/clear sky (3 to 4/ 1 to 2/0 okta) over rest of the country.

**Wind speed (knots) over India for the week ending 02.12.2015**



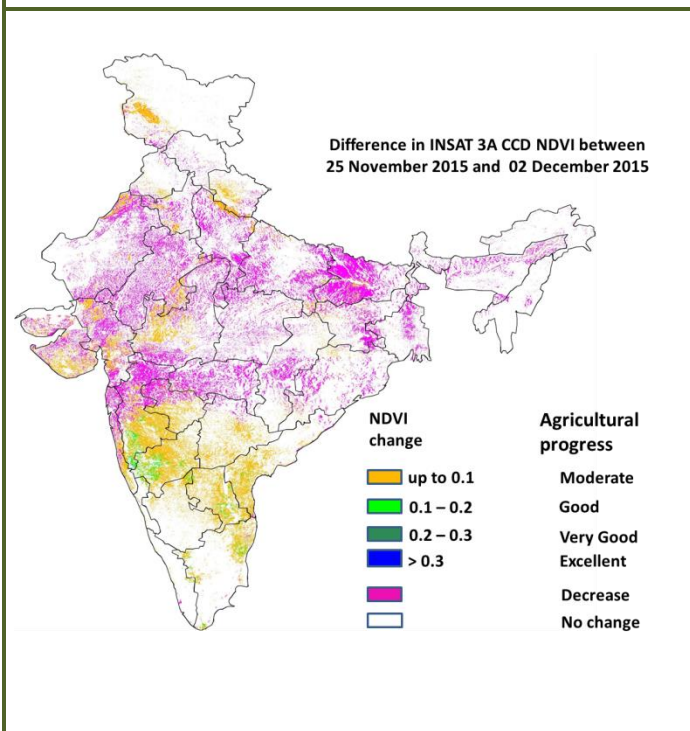
- Mean wind speed was 4 to 8 knots over many parts of Saurashtra & Kutch, some parts Andaman & Nicobar Islands and isolated pockets of Tamil Nadu.
- It was less than 4 knots over rest of the country.

**INSAT 3A CCD NDVI COMPOSITE ENDING ON 2<sup>nd</sup> December 2015 OVER AGRICULTURAL REGION OF INDIA**



- Agricultural vigour is good in some patches of coastal and western Andhra Pradesh, Odisha, West Bengal, Assam, coastal Maharashtra, Vidarbha, East Madhya Pradesh, Gujarat, Karnataka, Jharkhand, Tamil Nadu and Telangana, where NDVI varies from 0.4 to 0.6. Agricultural growth was moderate 0.2 to 0.3 over most parts of Rajasthan, West Madhya Pradesh, Punjab, Haryana, Uttar Pradesh, Bihar and Northern part of Tamil Nadu.

**Difference in INSAT 3A CCD NDVI between 25<sup>th</sup> November and 2<sup>nd</sup> December 2015**



- Decrease in NDVI was observed in Uttar Pradesh, Rajasthan, Madhya Pradesh, Bihar, West Bengal, coastal Odisha, Gujarat, parts of Marathwada, Vidarbha regions. A moderate progress (up to 0.1) in NDVI over patches in Maharashtra, West Madhya Pradesh, Andhra Pradesh, Telangana and Northern part of Tamil Nadu was observed. Good progress in NDVI (0.1-0.2) was observed over patches in remaining parts of Tamil Nadu, southern part of Maharashtra and North Interior Karnataka.

- INSAT 3A CCD NDVI composite maps for the week ending on 2<sup>nd</sup> December 2015 for different States are given below in Annexure II.

## Weather Forecast for next 5 days valid upto 0830 hours of 9<sup>th</sup> December 2015

- Meteorological sub-division wise detailed 5 day rainfall forecast is given below.
- Shallow to moderate fog would occur at isolated pockets of Punjab, Haryana & Chandigarh, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim, Meghalaya and Nagaland, Manipur, Mizoram & Tripura in the morning hours during next 2 days.
- No significant change in temperatures over northwest, central & east India during next 3 days.

### 5 Day Rainfall Forecast (MID DAY) 4<sup>th</sup> December 2015

Met Sub-divisions	04 Dec	05 Dec	06 Dec	07 Dec	08 Dec
1. Andaman & Nicobar Islands	SCT	SCT	SCT	SCT	SCT
2. Arunachal Pradesh	ISOL	DRY	DRY	DRY	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	DRY	DRY	DRY	DRY	DRY
6. Gangetic West Bengal	DRY	DRY	DRY	DRY	DRY
7. Orissa	DRY	DRY	DRY	DRY	DRY
8. Jharkhand	DRY	DRY	DRY	DRY	DRY
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	DRY
16. Jammu & Kashmir	ISOL	ISOL	DRY	DRY	SCT
17. West Rajasthan	DRY	DRY	DRY	DRY	DRY
18. East Rajasthan	DRY	DRY	DRY	DRY	ISOL
19. West Madhya Pradesh	DRY	DRY	DRY	DRY	ISOL
20. East Madhya Pradesh	DRY	DRY	DRY	DRY	DRY
21. Gujrat Region	DRY	DRY	DRY	DRY	ISOL
22. Saurashtra & Kutch	DRY	DRY	DRY	DRY	ISOL
23. Konkan & Goa	DRY	DRY	DRY	ISOL	ISOL
24. Madhya Maharashtra	DRY	DRY	DRY	DRY	DRY
25. Marathwada	DRY	DRY	DRY	DRY	DRY
26. Vidharbha	DRY	DRY	DRY	DRY	DRY
27. Chhattisgarh	DRY	DRY	DRY	DRY	DRY
28. Coastal Andhra Pradesh	ISOL	ISOL	ISOL	ISOL	ISOL
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	ISOL	ISOL	ISOL
31. Tamilnadu & Puducherry	FWS	FWS	FWS	FWS	SCT
32. Coastal Karnataka	ISOL	ISOL	SCT	SCT	SCT
33. North Interior Karnataka	DRY	DRY	DRY	ISOL	ISOL
34. South Interior Karnataka	ISOL	ISOL	FWS	FWS	SCT
35. Kerala	SCT	SCT	FWS	WS	FWS
36. Lakshadweep	ISOL	SCT	FWS	WS	WS

#### % 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

- **04 December (Day 1):** Heavy rainfall would occur at isolated places over coastal Tamilnadu & Puducherry. Moderate to dense fog would occur at isolated pockets of Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- **05 December (Day 2):** Heavy rainfall would occur at isolated places over coastal Tamilnadu & Puducherry. Moderate to dense fog would occur at isolated pockets of Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- **06 December (Day 3):** Heavy rainfall would occur at isolated places over Tamilnadu & Puducherry and Kerala. Moderate to dense fog would occur at isolated pockets of Assam & Meghalaya and Nagaland,

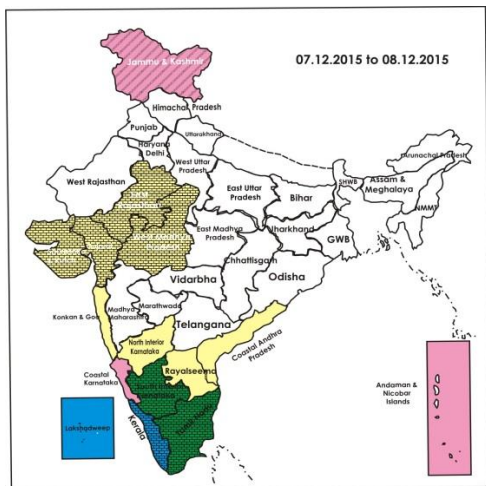
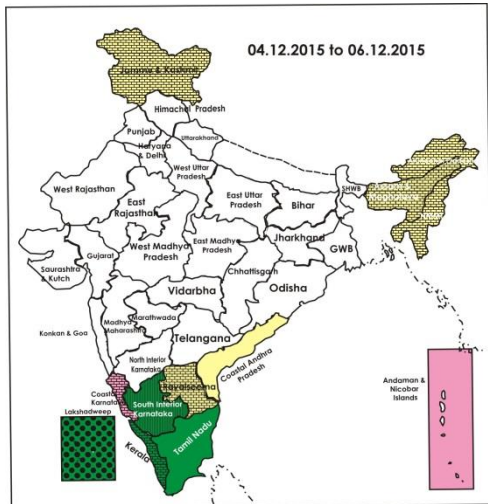
Manipur, Mizoram & Tripura.

- **07 December (Day 4):** Heavy rainfall would occur at isolated places over Kerala, Lakshadweep and Tamilnadu & Puducherry.
- **08 December (Day 5):** Heavy rainfall would occur at isolated places over Lakshadweep.

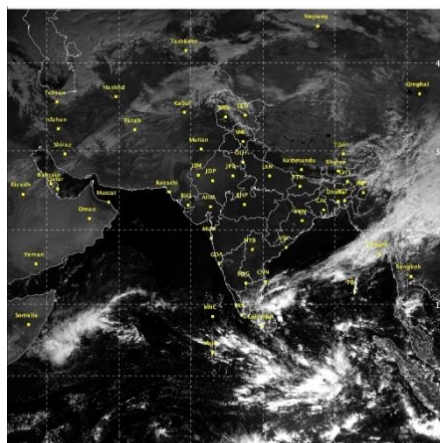
**Weather Outlook for subsequent 2 days from 9<sup>th</sup> to 11<sup>th</sup> December 2015**

- Rain/thundershower would occur at many places over south peninsular India and at a few places along west coast and at isolated places over rest parts of peninsular India.
- Rain/snow would occur at many places over western Himalayan Region.

**Weather Forecast Map (Valid upto 0830 hours of 9<sup>th</sup> December, 2015)**







### Salient Advisories

- As there was continuous rainfall during last 20-21 days in **Tamil Nadu**, most of the reservoirs filled up. Sudden heavy rainfall during last 3-4 days due to trough of low in south-west Bay of Bengal and water released from reservoirs made havoc (flood/water stagnation) in coastal and north-eastern districts of Tamil Nadu & Puducherry. Still impact of heavy rain is there and likely to continue upto 8<sup>th</sup> December due to the low pressure area over southwest Bay of Bengal & adjoining Srilanka off Tamil Nadu coast persists. Chennai, Kancheepuram, Villupuram, Tiruvallur, Vellore, Thiruvannamalai and Cuddalore districts in the North Eastern Zone are severely affected and Puducherry & Karaikal districts in Coastal Zone and Thanjavur & Nagapattinam districts in Cauvery Delta Zone are moderately affected by heavy rain/floods. In view of the above the following advisores are suggested:
  - In the North Eastern Zone and Cauvery Delta Zone, due to heavy rain during past few days, flooding/waterlogging is reported in standing crops like *Samba/Thaladi* rice fields, sugarcane and vegetable crop fields. Drain out excess water from the crop fields wherever possible.
  - In view of the expected high wind speed along with heavy rain, provide mechanical support to banana and other horticultural crops and undertake propping in sugarcane in the North Eastern Zone.
  - In Karaikal and Puducherry districts of Coastal Zone, drain out excess water from rice fields leaving thin film of water and undertake gap filling by thinning the 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) 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 current spells of heavy rain.
- As rain/thundershowers would occur at many places over **Tamil Nadu & Puducherry** from 4<sup>th</sup> to 7<sup>th</sup> December and most/many places over **Kerala** from 6<sup>th</sup> to 8<sup>th</sup> and at many places over **South Interior Karnataka** on 6<sup>th</sup> & 7<sup>th</sup> December along with heavy rainfall at isolated places over Coastal Tamil Nadu and Puducherry on 4<sup>th</sup> & 5<sup>th</sup> and heavy rainfall at isolated places over Tamil Nadu and Puducherry on 6<sup>th</sup> & 7<sup>th</sup> and over Kerala on 6<sup>th</sup> & 7<sup>th</sup> December, postpone intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields.
- In the Southern Zone of **Andhra Pradesh**, due to excess rains received in most of the districts during last week, do not take up sowing of groundnut immediately as there is chance of occurrence of seedling rot due to excess moisture. Drain out excess water from rice crops in mainfields which is in initial tillering stage and apply 25 kilo Urea 15 kilo MOP per acre as top dressing. For rice crop which is in maturity to harvesting stage, drain out the excess water and spray 5% salt solution on the panicles to prevent grain germination and discoloration.
- As moderate to dense fog would occur at isolated pockets of **Assam, Meghalaya, Nagaland, Manipur, Mizoram, and Tripura** during next 4 days and shallow to moderate fog would occur at at isolated pockets over **Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar** and **Sub-Himalayan West Bengal & Sikkim** 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 Hill Zone of **Assam**, humid and foggy weather is favorable for attack of aphids and saw fly in rapeseed/mustard and late blight on tomato. To control the aphids and saw fly, spray Malathion 50 EC @ 2ml/litre of water. Apply Ridomil MZ-72 2g/litre and Indofil M-45 2.5g /litre against late blight on tomato crop.
- As dry weather is prevailing, apply irrigation in wheat at CRI stage in **Rajasthan, Madhya Pradesh, Gujarat, and Uttarakhand**.
- Continue sowing of Bengal gram in **Chhattisgarh, Rajasthan, Punjab and Uttar Pradesh** and continue sowing of mustard/rapeseed in **Assam & Meghalaya, Bihar, Jharkhand, Odisha, Rajasthan, Madhya Pradesh, Chhattisgarh, Uttar Pradesh and Uttarakhand** with irrigation facilities. Continue sowing of wheat in **Punjab, Haryana, Rajasthan, Madhya Pradesh, Bihar, Jharkhand, Uttar Pradesh and Himachal Pradesh** under assured irrigation.
- Taking advantage of prevailing dry weather, continue harvesting of matured *Aman* rice in **West Bengal, Sali** rice in **Assam** and continue harvesting of rice in **Bihar, Jharkhand, Uttar Pradesh, Chhattisgarh and Coastal Karnataka**.

