



# *National Agromet Advisory Service Bulletin*



*Friday 13<sup>th</sup> January 2017*

*(For the period 13<sup>th</sup> to 17<sup>th</sup> January 2017)*



*Issued by*

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

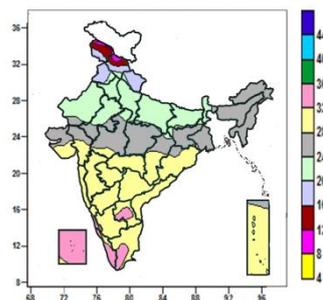
**Weblink For**

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

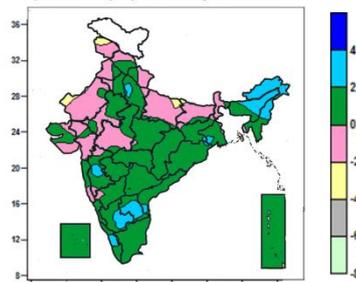
**State Composite AAS Bulletin:** <http://www.imdagrimet.gov.in/node/3544>

**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 11.01.2017**

**Actual Mean Maximum Temperature (°C) in India for the week ending 11.01.2017**



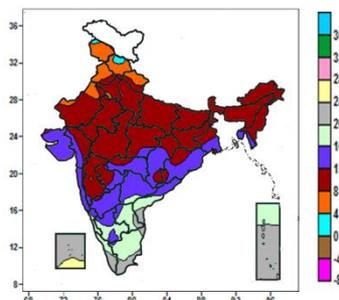
**Mean Maximum Temperature (°C) Anomaly in India for the week ending 11.01.2017**



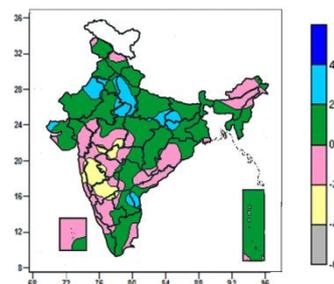
- Mean maximum temperature was between 32 to 36<sup>0</sup>C over many parts of Lakshadweep, Kerala, some parts of Coastal Karnataka, Rayalaseema and Tamil Nadu.
- Mean maximum temperature was between 28 to 32<sup>0</sup>C over Maharashtra, Telangana, Interior Karnataka, Coastal Andhra Pradesh, many parts of Odisha, Chhattisgarh, Rayalaseema, Tamil Nadu, Andaman & Nicobar Islands, some parts of Gujarat, Coastal Karnataka and isolated pockets of West Madhya Pradesh, Gangetic West Bengal, Kerala and Lakshadweep.
- Mean maximum temperature was between 20 to 28<sup>0</sup>C over rest of the Country except many parts of Uttarakhand, Punjab, some parts of Jammu & Kashmir and Himachal Pradesh, where it was between 16 to 20<sup>0</sup>C and many parts of Jammu & Kashmir and Himachal Pradesh, where it was between 8 to 16<sup>0</sup>C.

- Mean maximum temperature was above normal by 2 to 4<sup>0</sup>C over Arunachal Pradesh, Nagaland, many parts of Assam, Manipur, Rayalaseema, some parts of South Interior Karnataka, Kerala and isolated pockets of Haryana & Delhi, West Uttar Pradesh, Jharkhand, Gangetic West Bengal, Odisha, Madhya Maharashtra, Marathwada and Coastal Andhra Pradesh.
- It was normal to near normal over rest of the country except some parts of Jammu & Kashmir and isolated pockets of East Uttar Pradesh, Bihar and West Rajasthan, where it was below normal by 2 to 4<sup>0</sup>C.

**Actual Mean Minimum Temperature (°C) in India for the week ending 11.01.2017**



**Mean Minimum Temperature (°C) Anomaly in India for the week ending 11.01.2017**



- Mean minimum temperature was between 0 to 4<sup>0</sup>C over some parts of Himachal Pradesh and isolated pocket of Jammu & Kashmir.
- Mean minimum temperature was between 4 to 8<sup>0</sup>C over many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, some parts of West Rajasthan and isolated pocket of Haryana and Madhya Maharashtra.
- Mean minimum temperature was between 8 to 12<sup>0</sup>C over Uttar Pradesh, East Rajasthan, Bihar, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Jharkhand, West Madhya Pradesh, many parts of Haryana & Delhi, Mizoram, West Rajasthan, Gujarat Region, East Madhya Pradesh, Madhya Maharashtra, Marathwada, some parts of Uttarakhand, Tripura, Punjab, Vidarbha, Chhattisgarh, Gangetic West Bengal, Odisha and isolated pockets of Konkan, Kutch and North Interior

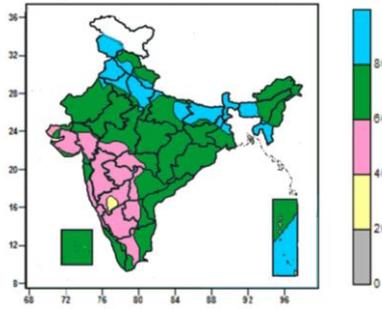
- Mean minimum temperature was above normal by 2 to 4<sup>0</sup>C over many parts of West Uttar Pradesh, some parts of West Rajasthan, East Uttar Pradesh, Kutch, Bihar, Jharkhand and isolated pockets of East Rajasthan, Madhya Pradesh, Chhattisgarh, Rayalaseema and Coastal Andhra Pradesh.
- Mean minimum temperature was normal to near normal over rest of the country except many parts of Madhya Maharashtra, North Interior Karnataka, some parts of Vidarbha and isolated pockets of West Madhya Pradesh, Konkan, South Interior Karnataka and Rayalaseema, where it was below normal by 2 to 4<sup>0</sup>C.

Karnataka.

- Mean minimum temperature was between 12 to 20<sup>0</sup>C over rest of the Country except many parts of Lakshadweep, Andaman & Nicobar Islands, some parts of Coastal Andhra Pradesh, Kerala, Tamil Nadu and isolated pockets of Rayalaseema, where it was between 20 to 24<sup>0</sup>C and some parts of Lakshadweep, where it was between 24 to 28<sup>0</sup>C.

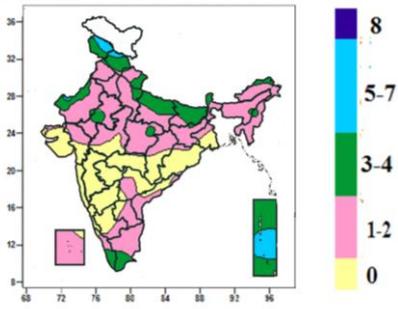
**Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 11.01.2017**

**Relative Humidity (%) over India for the week ending 11.01.2017**



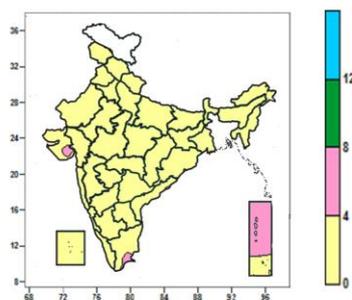
- Mean Relative Humidity was above 80% over Jammu & Kashmir, Punjab, Sub-Himalayan West Bengal & Sikkim, Mizoram, Tripura, many parts of Haryana & Delhi, West Uttar Pradesh, Bihar, Andaman & Nicobar Islands, some parts of Himachal Pradesh, Uttarakhand, East Uttar Pradesh, Gangetic West Bengal, Jharkhand,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

**Cloud amount (okta) over India for the week ending 11.01.2017**



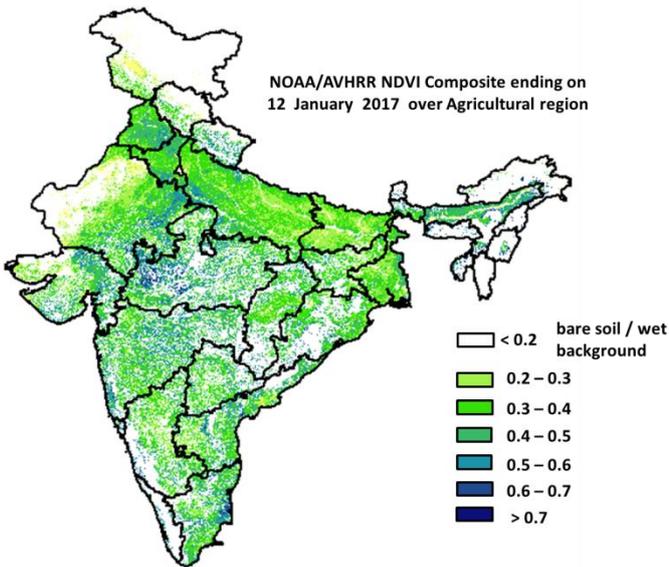
- Sky remained generally cloudy (5-7okta) over some parts of Jammu & Kashmir, Himachal Pradesh and Andaman & Nicobar Islands and isolated pockets of West Rajasthan.
- Sky remained partly cloudy (3-4 okta) over many parts of Jammu & Kashmir, Himachal Pradesh, Bihar, Sikkim, Kerala, Andaman & Nicobar Islands, some parts of Uttarakhand, Uttar Pradesh, Rajasthan, Tamil Nadu and isolated pockets of Madhya Pradesh, Sub-Himalayan West Bengal, Arunachal Pradesh, Assam, Nagaland, Manipur and Jharkhand.
- Sky remained mainly clear/clear sky (1-2 okta/0 okta) over rest of the country.

**Wind speed (knots) over India for the week ending 11.01.2017**



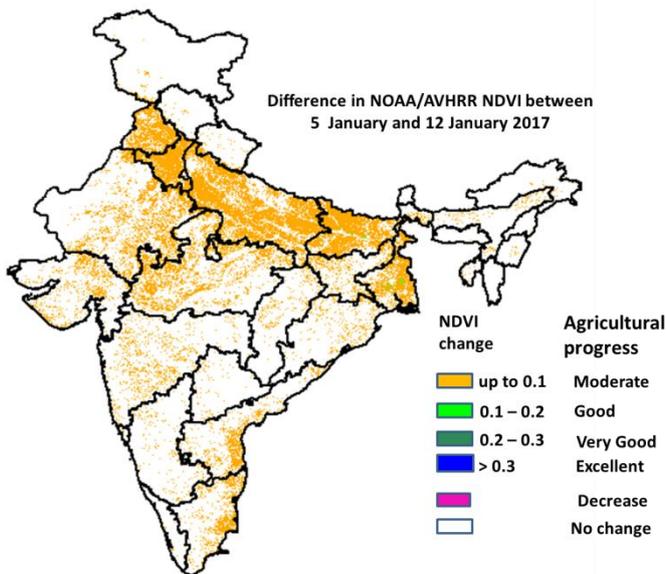
- Mean wind speed was between 0 to 4 knots over the country except many parts of Andaman & Nicobar Islands, some parts of Saurashtra and isolated pockets of Gujarat Region and Tamil Nadu, where it was between 4 to 8 knots.

**NOAA/AVHRR NDVI composite ending on 12<sup>th</sup> January 2017 over Agricultural region of India**



- Agricultural vigour is good in West Madhya Pradesh, North Maharashtra, patches in central Tamil Nadu, Kerala, North Andhra Pradesh, Gujarat and patches in East Rajasthan, Uttarakhand and North-East, where NDVI value varies from 0.5 to 0.7. NDVI is moderate in Rajasthan, Punjab, Haryana, East Madhya Pradesh, Uttar Pradesh, Madhya Maharashtra, southern region of Andhra Pradesh, Karnataka and Tamil Nadu (NDVI 0.2 to 0.5).

**Difference in NOAA/AVHRR NDVI between 5<sup>th</sup> January and 12<sup>th</sup> January 2017**

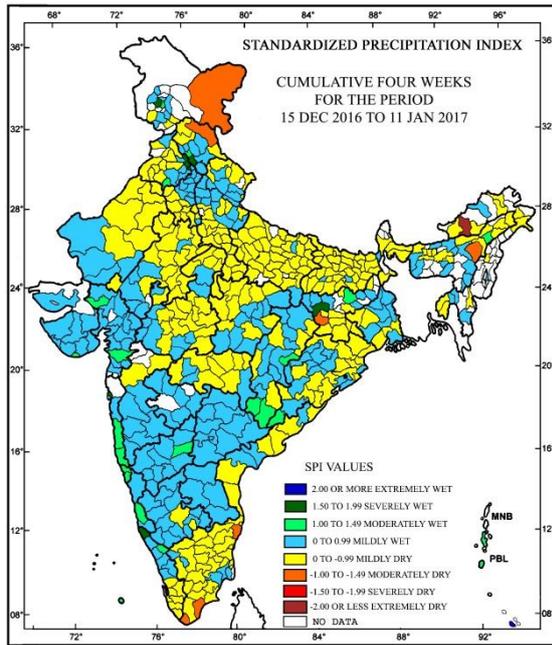


- Moderate progress in NDVI was observed in Punjab, Haryana, Madhya Pradesh, Rajasthan, Uttar Pradesh, Bihar and patches in Maharashtra, Gujarat, Karnataka, Kerala, Tamil Nadu, Telangana, Andhra Pradesh, North-East Region, Odisha, West Bengal and Chhattisgarh. Good progress was observed in few patches of West Bengal and Bihar.

- NOAA/AVHRR NDVI composite maps for the week ending on 12<sup>th</sup> January 2017 for different States are given in Annexure II.

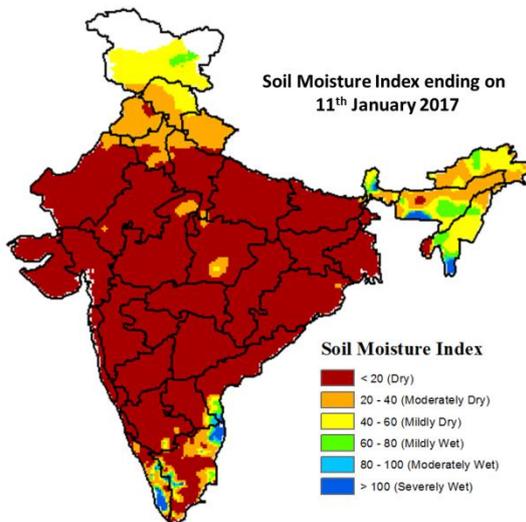
## Standardised Precipitation Index Four Weekly for the period 15<sup>th</sup> December 2016 to 11<sup>th</sup> January 2017

MINISTRY OF EARTH SCIENCES  
INDIA METEOROLOGICAL DEPARTMENT  
HYDROMET SECTION, PUNE



- Extremely/severely wet conditions experienced in Latehar district of Jharkhand; Chandigarh district of Haryana; Sas Nagar Mohali district of Punjab; Solan district of Himachal Pradesh; Badgam district of Jammu & Kashmir; Mumbai Suburban district of Konkan & Goa; Kasargod district of Kerala.
- Extremely/Severely dry conditions experience in East Kameng, district of Arunachal Pradesh.
- Moderately dry conditions experienced in Karbi Anglong district of Assam; Gumla district of Jharkhand; Lahaul & Spiti district of Himachal Pradesh; Ladakh (Leh) district of Jammu & Kashmir; Kanchipuram, Kanyakumari, Toothukudi districts of Tamil Nadu & Puducherry.
- Rest of the country experienced moderately wet/mildly dry/mildly wet conditions.

## Soil Moisture Index for the week ending on 11<sup>th</sup> January 2017



- Soil moisture index indicates severely and moderately wet condition in some parts of Tamil Nadu, North-East Region, Kerala, Andhra Pradesh. Mild wet condition in some parts of North-East Region, Jammu & Kashmir, Kerala, Tamil Nadu and Andhra Pradesh. Mild dry condition in many parts of Jammu & Kashmir, Himachal Pradesh, Sub-Himalayan West Bengal & Sikkim, North-East Region and some parts of Andhra Pradesh, Kerala and Tamil Nadu. Rest of the country shows Moderate dry and dry condition.

## Weather Forecast for next 5 days valid upto 0830 hours of 18<sup>th</sup> January 2017

- Meteorological sub-division wise detailed 5 day rainfall forecast is given below.
- Cold wave conditions likely to abate over northwest India from 15<sup>th</sup> onwards.
- Minimum temperature likely to further fall by 1-2°C over Gangetic West Bengal, Odisha and west Assam during next 48 hours; gradual rise by 1-2°C over West India during next 3 days and no significant change over rest of the country.
- Shallow to moderate fog very likely at a few places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 3 days.