### *Detailed Zonewise Agromet Advisories*

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



**Banana**



**Groundnut**



**Land preparation/sowing**



**Cotton**

- **Realised Rainfall:** Rainfall occurred in all districts of Tamilnadu except Coimbatore and Krishnagiri; Alappuzha, Idukki, Kollam, Kottayam, Pathanamthitta and Thiruvananthapuram districts of Kerala; Nellore and Prakasam districts of Coastal Andhra Pradesh; Chittoor and Cuddapah districts of Rayalaseema. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - As rain/thundershowers would occur at many places over **Tamil Nadu & Puducherry** from 4<sup>th</sup> to 7<sup>th</sup> December and most/many places over **Kerala** from 6<sup>th</sup> to 8<sup>th</sup> December along with heavy rainfall at isolated places over Coastal Tamil Nadu and Puducherry on 4<sup>th</sup> & 5<sup>th</sup> and heavy rainfall at isolated places over Tamil Nadu and Puducherry on 6<sup>th</sup> & 7<sup>th</sup> and over Kerala on 6<sup>th</sup> & 7<sup>th</sup> December, postpone intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields.
- **Tamil Nadu:**
  - As there was continuous rain during last 20-21 days, most of the reservoirs filled up. Rainfall in Tamil Nadu is unusual. Sudden heavy rainfall during last 3-4 days due to trough of low in south-west Bay of Bengal and water released from reservoirs made havoc (flood/water stagnation) in coastal and north-eastern districts of Tamil Nadu & Puducherry. Still impact of heavy rain is there and likely to continue upto 8<sup>th</sup> November due to the low pressure area over southwest Bay of Bengal & adjoining Srilanka off Tamil Nadu coast persists. Chennai, Kancheepuram, Villupuram, Tiruvallur, Vellore, Thiruvannamalai and Cuddalore districts in the North Eastern Zone are severely affected and Puducherry & Karaikal districts in Coastal Zone and Thanjavur & Nagapattinam districts in Cauvery Delta Zone are moderately affected by heavy rain/floods. In view of the above the following advisores are suggested:
    - In the North Eastern Zone and Cauvery Delta Zone, due to heavy rain during past few days, flooding/water logging is reported in standing crops like *Samba/Thaladi* rice fields, sugarcane and vegetable crop fields. Drain out excess water from the crop fields wherever possible.
    - In view of the expected high wind speed along with heavy rain, provide mechanical support to banana and other horticultural crops and undertake propping in sugarcane in the North Eastern Zone.
    - In Karaikal and Puducherry districts of Coastal Zone, drain out excess water from rice fields leaving thin film of water and undertake gap filling by thinning the 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) 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 current spells of heavy rain.

- In the Western Zone, provide drainage to Samba rice, turmeric and flowering plants like mullai, malli, chrysanthemum etc.
- As very heavy rainfall is expected in the coming days in the South Zone, provide adequate drainage in the standing crop fields (rice, cotton, green and black gram, maize, sorghum, pearl millet, sunflower, sugarcane and chilli). Protect banana crop from strong wind by providing support.
- **Andhra Pradesh:**
  - In the Scarce Rainfall Zone, continue sowing of *rabi* groundnut.
  - In the Southern Zone of Andhra Pradesh, due to excess rains received in most of the districts during last week, do not take up groundnut sowings immediately as there is chance of occurrence of seedling rot due to excess moisture. Drain out excess water from rice crops in mainfields which is in initial tillering stage and apply 25 kilo urea 15 kilo MOP per acre as top dressing. For the rice crop which is in maturity to harvesting stage, drain out the field and spray 5% salt solution on the ear heads to prevent grain germination and discoloration.
  - Undertake sowing of *rabi* crops like jowar, ragi, horsegram and other short duration pulse crops in Citoor and Cuddapah districts of Rayalaseema utilising the realised rainfall.
  - In the Scarce Rainfall Zone, helicoverpa incidence in Bengal gram and aphid incidence in sorghum was noticed due to prevailing weather conditions. To control helicoverpa, spray Quinolphos @ 2ml/litre of water or Acephate @ 1.5 g/litre of water and Methyl Dematon or Dimethoate or Malathion @ 5 % @ 2ml/litre of water.
  - Prevailing weather conditions are congenial for incidence of mealy bugs and thrips in legume vegetables in the Southern Zone. To control the pest, spray Malathion @ 2 ml/litre of water or 5% neem decoction.
- **Telangana:**
  - In the Southern Telangana Zone, continue sowing of *rabi* crops like maize, sorghum, groundnut and sunflower under irrigated conditions and nursery sowing of short duration varieties of rice upto 1<sup>st</sup> fortnight of December. Apply 2 kg urea for 200 m<sup>2</sup> nursery area at 10-15 days after sowing.
  - In the Northern Telangana Zone, continue harvesting of rice and picking cotton in clear weather.
  - In the Northern Telangana Zone, prevailing weather conditions are congenial for incidences of leaf defoliators & stem borer at seedling stage and stem borer & ragi pinkborer at knee high stage in maize. To control leaf defoliators & stem borer, spray Monocrotophos @ 1.6 ml/litre of water and undertake whorl application of Carbofuran 3G @ 3.0 kg/acre to control ragi pinkborer.
  - In the Southern Telangana Zone, incidences of white fly, aphids and thrips were noticed in different vegetable crops. To control white fly, spray Traizophos @ 2 ml or Acetamiprid @ 0.2 g per litre of water, Dimethoate @ 2 ml per litre of water to control aphids and Acephate @ 1.5 g per litre or Fipronil @ 2 ml per litre of water to control thrips.
- **Karnataka:**
  - As rain/thundershowers would occur at many places over South Interior Karnataka from on 6<sup>th</sup> & 7<sup>th</sup> December, postpone irrigation intercultural operation and application of plant protection measures and fertilizers to the standing crops.
  - Continue harvesting of ragi and groundnut in the Eastern Dry Zone. Continue harvesting of rice in Coastal Zone and Southern Dry Zone after current spells of rain.
  - Undertake harvesting of rice and maize in the Southern Transition Zone on bright sunny days.
  - In Southern Dry Zone, due to cloudy weather, thrips and mites are noticed on chilli, to control undertake spraying Roger @ 1.7 ml + Dicotal @ 2.5 ml per litre of water after current spells of rain.
- **Kerala:**
  - Continue planting of Nendran bananas, sowing of *Mundakan* rice and cultivation of winter vegetables like cabbage and cauliflower in the Central Zone.
  - Continue sowing of *puncha* rice in the Problem Area Zone.
  - In the Problem Area Zone, prevailing weather conditions are congenial for incidences of stem borer and leaf rollers in 20 days old rice fields. Place trichocards to control the attack.
  - In the prevailing weather, there is a chance of attack of rice bug in rice (milky stage) in the Central Zone. Keep the fields and bunds free of weeds and grasses. When the bug is seen in large numbers, apply Malathion 50% EC @ 2ml/litre of water or Sevin @ 50 WP @ 3-4 g/litre of water after current spells of rain.
  - Intermittent rains and cloudy conditions are congenial for symptoms of leaf curl virus and septoria leaf spot in tomatoes and brinjal in the Southern Zone. As a control measure, give a combination spray of Imidacloprid (Confidor) @ 0.3 ml and Mancozeb (Indofil M45) @ 3g/litre of water after current spells of rain.
  - Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
  - As very heavy rainfall is expected in Tamil Nadu during next 5 days, keep animals indoor and secure them safe sheds. In the North Eastern Zone of Tamil Nadu, due to expected heavy rainfall, protect young kids, lambs and calves from rain and chillness by covering with gunny bags and cover side walls. Avoid feeding of wet dry fodders to the animals to prevent aflatoxin and other mycotoxin diseases and undertake fumigation of livestock sheds by using neem and notchi leaves to keep mosquitoes and other vectors away from the animals. House sheep

- and goats in elevated area to avoid foot rot and apply neem oil to the foot.
- Kid mortality and parasitic infestations may occur due to incessant rains and low temperature in the North Western Zone of Tamil Nadu. Suitable dewormers may be given and kids should be prevented from getting wet due to rains and provide gunny cloth bedding in dry/ sheltered places.
- Prevailing weather conditions are congenial for the occurrence of ET, sheep pox and PPR in sheep and Hemorrhagic Septicemia, foot and mouth disease in cattle and buffaloes in Southern Telangana. To prevent the diseases, vaccinate the animals.
- Prevailing weather conditions are favourable for blue tongue disease in sheep and goats and coccidiosis disease in hens in the Scarce Rainfall Zone of Andhra Pradesh. Vaccinate animals to prevent the disease.

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



**Mustard**



**Land preparation/sowing**



**Okra**



**Cabbage**

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

- **Advisories:**

- As moderate to dense fog would occur at isolated pockets of **Assam, Meghalaya, Nagaland, Manipur, Mizoram** and **Tripura** during next 4 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.