### 5 Day Rainfall Forecast (MID DAY) 13<sup>th</sup> January 2017

Met Sub-divisions	13 Jan	14 Jan	15 Jan	16 Jan	17 Jan
1. Andaman & Nicobar Islands	ISOL	ISOL	ISOL	ISOL	SCT
2. Arunachal Pradesh	DRY	DRY	DRY	DRY	DRY
3. Assam & Meghalaya	DRY	DRY	DRY	DRY	DRY
4. N.M.M. & T.	DRY	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. Odisha	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	ISOL	DRY
11. West Uttar Pradesh	DRY	DRY	ISOL	ISOL	ISOL
12. Uttarakhand	DRY	SCT	FWS	WS	FWS
13. Haryana, Chd & Delhi	DRY	DRY	SCT	SCT	ISOL
14. Punjab	DRY	DRY	SCT	SCT	SCT
15. Himachal Pradesh	DRY	SCT	WS	WS	FWS
16. Jammu & Kashmir	ISOL	SCT	WS	WS	WS
17. West Rajasthan	DRY	ISOL	ISOL	DRY	DRY
18. East Rajasthan	DRY	DRY	ISOL	DRY	DRY
19. West Madhya Pradesh	DRY	DRY	ISOL	DRY	DRY
20. East Madhya Pradesh	DRY	DRY	ISOL	DRY	DRY
21. Gujarat Region	DRY	DRY	DRY	DRY	DRY
22. Saurashtra & Kutch	DRY	DRY	DRY	DRY	DRY
23. Konkan & Goa	DRY	DRY	DRY	DRY	DRY
24. Madhya Maharashtra	DRY	ISOL	ISOL	DRY	DRY
25. Marathwada	DRY	ISOL	DRY	DRY	DRY
26. Vidarbha	DRY	DRY	ISOL	DRY	DRY
27. Chhattisgarh	DRY	DRY	DRY	DRY	DRY
28. Coastal Andhra Pradesh	DRY	ISOL	DRY	DRY	DRY
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	DRY	DRY	DRY
31. Tamil Nadu & Puducherry	ISOL	ISOL	ISOL	DRY	DRY
32. Coastal Karnataka	DRY	DRY	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	DRY	DRY	DRY	DRY	DRY
35. Kerala	ISOL	ISOL	ISOL	DRY	DRY
36. Lakshadweep	DRY	ISOL	ISOL	ISOL	DRY

#### % Station Reporting Rainfall

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

### Weather Warning during next 5 days

- **13 January (Day 1):** Cold wave conditions at a few places with severe at isolated places very likely over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, north Rajasthan, Madhya Pradesh and Vidarbha. Cold wave conditions at isolated places very likely over Bihar, Jharkhand, Sub-Himalayan West Bengal, interior Odisha and Saurashtra & Kutch. Ground frost very likely at a few places over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh and north Rajasthan.
- **14 January (Day 2):** Cold wave conditions at a few places very likely over Punjab, Haryana, Chandigarh

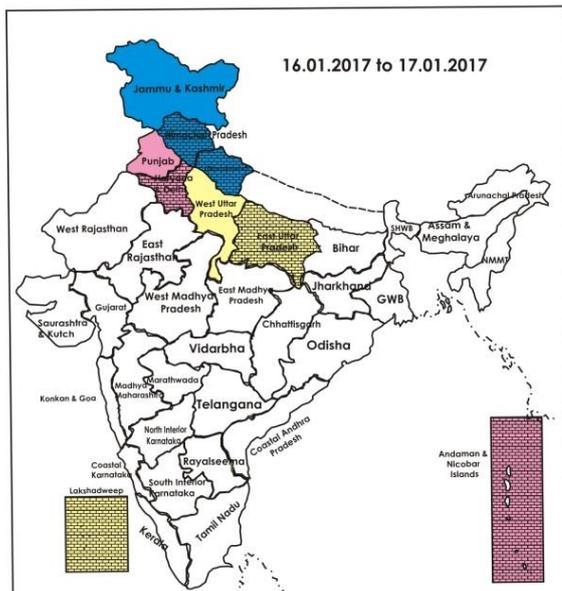
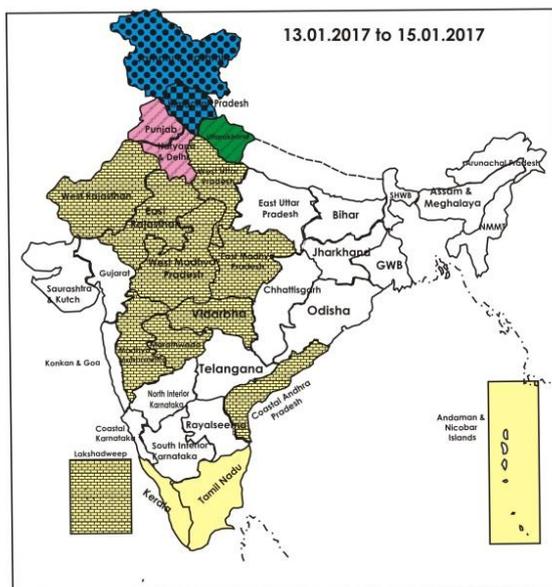
& Delhi, Uttar Pradesh, north Rajasthan, Madhya Pradesh and Vidarbha; at isolated places very likely over Bihar, Jharkhand, Sub-Himalayan West Bengal and interior Odisha.

- **15 January (Day 3):** Heavy rain/snow very likely at isolated places over Jammu & Kashmir and Himachal Pradesh.
- **16 January (Day 4):** Heavy rain/snow very likely at isolated places over Jammu & Kashmir, Himachal Pradesh and Uttarakhand.
- **17 January (Day 5):** No weather warning.

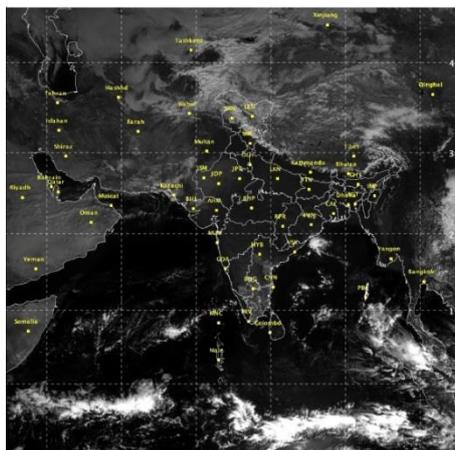
### Weather Outlook for subsequent 2 days from 18<sup>th</sup> to 20<sup>th</sup> January 2017

- Rainfall at isolated places likely over Andaman & Nicobar Islands.
- Rain/ snow at many places very likely over western Himalayan region and rainfall at a few places over adjoining plains of northwest India.

### Weather Forecast Map (valid upto 0830 hours of 18<sup>th</sup> January 2017)



### Satellite image dated, 13.01.2017, 0600 UTC



### Salient Advisories

- As cold wave conditions at a few places with severe cold wave conditions at isolated places very likely over **Punjab, Haryana, Chandigarh & Delhi, north Rajasthan, Uttar Pradesh, Madhya Pradesh** and **Vidarbha** on 13<sup>th</sup> and cold wave conditions at a few places on 14<sup>th</sup> Jan., cold wave conditions very likely at isolated places over **Saurashtra & Kutch** on 13<sup>th</sup>, over **Bihar, Jharkhand, Sub Himalayan West Bengal** and **interior Odisha** on 13<sup>th</sup> & 14<sup>th</sup> Jan., farmers are advised to apply drip irrigation in standing crops, vegetables, sugarcane & orchards in the evening/night hours. Apply mulch with crop residue/trash/ black polythene. Also make smoke around the crop field/orchards during night times.
- As ground frost is very likely at a few places over **Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh** and **north Rajasthan** on 13<sup>th</sup> Jan., to protect sensitive crops like mustard, Rajmash, potato, gram from frost attack, spray dilute Sulphuric acid @ 0.1% (1 litre H<sub>2</sub>SO<sub>4</sub> in 1000 litres of water) or thiourea @ 500 ppm (500 gm thiourea in 1000 litres of water) at flowering stage.
- As rain/snow very likely at most places over **Jammu & Kashmir**, at most/many places over **Himachal Pradesh** and **Uttarakhand** from 15<sup>th</sup> to 17<sup>th</sup> January; rain/thundershower likely at a **few places** over **Punjab** from 15<sup>th</sup> to 17<sup>th</sup> Jan., postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- As heavy rain/ snow very likely at isolated places over **Jammu & Kashmir** and **Himachal Pradesh** on 15<sup>th</sup> & 16<sup>th</sup> and over **Uttarakhand** on 16<sup>th</sup> Jan., provide adequate drainage in standing crop fields to avoid water stagnation.
- In **Himachal Pradesh**, in view of the heavy rain/snowy conditions, in Lower areas, immediately apply 2<sup>nd</sup> dose of Nitrogen fertilizers in standing crops, spray 2 % Urea or Potassium Sulphate in pea crops for proper growth of pods and also protect pea crop from frost injury. In hilly areas, do not undertake training and pruning of horticultural crops. Remove snow from young/small plants.
- In **Madhya Maharashtra**, in Ahmednagar, Jalgaon, Nasik, Pune and Dhule districts of north Madhya Maharashtra, minimum temperature is prevailing below 10°C, apply light irrigation to the banana during night time. Cover the banana bunch with 6% perforated white plastic bag to protect from cold injury. Also apply light irrigation (drip irrigation) to grapes in Nasik district. In **Marathwada**, apply light irrigation to sugarcane, wheat, gram, maize, vegetable crops and orchards.

- In **West Bengal**, to protect the seedlings of *Boro* rice from cold injury, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially during the night-time.
- In **Tamil Nadu**, in the Western Zone, in late *Samba* rice and other irrigated crops wherever moisture stress is anticipated, spray Pink Pigmented Facultative Methylotrops (PPFM) @ 10ml/litre of water during early morning hours to prevent severe loss due to moisture stress. Irrigation may be given to coconut trees through drip @ 80 liters per day. In the Cauvery Delta Zone, continue sowing of rice fallow pulses under waxy condition (ADT 3 black gram variety and ADT 3 green gram variety) under rice fallow condition in *Samba* rice fields.
- In Arid Western Plain Zone of **Rajasthan**, in Barmer, Churu, Jalore, Jodhpur, Pali districts, prevailing humid weather condition is congenial for attack of alternaria blight in cumin and white rust in mustard crops, for control of alternaria blight, apply Carbendazim or Carbendazim + Mancozeb @ 2g per litre of water and for white rust, apply Ridomil MZ-72 @ 1 ml per litre of water or Mancozeb @ 2g per litre of water.
- In **north Rajasthan**, as cold wave conditions would prevail, keep domestic animals in shelter during night hours. Increase the quantity of concentrates in their feed and add mineral mixture. In **Punjab** and **Haryana**, keep animals in dry place and change the bedding material as and when required. Cover the animals with Jhull (Jute cloth) in extreme cold. The energy content of the concentrate mixture should be increased by 5-10 % where the protein in the concentrate can be reduced by 2-3 per cent during cold season. Keep the animals under roof in night and in the sun during the day time. New born calves need special care in cold weather and they are susceptible to Pneumonia. Give them vitamin 'A' concentrate 1 ml daily in milk for three days and repeat after a month.

### *Detailed Zonewise Agromet Advisories*

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



*Banana*



*Rice*



*Sugarcane*



*Red gram*

- **Realised Rainfall:** Weather remained dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are below normal (1.6°C to 3.0°C) at isolated places over North Interior Karnataka. They are above normal (1.6°C to 3.0°C) at many places over Rayalaseema; at isolated places over South Interior Karnataka, Coastal Andhra Pradesh and Tamilnadu and near normal over rest of the region.
- **Advisories:**
  - **Andhra Pradesh:**
    - In the North Coastal Zone, continue planting of sugarcane after sett treatment with Propiconazol @ 1.0 ml/litre of water for 15 minutes before planting and sowing of sesame after seed treatment with Mancozeb @ 3 g/kg seed.
    - In the High Altitude Tribal Zone, continue planting of sugarcane, before planting undertake hot water treatment of setts @ 52°C for 30 minutes to avoid diseases like whip smut and red rot and complete nursery sowing of rice and harvesting of cotton.
    - In Krishna Godavari Zone, continue harvesting of matured early sown rice, maize, black gram crops and picking of cotton.
    - In the Scarce Rainfall Zone of Rayalaseema, provide light irrigation followed by spraying of 13-0-45 @ 10g/litre or SOP @ 5gm/litre of water for improvement of fruit size of bananas (fruit development stage).
    - In the North Coastal Zone, spray Thiodcarb @ 1.0 g /litre or Neem oil @ 5 ml/litre of water to control spodoptera incidence in groundnut.
    - In the Scarce Rainfall Zone of Rayalaseema, powdery mildew incidence was noticed in cucurbits(watermelon &

muskmelon) and likely to increase in the prevailing weather. For control, spray Myclobutanil @ 0.5g/litre or Hexaconazole @ 2ml/litre of water.

- In the High Altitude Tribal Zone, undertake hot water treatment of setts @ 52°C for 30 minutes to avoid diseases like whip smut and red rot in sugarcane (planting stage).
- In the Krishna Godavari Zone, present dry weather conditions enhance attack of sucking pests on cotton. Undertake spraying of Monochrotophos @ 5 ml/litre of water preferably in the evening for control.

#### ▪ **Telangana:**

- In South Telangana Zone, low temperatures during the *rabi* season may cause cold injury in rice nurseries. To overcome cold injury and for better nursery growth, continue covering the nursery beds with polythene sheet during night and remove in the morning, irrigate the nursery bed every day in the evening and let out the water in the morning and apply 2 kg urea for 200 sq metre nursery area 10-15 days after sowing. Apply Carbofuran 3G @ 1 kg/200 sq.m (5 cents) to rice nurseries one week before pulling nursery.
- In North Telangana Zone, undertake sowing of sesamum (Swetha Thil, Chandana, Hima, Gouri, Madhavi varieties) and continue transplanting of early sown rice.
- In South Telangana Zone, incidence of thrips is noticed in grapes. To control, spray Dimethoate @ 2 ml or Thiomethoxam @ 0.25 g or Spinosad @ 0.3 ml or Fipronil @ 1 ml/ litre of water.
- In North Telangana Zone, use poison bait (rice bran-5.0 kg, Jaggery-500g, Chlorpyriphos-500ml or Monocrotophos -500 ml) to attract and to control late instar larvae/acre tobacco caterpillar (*Spodoptera litura*) during evening hours near base of groundnut plants.

#### ▪ **Tamil Nadu:**

- In the Cauvery Delta Zone, continue sowing of rice fallow pulses under waxy condition (ADT 3 blackgram variety and ADT 3 greengram variety) under rice fallow condition in *samba* rice fields.
- In the Western Zone, in late *Samba* rice and other irrigated crops wherever moisture stress is anticipated, spray Pink Pigmented Facultative Methylotrops (PPFM) @ 10ml/litre of water during early morning hours to prevent severe loss due to moisture stress. Irrigation may be given to Coconut trees through drip @ 80 litres per day. Picking of cotton kapas in irrigated Combodia cotton may be done during early morning hours. Continue harvesting of matured *Samba* rice.
- In the South Zone, spray NAA 10 mg/ litre of water on chillies , 60 and 90 days after planting during the evening hours to improve fruit set in chilli (flowering stage).
- In the North Western Zone, undertake seed hardening with 1% Potassium Chloride solution for all crops before sowing under rainfed condition.
- In the High Altitude Zone, apply mulching in the soil around the plants to preserve soil moisture and provide irrigation to plants. Continue necessary measures like mulching to prevent frost damage in crops due to low temperature.
- In the High Rainfall Zone, irrigation should be given to newly planted fruit trees and other horticultural crops.
- In the Cauvery Delta Zone, brown leaf spot incidence is noticed in thaladi rice fields. To control, spray Carbendazim 200g/acre (or) Mancozeb 400g/acre in 200 litres of water.
- In the South Zone, ear head bug incidence is noticed in rice field. For controlling this pest, spray Malathion 50 EC @ 500 ml/ha at 15 days interval.

#### ▪ **Kerala:**

- In Idukki and Wynad districts of High Altitude Zone, continue harvesting of coffee, sowing crops like amaranthus, bitter gourd, cucumber, water melon, snake gourd, bottle gourd etc., provide drip irrigation in coconut fields, daily irrigation in cardamom and arecanut fields and harvesting of cardamom, pepper, arecanut and ginger.
- In the Problem Area Zone, late planted cool season vegetables should be provided with shade and moisture. Avoid water stagnation. Spray 2% Neem oil garlic emulsion fortnightly, if top shoot borer found. Seedlings of other vegetables may be treated with Pseudomonas @ 10 g/litre of water for 20 min before planting. Protect nutmeg trees from drought and scorching sunlight.
- In the Central Zone, based on water availability, pulses or vegetables can be cultivated so as to enrich soil fertility and reduce pest disease after second rice crop. Provide life saving irrigation one or two irrigations per week. 50-60 litres should be provided per palm if drip irrigation is been given. Undertake harvesting of ginger, turmeric, pepper etc. and undertake mulching to prevent severe drying of pepper vines. Continue harvesting of rice (Jyothi, kanjana, Uma, Ponmani varieties).
- In Thiruvananthapuram district of the Southern Zone, as prevailing temperature is very high, provide irrigation to Nendran bananas. In Kollam district, prevailing weather conditions may lead to physiological disorder, white pipe in banana. To control, apply Lime and Borax @ 20-50 g/pit.
- In Idukki and Wynad districts of High Altitude Zone, apply Dimethoate @ 2 ml/litre of water to control incidence of marginal thrips in pepper.
- In the Central Zone, prevailing dry weather conditions are congenial for powdery mildew incidence which may lead to leaf blighting in vegetables (okra). To control, spray Wettable

- Karathane (dinocap) @ 2ml/litre of water.
- In the Northern Zone, spray Neem based insecticide @ 10ml/litre of water on both surface of okra(bhindi) leaves to control incidence of jassids.
- In Thiruvananthapuram and Pathanamthitta districts of the Southern Zone, apply Rogor 1 ½ ml/litre of water to control Kokkan disease in banana.
- **Karnataka:**
- Continue sowing of groundnut under irrigation, harvesting of short duration red gram and late transplanted rice, third picking of late sown seed cotton in North East Dry Zone.
- In Bidar district of North East Transition Zone, provide protective irrigation in wheat and sorghum. Continue harvesting of pigeon pea crop as early as possible.
- Apply irrigation in *rabi* sorghum (grain filling stage) and wheat (grain filling) in Vijayapura, Bagalkote and Gadag districts of North Dry Zone. Complete harvesting/threshing /drying of onion, pigeon pea, chickpea and chilli and continue picking of matured cotton bolls.
- Complete harvesting/drying of red gram and ragi in Eastern Dry Zone.
- In Southern Dry Zone, complete harvesting/threshing/drying of matured rice; apply straw as mulch or incorporate it into the soil.
- In Southern Transition Zone, continue sowing of short duration pulses after harvesting of rice. Continue harvesting of sugarcane.
- Due to low temperature in North East Dry Zone infestation of hoppers was noticed in mango crop; spray Carbaryl 50WP @ 4 g or Malathion 50 EC @ 2 ml or Monocrotophos 36SL @ 1.5 ml or Phosphamidon 40EC @ 0.5 ml / litre of water.
- Low temperature and high humidity (RH) is congenial for the occurrence of powdery mildew in grapes in Eastern Dry Zone; if observed, spray Carbendazim @ 1 g/litre or Tridemarf @ 0.5 ml/litre.
- As a precautionary measure against leaf spot/sigatoka in banana in Southern Transition Zone, spray Carbendizim + Mancozeb (SAAF) @ 2.0 g/litre of water followed by (15 days after) Chlorothalanil @ 2 g/litre of water. Give stem injection with 5 ml Chloropyriphos or Dimethoate or spray Chloropyriphos @ 2.5 ml/litre of water against Pseudo stem weevil in banana.
- In Central Dry Zone, infestation of Mealy bug is noticed in papaya plantation; take up spraying of Dimethoate @ 2 ml/litre of water to control infestation.
- Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
- In Scarce Rainfall Zone of Andhra Pradesh, provide artificial brooding to chicks to maintain adequate temperature. Sides should be covered with curtains during cool hours of the day. Wet litter material should be removed regularly. Ensure proper cross ventilation to avoid ammonia accumulation in the poultry sheds.
- In the North Western Zone of Tamil Nadu, follow winter measures to control feed intake. Due to decreased sunlight, increase vitamin D3 level in the feed and ensure adequate brooding temperature to young chick's upto 10 days of age.
- In the High Altitude Zone, sheep and goats should be dewormed and allowed to graze in the morning after the dew dries off to prevent the endoparasitic infestation in animals.
- Maintain optimum room temperature in poultry by providing electric bulb in North East Transition Zone and Southern Dry Zone of Karnataka. Maintain optimum room temperature in sericulture, poultry and dairy unit; de - worming of animal be done; provide mineral mixture along with concentrated feeds to milch animals in Eastern Dry Zone.

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



*Banana*



*Rice*



*Cauliflower*



*Wheat*

- **Realised Rainfall:** Weather remained mainly dry/dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are below normal (1.6°C to 3.0°C) at isolated places over Assam & Meghalaya and near normal over rest of the region.
- **Advisories:**

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

- In Karimganj, Hailakandi and Cachar districts of Barak Valley Zone of Assam, farmers are advised to maintain 5 cm standing water in the transplanted *boro* rice fields.
- In Dhemaji, Lakhimpur, Sonitpur, Dibrugarh, Golghat, Jorhat and Sibsagar districts of Upper Brahmaputra Valley Zone of Assam, continue transplanting of *boro* rice. Continue harvesting of sugarcane and transplanting of late cole crops like cabbage and cauliflower.
- In Karbi Anglong and NC Hills districts of Hill Zone of Assam continue harvesting of khasi mandarin, cotton. Continue transplanting of *boro* paddy if the seedlings attained 5-6 leaf stage.
- In Marigaon and Nagaon districts of Central Brahmaputra Valley Zone of Assam, continue transplanting of *boro* paddy seedlings at proper age i.e 4 to 5 leaf stage (45 days old seedling).
- In Barpeta, Bongaigaoin, Dhubri and Goalpara districts of Lower Brahmaputra Valley Zone of Assam, continue land preparation for *rabi* maize.
- In North Bank Plain Zone of Assam, continue transplanting the seedling of *boro* rice attained 5-6 leaf stage.
- In Arunachal Pradesh, continue mulching with straw/crop residue at root zone to avoid frost injury in banana.
- In Meghalaya, apply light irrigation in rapeseed/ mustard as per requirement.
- In Hill Zone, humid weather is pre-disposing factor of the late blight disease in tomato. Alternate application of Ridomil MZ-72 (2g/litre) and Indofil M-45 2.5g / litre at 15 days interval can prevent the disease. Spray Malathion 50 EC @ 1.5 ml/litre against leaf eating caterpillars in cole crops.
- In North Bank Plain Zone, Barak Valley Zone and Upper Brahmaputra Valley Zone of Assam, humidity condition is favourable for appearance of late blight in potato and tomato crop, farmers are advised to spray Mancozeb @ 2.5g/litre as prophylactic measures against late blight.
- In Hill Zone, North Bank Plain Zone and Upper Brahmaputra Valley Zone of Assam, there is chance of attack of aphid in rapeseed & mustard crop due to favourable weather conditions. To control this pest, spray Dimethoate 30 EC or Chloropyrifos 20 EC @ 0.5 litre per ha area.
- In Arunachal Pradesh, spray Metalaxyl+Dithane M-45 @ 2.5g/litre against white rust/ downy mildew in mustard. Spray Azadirachtin 0.15% EC 2@ 6ml/litre against leaf eating insects in cabbage/cauliflower, pea & other vegetables.
- In Meghalaya, spray Wettable Sulphur @ 2 g/litre or Dinocap @ 1 ml/litre or Tridemorph @ 0.5 ml/litre or Dust Sulphur @ 25 kg/ha against powdery mildew and Dithane M-45 (0.2 %) against rust in pea.

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

- In Nagaland, soil moisture conservation techniques like mulching with crop residue is recommended in toria, *rabi* maize, pea and vegetables.
- In Manipur, continue transplanting of cole crops like cauliflower/tomato and sowing of *rabi* maize.
- In Mizoram, continue harvesting of *khasi* mandarin/acid lime, oil palm, banana and colocasia. Continue transplanting of onion, capsicum and sowing of French bean, carrot and radish and sowing of Zero tillage pea, toria and lentil cultivation in rice fellow. Continue sowing of *rabi* maize.
- In Nagaland, spray 4% neem seed kernel extract to kill early stages larvae in vegetables like cabbage/cauliflower etc.
- In Tripura, continue transplanting of *boro* rice in the main fields and nursery bed may be covered during the night to protect the seedlings from dew. As dry weather prevails, provide light irrigation with mulching in mustard, lentil, cole crops, *rabi* maize.
- In Manipur, spray Propiconazole @ 15ml/15 litre water against rust/powdery mildew in pulses and Mancozeb against early blight in potato.
- In Tripura, due to humid weather is conducive for black spot disease in Cole Crops and other leafy vegetables. To manage the attack in leafy vegetables and Cole crops, Mancozeb @ 2g per litre of water may be sprayed. Also early blight which may occur in potato due to prevailing foggy condition. Cymoxanil+ Mancozeb or Metalaxyl+ Mancozeb @ 1.5g per litre of water may be sprayed in the potato field at least twice at an interval of 15 days.
- Suitable varieties for sowing are given in Annexure III.

• **Animal Husbandry**

- In Assam and Arunachal Pradesh, gunny bags or plastic sheath curtains should be given on the side walls and bedding material should be increased to protect poultry from cold. Care should be taken not to restrict ventilation.
- In Central Brahmaputra Valley Zone, Upper Brahmaputra Valley Zone of Assam, protect poultry birds (Broiler) from cold by using electric bulb (300Watt for 100 sq.feet) to prevent *Coryza* disease. In case of lacrimation and swelling of the head, treat the birds with Sulphur drugs.
- In Nagaland, ensure periodic vaccination of cattles against FMD, Brucellosis, Haemorrhagic Septicaemia, Anthrax. Cattles should be given mineral mixture along with salt regularly and wheat grains, jaggery etc. may be provided @ 10% - 20% in the daily ration during winter season to meet the energy requirement of the animals. Avoid feeding of damp and foul smelling feed to all livestock and poultry.

- **Fishery**

- In Central Brahmaputra Valley Zone and North Bank Plain Zone of Assam, in winter season apply the following chemicals to protect the fish population against various bacterial diseases, Potash @ 4-5 mg/litre of water, Sukrena WS @ 1 litre per bigha of water and lime in required doses.

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



**Maize**



**Mustard**



**Groundnut**



**Wheat**

- **Realised Rainfall:** Weather remained dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are markedly below normal (5.1°C of less) at a few places over Vidarbha and at isolated places over Gujarat; appreciably below normal (3.1°C to 5.0°C) at isolated places over Konkan & Goa, Madhya Maharashtra and Marathwada and near normal over rest of the region.
- **Advisories:**
  - As cold wave conditions at a few places with severe cold wave conditions at isolated places very likely over Vidarbha on 13<sup>th</sup> & 14<sup>th</sup> and cold wave conditions at isolated places over Saurashtra & Kutch on 13<sup>th</sup> Jan., apply light & frequent irrigation/sprinkler irrigation in standing crops, vegetables & orchards in the evening/night hours. Apply mulch with crop residue/trash/polythene.
  - **Maharashtra:**
    - In Konkan, in transplanted *rabi* rice, maintain water level 2-3 cm for first 8-10 days and then increase the level up to 5 cm. As dry weather is prevailing, apply irrigation to groundnut, sunflower and mustard crops. Continue sowing of seasonal fodder crops viz. maize, sorghum and bajra. In some places bud bursting in mango has been started. The incidence of mango hoppers, bud eating caterpillars and powdery mildew may be observed on emerging inflorescence. Apply second spray i.e. 20 % Quinalphos @ 20 ml per 10 litres of water.
    - In Madhya Maharashtra, in Ahmednagar, Jalgaon, Nasik, Pune and Dhule districts of north Madhya Maharashtra, minimum temperature is prevailing below 10°C, apply light irrigation to the banana during night time. Cover the banana bunch with 6% perforated white plastic bag to protect from cold injury. Also apply light irrigation (drip irrigation) to grapes in Nasik district. Undertake intercultural operations like weeding and hoeing in wheat and bengal gram fields. As dry weather is prevailing, apply irrigation to wheat and gram. Continue harvesting of pigeon pea. Complete preparatory tillage and undertake planting of *suru* sugarcane. Continue land preparation for summer groundnut.
    - In Marathwada, apply light irrigation to sugarcane, wheat, gram, maize, vegetable crops and orchards. Continue harvesting of pigeon pea. Undertake top dressing of Nitrogen in late sown wheat crop. Turmeric crop is at rhizome filling stage, stop irrigating the crop 15 days before harvesting. Undertake plantation of *suru* sugarcane. To protect the vegetable crops from cold temperature, apply light irrigation. Irrigate the citrus crop with the help of drip irrigation system or by flood irrigation system for ambehahar (inflorescence).
    - In Vidarbha, undertake intercultural operations like hoeing and weeding in timely sown wheat crop. Continue harvesting of pigeon pea. Undertake land preparation for summer groundnut. Complete nursery sowing of summer rice and prepare main field for transplanting.
    - Due to uneven weather (cool in morning and warm and dry during day time) in Madhya Maharashtra, there are chances of attack of aphids and jassid in wheat, spray Thiamethoxam 25 WG @ 1 g in 10 liters of water.
    - In Marathwada, to control the attack of *Helicoverpa armigera* in late sown gram, spray Chlorpyrifos (25%) @ 25 ml or Profenofos (40%) @ 25 ml per 10 liter of water.
  - **Gujarat:**
    - In North Saurashtra Zone, to prevent cold/chill injury in standing crops, apply light irrigation in field crops during evening time; undertake mulching and also arrange for smoke in and around the field.
    - In South and North Saurashtra Zone, apply light irrigation in wheat crop.
    - In North Gujarat Zone and North West Zone, apply light irrigation in wheat, potato, cumin, castor, fennel, vegetable and fruit crops (mango, citrus, pomegranate and sapota) during evening hours to minimize adverse effects of cold. Arrange for smoking around the fields during night by burning near or around the crop field helps to protect the crop from cold injury. Continue harvesting of matured spikes of castor.

- In South Gujarat Heavy Rainfall Zone, protect the rice nursery from cold wind by providing fencing on outer side of field or cover the nursery area by 4-5 feet fencing with net. Maintain water level of 3-5 cm in the nursery. Continue land preparation for transplanting of rice. Undertake nursery raising of tomato.
- In Middle Gujarat Zone, apply irrigation in early sown wheat. Carry out weeding/intercultural operations in wheat crop.
- In South Saurashtra Zone, continue picking of matured cotton bolls during morning hours and picking of matured clusters of castor. Undertake intercultural operation in garlic, timely sown chickpea, coriander, cumin and vegetable crops.
- There are chances of infestation of blight in potato crop in Middle Gujarat Zone and in potato, tomato, fennel and cumin in North Gujarat Zone due to cold and humid weather condition; to control, spray Mencozeb @ 30 g in 10 litres of water with 20 ml sticker.
- Weather condition is congenial for outbreak of powdery mildew in cowpea in South Gujarat Zone; spray the crop with Wettable Sulphur @ 0.25% or Dinocap @ 0.05%, in clear weather.
- In North Saurashtra Zone, infestation of alternaria blight is observed in garlic crop due to moist weather; increase periods between irrigations; spray Mencozeb @ 27 g /10 litres of water at 10 days interval. Attack of thrips and aphids in cumin has been reported; spray Imidacloprid @ 5 ml/10 litres of water for control.
- Suitable varieties for sowing are given in Annexure III.

• **Animal Husbandry**

- In Marathwada, to protect the animals from cold, during early morning hang curtains of gunny bags around animal sheds. Use electric bulbs in poultry sheds. If Sore mouth in sheep and goat observed to control this separate the infected goats as soon as they get infected. Use ointment Vet-O-Max and Glycerin twice a day on the infected areas, after completely washing the infected area with hydrogen peroxide and cotton for seven days. One can use turmeric powder and fresh butter mixture if these ointments are not available. Mix two tablespoon of turmeric in one tablespoon of butter, and apply the paste gently on infected areas.
- In Vidarbha, farm livestock should be protected from exposure to cold particularly during night time, use electric bulbs for heat in animal sheds. Also apply two drops of Eucalyptus oil in the nose of animals.
- In Gujarat, provide luke warm water to lactating animals. Keep young calves indoors during night time to avoid cold stress. Provide artificial light in the poultry sheds. For milch animals, regularly follow schedule of 1 kg feed + 50 g mineral mixture per 2 litres of milk yield. Feed animals with a mixture of green grass + hay + minerals + dry feed.

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



*Red gram*



*Okra*



*Maize*



*Wheat*

- **Realised Rainfall:** Rainfall occurred in all districts of Andaman & Nicobar Islands. Weather remained mainly dry/dry over rest of the region.
- **Realised Minimum Temperature:** Minimum temperatures are appreciably below normal (3.1°C to 5.0°C) at most places over Bihar, Jharkhand, and at isolated places over West Bengal & Sikkim, Odisha; below normal (1.6°C to 3.0°C) at isolated places over rest West Bengal & Sikkim and near normal over rest of the region.
- **Advisories:**
  - As cold wave conditions very likely at isolated places over Bihar, Jharkhand, Sub-Himalayan West Bengal and interior Odisha on 13<sup>th</sup> & 14<sup>th</sup> Jan., apply light & frequent irrigation/drip irrigation in standing crops, vegetables & orchards in the evening/night hours. Apply mulch with crop residue/trash/polythene. Also make smoke around the crop field/orchards during night times,
    - **Odisha:**
      - In East and South Eastern Coastal Plain Zone, continue planting of potato. Undertake hoeing and weeding in irrigated mustard at vegetative stage. Thin out the plants and maintain optimum plant population. In North Eastern Coastal Plain Zone, complete harvesting of rice crops.
      - In Deogarh and Sundargarh districts of North Eastern Plateau Zone, complete sowing of, mung, Biri and Peas. Continue nursery sowing of rice.
      - In Kalahandi and Nuapara districts of Western Undulating Zone, cover the vegetable nurseries to protect from low

temperatures. Irrigate the vegetable seedling nursery during evening hours. Continue sowing of groundnut and nursery sowing of onion. Continue harvesting of rice. If noticed spray Carbendazim or Matalaxyl + Mancozeb 2g/litre of water.

- In Western Undulating Zone, continue harvesting & threshing of rice, picking of cotton and harvesting of castor and other matured crops. Complete sowing green gram and black gram during this week.
- In Mayurbhanj and Keonjhar districts, continue sowing of green pea in fallow uplands and nursery raising of tomato, cauliflower and cabbage.
- In North Central Plateau Zone, cloudy weather is favourable for attack of aphids and leaf eating caterpillars on pulses. Spray Methyldemeton @ 400ml per acre to control these insects. To control grass weeds in green gram and blackgram, apply Clodinafop @ 60g a.i./ha (400g Point or Topik 15WP) or Targa Super (Quizalofop ethyl 5% EC) @ 2ml/litre of water at 15-20 days after sowing.
- In East and South Eastern Coastal Plain Zone, pod borer has occurred in gram and pea, for control, spray 50 ml Imidacloprid or 400 ml Dimethoate or Metasystox in 200 litre water per acre.
- In East and South Eastern Coastal Plain Zone, cold and cloudy weather favours the infestation of powdery mildew and aphid in green gram, black gram and pea. To control powdery mildew, spray 1 kg Sulfex WP in 200 litres of water per acre and to control aphids, spray 50 ml Imidacloprid or 400 ml Dimethoate or Metasystox in 200 litres water per acre.
- In North Eastern Coastal Plain Zone, due to foggy weather, the aphid problems will aggravate on rapeseed and mustard crop. To control it during flowering stage, spray Neem oil 500 ppm @ 5ml/litre. In late sown crop, Imidacloprid can be sprayed @ 0.4ml/litre before flowering. Current weather is favourable for attack of Cabbage head borer. To control it spray, Triazophos @ 2ml/litre of water.

▪ **West Bengal:**

- In Burdwan, Murshidabad, Nadia, North 24 Parganas districts of New Alluvial Zone and Bankura, Bibhum, and purulia of Laterite and Red soil Zone, undertake land preparation for transplanting of *boro* rice. To protect the seedlings of *Boro* rice from cold, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially for the night-time. Irrigate the nursery bed regularly. Keep 2 to 3 cm stagnant water. Weeding and thinning operation should be done in wheat at 21days after sowing. Give light irrigation to all vegetables crops.
- In Purba Midnapore and South 24-parganas districts of Coastal Saline Zone, in *boro* rice nursery, fill the bed with water during evening and remove the water at morning hours for maintaining the temperature. Stir the seedlings for removing morning dew. Undertake sowing well filled plump seed of sunflower. Before sowing treat the seed by soaking for 10 hours with Thirum/Captan @ 3g/kg of seed to ensure germination. To protect betel vine from strong cold northern wind, cover the betel vine with coloured polythene sheets.
- In Hill Zone, undertake harvesting of ginger, turmeric and complete the harvesting of mandarin orange.
- In Malda & Dakshin Dinajpur districts of Old Alluvial Zone, cover the nursery bed of *boro* rice with Polythene or apply irrigation at night and drain the water in the morning to protect the seedlings from cold. Spray Carbendazim @ 2 gram/liter of water as precaution measure.
- In Old Alluvial Zone, To Control Mustard aphid spray Imidachloropid @ 2 ml/5 litre water at evening hour. To Control the Diamond Black Moth of Mustard, spray, Spinosad @ 1ml per liter of water at evening hour. For controlling of Potato late blight spray (Metalaxyl + Mancozeb) @ 2 g/litre of water.
- In New Alluvial Zone, In the prevailing weather condition black spot may occur in potato leaf due to fog. To control this apply Dithene-M-45 @ 2g/litre of water. In the present situation, Mite or thrips may also appear. So apply Acephate-75%WP @ 0.75 gm per litre of water.
- In Laterite and Red soil Zone, due to low temperature, favours yellow rust disease in wheat. To control spray Mancozeb 75 Wettable Powder @ 2ml/litre of water.
- In Hill Zone, prevailing weather condition, Sprayimidacloprid 17.8% SL @ 0.2 ml/litre. of water during evening to control mustard aphid and Spray wettable sulphur at 3 kg/ ha to manage powdery mildew in pea.
- In Laterite and Red soil Zone, low temperature favours yellow rust disease in wheat. Spray Mancozeb 75 Wettable Powder @ 2ml/litre of water at clear weather condition.

▪ **Andaman and Nicobar Islands:**

- In North, Middle & South Andaman, Nicobar, undertake land preparation for sowing seed of bitter gourd, bottle gourd and snake gourd, as the weather is conducive.
- To control of downy mildew disease in cauliflower and cabbage spray Mancozeb @ 0.2 % at 15 to 20 days interval during rain free days.

▪ **Bihar:**

- In Araria, Katihar, Kishanganj, Madhepura, Purnea, Saharsa and Supaul districts in North East Alluvial Zone, irrigate the wheat crop which is about 21-25 days old. Broadcasting of Urea @ 30kg/acre after 2 days of irrigation. Cucurbitaceous seedling may be prepared in small polythene bags in poly houses. In present weather conditions transplanting of healthy seedlings of late varieties of cabbage, cauliflower etc. may be done on ridges. Provide light irrigation in vegetables such as cauliflower, cabbage, tomato, pea, chilli, brinjal, onion nursery, garlic etc as per soil

moisture status.