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

- In Lower Brahmaputra Valley Zone, continue sowing of rapeseed & mustard, nursery sowing of *boro* rice with varieties Boro -1, 2, 3, Kalinga -3, Mahsuri, Joymati, Dinanath, Swarnav etc. Continue harvesting of *Sali* rice.
- In Barak Valley Zone, continue nursery bed preparation for cauliflower, cabbage, knol khol and land preparation and planting of potato. Continue harvesting of *Sali* rice.
- In Central Brahmaputra Valley Zone of Assam, continue nursery sowing of *boro* rice, sowing of wheat, *rabi* pulses, rapeseed & mustard, planting of potato, nursery sowing of cole crops.
- In North Bank Plain Zone, continue sowing of rapeseed & mustard, nursery sowing of cabbage, cauliflower, brinjal, tomato and knol khol and planting of potato. Continue harvesting of matured *Sali* rice. Farmers are advised to adopt relay cropping with pea in the rice field. 20- 25 days before harvesting the *Sali* paddy, suitable varieties of pea such as T-136, bonneville etc.
- In Upper Brahmaputra Valley Zone of Assam, continue harvesting of *Sali* rice. Complete the sowing of rapeseed & mustard and planting of early potato at the earliest.
- In Hill Zone of Assam, continue nursery sowing of *boro* rice and land preparation and sowing of lentil, early variety potato, and planting of winter vegetables.
- In Arunachal Pradesh, continue transplanting of cole crops (cabbage, cauliflower, broccoli, knolkhol etc.) and harvesting of rice.
- In Meghalaya, undertake land preparation and sowing of pea, lentil & toria under zero tillage in harvested rice fields. Complete harvesting of rice
- In Hill Zone of Assam, humid and foggy weather is favorable for attack of aphid and saw fly in rapeseed/ mustard. To control the aphids and saw fly, spray Malathion 50 EC @ 2ml/litre of water. Also apply Ridomil MZ-72 2g/litre and Indofil M-45 2.5g /litre against late blight on tomato crop.
- In Barak Valley Zone of Assam, weather is favorable for attack of aphid and saw fly in rapeseed/ mustard. To control the aphids and saw fly, spray Dimethoate (Rogar) @ 1 ml/litre of water. Also spray Malathion @ 1ml/litre of water against leaf eater caterpillar in cole crops.
- In Arunachal Pradesh, to control cut worm in pea, drench the root zone of pea with Chlorpyrifos 20 EC @ 2ml/litre of water.

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

- In Manipur, continue transplanting of onion, planting of potato and sowing of *rabi* maize.
- In Mizoram, continue nursery sowing of brinjal and chilli. Continue sowing of pea, mustard and toria and harvesting of banana and passion fruit.
- In Nagaland, continue harvesting of matured wetland rice.
- In Tripura, continue planting of potato. Apply mulching after irrigation in cole crop and tomato.
- In Nagaland, apply 2 per cent Neem oil and 5 per cent Neem Seed Kernel Extract (NSKE) in mustard for controlling mustard aphid. Spray neem seed powder extract 4% against stem borer in cruciferous vegetables like cabbage, cauliflower.



- In Tripura, due to decreasing night temperature there is chance of attack of aphids in banana. Apply Dimethoate (Rogor) or Imidacloprid @ 0.8ml per litre of water.
- Suitable varieties are given in Annexure III.
- **Animal Husbandry**
- In Northeastern states, to control Anthrax disease of cow/ buffalo, vaccinate with Anthrax spore vaccine.
- **Fishery**
- In Lower and Central Brahmaputra Valley Zone of Assam, apply Potash @ 4-5 mg/litre of water, Sukrena WS @ 1 litre per bigha of water and lime in required doses in fish ponds to protect the fish population against various bacterial diseases prevalent in winter season.

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



*Cotton*



*Sugarcane*



*Land preparation/sowing*



*Wheat*

- **Realised Rainfall:** Weather remained dry over the region.
- **Advisories:**
  - **Maharashtra:**
    - In Konkan, undertake field preparation for *rabi* rice. Undertake preliminary operations for sowing of sunflower and *rabi* groundnut with assured irrigation. Continue sowing of short duration crops like cowpea, wal and kulthi with assured irrigation. Farmers are advised to apply 50 g of urea per bed 15 days after sowing of vegetable seedlings for healthy growth of the seedlings.
    - In Madhya Maharashtra, complete sowing of irrigated wheat. Continue intercultural operations like weeding and fertilizer application in sugarcane, vegetables, *rabi* jowar, gram, wheat and safflower. Apply protective irrigation.
    - In Marathwada, apply protective irrigation to safflower and gram. Considering the water stress condition, apply micro irrigation through drip and sprinkler irrigation for orchard crops like banana, pomegranate, sweet lime and orange. Also apply mulch of crop residue. Continue intercultural operation like weeding and fertilizer application to sugarcane, *rabi* jowar, gram, wheat and vegetables. Undertake intercropping of pea, potato, onion, garlic, cauliflower in sugarcane. Also apply irrigation through drip.
    - In Vidarbha, 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, sesame. Also use farm waste as mulch to conserve moisture in orchards. Complete harvesting of matured rice. Continue picking of cotton bolls in West Vidarbha during morning hours in 15-20 days interval. Avoid irrigation during boll bursting. Dry the boll and keep it in clean and dry place. Spray 2% DAP per 10 litres of water on cotton to minimize transpiration.
    - Due to cloudy weather conditions in Marathwada region, there may be attack of pod borer in red gram; spray Imamectin Benzoate (5 WG) @ 150 g or Spenosad (45 SC) @ 150 ml per 500 litres of water.
    - Due to cloudy weather conditions in Konkan region, there may be incidence of mango hoppers on new flush of mango; spray 25 % Cypermethrin @ 3 ml or 2.8 % Deltamethrin @ 9 ml or 20 % Fenvelarate @ 5 ml per 10 litres of water.
  - **Gujarat:**
    - In Gujarat, as dry weather is prevailing, apply irrigation to wheat (CRI stage) crop in North Saurashtra Zone, to cabbage and cauliflower crop in South Gujarat Heavy Rainfall Zone, to vegetable crops during evening hours in North Gujarat Zone, North West Zone, Middle Gujarat Zone and to potato in North Gujarat Zone.
    - Complete sowing of cumin crop in North West Zone and Bhal and Coastal Zone. Carry out thinning in mustard crop by keeping 10 to 15 cm distance within row for better growth; apply irrigation at 21 days after sowing in North West Zone. Undertake picking of cotton during morning hours in Bhal and Coastal Zone.
    - Carry out intercultural operations in mustard, vegetable (brinjal, chilli, tomato, cabbage, and cauliflower) crops in North Gujarat Zone, North West Zone and Middle Gujarat Zone.
    - Due to cold weather condition there is chance of attack of thrips, aphid in coriander, garlic and cumin and blight disease in garlic and cumin in North Saurashtra Zone; spray Dimethoate @ 10 ml or Trizophos @ 10 ml in 10 litres of water in coriander at 15 days interval for control, spray neem seed extract 5% and alternative sprays of Profenofos @ 20 ml and Lambda-Cyhalothrin @ 14 ml in 10 litres of water in garlic and cumin at 10 days interval; to prevent blight disease infestation spray Mencozeb @ 27 g in 10 litres of water at 10 days interval as precautionary measure.

- Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
- Provide ad lib warm water to lactating animals, keep calves indoors during night time in Gujarat.

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



*Groundnut*



*Wheat*



*Land preparation/sowing*



*Mustard*

- **Realised Rainfall:** Rainfall occurred in all districts of Andman & Nicobar Islands. Weather remained dry over rest of the region.
- **Advisories:**
  - As shallow to moderate fog would occur at isolated pockets of Bihar and Sub-Himalayan West Bengal & Sikkim in the morning hours 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.
  - **West Bengal:**
    - Taking advantage of prevailing dry weather, continue harvesting of matured *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, complete harvesting of rice and undertake land preparation and sowing of wheat, lentil, and planting of potato.
    - In Hill Zone, continue harvesting of ginger. Undertake nursery bed preparation of Boro rice and land preparation for sowing of mustard.
    - In Coastal Saline Zone, complete harvesting of *aman* paddy. Undertake nursery bed preparation of *boro* paddy. Prepare upland fields for planting of potato.
    - In Laterite and Red soil Zone, continue sowing of wheat, mustard and planting of potato. Give light irrigation to maintain the optimum moisture content in the soil.
    - In New Alluvial Zone, undertake land preparation for sowing of wheat and transplanting of cabbage and cauliflower.
  - **Andaman and Nicobar Islands:**
    - In North, Middle & South Andaman, undertake sowing of black gram and green gram and sowing of gourds on raised beds.
  - **Odisha:**
    - Continue transplanting of onion in Western undulating Zone. Continue sowing of linseed and gram, planting of potato and continue sowing of undertake transplanting of onion in North Central Plateau Zone.
    - 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.
    - In North Eastern Ghat Zone, rice crop has been affected by Bacterial Leaf Blight. To control spraying of Plantomycin @ 200 g or Streptocyclin @ 20 g in 200 litres of water per acre.
    - In East and South Eastern Coastal Plain Zone, the prevailing cloudy weather may aggravate the infestation of aphid 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.
    - In Western Undulating Zone, there is chance of occurrence of helicoverpa /American boll worm on cotton crop, spray Profenophos @ 30ml/15litre of water or Spinosad @ 6ml/15litre of water. Also for control of spotted Bollworm, spray Flubendiamide @ 3.75ml/15litres of water.
  - **Bihar:**
    - In South Alluvial Plain Zone, continue sowing of wheat in the prepared fields, complete sowing of gram, chickpea, lentil, & rai and fodder crops like berseem, oats and lucern. Undertake weeding in maize, gram, lentil, pea, rai, linseed and mustard after 20-25 days of sowing.
    - In North West Alluvial Plain Zone, complete the sowing of gram crop by 10<sup>th</sup> December and continue sowing of wheat crops. Undertake weeding in potato, maize, garlic and in vegetable crops such as brinjal, cauliflower, tomato, pea and cabbage. Apply light irrigation in mustard crop which is in flowering stage.
    - 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, undertake the application of manure and fertilizer in mango and other orchard.

- In North West Alluvial Plain Zone, present weather condition is conducive for the attack of termite/cut worm damage the newly transplanted vegetable and maize crop, to control, spray chlorpyrifos (Dursbaan) 20EC @ 2-3ml/litre of water.
- In North West Alluvial Plain Zone, present weather condition is conducive for the attack of Diamond Back Moth (DBM) in cabbage/cauliflower crop, to control, Spray Dimethoate 30 EC @ 1ml/L of water.
- In North West Alluvial Plain Zone, present weather condition is conducive for the infestation of viral attack in tomato & chilli crop. Infected plant should be uprooted and buried in the soil, to control, spray Imidacloprid @ 0.3 ml/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 cultivation of pea, mustard, lentil. & improved wheat variety under irrigated condition, continue weeding and inter cultural operation in gram, potato Continue sowing of improved varieties of toria, continue raising of improved seedling varieties of onion & growing of fodder crops like berseem and oat. Apply irrigation in mustard crop at regular interval. Continue harvesting of matured pigeon pea.
- In Western Plateau Zone, continue land preparation for cultivation of gram, linseed, mustard, rapeseed, barley, pea & rainfed wheat and continue transplanting of winter vegetables like cauliflower, cabbage, chilli, tomato & brinjal, complete sowing of radish, turnip, spinach, carrot, toria and green pea .
- In Western Plateau Zone, present weather is conducive for the occurrence of powdery mildew disease in green pea crop, to control, spray Karathen @ 1 ml per litre of water or Sulfex @ 3 gm per 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 /lt water solution in 15 days interval.
- In South Eastern Plateau Zone, Due to cloudy weather, infestation of early and late blight intensity will become more prominent in potato crops, to control, spray, Krilaksil or Ridomil chemical @ 1.5g per litre of water.
- Suitable varieties for sowing are given in Annexure III.

• **Animal Husbandry:**

- In Sub-Himalayan West Bengal & Bihar, provide concentrate feed to milch animals mixed with dry and green fodders to ensure rich diet having protein, carbohydrate, fats and vitamins.
- 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*



*Land preparation/sowing*



*Okra*



*Wheat*

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

• **Advisories:**

▪ **Madhya Pradesh:**

- In Satpura Plateau Zone, continue sowing of wheat, mustard and planting of sugarcane, potato and garlic under assured irrigation. Continue sowing of carrot and onion. Continue transplanting of vegetables.
- In Malwa Plateau Zone, apply irrigation in wheat at CRI stage and also in vegetables.
- In Kymore Plateau and Satpura Hill Zone, continue sowing of wheat and harvesting of early sown vegetable pea.
- Continue sowing of onion and apply irrigation in wheat at CRI stage in Nimar Valley Zone and continue sowing of wheat and gram in Central Narmada Valley Zone.
- Continue nursery preparation for onion and vegetables like tomato, chilli, brinjal, cabbage and cauliflower in Vindhya Plateau Zone. Complete sowing of wheat.
- Continue sowing of wheat in Jhabua Hill Zone. Apply irrigation in gram, mustard and vegetables.
- Undertake sowing of late variety (JW-173, MP 40 10) of wheat in Grid Zone. Apply irrigation in mustard and



green pea.