- In Darbhanga, East Champaran, Gopalganj, Samastipur, West Champaran districts of North West Alluvial Plain Zone, farmers are advised to give irrigation in late sown wheat crop, which is in 21-25 days (Crown Root Initiation) stage. Undertake Transplanting of onion seedlings. Weeding is advised in the crop sown in December and irrigation at an interval of 10-15 days is also advised. Provide light irrigation in vegetables such as cauliflower, cabbage, tomato, pea, chilli, brinjal, onion nurse, garlic etc as per soil moisture status.
- In North East Alluvial Zone, there is chance of termite/cut worm infestation in newly maize crop. Spray Chlorpyrifos 20EC @ 2-3ml/litre of water. Due to foggy weather white rust may be appear in mustard, if it is seen then spraying of Chlorothalonil 75 WP @1 gram/ liter of water is advised. In present weather condition constant monitoring of aphid is advised in mustard crop. If insect population above ETL than spraying of Rogar or Quinalphos @ 2.0 ml\litre water is recommended.
- In South Bihar Alluvial Zone, due to foggy weather condition, there is chance of late blight in potato. Farmers are also advised to spray Dithane-M-45 @ 2 g/litre of water or Carbandazim @1 g/litre of water along with Tepol (sticky material) for controlling the late blight. Also spray of Bavistin @ 1 gram\litre or indofil-M 45 @ 2 ml\litre water to control rotting disease in marigold crop.

▪ **Jharkhand:**

- In Central and North Eastern Plateau Zone, prepare nursery bed for onion with well rotted FYM .
- In Western Plateau Zone, at existing weather condition, there is a chance of the attack of powdery mildew disease on green pea in which white powder appears on leaves and stem. To control this disease, spray Kairathen @ 1 ml per litre of water or Sulfex @ 3 g per litre of water.
- In Central and North Eastern Plateau Zone, due to high humidity and cold weather, there is chance of attack of late blight disease in potato, to control it - spraying of Metalaxyl MZ +Maancozeb @ 1.5g /litre of water is advised.
- In South Eastern Plateau Zone, timely sown arhar cop is at flowering to pod formation stage and at this stage if attack of leaf eating insect and pod borer are found, spray Monochrotophos @ 2 ml/litre of water two times at an interval of 10-12 days to control leaf eating insects. To prevent pod borer, spray Indoxacarb 14.5 % SC @ 120 ml/acre or Emamectin bencoate 5 % SG @ 5 g/acre or Spinosad 14.5 % SC @ 23-30 g/acre or Neem 1500 ppm @ 800 ml/acre or Profenophos 50 EC @ 800 ml/acre is recommended.
- In Central and North Eastern Plateau Zone, there may be attack of pod borer and powdery mildew disease on Green Pea. Hence, spraying of Kairathen @ 1 ml or sulfex @ 3 ml per liter of water to prevent from further spreading. To control pod borer, spray Monochrotophos @ 1 ml per liter of water.
- In Western Plateau Zone, the existing weather condition is favourable for attack of late blight disease in potato and aphids on mustard and other crops/vegetables. Hence, as a preventive measure, farmers may spray fungicide and insecticide in the respective crops.
- Suitable varieties for sowing are given in Annexure III.

• **Animal Husbandry**

- In interior Odisha, it is advised to keep the animals inside the sheds and provide dry bedding and use heaters inside cattle sheds to protect them from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy to cope up with the situation. Keep the chicks warm by providing artificial light in the poultry sheds.
- In Jharkhand, weather is favourable for Foot and Mouth Disease (FMD), vaccinate FMD vaccine to the cattle with the consultation of veterinary doctor. Also due to decrease in temperature, PPR Disease may increase in goat & sheep, farmers are advised to vaccinate their animal with PPR vaccine @1ml S/C.
- In Old Alluvial Zone of West Bengal, keep animals in covered shed to protect from low temperature during night.

• **Pisciculture**

- In North Eastern Coastal Plain Zone of Odisha, as the winter is in the starting phase, there is a possibility of “EUS” disease in fish. Farmers are advised to apply ‘Cifax’ @ 400 ml mixed with 40 litre of water in one acre pond area as a preventive measure. The fishes should be fed daily with oil cake bran mixture at the rate of 2-3 % of their total biomass.

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



*Maize*



*Cabbage*



*Mustard*



*Wheat*

- **Realised Rainfall:** Weather remained mainly dry/dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are markedly below normal (5.1°C of less) at many places over Madhya Pradesh; appreciably below normal (3.1°C to 5.0°C) at most places over Chhattisgarh and near normal over rest of the region.
- **Advisories:**
  - **Madhya Pradesh:**
    - As cold wave conditions at a few places with severe cold wave conditions at isolated places very likely over Madhya Pradesh on 13<sup>th</sup> and cold wave conditions at a few places on 14<sup>th</sup> Jan., farmers are advised to apply light & frequent irrigation in standing crops, vegetables & orchards in the evening/ night hours. Apply mulch with crop residue/trash/ polythene. Also make smoke around the crop field/orchards during night time.
    - In Nimar Valley Zone, undertake top dressing of urea @ 30kg/acre after irrigation in one month old wheat crop.
    - In Gwalior, Bhind, Morena, Guna, Ashoknagar and Shivpuri districts, as dry weather would prevail apply irrigation in wheat at tillering stage and in mustard, gram and vegetables.
    - In Indore and Ujjain districts, apply irrigation in wheat at tillering stage and in coriander at flowering stage. Continue nursery preparation of summer vegetable like tomato, chilli, brinjal etc.
    - In Chhindwara and Betul districts, apply irrigation in wheat at tillering stage and in gram at flowering stage.
    - In Vindhya Plateau Zone, apply irrigation in gram, wheat and vegetables. Continue harvesting of matured pods of red gram.
    - In Tikamgarh, Chhatarpur and Datia districts, apply irrigation in vegetables, mustard and wheat. Continue intercultural operations in vegetables.
    - In Jhabua, Alirajpur and Dhar districts, apply irrigation in wheat, gram, mustard and vegetables. After irrigation give 1/3 dose of nitrogen fertilizer in wheat. Continue picking up of matured vegetables and digging of matured rhizomes of turmeric and ginger.
    - In Jabalpur, Rewa, Satna districts, apply irrigation in wheat and in gram, mustard at flowering stage. Continue harvesting of matured pea. Continue intercultural operations in vegetables.
    - In Jhabua Hill Zone, there are chances of attack of aphids in mustard at flowering stage, apply Acetamiprid @ 0.35-0.45 ml/litre of water.
    - In Bundelkhand Zone, there are chances of attack of gram caterpillar in chickpea crop, spray Flubendiamide 39.35% S.C. @ 100g per hectare.
  - **Chhattisgarh:**
    - In North Hill Zone, apply irrigation in wheat after 20-25 days of sowing. Apply irrigation in gram, lathyrus and lentil crops 40-45 days after sowing.
    - In Chhattisgarh Plain Zone, continue seedling preparation of cucurbitaceous crops in polythene bags. Apply irrigation in wheat at CRI stage and in gram and lentil crops. Apply nitrogenous fertilizers in vegetables after intercultural operations.
    - In Bastar Plateau Zone, apply irrigation in wheat at CRI stage and broadcast half dose of urea. Apply irrigation in standing crops to prevent from cold injury. Spray 2% urea after nipping in gram crop for better branching and yield.
    - In North Hill Zone, for control of pod borer in pigeon pea, spray Indoxacarb @ 300 g/hectare dissolved in 500 litre of water.
    - In Bastar Plateau Zone, for control of leaf blight in mustard, spray Mencozeb @ 3 g/litre or Propeconazol @ 1 ml/litre at 15 days interval.
    - Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
  - In Madhya Pradesh, in view of the prevailing cold wave conditions, keep animals in sheds during night hours and cover the floor with paddy straw litter to protect from cold. Provide artificial light during night time in poultry house. Provide mineral mixture and fresh and clean water to birds.
  - In Chhattisgarh, protein enriched diet should be given to the animals and keep them in shed during night hours.

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



*Mustard*

*Maize*

*Cauliflower*

*Wheat*

- **Realised Rainfall:** Rainfall occurred in all districts of Jammu & Kashmir except Kargil, Ladakh ( Leh), Samba, in all districts of Himachal Pradesh except Lahual & Spiti, in Dehradun, Garhwal Pauri, Garhwal Tehri, Haridwar, Uttarkashi districts of Uttarakhand, in Fatehgarh Saheb, Gurudaspur, Nawashahar, Ropar, Mohali districts of Punjab, in Ambala, Chandigarh, Karnal, Panchkkula, Yamunanagar districts of Haryana, in Bijnour, Meerut, Saharanpur districts of West Uttar Pradesh. Weather remained mainly dry over rest of the region.
- **Realised Minimum Temperature:** Minimum temperatures are markedly below normal (5.1°C of less) at a few places over East Rajasthan, East Uttar Pradesh; appreciably below normal (3.1°C to 5.0°C) at most places over Jammu & Kashmir, Uttrakhand, Punjab, Haryana, Chandigarh & Delhi, at a few places over West Rajasthan and West Uttar Pradesh and at isolated places over Himachal Pradesh and near normal over rest of the region. The lowest minimum temperature of 1.0°C recorded at Sikar (West Rajasthan) in the plains of the country.
- **Advisories:**
  - As cold wave conditions at a few places with severe cold wave conditions at places isolated very likely over Punjab, Haryana, Chandigarh & Delhi, north Rajasthan and Uttar Pradesh on 13<sup>th</sup> and cold wave conditions at a few places 14<sup>th</sup> Jan., farmers are advised to apply drip irrigation in standing crops, vegetables, sugarcane & orchards in the evening/night hours. Apply mulch with crop residue/trash/ black polythene. Also make smoke around the crop field/orchards during night times.
  - As rain/snow very likely at most places over Jammu & Kashmir, most/many places over Himachal Pradesh and Uttarakhand from 15<sup>th</sup> to 17<sup>th</sup> January; rain/thundershower likely at a few places over Punjab from 15<sup>th</sup> to 17<sup>th</sup> Jan., postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
  - As heavy rain/ snow very likely at isolated places over Jammu & Kashmir and Himachal Pradesh on 15<sup>th</sup> & 16<sup>th</sup> and over Uttarakhand on 16<sup>th</sup> Jan., provide adequate drainage in standing crop fields to avoid water stagnation.
  - As ground frost is very likely at a few places over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh and north Rajasthan on 13<sup>th</sup> Jan., to protect sensitive crops like mustard, Rajmash, potato, gram from frost attack, spray dilute Sulphuric acid @ 0.1% (1 litre H<sub>2</sub>SO<sub>4</sub> in 1000 litres of water) or thiourea @ 500 ppm (500 gm thiourea in 1000 litres of water) at flowering stage.
  - **Rajasthan:**
    - In East Rajasthan, In Sub Humid Southern Plain and Aravali Hill Zone, in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts, apply irrigation to late sown wheat crop is at CRI stage and top dress of urea 65 kg / ha. and in timely sown wheat crop apply top dressing of 2nd half of the remaining Nitrogen after 2nd irrigation. Apply second irrigation in gram crop at pod formation stage. Continue nursery sowing of tomato, apply 10 kg FYM, 1 kg Neem cake, 100 g superphosphate and 10 g Furadon to soil before sowing of tomato nursery and seed treated with Carbendizim 2g/kg seed and treated with sowing time Azosporilium 40 g /400 g seed.
    - In Dungarpur, Banswara and Pratapgarh districts of Southern Humid Plain Zone, apply second irrigation in wheat at tillering stage with top dressing of remaining 1/3rd dose of nitrogen. Apply irrigation in maize crop may be irrigated with top dressing of nitrogen at the knee high stage as per requirement.
    - In Arid Western Plain Zone, in Barmer, Churu, Jalore, Jodhpur, Pali districts, apply irrigation in mustard crop at 70 to 80 days of sowing at silique formation stage. Apply irrigation in jou crop at jointing stage. In Jaisalmer and Bikaner districts, low minimum temperature can adversely affect the mustard, cumin, gram crops and vegetables etc., protect the crops by applying light irrigation, smoking the field or by burning the field waste and crop residue. If possible spray sulfuric acid @ 0.1% along with water. In timely sown wheat crop apply 2<sup>nd</sup> and 3<sup>rd</sup> irrigation as per requirement at 40 and 55 days after sowing respectively and 2<sup>nd</sup> irrigation to the barley crop at 65-70 days after sowing.
    - In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, continue nursery sowing of tomato, use 60 kg Nitrogen, 80 kg Phosphorus and 60 kg Potash per hectare. To protect sensitive crops like mustard, Rajmash, potato, gram from frost attack, spray dilute Sulphuric acid @ 0.1% (1 litre H<sub>2</sub>SO<sub>4</sub> in 1000 litre water) or thiourea @ 500 ppm (500 gm thiourea in 1000 litre water) at flowering stage. Suitable time for applying third

irrigation in normal sown wheat (60-65 DAS at jointing stage), second irrigation in late sown wheat at tillering stage (40-45 DAS) and also provide irrigation to gram at pod formation stage.

- In Irrigated North Western Plain Zone, Hanumangarh and Sriganaganagar, apply first irrigation to late sown wheat crop at 25-30 days after sowing and in jou crop in irrigated areas first irrigation at 30 to 35 days after sowing and second irrigation at 60 to 70 days of sowing and second irrigation in mustard crop at flowering stage. Apply first irrigation to gram crop at 50 to 55 days after sowing.
- In Arid Western Plain Zone, in Jaisalmer and Bikaner districts, on clear sky after foggy condition is congenial for attack of aphids in timely sown mustard crop, for control spray Malathion 50 EC @ 1200 ml per hectare or Dimethoate 30 EC @ 1200 ml per hectare along with water.
- In Arid Western Plain Zone, in Barmer, Churu, Jalore, Jodhpur, Pali districts, prevailing high humidity weather condition is congenial for attack of alternaria blight in cumin and white rust in mustard crops for control apply Carbendezim or Carbendazim + Mancozeb @ 2g per litre of water and Ridomil MZ-72 @ 1 ml per litre of water or Mancozeb @ 2g per litre of water respectively.
- In Irrigated North Western Plain Zone, Hanumangarh and Sriganaganagar, prevailing weather condition is congenial for attack of white rust in mustard crop for control spray Rhidomil MZ @ 2 gm per litre of water.
- In Irrigated North Western Plain Zone, Hanumangarh and Sriganaganagar, prevailing weather condition is congenial for attack of termite in wheat and gram crop for control spray Chloripyrifos 20 EC @ 1 litre per bhiga with irrigation.
- In Alwar, Bharatpur, Dhaulpur, Karauli, Sawaimadhapur districts of Flood Prone Eastern Plain Zone, prevailing weather condition is congenial for attack of pod borer in gram crop for control spray Malathion 5% or Methyl Parathion 2% @ 20-25 kg/ha before flowering and pod formation stage.
- In Alwar, Bharatpur, Dhaulpur, Karauli, Sawaimadhapur districts of Flood Prone Eastern Plain Zone, prevailing cool and humid weather condition there may be chances of attack of thrips and aphid in brinjal tomato and chilli crops for control spray 0.1% Malathion solution at 10 days interval.
- In Alwar, Bharatpur, Dhaulpur, Karauli, Sawaimadhapur districts of Flood Prone Eastern Plain Zone, prevailing weather condition is congenial for attack of termite infestation in barley and wheat crop, for control apply Chloropyrifos 20 EC @ 4 litres per hectare along with irrigation.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of pod borer in pea crop, for control spray Malathion 50 EC @ 1.0 ml per litre water.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of powdery mildew in methi, pea, cumin and coriander crops, for control spray Karathion @ 1.0 ml or Calaxin @ 1.0 ml per litre water or dust Sulphur @ 25 kg per hectare.
- In Sub Humid Southern Plain and Aravali Hill Zone, in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts, prevailing weather condition is congenial for attack of moyala in mustard and fenugreek crops, for control, apply Dimethoate 30 EC @ 1litre per hectare.
- **Jammu & Kashmir:**
  - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, provide staking to garden pea. Undertake top dressing of Urea to normal sown wheat. Undertake weeding and hoeing in onion and garlic crop.
  - In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, due to availability of sufficient moisture in the fields, complete sowing of wheat varieties WH-1080, Raj-3077 under rainfed condition. Apply 2nd dose of urea (25%) as top dressing to wheat crop after 30-45 days. Drain out excess water in the mustard field. Undertake transplanting of onion at optimum soil moisture.
  - In Valley Temperate Zone of Jammu and Kashmir, in high frost condition mulching of seed crops of KnolKhol, cabbage and other root crops may be done. Undertake seed sowing of leafy vegetables in poly house. Provide drainage channels in the fields as there is possibility of accumulation of water in the field. Avoid stagnation of water in saffron field. Do hand weeding/hoeing to reduce infestation by weeds to saffron crop.
  - In Cold Arid Zone of Leh, continue harvesting of Chinese cabbage, Palak, Pakchoi, knolkhol and Lettuce in protected structures. Timely hoeing and weeding should be done in protected structure for proper root aeration. Apply second dose of nitrogenous fertilizer in Cabbage, Cauliflower and Broccoli in green houses. Timely irrigation should be applied at 7-10 days intervals. The current night temperature is below -15.5oC. Therefore the trenches and poly houses should be covered with blankets. Transplanting of Haenz Saag and other cold tolerant vegetables should be done as a second crop under poly houses.
  - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, there may be infestation of Alternaria Blight on mustard crop. If spots of Alternaria Blight isobserved, spray Mancozeb@2.5g /litre of water and Ridomil MZ @2.5g/litre alternatively after the current spell of rain. Keep strict vigil on yellow rust infestation in wheat crop. If observed, apply prophylactic spray on the crop with Propiconazole (Tilt) 25 EC @ 0.1 % (1ml/litre of water).
- **Uttarakhand:**
  - In Udham Singh Nagar district of Bhabar and Tarai Zone, to protect the newly transplanted seedlings of papaya, mango and litchi from frost, these plants should be covered by straw. Top dressing of Urea should be done in

- Cabbage and Cauliflower crop after weeding and hoeing and moisture should be maintained in the field.
- In Nainital district of Bhabar and Tarai Zone, undertake harvesting of mustard. In valley, to save the potato from frost timely irrigation should be applied at required interval. Undertake field preparation for summer Squash (Chappankaddu). Clearing and deep ploughing of field should be done as well as mulching should be done for moisture conservation.
  - In Udham Singh Nagar district of Bhabar and Tarai Zone, there may be occurrence of Mahu in mustard crop, spray Thiamethoxam 25 WSG @ 50-100g/ha.
  - In Tehri Garhwal, Chamoli, Champawat, Pithoragarh, Rudraprayag and Uttarkashi districts of Hill Zone, undertake the weeding and hoeing in vegetable crops on a non rainy day.
  - In Dehradun, Pauri and Haridwar districts of Sub Humid Sub Tropic Zone, give first top dressing to timely sown wheat at tillering stage and irrigate mid sown wheat at CRI stage. Give irrigation to potato crop for frost protection.
  - In Bhabar and Tarai Zone, weather is favourable for late blight disease in potato and tomato crop, it is advised that Mancozeb @ 2.5g/litre should be sprayed after current spells of rain.
  - In Tehri Garhwal, Chamoli, Champawat, Pithoragarh, Rudraprayag and Uttarkashi districts of Hill Zone, there may be incidence of attack of thrips on onion crop. Spray Carbaryl @ 2g/litre in water mixed with sticking material like Teepol @ 1g/litre ghol.
- **Himachal Pradesh:**
- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, in rabi crops, immediately apply 2nd dose of Nitrogen fertilizers. Spray 2 % Urea or Potassium Sulphate for proper growth of pods this also protect pea crop from frost injury.
  - In Mild Hills Sub-Humid Zone of Himachal Pradesh, in Kullu and Mandi districts, undertake preparation of tree basins in stone fruit, apple and pomegranate orchards. Postpone pruning in stone fruits and pomegranate orchards. Apply Chaubatia paint (copper carbonate 800 gm + Red lead 800 gm+ Alsi oil 1 litre) on cut ends. Continuetransplanting of onion nursery in field. Continuehoeing and weeding operation in garlic crop.
  - In High Hills Temperate Dry Zone of Himachal Pradesh, in Kinnaur and Lahaul&Spiti, continue preparation of the basin and remove the weeds in apple orchards.
  - In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, present weather is conducive for attack of thrips in onion crop, for control, spray Carbaryl @ 2 gm per litre of water with sticky material (Tipol 1.0 gm per litre).
  - In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, present weather is conducive for attack of aphid in mustard, for control in early stage cut and destroy the infested part of the plant, if insect population above ETL than spray Rogar or Quinalphos @ 2.0 ml per litre of waterafter current spell of rain. For pod borer in the gram crop, installation of Pheromone trap @ 3-4 traps per acre is advised if flowering has reached 10-15%. “T” shaped bird perches in and around crop field to be installed for controlling insect population.
- **Punjab, Haryana and Delhi:**
- In Western Zone of Punjab, to protect vegetable crops from frost damage, provide polythene sheet/sarkanda/kahi rice straw to save the young seedlings from frost. Transplant 4-6 weeks old seedlings of onion in the field during first fortnight of January.
  - In Central Plain Zone of Punjab, continue sowing of sunflower (PSH 1962, DK 3849, PSH 996, PSH 569, PSFH 118 and SH 3322). Start harvesting of grape fruit.
  - In Haryana, carry out intercultural operations for conserving the moisture and removing weeds in mustard crop on a non rainy day. Cover the young plants to protect them from low temperature. Continue harvesting of early varieties of sugarcane.
  - In New Delhi, seedlings of early cucurbitaceous crops may be prepared in small polythene bags in poly houses. Continue transplanting of onion seedlings and late varieties of cabbage, cauliflower, knolkhol etc. on ridges. Undertake sowing of spinach, coriander, fenugreek and carrot.
  - In Gurdaspur and Hoshiarpur district of undulating Plain Zone of Punjab, due to prevailing favourable weather conditions, there may be incidence of Late blight on potato, spray IndofilM45 @250g/acre after current spells of rain to control the disease.
  - In Western Semi-Arid Zone of Delhi, in present weather condition constant monitoring of aphid is advised in mustard crop. If insect population is above ETL then spray Rogar or Quinalphos @ 2.0 ml/litre water. Due to high relative humidity, infection of blight may occur in potato and tomato. Constant monitoring is advised. If symptoms appear then spray Carbandizam @ 1.0 gm / litre of water or Dithane-M-45 @ 2.0 g /litre of water on a non rainy day.
- **Uttar Pradesh:**
- In Central Plain Zone of Uttar Pradesh, continue harvesting of matured sugarcane. Undertake weeding operation in winter maize after second thinning. Apply first irrigation in late sown wheat crop at 18 to 20 days of sowing and second irrigation at 40 to 45 days of sowing at tillering stage. Continue nursery sowing of chilli and tomato.

Complete transplanting of onion nursery. Apply light irrigation in vegetable and in standing crops of gram, pea, lentil, mustard, wheat crops as per requirement.

- In Western Plain Zone of Uttar Pradesh, apply first irrigation to late sown wheat crop if it is 21-25 days old as per requirement, after 3-4 days of irrigation broadcast rest half dose of nitrogen (urea). Apply second irrigation in timely sown wheat crop at tillering stage. Undertake transplanting of onion seedling.
- In Bundelkhand Zone of Uttar Pradesh, apply light irrigation to gram, lentil, pea as per requirement. In Eastern part of Bundelkhand Zone Apply second irrigation in wheat, jou cop after 40 to 45 days of sowing and third irrigation at 60 to 65 days after sowing. Continue transplanting of cauliflower, cabbage, tomato, chilli, brinjal. Apply light irrigation in brinjal, chilli, tomato, cabbage, cauliflower, spinach, fenugreek, radish, carrot, coriander as per requirement.
- In Central Plain Zone of East Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of stem borer in sugarcane crop, for control, apply Furadon @ 30 kg per hectare.
- In Central Plain Zone of East Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of painted bug in mustard crop, for control spray Dimethoate 30% EC or Methyl -O- Demeton 25% EC or Chlorpyrifos 20% @ 1 litre per 600 to 750 litres of water per hectare.
- In Central Plain Zone of East Uttar Pradesh, due to foggy weather condition, there may be chances of attack of cutworm infestation in gram crop, for control spray Monocrotophos 36 E.C. @ 1.50 ml in 500 to 600 litres of water per hectare.
- In Central Plain Zone of East Uttar Pradesh, due to foggy weather condition, there may be chances of attack of blight in tomato and potato crop, for control, spray Ridomil MZ or Metalexil 0.25 % @ 2 gm per litre of water.
- In Central Plain Zone of East Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of damping off disease in onion nursery, for control, spray Thiram @ 2.5 gm or Mancozeb @ 2.5 gm per litre of water at the 15 days of intervals.
- In Bundelkhand Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of aphid in mustard, lentil, linseed and other rabi crops, for control spray Monocrotophos @ 1.25 litres in 600 litres of water per hectare.
- In Western Plain Zone of Uttar Pradesh, due to foggy weather condition, there may be chances of attack of termite in wheat crop for control apply mixture of 20 kg sand with Chlorpyrifos 20 EC @ 2.0 litre per acre in the evening hours and subsequent irrigation is recommended.
- In Western Plain Zone of Uttar Pradesh, in prevailing weather condition, monitor the pod borer in the gram crop, for control install Pheromone trap @ 3-4 traps per acre if flowering has reached 10-15%. "T" shaped bird perches in and around crop field to be installfor controlling insect population.
- In Western Plain Zone of Uttar Pradesh, due to foggy weather condition, there may be chances of attack of thrips in timely sown onion crop, for control spray Carbaryl @ 2 g per litre of water with sticky material (Tipol @ 1.0 g/litre) in clear weather.
- Suitable varieties for sowing are given in Annexure III.

#### • **Horticulture**

- In Central Plain Zone of East Uttar Pradesh, apply light irrigation to newly orchards plants to protect from frost and fog.
- In Himachal Pradesh, in view of the snowy conditions, do not undertake training and pruning of horticultural crops. Remove snow from young/small plants.
- In Himachal Pradesh present weather is conducive for the Citrus canker in citrus, for control spray Streptocycline Sulphate 500 ppm solution.
- In Arid Western Plain Zone of Rajasthan, in Jaisalmer and Bikaner districts, lower minimum temperature can harm the newly planted (in rainy season) delicate horticultural plants to protect plants by covering with crop residues or munjha thatches and frequent light irrigations.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of mango hopper in mango plants, for control spray Malathion 50 EC @ 1.0 ml per litre of water.
- In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, plants of young orchards should be provided with thatches prepared from Sarkanda or any other locally available material, however, it should be kept open on eastern side to allow sufficient sun shine and air for the plant.
- In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, undertake plantation of peach, plum, apricot, almond walnut and peacan nut. Protect young plants of mango, litchi, papaya, guava, citrus etc. from frost by covering it with suitable thatching material prepared with sarkanda or any other material. Burn dry leaves /grasses in the young orchads during evening time to create smoke & regular irrigation to minimize the frost effect specially in plain areas.
- In Nainital district of Bhabar and Tarai Zone, in high hills, pruning of temperate fruit trees like apple, pear, peach, plum etc should be started.

- **Floriculture**

- In Himachal Pradesh, present weather is conducive for the attack of inflorescence rotting disease in marigold crop for control spray Bavistin @ 1 gm per litre of water or Indofil-M 45 @ 2 ml per litre of water.
- In Valley Temperate Zone of Jammu and Kashmir, continue planting of spring flowering bulbs of tulip, iris, daffodils etc. Transplanting of winter flowering annuals may be continued. Prune the trees and shrubs to avoid damage by heavy snow during the season.

- **Apiculture**

- In Himachal Pradesh, give the winter packing immediately to bee colonies. Check the colonies for nectar and give artificial food to honey bees as there is scarcity of flowers during these days. And keep colonies in sun on clear day.
- In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, protect bee colonies from extreme climatic conditions through reduced entrance and proper packing. Keep colonies at a place where sunlight is properly received. Maintain adequate reserves of honey and pollen in the bee colony. Maintain bee strength by giving sealed brood to weak colonies, or unite them. Continue sulphur dusting at fortnight interval.
- In Rajouri, Ramban, Poonch and Udhampur districts of Jammu & Kashmir, farmers are advised to migrate the honey bee colonies from hilly regions to plains to avoid mortality due to decline in temperature.

- **Animal Husbandry**

- In Rajasthan, as temperature may be low in coming days, take care of domestic animals. Keep them in shelter during night and in early morning and increase the quantity of concentrates in their diet. Add mineral mixture in balance diet of the animals. Avoid excess feeding of berseem, lucerne etc to protect from bloat. Feed these green fodders along with dry roughages to prevent from bloat.
- In High Hills Temperate Dry Zone of Himachal Pradesh, protect the newly born calves and animals from cold. Feed pregnant and lactating cows and buffalos with balance feed including mineral mixture. For milch animals follow schedule of 1 kg feed+50g mineral mixtures per 2 litres of milk. Ensure to give 50 g mineral mixture to animals daily. Ensure cleanliness in cows having advanced pregnancy to avoid mastitis.
- In Punjab, keep the animals in dry place and change the bedding material as and when required. Cover the animals with Jhull (Jute cloth) in extreme cold. The energy content of the concentrate mixture should be increased by 5-10 % where the protein in the concentrate can be reduced by 2-3 per cent during cold season.
- In Rajouri, Ramban, Poonch and Udhampur districts of Jammu & Kashmir, Nomads and Bakarwals are advised to deworm their flocks using Panacur @ 7.5g/kg body weight to avoid the economic loss.
- In Bhabar and Tarai Zone of Uttarakhand, to save the animals from cold, proper arrangement of animal shed should be done. Vaccination should be given to the animals to save them from Rinderpest disease (Sheetla rog). To save the animal from cold, increase the amount of oil and Jaggery (Gur) in the food of animals. Caraway (Ajwain) and gur also be given to the animals. To save the animal from cold, dry grasses, paddy residue (Puwal) etc which are not used as fodder for animals should be used as a bedding material for animals in sheds. Door and window should be covered properly so that cold wind could not be entered in the animal shed.

- **Fishery**

- In Himachal Pradesh, disinfect the fish tank by draining out the water and exposing the bottom floor of the tank to direct sunlight.
- In Jammu & Kashmir, farmers should not further add any manure/fertilizer/feed for some days in case of appearance of algal bloom in the fish pond. Remove algal bloom by the addition of fresh water in to the fish pond.

- **Poultry**

- In Himachal Pradesh, replace the poultry houses with fresh litter to avoid wetting and keep the houses clean and ensure clean drinking water to the birds. Protect the birds from cold and increase the feed by 10%. For the attack of coccidiosis disease consult the nearby veterinarian. Temperature is falling so farmers are advised to make the arrangements for protection of cold in the poultry houses.
- In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, keep temperature 37 deg. Celcius for day old chicks in brooding house with the bukhar.

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

**Annexure I**

Sub-Divisions	28.12.16		04.01.17		11.01.17	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>						
Anjaw	**	**	**	**	**	**
Changlang	6.6	-48	0.4	-98	0.4	-97
Dibang Valley	0.0	-100	0.0	-100	19.0	27
East Kameng	0.0	-100	0.0	-100	0.0	-100
East Siang	11.7	38	0.0	-100	2.3	-59
Kurung Kumey	**	**	**	**	**	**
Lohit	13.4	18	0.0	-100	0.0	-100
Lower Dibang Valley	0.0	-100	4.2	-63	10.3	-31
Lower Subansari	**	**	**	**	**	**
Papumpare	5.6	81	0.0	-100	1.7	-80
Tawang	0.0	-100	0.0	-100	0.0	-100
Tirap	3.2	-57	0.0	-100	0.8	-89
Upper Siang	0.0	-100	0.0	-100	5.2	-45
Upper Subansari	10.0	355	0.0	-100	1.0	-71
West Kameng	0.9	-80	0.0	-100	0.0	-100
West Siang	7.0	13	0.0	-100	1.5	-63
<b>Assam&amp;Meghalaya</b>						
<b>Assam</b>						
Baksa	11.6	347	0.0	-100	0.0	-100
Barpeta	0.0	-100	0.0	-100	0.0	-100
Bongaigaon	0.0	-100	0.0	-100	0.0	-100
Cachar	10.8	259	0.0	-100	0.0	-100
Chirang	0.0	-100	0.0	-100	0.0	-100
Darrang	**	**	**	**	**	**
Dhemaji	9.0	91	0.0	-100	0.0	-100
Dhubri	1.4	59	0.0	-100	0.0	-100
Dibrugarh	4.2	-18	0.4	-88	1.3	-69
Goalpara	0.8	-66	0.0	-100	0.0	-100
Golaghat	3.1	-35	0.0	-100	0.0	-100
Hailakandi	8.6	72	0.0	-100	0.0	-100
Jorhat	32.9	866	0.1	-98	0.2	-96
Kamrup(Rural)	0.0	-100	0.0	-100	0.0	-100
Kamrup(Metro)	1.6	-6	0.0	-100	0.0	-100
Karbi Anglong	0.0	-100	0.0	-100	0.0	-100
Karimganj	17.6	96	0.0	-100	0.0	-100
Kokrajhar	0.3	-92	0.0	-100	0.0	-100
Lakhimpur	0.9	-80	0.0	-100	5.6	31
Morigaon	9.2	384	0.0	-100	0.0	-100
N.C.Hills	4.4	529	0.0	-100	0.0	-100
Nagaon	10.1	290	0.0	-100	0.0	-100
Nalbari	1.4	200	0.0	-100	0.0	-100
Sonitpur	2.4	20	0.0	-100	0.0	-100
Sibsagar	10.2	920	0.0	-100	0.0	-100

Tinsukia	3.6	-37	0.0	-100	0.7	-78
Udalgiri	11.1	1750	0.0	-100	0.0	-100
<b>Meghalaya</b>						
East Garo Hills	15.6	271	0.0	-100	0.0	0
East Khasi Hills	7.1	296	0.0	-100	0.5	-90
Jaintia Hills	**	**	**	**	0.0	-100
Ribhoi	1.7	-45	2.1	320	10.9	60
South Garo Hills	0.0	-100	0.0	-100	0.0	-100
West Garo Hills	4.8	60	0.0	-100	0.0	-100
West Khasi Hills	**	**	**	**	0.0	-100
<b>NMMT</b>						
<b>Mizoram</b>						
Aizwal	0.0	-100	0.0	-100	1.0	0
Champhai	**	**	**	**	**	**
Kolasib	**	**	**	**	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	0.0	-100	0.0	-100	0.0	-100
Mamit	**	**	**	**	**	**
Saiha	0.0	-100	0.0	-100	0.0	-100
Serchhip	0.0	-100	0.0	-100	0.0	-100
<b>Manipur</b>						
Bishnupur	**	**	**	**	**	**
Chandel	0.0	-100	**	**	**	**
Churachandpur	**	**	**	**	**	**
Imphal east	2.1	17	7.2	324	0.0	-100
Imphal west	0.8	-64	0.0	-100	0.0	-100
Senapati	**	**	0.0	-100	0.0	-100
Tamenglong	**	**	**	**	**	**
Thoubal	0.0	-100	**	**	**	**
Ukhrul	**	**	**	**	**	**
<b>Nagaland</b>						
Dimapur	5.8	1833	0.0	-100	0.4	-89
Kephire	3.0	-19	**	**	**	**
Kohima	2.4	33	0.0	-100	1.2	-50
Longleng	**	**	**	**	**	**
Mokokchung	0.0	-100	**	**	**	**
Mon	**	**	**	**	**	**
Paren	**	**	**	**	**	**
Phek	0.0	-100	0.0	-100	5.0	108
Tuensang	**	**	**	**	**	**
Wokha	6.0	253	0.0	-100	0.0	-100
Zunheboto	**	**	**	**	**	**
<b>Tripura</b>						
Dhalai	0.0	-100	0.0	-100	0.0	-100
NorthTripura	6.9	50	0.0	-100	0.0	-100
SouthTripura	0.0	-100	0.0	-100	0.0	-100
West Tripura	0.5	-85	0.0	-100	0.0	-100
<b>Himachal Pradesh</b>						
Bilaspur	4.5	-69	0.0	-100	88.9	817