- In Vindya Plateau Zone, due to cloudy weather there are chances of attack of fruit and stem borer in vegetables, spray Triazophos 40 EC @ 80ml per hectare.
- **Chhattisgarh:**
- In North Hill Zone, continue sowing of gram, lentil, linseed, toria, mustard, pea, garlic and planting of potato and complete sowing of wheat under irrigated conditions.
- In Plain Zone of Chhattisgarh, continue sowing of French bean, round gourd and *rabi* vegetables. Complete sowing of early varieties of wheat by 10<sup>th</sup> December.
- Continue harvesting of rice in midland and lowland areas and sowing of gram, pulses, pea and safflower and nursery preparation for vegetables like cabbage, cauliflower, chilli, planting of potato and sowing of sweet potato in Bastar Plateau Zone. Continue sowing of wheat under irrigated conditions.
- Due to humid weather conditions, there are chances of incidence of powdery mildew disease in green pea in North Hill Zone, spray Karathen @ 1 ml per litre of water or Sulfex @ 3 gm per litre of water.
- Suitable varieties are given in Annexure III.
- **Animal Husbandry**
- Provide green fodder, minerals etc. along with balance feed and fresh water to milch animals. Cows and buffaloes should be vaccinated against foot & mouth disease in Madhya Pradesh.

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



*Wheat*



*Land preparation/sowing*



*Mustard*



*Cabbage*

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

- **Advisories:**

- As shallow to moderate fog would occur at isolated pockets over **Punjab, Haryana, Chandigarh & Delhi** and **Uttar 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.
- **Jammu & Kashmir:**
- In Sub Tropical Zone, undertake harvesting of matured toria crop. Continue sowing of barley. Continue sowing of lentil after seed treatment with Captan or Thiram @ 2g/kg seed before sowing and undertake sowing of mid and late season pea varieties viz P-88, P-89, Matar Ageta. Complete sowing of wheat and planting of potato. Undertake hoeing and weeding operations in mustard, pea, timely sown maize and potato crops.
- In Valley Temperate Zone, continue sowing of leafy vegetables and planting of garlic and transplanting of onion crops. Continue sowing of wheat and oat, brown sarson, peas, pulses, lentil and berseem as fodder crops.
- In Intermediate Zone, continue sowing of wheat, oat higher Zones. Continue sowing of mustard, rabi pulses like pea and gram and also sowing of root crops like radish and turnip. Complete transplanting of cabbage, cauliflower, knolkhol and onion. Undertake hoeing operation in one month old wheat crop, weeding and hoeing operations in mustard and gobhisarson crops. Continue weeding in all vegetable crops.
- In Cold Arid Zone of Jammu & Kashmir, undertake harvesting of Chinese cabbage, palak, kale, spinach and lettuce at weekly interval. Apply second dose of nitrogenous fertilizer in cabbage, cauliflower and broccoli in green houses. Undertake nursery raising of apricot, apple, peach, walnut, plum & cherry.
- In Sub Tropical Zone of Jammu & Kashmir, in the prevailing weather condition, there may be chances of attack of powdery mildew in early variety of pea, for control spray Suplex @ 2.5 gm per liter of water.
- **Uttarakhand:**
- In Bhabar and Tarai Zone, continue sowing of wheat, barley, oats, mustard and planting of potato and onion under optimum soil moisture and planting of Autumn sugarcane, garlic & vegetable pea. Temperature conditions are favourable for top dressing (1/2 kg Urea per Nali) in toria of 30 days old after weeding & thinning operations. 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. for their better growth. Undertake harvesting of matured vegetable pea.
- In Hill Zone, continue harvesting of vegetable pea, continue sowing of methi, coriander, palak and toria and transplanting of radish, broccoli, cabbage, cauliflower, garlic. Also undertake transplanting of onion, planting of potato. Continue sowing of wheat, mustard, gram and lentil in unirrigated high hill region.

- In Sub humid Sub tropic Zone, continue sowing of wheat, mustard, pea and lentil crops.
- In Bhabar and Tarai Zone, under foggy weather conditions, there are chances of incidence of aphids in toria and mustard crop at flowering & pod formation stage, spray Emidachlorepid 200SL @ 3ml per 10 litre of water.
- **Himachal Pradesh:**
- In Sub-Montane and Low Hills Sub-Tropical Zone, continue sowing of wheat, barley, gobhisarson, sarson and peas and transplanting of tomato in raised bed and cauliflower (early group & late group), cabbage, knolkhol, broccoli and Chinese cabbage. Also continue direct sowing of radish, carrot, turnip, palak, methi in mid hill areas and planting of potato in lower and mid hills regions. Complete sowing of gram and lentil in lower areas. Continue training and pruning work in tea gardens.
- In Mid Hills sub-Humid Zone, continue transplanting of onion and harvesting of ginger. In High Hill Temperate zone, continue harvesting of tomato, cabbage, cauliflower.
- 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 in 1X 3 metre beds.
- **Rajasthan:**
- In West Rajasthan, continue sowing of wheat and barley, continue sowing of gram, garlic, fenugreek, mustard, fennel, onion, carrot, lucern and taramira when average daily temperature remains between 20–25°C. Apply irrigation in cumin, mustard, carrot, onion and garlic.
- Continue sowing of cumin and isabgol, undertake weeding and hoeing operations in vegetables in Arid Western Plain Zone. Continue sowing of wheat, barley, fenugreek and lucern and continue sowing of taramira in Transitional Plain Zone of Inland Drainage.
- Continue sowing of wheat, gram and barley, continue harvesting of sugarcane sown in February/March in Irrigated Northwestern Plain Zone.
- In East Rajasthan, continue sowing of wheat, barley, gram, mustard, lentil, lucern and planting of potato, apply irrigation in wheat crop at CRI stage and potato in Flood Prone Eastern Plain Zone. Continue sowing of wheat in Southern Humid Plain Zone. Undertake sowing of late sown wheat and transplanting of *rabi* onion. Apply irrigation in wheat crop at CRI stage and continue intercultural operations in mustard crop in Semi-Arid Eastern Plain Zone.
- Continue sowing of wheat, barley, flax seeds and coriander in South-eastern Humid Plain Zone. Continue sowing of wheat, barley and opium, apply irrigation in mustard and gram, complete sowing of gram, apply light irrigation in 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 Southern Humid Plain Zone, in the present weather, there are chances of attack of pod borer in gram, to control spray Acephate 75sp @ 650g/ha.
- In Irrigated Northwestern Plain Zone, to prevent dropping of *kinnow* fruits due to rise in temperature in *kinnow* orchards, spray Propineb 70 WP @ 2 g/litre of water and due to humidity in atmosphere, there may be attack of painted bug/saw fly on mustard crop in Arid Western Zone, to control dust the crop with Methyl Parathion dust @ 25 kg/ha.
- In Flood Prone Eastern Plain Zone, due to prevailing weather, there is a chance of incidence of leaf miner in mustard crop, spray the solution of Dimethoate 30 EC or Monocrotophos 1 litre dissolve in 600- 800 ml water to control.
- In Semi-Arid Eastern Plain Zone, in the present weather, there may be attack of leaf eaters, cabbage-butterfly in cauliflower and cabbage, spray Malathion 50 EC @ 1 ml per litre water.
- **Punjab, Haryana and Delhi:**
- In Western Plain Zone of Punjab, undertake 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 and wheat, raya, toria, gobhisarson, pea, gram, potato, cabbage, radish, garlic as intercrops in sugarcane.
- In Western Zone of Punjab, continue sowing of wheat, complete picking of cotton and picking should be done only after the full sunshine and kept in moisture free room/space. 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 wheat, raya, planting of fruit plants *viz.* citrus, mango, litchi, guava, loquat, ber, amla and papaya.
- In Central Plain Zone of Punjab, continue harvesting of early matured varieties of sugarcane like CoJ-64, CoJ-85 and Co 118. Continue sowing of wheat, gobhisarson, 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 field preparation for sowing of wheat, Bengal gram, kabulichana and vegetables like pea, potato, carrot and sowing of mustard and berseem, oat as fodder crops. Continue harvesting of matured early sown basmati rice. Complete picking of cotton after sunrise when dew is completely evaporated.
- In Eastern zone of Haryana, as dry weather is prevailing, Irrigate crops as per requirement. Complete the picking

- of cotton and sowing of wheat, barseem and mustard. Undertake weeding operation in standing mustard crop.
- In Western Semi-Arid Zone of Delhi, continue sowing of wheat, gram, oat, lentil, early mustard and sowing of barseem for fodder. Complete sowing of sarson sag, spinach, coriander, fenugreek, turnip, radish, carrot, pea. Continue transplanting of rabi onion, tomato, cabbage, broccoli and early cauliflower on raised bed. Also continue sowing of garlic-G-1, 41, 50, 282 in raised bed. Undertake thinning and weeding operations in timely sown mustard crop and earthing up in potato, if plants has attained height of 15 – 20 cm. Undertake weeding operations in all vegetables.
  - 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 gm per acre in 250-350 litres of water per acre at weekly interval.
- **Uttar Pradesh:**
- In Central Plain Zone, undertake harvesting of matured maize, pearl millet, sorghum and paddy. Continue sowing of wheat, oat, maize, autumn sugarcane, vegetable pea, garlic, barley, linseed, lentil, kabuli gram, toria, gram, pea, mustard, pointed gourd, parval gourd, radish, turmeric, fenugreek, coriander, carrot, spinach, root beat. Complete planting of potato and continue planting of cabbage, capsicum, chilli, brinjal, tomato and cauliflower. Continue sowing of rabi onion. Continue nursery sowing of autumn tomato. Continue sowing/transplanting of crops under assured irrigation.
  - In Eastern Plain Zone, continue sowing of wheat, gram, lentil and mustard. Continue sowing of vegetable pea and toria and sowing of winter vegetables, fenugreek, coriander, garlic, carrot, radish, spinach. Undertake hoeing and weeding operation in potato crop and irrigate as per requirement.
  - In Western Plain Zone, continue harvesting of early matured 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 standing crops of sugarcane at 15 days interval.
  - In Bundelkhand Zone, complete sowing of pea, gram, lentil, jou and continue sowing of wheat, linseed, flaxseed, mustard. Continue sowing of vegetable pea, palak, coriander, carrot and planting/transplanting of cauliflower, cabbage, tomato, chilli and brinjal. Irrigate all vegetables as per requirement.
  - In North Eastern Plain Zone, continue sowing of wheat, toria, mustard, pea, gram, rabi maize, potato, linseed and lentil under assured irrigation.
  - Suitable varieties are given in Annexure III.
- **Horticulture**
- In Undulating Plain Zone of Punjab, protect newly planted fruit plants from low night temperature for their proper growth. Cover the nursery of plants with rice straw, plastic sheets.
  - In Mild Hills Sub Humid Zone of Himachal Pradesh, weather is conducive for infestation of root borer in the apple trees. To control, apply 0.05% Chlorpyrifos @ 5ml/litre of water on the infested trees.
- **Floriculture**
- Undertake 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.

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

## Annexure I



### Week by week Rainfall Distribution

Sub-Divisions	18.11.15		25.11.15		02.12.15	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>						
Anjaw	**	**	**	**	**	**
Changlang	0.0	-100	0.0	-100	0.0	-100
Dibang Valley	**	**	**	**	**	**
East Kameng	0.0	-100	0.0	-100	0.0	-100
East Siang	4.1	37	0.0	-100	0.0	-100
Kurung Kumey	**	**	**	**	**	**
Lohit	0.0	-100	0.0	-100	0.0	-100
Lower Dibang Valley	8.2	41	0.0	-100	0.0	-100
Lower Subansari	**	**	**	**	**	**
Papumpara	4.6	-6	0.0	-100	0.0	-100
Tawang	4.0	-49	0.0	-100	3.0	-61
Tirap	0.0	-100	0.0	-100	0.0	-100
Upper Siang	35.4	421	3.6	-85	0.0	-100
Upper Subansari	7.6	38	0.0	-100	0.0	-100
West Kameng	0.0	-100	0.0	-100	0.0	-100
West Siang	**	**	**	**	**	**
<b>Assam&amp;Meghalaya</b>						
<b>Assam</b>						
Baksa	0.0	-100	0.0	-100	0.0	-100
Barpeta	1.4	-55	0.0	-100	0.0	-100
Bongaigaon	2.0	43	0.0	-100	0.0	-100
Cachar	0.0	-100	0.0	-100	0.0	-100
Chirang	10.4	643	0.0	-100	0.0	-100
Darrang	**	**	**	**	**	**
Dhemaji	0.0	-100	0.0	-100	**	**
Dhubri	0.0	-100	0.0	-100	0.0	-100
Dibrugarh	3.5	-14	0.0	-100	0.0	-100
Goalpara	0.0	-100	0.0	-100	0.0	-100
Golghat	0.0	-100	0.0	-100	0.0	-100
Hailakandi	0.0	-100	0.0	-100	0.0	-100
Jorhat	2.0	-51	0.0	-100	0.0	-100
Kamrup(Rural)	0.0	-100	0.0	-100	0.0	-100
Kamrup(Metro)	0.0	-100	0.0	-100	0.0	-100
Karbi Anglong	0.0	-100	0.0	-100	0.0	-100
Karimganj	0.0	-100	0.0	-100	0.0	-100
Kokrajhar	4.3	47	0.0	-100	0.0	-100
Lakhimpur	7.3	77	0.0	-100	0.0	-100
Morigaon	0.0	-100	0.0	-100	0.0	-100
N.C.Hills	0.0	-100	0.0	-100	0.0	-100
Nowgong	0.0	-100	0.0	-100	0.0	-100
Nalbari	0.6	-90	0.0	-100	0.0	-100
Sonitpur	2.0	-50	0.0	-100	0.0	-100
Sibsagar	0.0	-100	0.0	-100	0.0	-100
Tinsukia	4.7	47	0.0	-100	0.0	-100

Udalgiri	0.6	-80	0.0	-100	0.0	-100
<b>Meghalaya</b>						
East Garo Hills	0.0	-100	0.0	-100	0.0	-100
East Khasi Hills	0.0	-100	0.0	-100	0.0	-100
Jaintia Hills	0.0	-100	0.0	-100	0.0	-100
Ribhoi	0.0	-100	0.0	-100	0.0	-100
South Garo Hills	**	**	**	**	**	**
West Garo Hills	0.4	-90	0.0	-100	0.0	-100
West Khasi Hills	0.0	-100	0.0	-100	0.0	-100
<b>NMMT</b>						
<b>Mizoram</b>						
Aizwal	0.0	-100	0.0	-100	0.0	-100
Champhai	**	**	**	**	**	**
Kolasib	**	**	**	**	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	**	**	**	**	**	**
Mamit	**	**	**	**	**	**
Saiha	**	**	**	**	**	**
Serchhip	**	**	**	**	**	**
<b>Manipur</b>						
Bishnupur	**	**	**	**	**	**
Chandel	**	**	**	**	**	**
Churachandpur	**	**	**	**	**	**
Imphal east	0.0	-100	0.0	-100	0.0	-100
Imphal west	0.0	-100	0.0	-100	0.0	-100
Senapati	**	**	**	**	**	**
Tamenglong	**	**	**	**	**	**
Thoubal	0.0	-100	0.0	-100	0.0	-100
Ukhrul	**	**	**	**	**	**
<b>Nagaland</b>						
Dimapur	0.0	-100	0.0	-100	0.5	-71
Kephire	**	**	**	**	**	**
Kohima	0.0	-100	0.0	-100	0.0	-100
Longleng	**	**	**	**	**	**
Mokokchung	0.0	-100	0.0	-100	0.0	-100
Mon	**	**	**	**	**	**
Paran	**	**	**	**	**	**
Phek	**	**	**	**	**	**
Tuensang	**	**	**	**	**	**
Wokha	0.0	-100	0.0	-100	0.0	-100
Zunheboto	**	**	**	**	**	**
<b>Tripura</b>						
Dhalai	0.0	-100	0.0	-100	0.0	-100
NorthTripura	0.0	-100	0.0	-100	0.0	-100
SouthTripura	0.0	-100	0.0	-100	0.0	-100
West Tripura	0.0	-100	0.0	-100	0.0	-100
<b>Himachal Pradesh</b>						
Bilaspur	0.0	-100	0.0	-100	1.8	-47
Chamba	0.6	-78	0.0	-100	6.1	10

Hamirpur	0.0	-100	0.0	-100	5.6	27
Kangra	0.0	-100	0.0	-100	1.9	-62
Kinnaur	0.0	-100	0.0	-100	6.0	28
Kullu	0.0	-100	0.0	-100	12.1	81
Lahaul and Spiti	1.8	-51	0.0	-100	2.5	-66
Mandi	0.0	-100	0.0	-100	6.9	156
Shimla	0.0	-100	0.0	-100	9.3	257
Sirmaur	0.0	-100	0.0	-100	0.5	-81
Solan	0.0	-100	0.0	-100	12.2	230
Una	0.0	-100	0.0	-100	0.0	-100
<b>Punjab</b>						
Amritsar	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100
Hoshiarpur	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100
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	0.0	-100
Patiala	0.0	-100	0.0	-100	0.2	-78
Ropar	0.0	-100	0.0	-100	0.0	-100
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	0.3	-47	0.0	-100	0.1	-98
Bhiwani	0.0	-100	0.0	-100	0.0	-100
Chandigarh	0.0	-100	0.0	-100	0.2	-85
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	0.2	-47	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
Katihai	0.0	-100	0.0	-100	0.0	-100
Karnal	0.0	-57	0.0	-100	0.0	-100
Kurukshetra	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100	0.0	-100	0.7	-86



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	0.0	-100
<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	10.1	44	0.0	-100	0.9	-91
Badgam	2.4	-59	0.0	-100	3.4	-39
Bandipore	**	**	**	**	**	**
Baramula	23.2	257	0.0	-100	0.1	-98
Doda	4.2	-52	0.0	-100	13.0	-14
Ganderbal	7.8	53	0.0	-100	0.0	-100
Jammu	0.0	-100	0.0	-100	0.0	-100
Kargil	**	**	**	**	**	**
Kathua	0.0	-100	0.0	-100	0.0	-100
Kistwar	**	**	**	**	**	**
Kulgam	2.6	-63	0.0	-100	0.0	-100
Kupwara	30.3	131	0.0	-100	0.0	-100
Ladakh(Leh)	0.0	-100	0.0	-100	0.0	-100
Poonch	**	**	**	**	**	**
Pulwama	2.7	-52	0.0	-100	3.5	-34
Rajouri	0.0	-100	0.0	-100	0.0	-100
Ramban	7.5	-15	0.0	-100	1.7	-89
Reasi	1.9	-56	0.0	-100	0.0	-100
Samba	0.0	-100	0.0	-100	0.0	-100
Shopian	**	**	**	**	**	**
Srinagar	2.9	-43	0.0	-100	4.5	-10
Udhampur	1.8	-58	0.0	-100	0.0	-100
<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	0.0	-100	0.0	-100	8.4	139
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	0.0	-100	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	11.1	185	0.0	-100
Asoknagar	0.0	-100	0.0	-100	0.0	-100
Badwani	0.0	-100	0.7	-63	0.0	-100
Betul	0.0	-100	0.0	-100	0.0	-100
Bhind	0.0	-100	0.0	-100	5.7	528
Bhopal	0.0	-100	0.0	-100	0.0	-100
Burhanpur	0.0	-100	0.0	-100	0.0	-100
Datia	0.0	-100	0.0	-100	7.0	367
Dewas	0.0	-100	0.0	-100	0.0	-100
Dhar	0.0	-100	1.5	-41	0.0	-100
Guna	0.0	-100	0.0	-100	0.0	-100
Gwalior	0.0	-100	0.0	-100	3.3	154
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	0.0	-100	0.0	-100	4.6	820
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	0.0	-100	0.0	-100	0.3	-88
Sehore	0.0	-100	0.0	-100	0.0	-100
Shajapur	0.0	-100	0.0	-100	0.0	-100
Sheopur Kalani	0.0	-100	0.0	-100	6.0	445
Shivpuri	0.0	-100	0.0	-100	3.5	84
Ujjain	0.0	-100	0.0	-100	3.0	-23
Vidisha	0.0	-100	0.0	-100	0.0	-100
<b>Chhattisgarh</b>						
Bastar	0.2	-88	0.0	-100	0.0	-100
Bijapur	0.0	-100	0.0	-100	0.0	-100
Bilaspur	0.0	-100	0.0	-100	0.0	-100

Dantewara	8.1	1250	0.0	-100	0.0	-100
Dhamtari	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100
Raipur	0.0	-100	0.0	-100	0.0	-100
Rajandgaon	0.0	-100	0.0	-100	0.0	-100
Surguja	0.0	-100	0.0	-100		
<b>East Uttar Pradesh</b>						
Allahabad	0.0	-100	0.0	-100	0.0	-100
Ambedkar Nagar	0.0	-100	0.0	-100	22.0	10900
Azamgarh	0.0	-100	0.0	-100	1.3	-13
Bahraich	0.0	-100	0.0	-100	0.0	-100
Ballia	0.0	-100	0.0	-100	0.0	-100
Balrampur	0.0	-100	0.0	-100	0.0	-100
Banda	0.0	-100	0.0	-100	3.0	20
Barabanki	0.0	-100	0.0	-100	3.5	332
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	0.0	-100	0.0	-100	0.5	-17
Fatehpur	0.0	-100	0.0	-100	1.9	14
Gazipur	0.0	-100	0.0	-100	0.0	-100
Gonda	0.0	-100	0.0	-100	0.0	-100
Gorakhpur	0.0	-100	0.0	-100	0.0	-100
Hardoi	0.0	-100	0.0	-100	1.9	109
Jaunpur	0.0	-100	0.0	-100	0.0	-100
Kannauj	0.0	-100	0.0	-100	22.0	2344
Kanpur City	0.0	-100	0.0	-100	12.5	1977
Kanpur Dehat	0.0	-100	0.0	-100	22.0	3571
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	0.0	-100	0.0	-100	8.6	757
Maharajganj	0.0	-100	0.0	-100	0.0	-100
Mau	0.0	-100	0.0	-100	0.0	-100
Mirzapur	0.0	-100	0.0	-100	0.0	-100
Pratapgarh	0.0	-100	0.0	-100	6.0	500
RaiBareilly	0.0	-100	0.0	-100	6.9	1280
Sahuji Maharajnagar	0.0	-100	0.0	-100	2.5	178
Sant Kabirnnagar	0.0	-100	0.0	-100	0.0	-100