Chamba	0.9	-96	1.9	-89	47.4	86
Hamirpur	2.5	-83	0.0	-100	62.4	387
Kangra	3.4	-80	0.3	-98	43.7	160
Kinnaur	5.0	-76	1.0	-94	27.8	29
Kullu	0.0	-100	0.6	-95	74.9	357
Lahaul and Spiti	0.0	-100	4.0	-80	17.5	-37
Mandi	0.0	-100	0.0	-100	65.5	408
Shimla	2.7	-75	4.1	-64	64.7	386
Sirmaur	3.4	-77	0.0	-100	79.1	570
Solan	5.9	-55	0.0	-100	129.5	866
Una	0.8	-93	0.0	-100	42.9	338
<b>Punjab</b>						
Amritsar	0.0	-100	0.0	-100	0.0	-100
Barnala	0.0	-100	0.0	-100	8.0	220
Bhatinda	0.0	-100	0.0	-100	0.0	-100
Faridkot	0.0	-100	0.0	-100	0.0	-100
Fatehgarh Sahib	6.3	-39	0.0	-100	23.0	448
Ferozpur	0.0	-100	0.0	-100	0.0	-100
Gurdaspur	2.6	-75	0.0	-100	29.3	139
Hoshiarpur	0.0	-100	0.0	-100	13.9	64
Jalandhar	0.0	-100	0.0	-100	1.0	-86
Kapurthala	0.0	-100	0.0	-100	1.0	-81
Ludhiana	1.3	-83	0.0	-100	8.6	82
Mansa	0.0	-100	0.0	-100	18.0	620
Moga	0.0	-100	0.0	-100	0.0	-100
Muktesar	0.0	-100	0.0	-100	0.0	-100
Nawashahar	1.7	-85	0.0	-100	36.1	265
Patiala	1.9	-75	0.0	-100	15.9	160
Ropar	5.5	-47	0.0	-100	56.6	460
Sangrur	0.0	-100	0.0	-100	6.2	51
Mohali	19.0	83	0.0	-100	62.0	685
TarnTaran	0.0	-100	0.0	-100	0.0	-100
<b>Haryana,Chd,Delhi</b>						
<b>Haryana</b>						
Ambala	8.0	-10	0.0	-100	44.3	523
Bhiwani	0.0	-100	0.0	-100	0.0	-100
Chandigarh	22.8	94	0.0	-100	78.2	929
Faridabad	0.0	-100	0.0	-100	2.3	-53
Fatehabad	0.0	-100	0.0	-100	2.0	-39
Gurgaon	0.0	-100	0.0	-100	0.4	-84
Hissar	0.0	-100	0.0	-100	3.2	39
Jhajar	0.0	-100	0.0	-100	1.6	-52
Jind	0.0	-100	0.0	-100	18.0	161
Katihah	0.0	-100	0.0	-100	14.5	326
Karnal	0.0	-100	0.0	-100	33.1	514
Kurukshetra	0.0	-100	0.0	-100	17.3	189
Mahendragarh	0.0	-100	0.0	-100	0.2	-96
Mewat	0.0	-100	0.0	-100	0.0	-100
Palwal	0.0	-100	0.0	-100	2.0	-20

Panchkkula	17.6	117	0.0	-100	41.6	571
Panipat	0.0	-100	0.0	-100	9.0	109
Rewari	0.0	-100	0.0	-100	0.0	-100
Rohtak	0.0	-100	0.0	-100	3.4	-8
Sirsa	0.0	-100	0.0	-100	0.0	-100
Sonepat	0.0	-100	0.0	-100	12.6	223
Yamunanagar	9.8	38	0.0	-100	48.3	503
<b>Delhi</b>						
Central Delhi	**	**	**	**	2.0	-53
East Delhi	0.0	-100	0.0	-100	2.0	-53
New Delhi	0.0	-100	0.0	-100	3.3	-23
North Delhi	0.0	-100	0.0	-100	2.9	-33
North East Delhi	0.0	-100	0.0	-100	0.0	-100
North West Delhi	0.0	-100	0.0	-100	4.5	5
South Delhi	0.0	-100	0.0	-100	1.8	-58
South West Delhi	0.0	-100	0.0	-100	3.2	-27
West Delhi	**	**	**	**	**	**
<b>Jammu &amp; Kashmir</b>						
Anantnag	0.0	-100	6.4	-40	49.1	256
Badgam	0.0	-100	0.2	-96	108.0	1465
Bandipore	**	**	**	**	**	**
Baramula	0.0	-100	28.8	33	85.8	359
Doda	10.8	-65	7.2	-71	67.0	276
Ganderbal	0.0	-100	11.6	41	48.6	452
Jammu	0.0	-100	0.0	-100	41.0	257
Kargil	**	**	**	**	0.2	-96
Kathua	0.0	-100	0.0	-100	40.0	148
Kistwar	**	**	**	**	**	**
Kulgam	0.2	-98	3.2	-71	41.6	187
Kupwara	0.0	-100	30.4	149	60.4	358
Ladakh(Leh)	0.0	-100	0.0	-100	0.0	-100
Poonch	**	**	**	**	**	**
Pulwama	0.0	-100	6.3	3	81.8	799
Rajouri	0.0	-100	0.0	-100	50.0	395
Ramban	1.7	-96	8.2	-63	89.5	262
Reasi	4.1	-80	0.5	-97	56.5	409
Samba	0.0	-100	0.0	-100	18.6	62
Shopian	**	**	**	**	**	**
Srinagar	0.0	-100	10.6	29	68.1	676
Udhampur	0.0	-100	0.0	-100	55.4	180
<b>East Madhya Pradesh</b>						
Anuppur	0.0	-100	0.0	-100	1.2	-81
Balaghat	0.0	-100	0.0	-100	7.7	40
Chhatarpur	0.0	-100	0.0	-100	0.0	-100
Chindwara	0.0	-100	0.0	-100	9.0	58
Damoh	0.0	-100	0.0	-100	1.5	-46
Dindori	0.0	-100	0.0	-100	7.0	52
Jabalpur	0.0	-100	0.0	-100	7.2	89

Katni	0.0	-100	0.0	-100	3.0	-35
Mandla	0.0	-100	0.0	-100	3.0	-40
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	3.2	45
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	6.5	37
Shahdol	0.0	-100	0.0	-100	6.0	62
Sidhi	0.0	-100	6.8	172	0.0	-100
Singrauli	0.0	-100	4.5	350	1.5	-6
Tikamgarh	0.0	-100	0.0	-100	1.0	-60
Umaria	0.0	-100	0.0	-100	10.2	104
<b>West Madhya Pradesh</b>						
Agar	0.0	-100	0.0	-100	0.0	-100
Alirajpur	0.0	-100	0.0	-100	0.0	-100
Asoknagar	0.0	-100	0.0	-100	0.0	-100
Badwani	0.0	-100	0.0	-100	0.0	-100
Betul	0.0	-100	0.0	-100	0.0	-100
Bhind	0.0	-100	0.0	-100	0.0	-100
Bhopal	0.0	-100	0.0	-100	0.0	-100
Burhanpur	0.0	-100	0.0	-100	0.0	-100
Datia	0.0	-100	0.0	-100	0.0	-100
Dewas	0.0	-100	0.0	-100	0.0	-100
Dhar	0.0	-100	0.0	-100	0.0	-100
Guna	0.0	-100	0.0	-100	0.0	-100
Gwalior	0.0	-100	0.0	-100	0.0	-100
Harda	0.0	-100	0.0	-100	0.0	-100
Hoshangabad	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	0.0	-100
Neemuch	0.0	-100	0.0	-100	0.0	-100
Raisen	0.0	-100	0.0	-100	0.0	-100
Rajgarh	0.0	-100	0.0	-100	0.0	-100
Ratlam	0.0	-100	0.0	-100	0.0	-100
Sehore	0.0	-100	0.0	-100	0.0	-100
Shajapur	0.0	-100	0.0	-100	0.0	-100
Sheopur Kalani	0.0	-100	0.0	-100	0.0	-100
Shivpuri	0.0	-100	0.0	-100	3.5	52
Ujjain	0.0	-100	0.0	-100	0.0	-100
Vidisha	0.0	-100	0.0	-100	0.0	-100
<b>Chhattisgarh</b>						
Balod	0.0	-100	0.0	-100	0.0	-100
Baloda Bazar	0.0	-100	0.0	-100	0.0	-100

Balrampur	0.0	-100	1.0	-29	0.0	-100
Bastar	0.0	-100	0.0	-100	0.0	-100
Bemetara	0.0	-100	0.0	-100	1.0	-23
Bijapur	0.0	-100	0.0	-100	0.0	-100
Bilaspur	0.0	-100	0.1	-96	3.0	-27
Dantewara	0.0	-100	0.0	-100	0.0	-100
Dhamtari	0.0	-100	0.0	-100	0.0	-100
Durg	0.0	-100	0.0	-100	1.8	-5
Gariaband	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
Kabirdham	0.0	-100	0.0	-100	0.0	-100
Kanker	0.0	-100	0.0	-100	0.0	-100
Kondagaon	0.0	-100	0.0	-100	0.0	-100
Korba	0.0	-100	5.3	256	0.0	-100
Koriya	0.0	-100	0.0	-100	0.0	-100
Mahasumund	0.0	-100	0.0	-100	0.0	-100
Mungeli	0.0	-100	0.0	-100	5.6	37
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	5.9	157
Rajnandgaon	0.0	-100	0.0	-100	0.0	-100
Sukma	0.0	-100	0.0	-100	0.0	-100
Surajpur	0.0	-100	0.0	-100	0.0	-100
Surguja	0.0	-100	3.3	32	2.6	-49
<b>East Uttar Pradesh</b>						
Allahabad	0.0	-100	0.0	-100	0.0	-100
Ambedkar Nagar	0.0	-100	0.0	-100	0.0	-100
Azamgarh	0.0	-100	0.0	-100	0.0	-100
Bahraich	0.0	-100	0.0	-100	0.0	-100
Ballia	0.0	-100	0.0	-100	2.8	20
Balrampur	0.0	-100	0.0	-100	0.0	-100
Banda	0.0	-100	0.0	-100	0.0	-100
Barabanki	0.0	-100	0.0	-100	0.3	-89
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	0.0	-100
Fatehpur	0.0	-100	0.0	-100	2.5	56
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	0.0	-100
Jaunpur	0.0	-100	0.0	-100	0.0	-100
Kannauj	0.0	-100	0.0	-100	0.0	-100
Kanpur City	0.0	-100	0.1	-97	0.6	-81
Kanpur Dehat	0.0	-100	0.0	-100	0.0	-100
Kaushambi	0.0	-100	0.0	-100	0.0	-100

Kheri	0.0	-100	0.0	-100	0.0	-100
Kushi nagar	0.0	-100	0.0	-100	0.0	-100
Lucknow	0.0	-100	0.0	-100	0.9	-74
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	0.0	-100
RaiBareilly	0.0	-100	0.0	-100	0.3	-80
Sahuji Maharajnagar	0.0	-100	0.0	-100	0.0	-100
Sant Kabirnagar	0.0	-100	0.0	-100	0.0	-100
Sant Ravidas Nagar	0.0	-100	0.0	-100	0.0	-100
Shrawasti	**	**	**	**	**	**
Sidharthnagar	0.0	-100	0.0	-100	0.0	-100
Sitapur	0.0	-100	0.0	-100	0.0	-100
Sonbhadra	0.0	-100	5.6	250	0.4	-78
Sultanpur	0.0	-100	0.0	-100	0.6	-67
Unnao	0.0	-100	0.0	-100	2.3	-17
Varanasi	0.0	-100	0.0	-100	0.0	-100
<b>West Uttar Pradesh</b>						
Agra	0.0	-100	0.0	-100	0.0	-100
Aligarh	0.0	-100	0.0	-100	3.2	-63
Auraiya	0.0	-100	0.0	-100	0.0	-100
Badaun	0.0	-100	0.0	-100	11.4	200
Baghpat	0.0	-100	0.0	-100	14.5	353
Bareilly	0.0	-100	0.0	-100	16.7	221
Bijnor	0.0	-100	0.0	-100	37.9	303
Bulandsahar	0.0	-100	0.0	-100	4.8	28
Etah	0.0	-100	0.0	-100	0.0	-100
Etawah	0.0	-100	0.0	-100	0.0	-100
Firozabad	0.0	-100	0.0	-100	0.0	-100
GBNagar	0.0	-100	0.0	-100	2.0	-57
Ghaziabad	0.0	-100	0.0	-100	2.0	-51
Hamirpur	0.0	-100	0.0	-100	3.0	0
Jalaun	0.0	-100	0.0	-100	2.7	71
Jhansi	0.0	-100	0.0	-100	0.0	-100
Jotiba Phule Nagar	0.0	-100	0.0	-100	7.5	44
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	0.0	-100
Mahoba	0.0	-100	0.0	-100	0.0	-100
Mainpuri	0.0	-100	0.0	-100	0.0	-100
Mathura	0.0	-100	0.0	-100	0.0	-100
Meerut	0.0	-100	0.0	-100	28.2	452
Moradabad	0.0	-100	0.0	-100	3.9	-29
Muzzaffarnagar	0.0	-100	0.0	-100	9.9	90
Pilibhit	0.0	-100	0.0	-100	1.7	-67
Rampur	0.0	-100	0.0	-100	3.4	-31
Saharanpur	0.0	-100	0.0	-100	23.7	404

Shahjahanpur	0.0	-100	0.0	-100	5.8	14
<b>Uttarakhand</b>						
Almora	0.4	-95	0.0	-100	18.1	83
Bageshwar	0.0	-100	0.8	-94	8.3	-16
Chamoli	2.7	-57	0.1	-99	11.6	38
Champawat	0.0	-100	0.0	-100	18.5	73
Dehradun	0.9	-86	6.6	-36	20.4	115
Garhwal Pauri	1.5	-81	0.3	-98	23.4	260
Garhwal Tehri	5.6	-46	5.2	-49	35.0	264
Haridwar	1.4	-80	0.0	-100	24.8	282
Nainital	0.3	-94	5.1	-58	19.2	106
Pithorgarh	8.4	32	1.4	-84	18.3	129
Rudraprayag	4.2	-57	0.0	-100	15.6	-3
Udham Sing Nagar	3.9	50	0.0	-100	13.1	96
Uttarkashi	7.3	-12	1.3	-89	21.5	68
<b>Bihar</b>						
Araria	0.0	-100	0.0	-100	0.0	-100
Arwal	0.0	-100	0.0	-100	0.0	-100
Aurangabad	0.0	-100	0.0	-100	0.0	-100
Banka	0.0	-100	0.0	-100	0.0	-100
Begusarai	0.0	-100	0.0	-100	0.0	-100
Bhabua	0.0	-100	0.0	-100	0.0	-100
Bhagalpur	0.0	-100	0.0	-100	0.0	-100
Bhojpur	0.0	-100	0.0	-100	0.0	-100
Buxar	0.0	-100	0.0	-100	0.0	-100
Darbhanga	0.0	-100	0.0	-100	0.0	-100
East Champaran	0.0	-100	0.0	-100	0.0	-100
Gaya	0.0	-100	0.0	-100	0.6	-68
Gopalganj	0.0	-100	0.0	-100	0.0	-100
Jahanabad	0.0	-100	0.0	-100	0.0	-100
Jamui	0.0	-100	0.0	-100	0.0	-100
Kathihar	0.0	-100	0.0	-100	0.0	-100
Khagadia	0.0	-100	0.0	-100	0.0	-100
Kishanganj	0.0	-100	0.0	-100	0.0	-100
Lakhisarai	0.0	-100	0.0	-100	0.0	-100
Madhepura	0.0	-100	0.0	-100	0.0	-100
Madhubani	0.0	-100	0.0	-100	0.0	-100
Monghyar	0.0	-100	0.0	-100	0.0	-100
Muzaffarpur	0.0	-100	0.0	-100	0.1	-95
Nalanda	0.0	-100	0.0	-100	0.0	-100
Nawada	0.0	-100	0.0	-100	0.0	-100
Patna	0.0	-100	0.0	-100	0.0	-100
Purnea	0.0	-100	0.0	-100	0.0	-100
Rohtas	0.0	-100	0.0	-100	0.5	-80
Saharsha	0.0	-100	0.0	-100	0.0	-100
Samstipur	0.0	-100	0.0	-100	0.0	-100
Saran	0.0	-100	0.0	-100	0.0	-100
Sheikpura	0.0	-100	0.0	-100	0.0	-100
Sheohar	0.0	-100	0.0	-100	0.0	-100

Sitamarhi	0.0	-100	0.0	-100	0.0	-100
Siwan	0.0	-100	0.0	-100	0.0	-100
Supaul	0.0	-100	0.0	-100	0.0	-100
Vaishali	0.0	-100	0.0	-100	0.0	-100
West Champaran	0.0	-100	0.0	-100	0.0	-100
<b>Jharkhand</b>						
Bokaro	0.0	-100	0.0	-100	2.9	15
Chatra	0.0	-100	0.0	-100	12.0	422
Deoghar	0.0	-100	0.0	-100	4.7	292
Dhanbad	0.0	-100	0.0	-100	6.3	320
Dumka	0.0	-100	0.0	-100	12.0	193
East Singbhum	0.0	-100	0.0	-100	0.0	-100
Garhwa	0.0	-100	2.5	178	4.8	55
Giridih	0.0	-100	0.0	-100	12.2	1009
Godda	0.0	-100	0.0	-100	0.0	-100
Gumla	0.0	-100	0.0	-100	0.0	-100
Hazaribagh	0.0	-100	3.2	60	**	**
Jamtara	**	**	**	**	**	**
Khunti	0.0	-100	0.0	-100	0.0	-100
Koderrna	0.0	-100	0.0	-100	1.8	-53
Latehar	0.0	-100	33.0	2438	8.8	283
Lohardagga	0.0	-100	0.0	-100	7.2	279
Pakur	0.0	-100	0.0	-100	**	**
Palamau	0.0	-100	6.5	226	6.4	93
Ramgarh	**	**	**	**	**	**
Ranchi	0.0	-100	0.1	-98	0.4	-86
Sahebganj	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	0.0	-100
Bharatpur	0.0	-100	0.0	-100	0.0	-100
Bhilwara	0.0	-100	0.0	-100	0.0	-100
Bundi	0.0	-100	0.0	-100	0.0	-100
Chittorgarh	0.0	-100	0.0	-100	0.0	-100
Dausa	0.0	-100	0.0	-100	0.0	-100
Dholpur	0.0	-100	0.0	-100	0.0	-100
Dungarpur	0.0	-100	0.0	-100	0.0	-100
Jaipur	0.0	-100	0.0	-100	0.0	-100
Jhalawar	0.0	-100	0.0	-100	0.0	-100
Jhunjhunu	0.0	-100	0.0	-100	0.0	-100
Karauli	0.0	-100	0.0	-100	0.0	-100
Kota	0.0	-100	0.0	-100	0.0	-100
Pratapgarh	0.0	-100	0.0	-100	0.0	-100
Rajsamand	0.0	-100	0.0	-100	0.0	-100