Sant Ravidas Nagar	0.0	-100	0.0	-100	0.0	-100
Shrawasti	0.0	-100	0.0	-100	**	**
Sidharthnagar	0.0	-100	0.0	-100	0.0	-100
Sitapur	0.0	-100	0.0	-100	0.0	-100
Sonbhadra	0.0	-100	0.0	-100	0.0	-100
Sultanpur	0.0	-100	0.0	-100	4.6	1042
Unnao	0.0	-100	0.0	-100	23.5	3817
Varanasi	0.0	-100	0.0	-100	0.0	-100
<b>West Uttar Pradesh</b>						
Agra	0.0	-100	0.0	-100	2.9	617
Aligarh	0.0	-100	0.0	-100	4.7	689
Auraiya	0.0	-100	0.0	-100	0.0	-100
Badaun	0.0	-100	0.0	-100	2.4	300
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	0.0	-100	0.0	-100	2.3	112
Etawah	0.0	-100	0.0	-100	28.5	5600
Firozabad	0.0	-100	0.0	-100	16.8	3250
GBNagar	0.0	-100	0.0	-100	0.0	-100
Ghaziabad	0.0	-100	0.0	-100	0.0	-100
Hamirpur	0.0	-100	0.0	-100	5.3	385
Jalaun	0.0	-100	0.0	-100	3.7	267
Jhansi	0.0	-100	0.0	-100	0.3	-84
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	0.0	-100	0.0	-100
Mahamaya Nagar	0.0	-100	0.0	-100	6.5	983
Mahoba	0.0	-100	0.0	-100	6.0	362
Mainpuri	0.0	-100	0.0	-100	9.7	870
Mathura	0.0	-100	0.0	-100	3.0	329
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	0.0	-100
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	0.0	-100	0.0	-100	1.1	-48
Bageshwar	0.0	-100	0.0	-100	0.0	-100
Chamoli	0.0	-100	0.0	-100	0.3	-92
Champawat	0.0	-100	0.0	-100	0.0	-100
Dehradun	0.0	-100	0.0	-100	2.0	-3
Garhwal Pauri	0.0	-100	0.0	-100	0.2	-90
Garhwal Tehri	0.0	-100	0.0	-100	3.1	343
Haridwar	0.0	-100	0.0	-100	0.8	-47

Nainital	0.0	-100	0.0	-100	0.5	-76
Pithorgarh	0.0	-100	0.0	-100	0.8	-69
Rudraprayag	0.0	-100	0.0	-100	0.8	-83
Udham Sing Nagar	0.0	-100	0.0	-100	0.0	-100
Uttarkashi	0.0	-100	0.0	-100	5.9	556
<b>Bihar</b>						
Araria	0.0	-100	0.0	-100	0.0	-100
Arwal	**	**	**	**	0.0	-100
Aurangabad	0.0	-100	**	**	0.0	-100
Banka	0.0	-100	0.0	-100	0.0	-100
Begusarai	0.0	-100	**	**	0.0	-100
Bhabua	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
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
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
Monghyar	0.0	-100	**	**	0.0	-100
Muzaffarpur	0.0	-100	0.0	-100	0.0	-100
Nalanda	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
Samstipur	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	0.0	-100	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	0.0	-100	0.0	-100
Hazaribagh	0.0	-100	0.0	-100	0.0	-100
Jamtara	0.0	-100	**	**	0.0	-100
Khunti	0.0	-100	0.0	-100	0.0	-100
Koderrna	0.0	-100	0.0	-100	0.0	-100
Latehar	0.0	-100	0.0	-100	0.0	-100
Lohardagga	0.0	-100	0.0	-100	0.0	-100
Pakur	0.0	-100	0.0	-100	0.0	-100
Palamau	0.0	-100	0.0	-100	0.0	-100
Ramgarh	0.0	-100	0.0	-100	0.0	-100
Ranchi	0.0	-100	0.0	-100	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	0.0	-100
West Singbhum	0.0	-100	0.0	-100	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	0.0	-100	0.0	-100	1.6	-29
Bharatpur	0.0	-100	0.0	-100	3.7	311
Bhilwara	0.0	-100	0.0	-100	0.5	-67
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	0.0	-100	0.0	-100	7.2	696
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	0.0	-100	0.0	-100	9.0	800
Kota	0.0	-100	0.0	-100	0.9	-53
Pratapgarh	0.0	-100	0.0	-100	0.0	-100
Rajsamand	0.0	-100	0.0	-100	0.0	-100
Sawai Madhopur	0.0	-100	0.0	-100	2.8	293
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	2.1	-64	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
Dangs	0.0	-100	8.5	39	0.0	-100
Gandhinagar	0.0	-100	0.0	-100	0.0	-100
Kheda	0.0	-100	0.0	-100	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	0.4	-92	0.0	-100
Valsad	0.0	-100	0.0	-100	0.0	-100
<b>S K &amp; Diu region</b>						
Amreli	0.0	-100	2.5	-6	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	1.9	-25	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	1.5	-17	0.0	-100
Mumbai Suburban	0.0	-100	1.6	-11	0.0	-100
North Goa	0.0	-100	0.6	-89	0.0	-100
Raigad	0.0	-100	16.5	345	0.0	-100
Ratnagiri	0.0	-100	9.1	74	0.0	-100
Sindhudurg	0.0	-100	6.1	1	0.0	-100
South Goa	0.0	-100	1.4	-77	0.0	-100
Thane	0.0	-100	49.4	1957	0.0	-100
<b>Madhya Maharashtra</b>						

Ahmednagar	0.0	-100	22.7	392	0.0	-100
Dhule	0.0	-100	0.5	-90	0.0	-100
Jalgaon	0.0	-100	1.9	-69	0.0	-100
Kolhapur	0.0	-100	0.9	-87	0.0	-100
Nandurbar	0.0	-100	1.0	-73	0.0	-100
Nasik	0.0	-100	24.3	334	0.0	-100
Pune	0.0	-100	48.8	857	0.0	-100
Sangli	0.0	-100	1.5	-74	0.0	-100
Satara	0.0	-100	15.0	114	0.0	-100
Solapur	0.0	-100	4.3	3	0.0	-100
<b>Marathwada</b>						
Aurangabad	0.0	-100	2.6	-54	0.0	-100
Beed	0.0	-100	18.6	221	0.0	-100
Hingoli	0.0	-100	0.0	-100	0.0	-100
Jalna	0.0	-100	1.6	-77	0.0	-100
Latur	0.0	-100	3.3	-30	0.0	-100
Nanded	0.0	-100	0.0	-100	0.0	-100
Usmanabad	0.0	-100	6.7	103	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	0.0	-100
Balasore	0.0	-99	0.0	-100	0.0	-100
Bargarh	0.0	-100	0.0	-100	0.0	-100
Bhadrak	0.0	-100	0.0	-100	0.0	-98
Bolangir	0.0	-100	0.0	-100	0.0	-100
Boudh	0.0	-100	0.0	-100	0.0	-100
Cuttack	0.0	-99	0.0	-100	0.0	-100
Deogarh	0.0	-100	0.0	-100	0.0	-100
Dhenkanal	0.0	-100	0.0	-100	0.0	-100
Gajapati	9.4	-21	0.0	-100	0.1	-62
Ganjam	5.1	-49	0.0	-100	0.0	-100
Jagatsingpur	3.7	-73	0.0	-100	0.0	-100
Jajpur	0.0	-100	0.0	-100	0.0	-100
Jharsuguda	0.0	-100	0.0	-100	0.0	-100
Kalahandi	0.0	-100	0.0	-100	0.0	-100
Kandhamal	0.0	-100	0.0	-100	0.0	-100
Kendrapara	0.0	-100	0.0	-100	0.0	-100

Keonjhar	0.0	-100	0.0	-100	0.0	-100
Khurda	0.3	-95	0.0	-100	0.0	-100
Koraput	11.9	13	0.0	-100	2.4	20
Malkangiri	12.2	352	0.0	-100	1.0	-23
Mayurbhanj	0.0	-100	0.0	-100	0.0	-100
Nawapara	0.0	-100	0.0	-100	0.0	-100
Nawarangpur	0.0	-100	0.0	-100	0.0	-100
Nayagarh	0.0	-100	0.0	-100	0.0	-100
Puri	5.5	-36	0.2	-97	0.0	-100
Rayagada	5.2	37	0.0	-100	0.3	-38
Sambalpur	0.0	-100	0.0	-100	0.0	-100
Sonepur	0.0	-100	0.0	-100	0.0	-100
Sundargarh	0.0	-100	0.0	-100	0.0	-100
<b>West Bengal &amp; Andaman Nicobar Islands</b>						
<b>A &amp; N ISLAND</b>						
Nicobar	84.1	13	63.6	-20	131.7	120
North & Middle Andaman	13.6	-75	11.0	-70	52.3	63
South Andaman	51.7	-28	58.8	-14	144.7	227
<b>GWB</b>						
Bankura	0.0	-100	0.0	-100	0.0	-100
Birbhum	0.0	-100	0.0	-100	0.0	-100
Burdwan	0.0	-100	0.0	-100	0.0	-100
East Midnapore	0.0	-100	0.0	-100	0.0	-100
Hooghly	0.0	-100	0.0	-100	0.0	-100
Howrah	0.0	-100	0.0	-100	0.0	-100
Kolkata	0.0	-100	0.0	-100	0.0	-100
Murshidabad	0.0	-100	0.0	-100	0.0	-100
Nadia	0.0	-100	0.0	-100	0.0	-100
24 Pargana (N)	0.0	-100	0.0	-100	0.0	-100
Purulia	0.0	-100	0.0	-100	0.0	-100
24 Pargana (S)	0.1	-99	0.5	-91	0.3	-94
West Midnapore	0.0	-100	0.0	-100	0.0	-100
<b>SHWB &amp; Sikkim</b>						
Cooch Behar	0.0	-100	0.0	-100	0.0	-100
Darjeeling	0.0	-100	0.0	-100	0.0	-100
East Sikkim	15.8	158	0.0	-100	0.0	-100
Jalpaiguri	9.1	75	0.0	-100	0.0	-100
Malda	0.0	-100	0.0	-100	0.0	-100
North Dinajpur	**	**	**	**	**	**
North Sikkim	1.2	-90	0.0	-100	0.0	-100
South Dinajpur	0.0	-100	0.0	-100	0.0	-100
South Sikkim	24.6	303	0.0	-100	0.0	-100
West Sikkim	1.0	-92	0.0	-100	0.0	-100
<b>Karnataka</b>						
<b>Coastal Karnataka</b>						
Dakshina Kannada	7.7	-63	35.3	120	8.4	47
Udupi	31.8	96	76.3	437	1.2	-86
Uttara Kannada	0.2	-99	11.9	58	0.1	-98








<b>N I Karnataka</b>						
Bagalkote	0.0	-100	3.3	6	0.0	-100
Belagavi	0.0	-100	3.5	-25	0.0	-100
Bidar	0.0	-100	0.0	-100	2.6	-25
Dharwad	0.0	-100	5.6	-21	0.1	-99
Gadag	0.0	-100	8.7	88	2.2	-44
Haveri	0.4	-98	2.5	-65	0.2	-96
Kalaburgi	0.0	-100	0.5	-87	2.7	1
Koppal	0.0	-100	3.8	52	0.0	-100
Raichur	0.0	-100	2.6	-15	0.6	-71
Vijayapura	0.0	-100	10.1	215	0.8	-67
Yadgir	0.0	-100	0.1	-98	9.7	286
<b>S I Karnataka</b>						
Ballari	1.2	-86	4.6	34	0.3	-91
Bangalore Rural	28.9	170	27.4	188	14.2	103
Bangalore Urban	29.9	179	38.2	235	4.5	-30
Chamarajanagar	23.8	91	26.6	63	19.4	142
Chikaballapur	72.0	586	71.8	590	10.9	70
Chikkamagaluru	4.9	-68	19.1	54	3.7	-17
Chitradurga	6.8	-34	22.4	386	1.5	-47
Davangere	0.0	-100	7.6	18	0.0	-100
Hassan	10.3	-11	19.3	62	7.1	123
Kodagu	33.3	147	14.2	-24	0.6	-91
Kolar	102.5	707	79.3	520	6.4	-15
Mandya	6.7	-26	22.5	105	6.0	174
Mysuru	19.7	93	21.0	58	3.7	42
Ramanagara	10.9	7	27.0	176	6.6	14
Shivamogga	0.0	-100	9.5	11	0.1	-99
Tumakuru	25.0	157	43.5	373	3.7	-19
<b>Kerala</b>						
Alappuzha	43.2	7	45.5	27	21.8	14
Kannur	22.7	21	52.6	180	7.8	-11
Ernakulam	29.7	-5	72.3	135	11.6	-17
Idukki	58.8	71	58.5	92	21.0	37
Kasaragod	7.1	-62	30.5	82	6.9	35
Kollam	76.3	41	28.8	-17	55.8	189
Kottayam	16.9	-50	29.9	-6	31.8	98
Kozhikode	30.4	0	28.8	32	0.1	-99
Malappuram	33.2	-1	32.6	24	2.8	-70
Palakkad	21.5	-16	9.3	-67	1.5	-87
Pathanamthitta	81.8	51	52.5	41	23.0	43
Thiruvananthapuram	57.6	36	56.2	88	31.5	67
Thrissur	18.5	-33	38.7	35	1.7	-84
Wayanad	29.9	64	23.0	4	7.0	-22
<b>Tamil Nadu</b>						
Ariyalur	65.9	37	114.2	160	117.0	257
Chennai	449.9	329	217.5	165	347.3	550
Coimbatore	32.3	22	36.3	46	10.2	-31
Cuddalore	134.5	93	152.3	146	156.6	205