Sawai Madhopur	0.0	-100	0.0	-100	0.0	-100
Sikar	0.0	-100	0.0	-100	0.0	-100
Sirohi	0.0	-100	0.0	-100	0.0	-100
Tonk	0.0	-100	0.0	-100	0.0	-100
Udaipur	0.0	-100	0.0	-100	0.0	-100
<b>West Rajasthan</b>						
Barmer	0.0	-100	0.0	-100	0.0	-100
Bikaner	0.0	-100	0.0	-100	0.0	-100
Churu	0.0	-100	0.0	-100	0.0	-100
Hanumangarh	0.0	-100	0.0	-100	0.0	-100
Jaisalmer	0.0	-100	0.0	-100	0.0	-100
Jalore	0.0	-100	0.0	-100	0.0	-100
Jodhpur	0.0	-100	0.0	-100	0.0	-100
Nagaur	0.0	-100	0.0	-100	0.0	-100
Pali	0.0	-100	0.0	-100	0.0	-100
Sri Ganganagar	0.0	-100	0.0	-100	0.0	-100
<b>Gujarat Region</b>						
Ahmedabad	0.0	-100	0.0	-100	0.0	-100
Anand	0.0	-100	0.0	-100	0.0	-100
Aravalli	0.0	-100	0.0	-100	0.0	-100
Banaskantha	0.0	-100	0.0	-100	0.0	-100
Broach	0.0	-100	0.0	-100	0.0	-100
Chhota Udepur	0.0	-100	0.0	-100	0.0	-100
DNH	**	**	**	**	**	**
Dahod	0.0	-100	0.0	-100	0.0	-100
Daman	**	**	**	**	**	**
Dangs	0.0	-100	0.0	-100	0.0	-100
Gandhinagar	0.0	-100	0.0	-100	0.0	-100
Kheda	0.0	-100	0.0	-100	0.0	-100
Mahisagar	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	0.0	-100	0.0	-100
Vadodara	0.0	-100	0.0	-100	0.0	-100
Valsad	0.0	-100	0.0	-100	0.0	-100
<b>S K &amp; Diu region</b>						
Amreli	0.0	-100	0.0	-100	0.0	-100
Bhavnagar	0.0	-100	0.0	-100	0.0	-100
Botad	0.0	-100	0.0	-100	0.0	-100
Devbhoomi Dwarka	0.0	-100	0.0	-100	0.0	-100
Diu	0.0	-100	0.0	-100	0.0	-100
Gir Somnath	0.0	-100	0.0	-100	0.0	-100
Jamnagar	0.0	-100	0.0	-100	0.0	-100
Junagarh	0.0	-100	0.0	-100	0.0	-100

Kutch	0.0	-100	0.0	-100	0.1	31
Morbi	0.0	-100	0.0	-100	0.0	-100
Porbandar	0.0	-100	0.0	-100	0.0	-100
Rajkot	0.0	-100	0.0	-100	0.0	-100
Surendranagar	0.0	-100	0.0	-100	0.0	-100
<b>Maharashtra</b>						
<b>Konkan &amp; Goa</b>						
Mumbai City	0.0	-100	0.0	-100	0.0	-100
Mumbai Suburban	0.0	-100	0.0	-100	0.0	-100
North Goa	0.2	-67	0.0	-100	0.0	-100
Raigad	0.0	-100	0.0	-100	0.0	-100
Ratnagiri	0.0	-100	0.0	-100	0.0	-100
Sindhudurg	0.0	-100	0.0	-100	0.0	-100
South Goa	0.0	-100	0.0	-100	0.0	-100
Thane	**	**	**	**	**	**
<b>Madhya Maharashtra</b>						
Ahmednagar	0.0	-100	0.0	-100	0.0	-100
Dhule	**	**	**	**	**	**
Jalgaon	0.0	-100	0.0	-100	0.0	-100
Kolhapur	0.0	-100	0.0	-100	0.0	-100
Nandurbar	**	**	**	**	**	**
Nasik	0.0	-100	0.0	-100	0.0	-100
Pune	0.0	-100	0.0	-100	0.0	-100
Sangli	1.0	-100	1.0	-100	1.0	-100
Satara	0.0	-100	0.0	-100	0.0	-100
Solapur	0.0	-100	0.0	-100	0.0	-100
<b>Marathwada</b>						
Aurangabad	0.0	-100	0.0	-100	0.0	-100
Beed	**	**	**	**	**	**
Hingoli	**	**	0.0	-100	0.0	-100
Jalna	0.0	-100	0.0	-100	0.0	-100
Latur	0.0	-100	0.0	-100	0.0	-100
Nanded	0.0	-100	0.0	-100	0.0	-100
Osmanabad	0.0	-100	0.0	-100	0.0	-100
Parbhani	0.0	-100	0.0	-100	0.0	-100
<b>Vidarbha</b>						
Akola	0.0	-100	0.0	-100	0.0	-100
Amraoti	0.0	-100	0.0	-100	0.0	-100
Bhandara	0.0	-100	0.0	-100	0.6	-88
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	2.1	-61
Nagpur	0.0	-100	0.0	-100	0.6	-88
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	6.7	170	0.0	-100
Balasore	0.0	-100	0.6	-62	0.0	-100
Bargarh	0.0	-100	4.9	224	0.0	-100
Bhadrak	0.0	-100	0.0	-100	0.0	-100
Bolangir	0.0	-100	0.0	-100	0.0	-100
Boudh	0.0	-100	0.0	-100	0.0	-100
Cuttack	0.0	-100	0.0	-100	0.0	-100
Deogarh	0.0	-100	0.3	-84	0.0	-100
Dhenkanal	0.0	-100	0.0	-100	0.0	-100
Gajapati	0.0	-100	0.0	-100	0.0	-100
Ganjam	0.0	-100	0.0	-100	0.0	-100
Jagatsingpur	0.0	-100	0.0	-100	0.0	-100
Jajpur	0.0	-100	0.0	-100	0.0	-100
Jharsuguda	0.0	-100	10.7	330	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	1.8	-36	0.0	-100
Khurda	0.0	-100	3.4	9	0.0	-100
Koraput	0.0	-100	0.0	-100	0.0	-100
Malkangiri	0.0	-100	0.0	-100	0.0	-100
Mayurbhanj	0.0	-100	1.3	-33	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	0.0	-100	0.0	-100	0.0	-100
Rayagada	0.0	-100	0.0	-100	0.0	-100
Sambalpur	0.0	-100	15.5	638	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	216.9	416	181.1	484	199.1	466
North & Middle Andaman	10.3	-33	10.6	-42	56.9	262
South Andaman	56.9	298	35.7	64	54.3	231
<b>GWB</b>						
Bankura	0.0	-100	0.0	-100	0.0	-100
Birbhum	0.0	-100	0.0	-100	5.9	56
Burdwan	0.0	-100	0.0	-100	2.0	32
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	3.0	-40
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	0.2	-90	0.0	-100
24 Pargana (S)	0.0	-100	0.0	-100	0.0	-100

West Midnapore	0.0	-100	7.8	116	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	0.4	-95
East Sikkim	0.0	-100	1.7	-49	4.3	85
Jalpaiguri	0.0	-100	1.0	-29	0.0	-100
Malda	0.0	-100	0.0	-100	0.2	-96
North Dinajpur	0.0	-100	0.0	-100	0.0	-100
North Sikkim	0.0	-100	1.6	-85	5.3	-36
South Dinajpur	0.0	-100	0.0	-100	0.0	-100
South Sikkim	0.0	-100	0.0	-100	5.6	143
West Sikkim	**	**	**	**	**	**
<b>Karnataka</b>						
<b>Coastal Karnataka</b>						
Dakshina Kannada	0.0	-100	0.0	-100	0.0	-100
Udupi	0.0	-100	0.0	-100	0.0	-100
Uttara Kannada	0.0	-100	0.0	-100	0.0	-100
<b>NI Karnataka</b>						
Bagalkote	0.0	-100	0.0	-100	0.0	-100
Belagavi	0.0	-100	0.0	-100	0.0	-100
Bidar	0.0	-100	0.0	-100	0.0	-100
Dharwad	0.0	-100	0.0	-100	0.0	-100
Gadag	0.0	-100	0.0	-100	0.0	-100
Haveri	0.0	-100	0.0	-100	0.0	-100
Kalaburgi	0.0	-100	0.0	-100	0.0	-100
Koppal	0.0	-100	0.0	-100	0.0	-100
Raichur	0.0	-100	0.0	-100	0.0	-100
Vijayapura	0.0	-100	0.0	-100	0.0	-100
Yadgir	0.0	-100	0.0	-100	0.0	-100
<b>SI Karnataka</b>						
Ballari	0.0	-100	0.0	-100	0.0	-100
Bangalore Rural	0.0	-100	0.0	-100	0.0	-100
Bangalore Urban	0.0	-100	0.0	-100	0.0	-100
Chamarajanagar	0.0	-100	0.0	-100	0.0	-100
Chikaballapur	0.0	-100	0.0	-100	0.0	-100
Chikkamagaluru	0.0	-100	0.0	-100	0.0	-100
Chitradurga	0.0	-100	0.0	-100	0.0	-100
Davangere	0.0	-100	0.0	-100	0.0	-100
Hassan	0.0	-100	0.0	-100	0.0	-100
Kodagu	0.0	-100	0.0	-100	0.0	-100
Kolar	0.0	-100	0.0	-100	0.0	-100
Mandya	0.0	-100	0.0	-100	0.0	-100
Mysuru	0.0	-100	0.0	-100	0.0	-100
Ramanagara	0.0	-100	0.0	-100	0.0	-100
Shivamogga	0.0	-100	0.0	-100	0.0	-100
Tumakuru	0.0	-100	0.0	-100	0.0	-100
<b>Kerala</b>						
Alappuzha	0.5	-91	0.0	-100	0.0	-100
Kannur	0.0	-100	0.0	-100	0.0	-100

Ernakulam	0.0	-100	0.0	-100	0.0	-100
Idukki	0.5	-91	1.8	-51	0.0	-100
Kasaragod	0.0	-100	0.0	-100	0.0	-100
Kollam	0.3	-95	0.0	-100	0.0	-100
Kottayam	0.0	-100	0.0	-100	0.0	-100
Kozhikode	0.0	-100	0.0	-100	0.0	-100
Malappuram	0.0	-100	0.0	-100	0.0	-100
Palakkad	0.0	-100	0.0	-100	0.0	-100
Pathanamthitta	0.0	-100	0.0	-100	0.0	-100
Thiruvananthapuram	0.0	-100	6.0	1	0.1	-98
Thrissur	0.0	-100	0.0	-100	0.0	-100
Wyand	0.0	-100	0.0	-100	0.0	-100
<b>Tamil Nadu</b>						
Ariyalur	0.6	-98	6.5	-17	0.0	-100
Chennai	0.0	-100	0.5	-95	0.0	-100
Coimbatore	0.0	-100	0.0	-100	0.0	-100
Cuddalore	0.5	-98	0.0	-100	0.0	-100
Dharmapuri	0.0	-100	0.0	-100	0.0	-100
Dindigul	2.0	-88	4.5	-12	0.0	-100
Erode	0.0	-100	0.0	-100	0.0	-100
Kanchipuram	0.0	-100	0.6	-91	0.0	-100
Kanyakumari	0.2	-98	0.6	-91	0.2	-96
Karaikal	35.9	-49	0.8	-96	0.0	-100
Karur	0.0	-100	1.3	-52	0.0	-100
Krishnagiri	0.0	-100	0.0	-100	0.0	-100
Madurai	1.1	-92	1.5	-65	0.0	-100
Nagapattinam	16.6	-72	5.8	-71	0.0	-100
Namakkal	0.0	-100	0.0	-100	0.0	-100
Nilgiris	0.0	-100	0.0	-100	0.0	-100
Perambalur	0.0	-100	0.0	-100	0.0	-100
Puducherry	0.0	-100	0.0	-100	0.0	-100
Pudukottai	10.0	-46	7.7	38	0.0	-100
Ramanathapuram	12.4	-50	0.8	-92	0.0	-100
Salem	0.0	-100	0.0	-100	0.0	-100
Sivaganga	1.5	-93	1.8	-67	0.0	-100
Thanjavur	13.5	-54	14.6	100	0.0	-100
Theni	0.6	-92	1.6	-57	0.0	-100
Tirunelveli	0.7	-96	10.0	-23	0.0	-100
Tirupur	0.2	-98	0.0	-100	0.0	-100
Tiruvallur	0.0	-100	0.1	-99	0.0	-100
Tiruvannamalai	0.0	-100	0.0	-100	0.0	-100
Tiruvarur	31.1	-29	18.4	47	0.0	-100
Toothukudi	1.2	-92	1.0	-87	0.0	-100
Trichy	3.1	-80	2.5	-39	0.0	-100
Vellore	0.0	-100	0.0	-100	0.0	-100
Villupuram	0.0	-100	0.0	-100	0.0	-100
Virudhunagar	0.1	-99	0.0	-100	0.0	-100
<b>Andhra Pradesh</b>						

<b>Coastal Andhra Pradesh</b>						
East Godavari	0.0	-100	0.0	-100	0.0	-100
Guntur	0.0	-100	0.0	-100	0.0	-100
Krishna	0.0	-100	0.0	-100	0.0	-100
Nellore	0.0	-100	0.0	-100	0.0	-100
Prakasam	0.0	-100	0.0	-100	0.0	-100
Sirkakulam	0.0	-100	0.0	-100	0.0	-100
Visakhapatnam	0.0	-100	0.0	-100	0.0	-100
Vizianagram	0.0	-100	0.0	-100	0.0	-100
West Godavari	0.0	-100	0.0	-100	0.0	-100
<b>Rayalaseema</b>						
Anantapur	0.0	-100	0.0	-100	0.0	-100
Chittoor	0.0	-100	0.0	-100	0.0	-100
Cuddapah	0.0	-100	0.0	-100	0.0	-100
Kurnool	0.0	-100	0.0	-100	0.0	-100
<b>Telangana</b>						
Adilabad	0.0	-100	0.0	-100	0.0	-100
Hyderabad	0.0	-100	0.0	-100	0.0	-100
Karimnagar	0.0	-100	0.0	-100	0.0	-100
Khammam	0.0	-100	0.0	-100	0.0	-100
Mehabubnagar	0.0	-100	0.0	-100	0.0	-100
Medak	0.0	-100	0.0	-100	0.0	-100
Nalgonda	0.0	-100	0.0	-100	0.0	-100
Nizamabad	0.0	-100	0.0	-100	0.0	-100
Rangareddy	0.0	-100	0.0	-100	0.0	-100
Warangal	0.0	-100	0.0	-100	0.0	-100

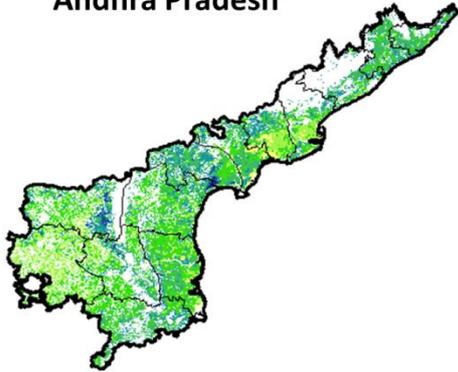
Legends

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

Annexure II

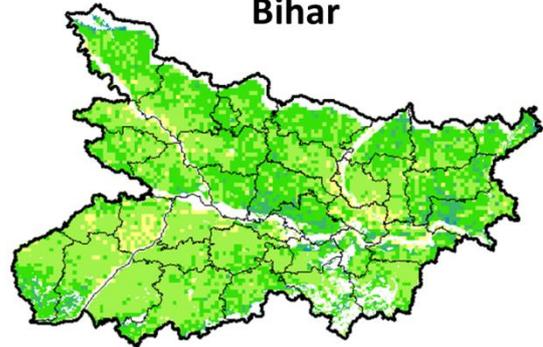
**NOAA/AVHRR NDVI COMPOSITE MAPS FOR THE WEEK ENDING ON  
12<sup>th</sup> January 2017 FOR DIFFERENT STATES**

**Andhra Pradesh**



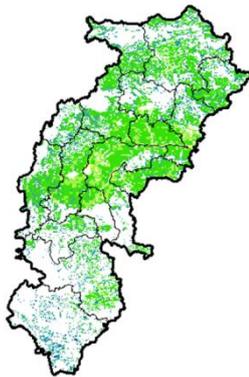
Agriculture vigour is moderate over southern and patches in costal part whereas, patches in central region and Rayalseema show good to very good NDVI in the state of Andhra Pradesh.

**Bihar**



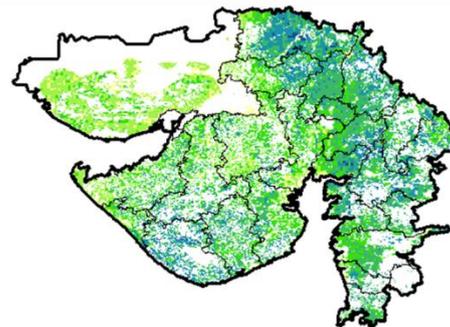
Agriculture vigour is moderate over entire state of Bihar.

**Chhattisgarh**



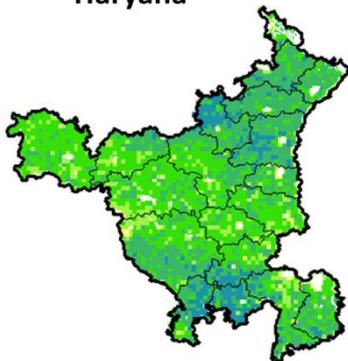
Agriculture vigour is good in southern region whereas, moderate vigour is seen in central and northern region of Chhattisgarh.

**Gujarat**



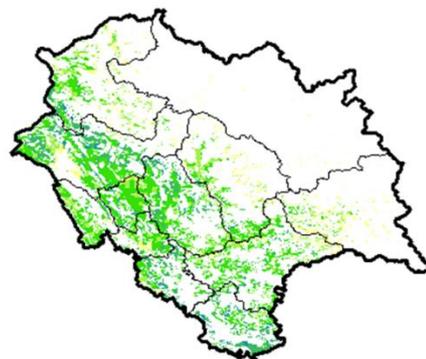
Moderate NDVI values are observed in patches in Kutch whereas, good to very good NDVI is observed in patches in Saurashtra and Gujarat.

**Haryana**



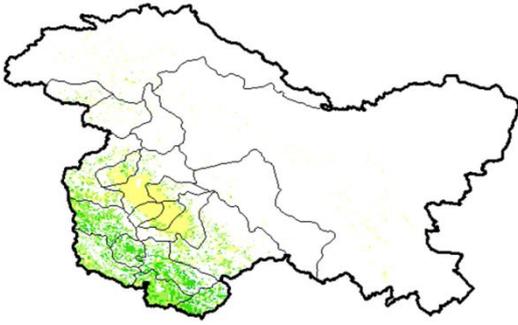
Moderate agriculture vigour is observed over entire state of Haryana, good vigour is seen in patches in north and south part of Haryana.

**Himachal Pradesh**



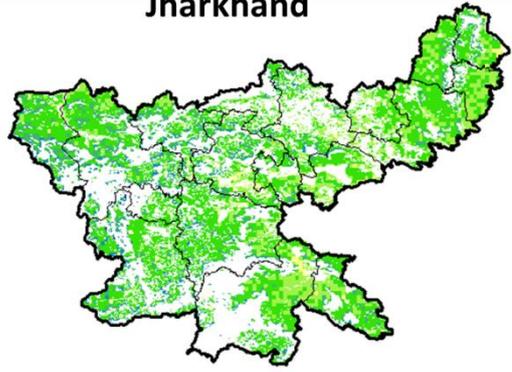
Agriculture vigour is moderate to good in few patches of Himachal Pradesh.