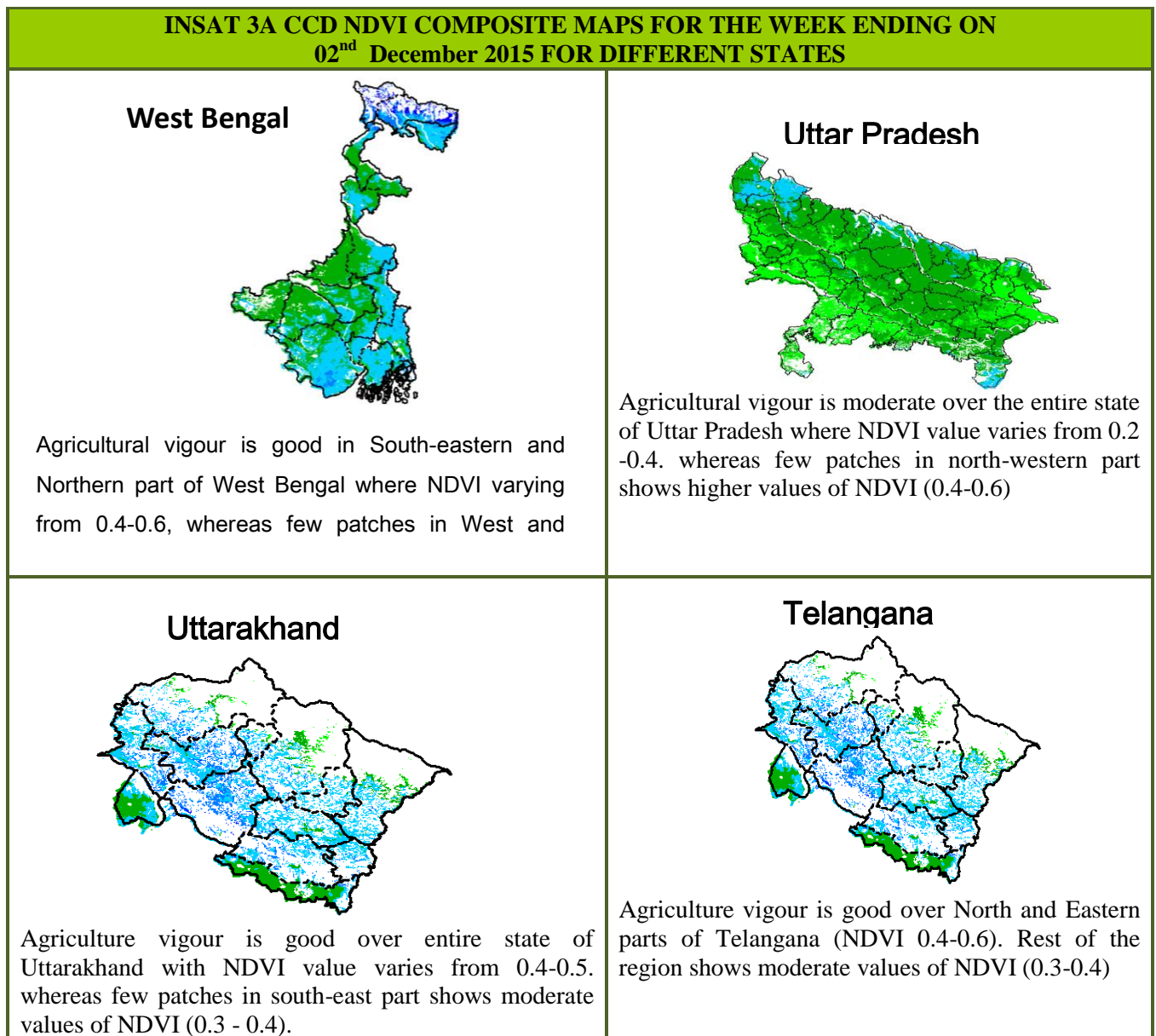
Dharmapuri	31.5	46	54.1	140	34.6	113
Dindigul	70.9	101	63.2	96	37.7	72
Erode	6.5	-71	22.7	10	45.5	192
Kanchipuram	452.3	656	238.6	258	459.0	898
Kanyakumari	46.6	-3	52.0	49	27.6	31
Karikal	160.7	81	234.3	137	134.2	81
Karur	30.7	20	30.0	18	26.5	63
Krishnagiri	40.8	155	48.8	171	17.9	74
Madurai	78.7	186	60.5	125	28.5	66
Nagapattinam	174.4	90	172.2	84	167.3	125
Namakkal	8.0	-64	26.6	42	28.3	88
Nilgiris	31.1	-22	125.7	256	36.4	23
Perambalur	34.8	-3	77.3	125	48.0	78
Puducherry	195.0	205	297.2	192	426.9	645
Pudukottai	61.2	93	76.2	103	50.6	74
Ramanathapuram	63.9	90	55.2	54	47.2	42
Salem	23.2	-19	56.6	119	31.2	61
Sivaganga	59.8	134	67.0	149	58.1	142
Thanjavur	60.4	48	100.1	85	91.5	138
Theni	41.7	45	99.8	291	20.1	45
Tirunelveli	74.2	58	195.3	410	67.8	131
Tirupur	53.9	114	16.8	-27	30.3	103
Tiruvallur	414.0	515	180.1	230	342.6	733
Tiruvannamalai	125.1	190	77.1	116	106.1	338
Tiruvarur	92.6	45	134.0	77	149.3	150
Toothukudi	82.9	108	106.9	187	39.7	55
Trichy	30.9	1	61.9	87	37.1	80
Vellore	189.4	572	118.8	318	81.0	326
Villupuram	133.4	208	126.1	181	237.3	594
Virudhunagar	93.3	157	92.3	172	24.0	8
<b>Andhra Pradesh</b>						
<b>Coastal Andhra Pradesh</b>						
East Godavari	70.1	474	20.3	50	8.9	-14
Guntur	64.0	305	6.5	-53	0.6	-91
Krishna	74.9	569	7.2	-42	2.3	-62
Nellore	295.2	316	126.8	127	130.8	249
Prakasam	58.1	108	41.6	106	20.5	95
Sirkakulam	13.0	28	0.0	-99	0.0	-99
Visakhapatnam	39.3	254	6.7	-50	1.8	-76
Vizianagram	13.2	76	0.0	-100	0.0	-99
West Godavari	60.9	387	13.6	17	4.3	-48
<b>Rayalaseema</b>						
Anantapur	34.2	327	30.1	491	8.0	95
Chittoor	189.5	414	125.9	375	102.5	370
Cuddapah	152.0	754	79.9	501	41.4	376
Kurnool	5.8	-13	5.8	61	11.2	228
<b>Telangana</b>						
Adilabad	0.0	-100	0.0	-100	0.0	-100
Hyderabad	0.0	-100	0.5	-83	0.0	-100

Karimnagar	0.0	-100	0.0	-100	0.0	-100
Khammam	8.1	225	0.0	-99	0.0	-99
Mehabubnagar	0.3	-94	0.0	-100	4.3	54
Medak	0.0	-100	0.0	-100	0.0	-100
Nalgonda	5.1	-20	1.4	-66	1.1	-55
Nizamabad	0.0	-100	0.0	-98	0.0	-98
Rangareddy	0.0	-100	0.1	-96	0.6	-71
Warangal	0.4	-89	0.0	-100	0.1	-96

### Legends

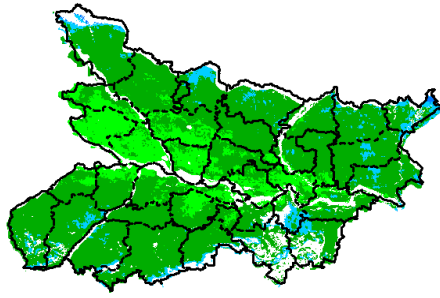
	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

### Annexure II



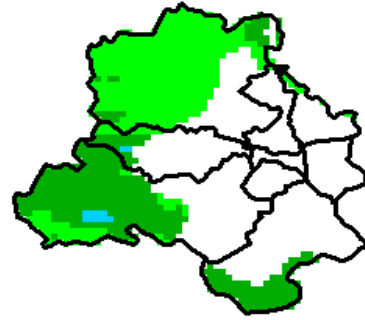


### Bihar



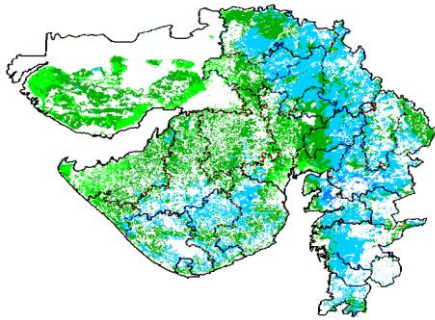
Agriculture vigour is moderate all over Bihar where NDVI value lies between 0.2-0.4.

### Delhi



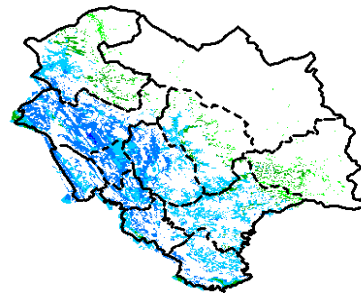
Agriculture vigour is moderate all over Delhi where NDVI value lies between 0.2-0.3.

### Guirat



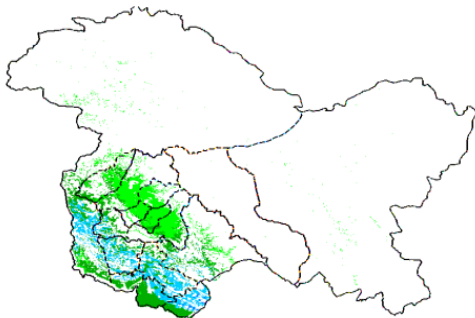
Agriculture vigour is moderate in Kutch whereas, good agricultural vigour is observed over Saurashtra and Gujarat region where NDVI values lies between 0.4-0.5

### Himachal



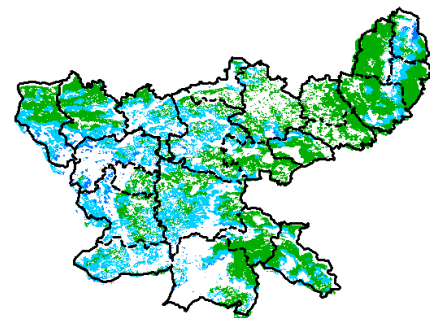
Agriculture vigour is good over Himachal Pradesh where NDVI values are 0.4-0.6, except few patches in east shows moderate values of NDVI (0.2 – 0.3)

### Jammu & Kashmir

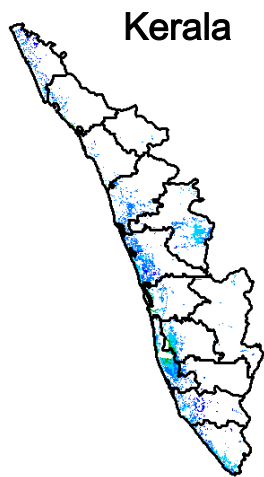


Agriculture vigour is good over patches in south-western parts of Jammu and Kashmir where NDVI value vary in between 0.4-0.5 whereas rest of the part shows normal values of NDVI (0.2 – 0.4).

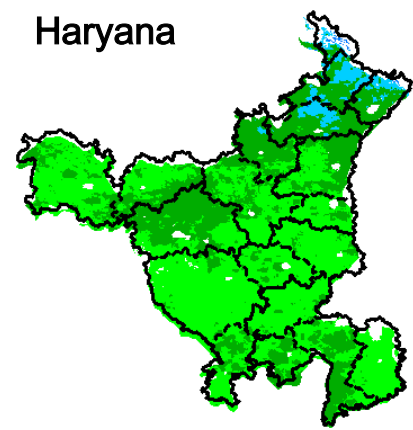
### Jharkhand



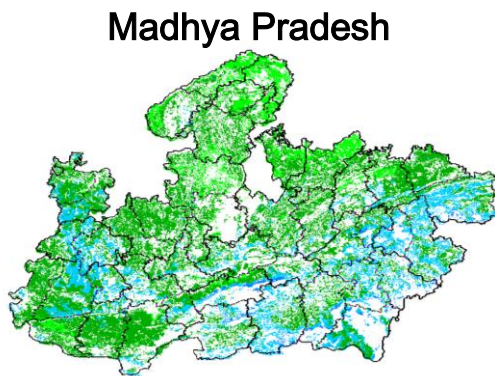
Agriculture vigour is good over entire state of Jharkhand, NDVI value varies from 0.4 - 0.5. Except for few patches in north western and eastern region where NDVI is moderate (0.3-0.4).



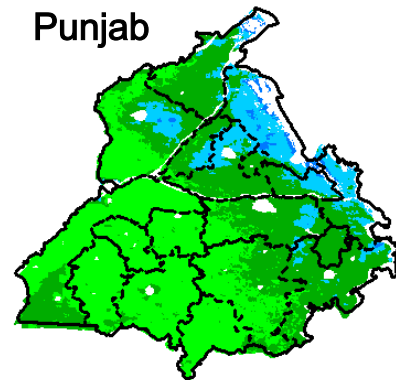
Agriculture vigour is good over central and southern Kerala where NDVI value lies between 0.4 – 0.5 whereas northern coast showing higher values of NDVI (0.5 – 0.6).



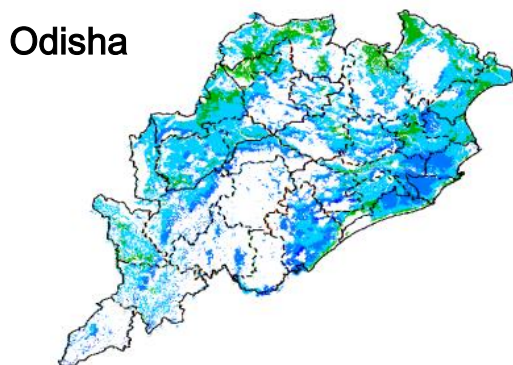
Agriculture vigour is good over North-eastern parts of the Haryana. Whereas normal values of NDVI are observed over remaining parts of the state (0.2-0.4).



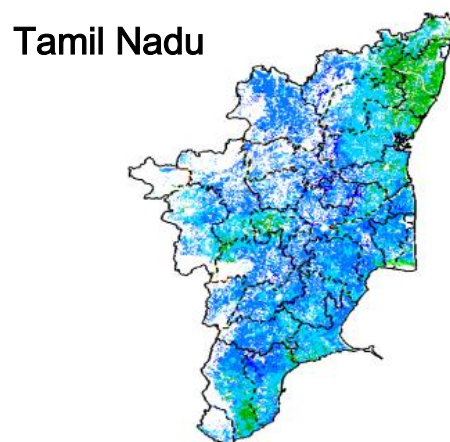
Agriculture vigour is good over south western and eastern parts of Madhya Pradesh. NDVI varies from 0.4-0.5 and rest of the part shows moderate values of NDVI (0.2 – 0.4).



Agricultural vigour is good over north eastern part of Punjab, showing NDVI values between 0.4 - 0.6, whereas moderate values of NDVI are observed in remaining parts of the state.

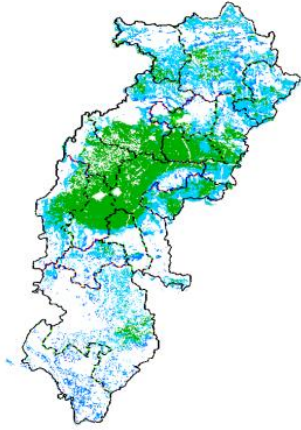


Agricultural vigour good over entire state of Odisha with NDVI values ranging between 0.4 – 0.6.



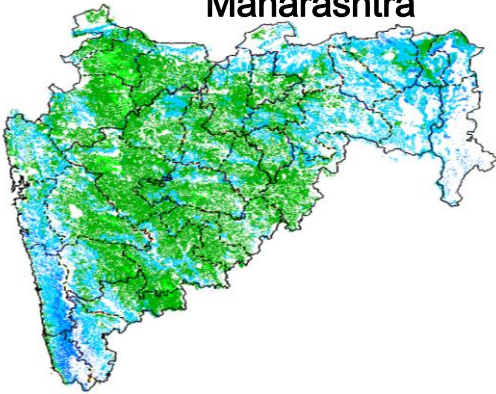
Agricultural vigour is very good over Tamil Nadu with NDVI values varying from 0.4-0.6, whereas normal values of NDVI (0.2 – 0.4) are observed over Northern part of the state.

## Chhattisgarh



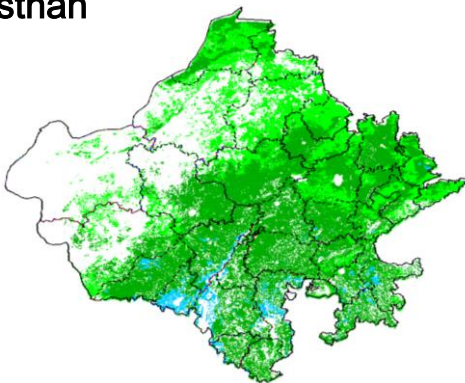
Agriculture vigour is good in northern and southern parts of Chhattisgarh where NDVI values are between 0.4-0.5 except central part which shows moderate values of NDVI.

## Maharashtra



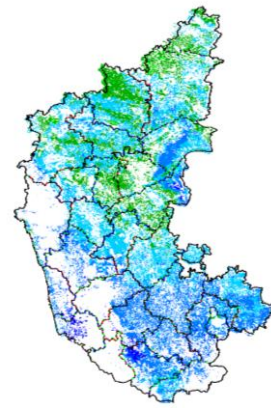
Agricultural vigour is good over Coastal Maharashtra and Vidarbha region with NDVI values from 0.4-0.6; whereas Moderate values of NDVI are observed over Madhya Maharashtra and Marathwada region (0.2-0.4).

## Rajasthan



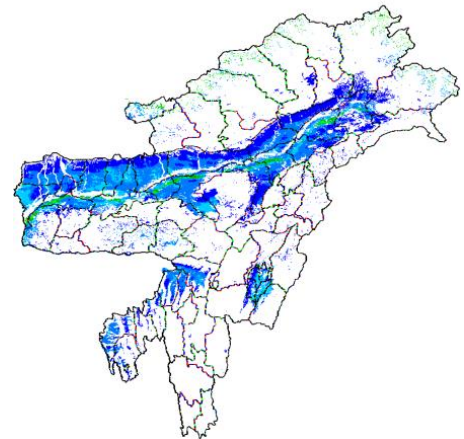
Agriculture vigour is good (0.4-0.6) in some patches over southern part of Rajasthan whereas moderate values of NDVI are observed over the entire state (0.2-0.4).

## Karnataka



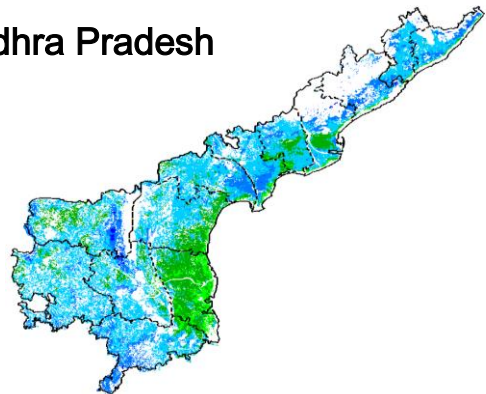
The agriculture vigour is good over the entire state. Higher values of NDVI are observed in interior, southern and eastern part of the State (NDVI 0.4-0.6) whereas few patches in north and north west show moderate NDVI.

## North East Region

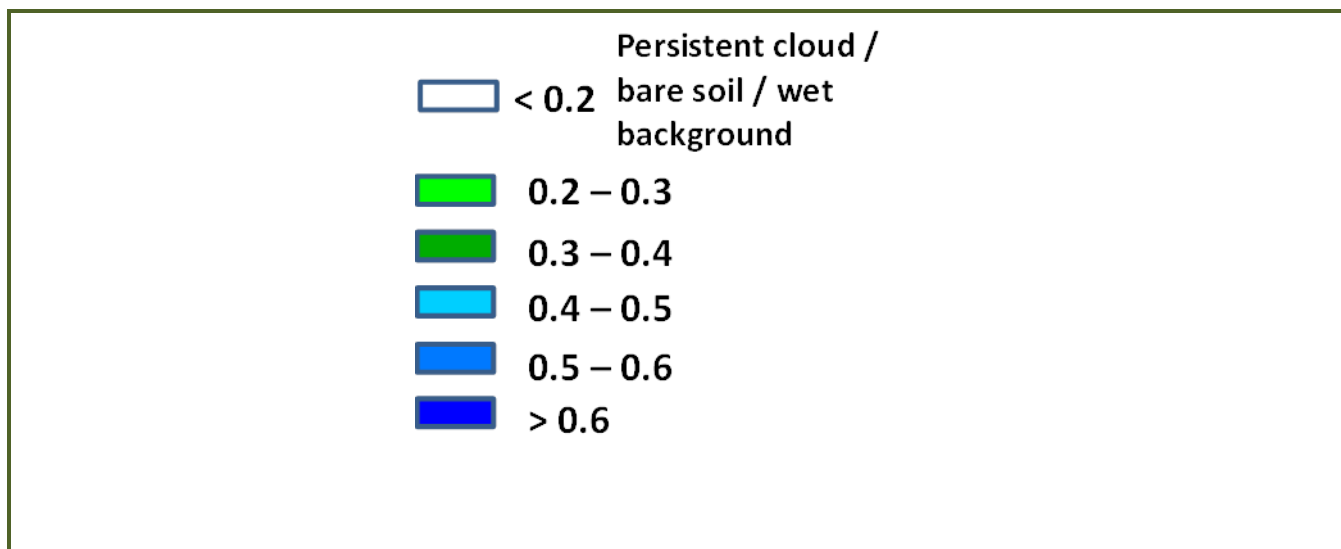


Agriculture vigour is very good in North-East states where NDVI varies from 0.4-0.6.

## 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 Inerior 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, IIPR 96-4, IIPR 98-5

**Rai:** Varuna, Pusabold, Kranti

**Sarson:** RajendraSarson, Swarna

**Peas:** Ratna, Aprnahrabajan 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 nikanetan, Arka kalia

**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:** chatmatkar, Puse-1003, Subhra

**Pea:** Rachna, Pantmatar-5, Aparna, Malviya Matar-2, Malviya Matar-15, Shikha and Sapna.

**Cabbage:** Japanese, 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, PusaAgrni, PusaTaraka and PusaMahak, 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 andSelection-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 andSelection-7  
**Radish:** (PusaRashmi).  
**Carrot:** PusaKeshar

### 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

### 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.