### Jammu & Kashmir



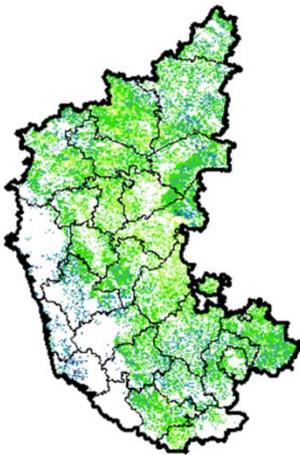
Agriculture vigour is moderate over entire state of Jammu & Kashmir.

### Jharkhand



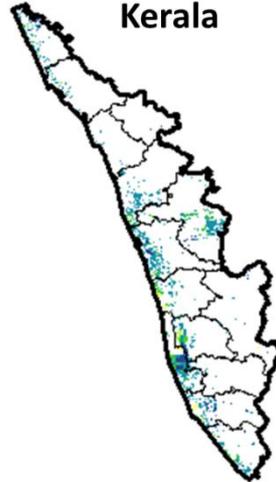
Agriculture vigour is good over patches in western region of Jharkhand whereas, remaining states shows moderate NDVI values.

### Karnataka



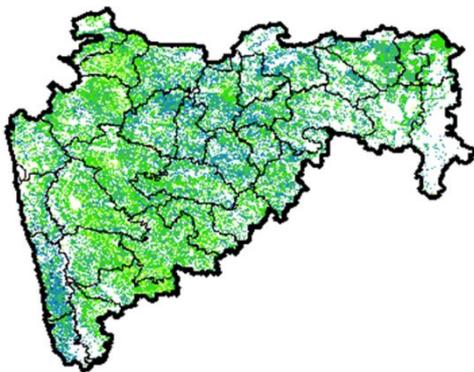
Agriculture vigour good in patches over southern and northern region of the state whereas rest of the state shows moderate vigour.

### Kerala



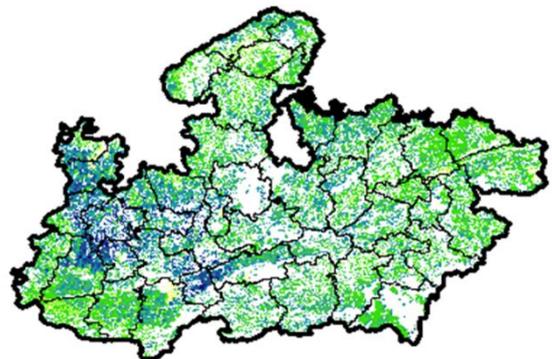
Agriculture vigour is good over entire state of Kerala except central part which shows moderate NDVI values.

### Maharashtra



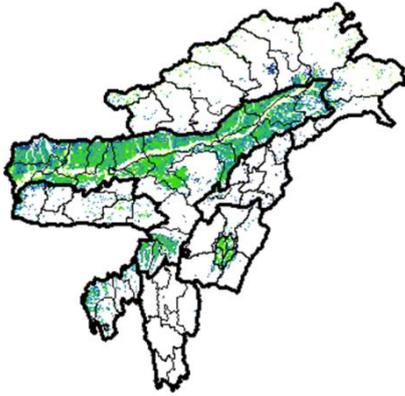
Agricultural vigour is moderate over central Maharashtra and eastern part of Vidharbha whereas, good to very good vigour is observed in the north, Konkan and eastern regions.

### Madhya Pradesh



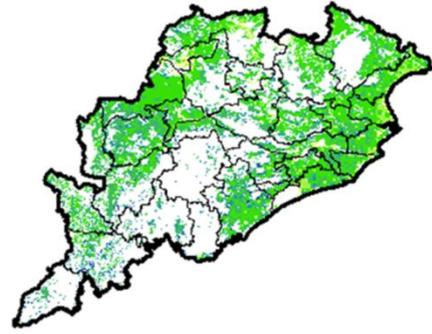
Agriculture vigour is good to very good over patches in western and central region of the state of Madhya Pradesh whereas, rest of the state shows moderate vigour.

### North East Region



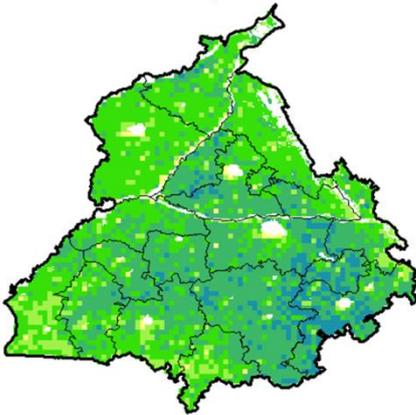
Agriculture vigour is good & very good over north-east states of country, whereas few patches in Assam show moderate vigour.

### Odisha



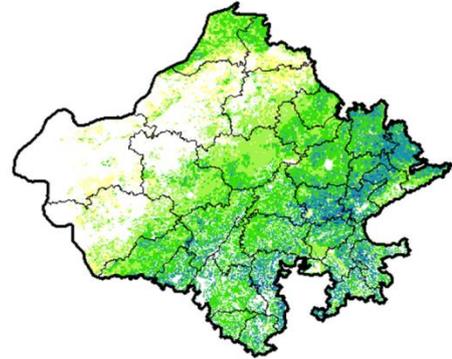
Agriculture vigour is good over many patches over of Odisha whereas, moderate vigour is observed over the entire state.

### Punjab



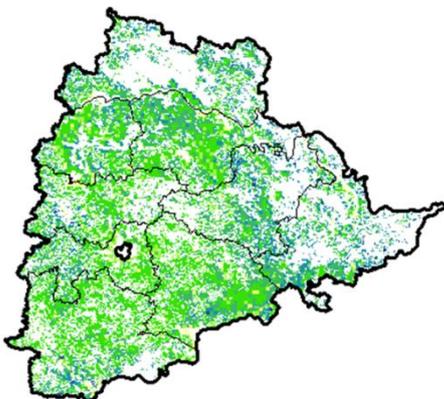
Agriculture vigour is good in patches over central and southern parts of Punjab, whereas rest of the state shows moderate vigour.

### Rajasthan



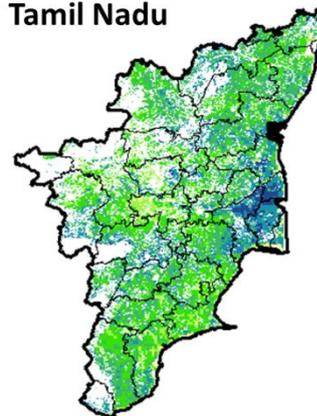
Agriculture vigour is good to very good over eastern and southern Rajasthan whereas, moderate vigour is observed over rest of the region.

### Telangana

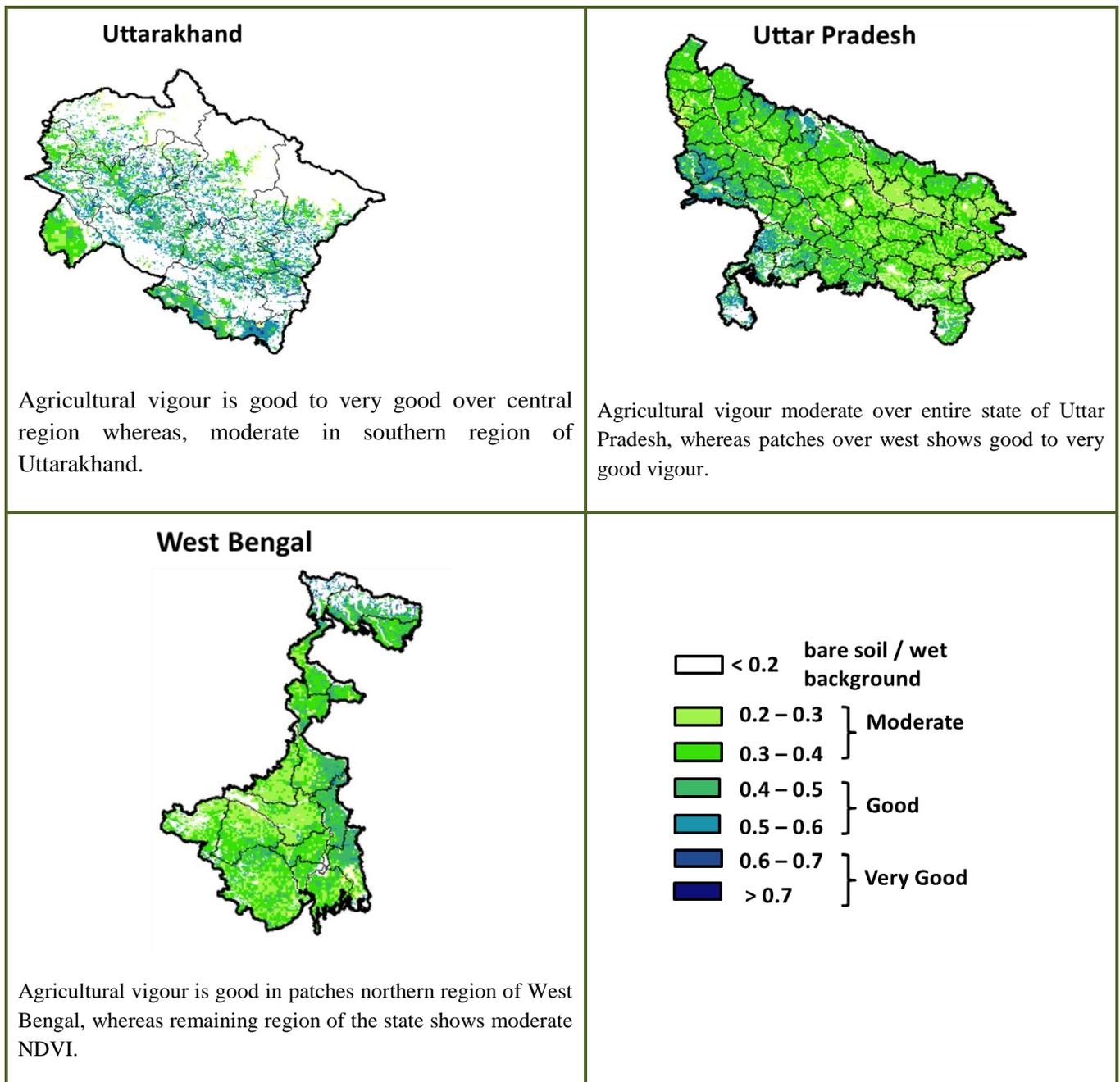


Agriculture vigour is good to very good over northern and eastern region of Telangana whereas, moderate vigour is observed in southern and central region.

### Tamil Nadu



Agriculture vigour is moderate over most region of Tamil Nadu, whereas northern and patches in central region shows good to very good NDVI.



\* For New Delhi NOAA/AVHRR NDVI COMPOSITE Map is not available due to some problem in data set.

### Annexure III

- Assam**
- Winter brinjal:** Pusa Kranti, Pusa Purple Long, Pusa Purple Round, Pusa Vairab, Pant Samra.
- Tomato :** Punjab Chhuhara, 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.
- Onion :** Pusa Red, Pusa Ratnar, Pusa white (Round), Pusa white (Flat), N-53, Agrifound Light Red, Punjab Red Round, Pusa Madhuri, Arka Niketan.
- Cauliflower :** Early Kunwari, Pusa Katki and Pusa Deepali (for early maturity).  
Improved Japanese, Pusa Synthetic, Pusa Snowhall (for mid maturity).  
Snowball-16, Pusa Snowball, K-1 and Hissar 1 (for late maturity)etc.
- Cabbage :** Golden Acre, Pride of India, Pusa Mukta (Sel – 8) (for early maturity).  
Drum Head and Eclipse Drum Head (for late maturity).
- Knol-Khol :** White Vienna (for early maturity).  
Purple Viena (for late maturity).
- Odisha:**
- Green pea:** Rachana, Arkel. and T -163.
- Mustard:** Parbhathi, Anuradha, TS-29 & M-27.
- Garlic:** Phawari, Rajalbadi, Jamnagar and G-282

**Potato:** Kufri Chandramukhi, Kufri Chamatkar, Kufri Jyoti, Kufri Sinduri and Kufri Alankar, etc  
**Greengram-** TARM1, OUM11-5, Hum-1  
**Blackgram-**PU-19, LBG-17  
**Gram-**Radhey, Annegiri, Sweta, Bharati, JG 11  
**Groundnut:**are Smruti, AK 12-24, JL-24.

### Bihar

**Pigeon pea:** Bahar, Pusa-9, Narendra Arher-1, Rajendra Arher-1 and Maalvia-13.  
**Sesame:** Kanak, kalika, Uma, Usha, Tilottama, Neelima and Prachi  
**Green gram:** K -851, PDM -54, PDM -11, OUM 11-5  
**Balck gram:** T-9, Pant-U-19. Pant –U-30, Pant –U-11  
**Niger:** Deomali  
**Horsegram :** Urmi, DS 1-2-2, DS 1-2  
**Barseem:** Pusa Vikash, Bundel and of Jai- Kent.  
**Garlic:** Jamuna Safed-2(G-50), Jamuna Safed-3(G-282), and Jamuna Safed-4 (G-323), G-1 and G-41(Agri found safed).  
**Rai:** Baruna, Pusa bold, Kranti, Pusa mahak and Rajendra suflam.  
**Coriander:**Rajendra swati, Pant haritima, Kumarganj selection and Hisar anand.  
**Lentil:** Mallika (K-75), Arun (PL77-12), KLS-218, HUL-57, PL-5.

### Jharkhand

**Mustard:** Shivani, Varuna, Pusa bold, Kranti, Pusa jaikisan , Vardan etc.  
**Potato:** Kufri Ashoka, Kufri Pukhraj, Kufri Lalima, Kufri Pushkar and Kufri Kanchan.  
**Toria:** BR-23,T.-9, P.T. 303, Panchali and Bhavani.  
**Gram:** KAK-2, ICCC-2, HK94-134(Kabuli) and Pusa 256, Pusa 372, Pant G-114, KWR 108, ICCC 37.  
**Lentil:**P.L.- 406, P.L.-639, D.P.L.-15, D.P.I.- 62 etc.  
**Green pea:** Arkel or Azad pea.  
**Wheat:** HDR-77, K-8027, C-306, Birsa genhu – 3 etc. HDR-77, K-8027, C-306, Birsa genhu – 3 etc.  
**Linseed:**Sweta, Shubhra, T-397 etc.

### West Bengal

**Coconut:** Eastcoastal, Hazari  
**Banana:**Mortoman, Chapa, Kathali, Singapuri,  
**Mustard:**Varuna, Sita and Bhagirathi.  
**Jute :** Chaitali, Basudev, Naveen, Sonali, Sobujsona, Shyamali etc.  
**Cabbage :**Pride of India, Pusa early, Kranti.  
**Cauliflower :** Jawhar moti, Bharat Jyoti, Early banaras.  
**Potato :** Ashoka, Chipsona 1,2, Kufri Jyoti, Kufri Alankar  
**Mustard:** Agrani(B-54), Panchali (T.W.C.-3), B-9, Rai-5 and Bhagirothi (R.W.-351)

### Uttarakhand

**Wheat:**HS-562, VL-616, VL-829, VL-802, VL-802  
**Onion:**VL-Pyaj-3,Nasik Red,Pusa Red  
**Pea:** Vivek 10,Vivek 11,Pant 3,  
**Radish:**Meenu early, Japanese white, PusaHimani.  
**Carrot:**PusaVrishi,  
**Rai:**Varuna, Rohini, Krishna, Kanti, Vardan, Vaibhav, Basanti, Narendra, Early rai-4, Urvashi and varieties  
**Yellow Mustard:** Ragini, Binoy (B-9), Pant peeli Sarso-1.  
**Mentha:** Koshi, Saksham, Kushal, Himalaya, Saryu, Sim kranti .

### Jammu and Kashmir

**Wheat:** PBW-175, PBW-396, RSP-81(Jitto).  
**Pea:** AP-1, Bonnevillea, Rachna and Arkel  
**Chickpea:** K-468, Gourav  
**Lentil:** L-4147, L-9/12,PL-406.  
**Berseem:**Vardan, mascavi, pusa giant, BL-1  
**Potato:** Kufri Badshah, K.Sinduri, K.Chipsona & K.Sona  
**Gram:** C-235,Gaurav,K-468,SCS-3,PBG-1  
**Toria:** RSPT-1 and RSPT-2

### Himachal Pradesh

**Cauliflower:** snowball and Giant snowball.  
**Radish:**Japanese white, Chinese pink and mino early white  
**Turnip:** PTWG-1  
**Carrot:**Pusakesar  
**Peas :**Mater ageta-6 (early variety).  
**Cabbage:**Pride of India, golden achor and hybrid

### East Uttar Pradesh

**Wheat:** PVW-343, UP-2338, WH-542, K-9107, K-9006, HP-1731, NW-1012, UP-2382, HUW-468, PVW-443, HD-2733, HD-2824, K-307, K-9423, NW-1067, KRL-210, KRL-213, PBW-323, CBW-38, DBW-39, UP2332 and HUW510, C-306, K-65,78,8027 and HUW-533.

**Mustard:** varuna, Rohini, kranti, krushna, vardan, vaibhav, narendra rai (8501).

**Onion:** Kalyanpur Lal gol, Pusa ratnakar, Agrifound lite red, bargandi, KP, Orient, Rosi.

**Jou:** Azad, K-141/11.

**Turmeric:** Kasturi, Paspu, Amlapuram, Madhukar, Sugna, Rajendra

**Ginger** -suprabha, suruchi, surbhi and Himgiri

**Moong:** Type-27, 56

**Potato:** Kufri Ashoka, Kufri Chandramukhi and Kufri Jawahar (Improved varieties of potato) Kufri Badshah, Kufri Satlaj, Kufri Khalima (inferior varieties), Kufri Ashoka, Kufri Chandramukhi, Kufri sadabahar.

**Gram:** JCP-105, K-850, Pusa-256, Avrodhi, Pusa-256, KWR-108, DCP-92-3, KDG-1168, K-850, and Kabuli chana: HK-94-134. Mustard: Narendra ageti, rai-4, Varuna (T59), Basti (Pili), rohini, Maya, Narendra swarna-rai-8(pili), Narendra rai (NDR-8501), vaibhav.

**Kabuli gram:** chamatkar, Puse-1003, Subhra as good varieties.

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

**Radish:** kalyanpur No.1, Pusa Rashmi, Hisar selection-1, Japani Safed, pusa Chetaki, Pusa Himani, Pusa deshi, Arka Nishant and Jaunpuri.

**Cabbage:** Pusa snowball, Pusa snowball II, Snowball 16 and Pusa snowball K1

### West Uttar Pradesh

**Wheat:** magahar, mandakini, C-306, Loak-1, k-9465, and kathia meghdoot, H.D. 2687, H.D. 2851, H.D. 2894, H.D. 2967, H.D. 3086, D.B.W.-17.

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

**Baby corn:** M.H.-4.

**Mustard:** Urvashi, Rohini, Maya, Giriraj, Vardan, Vaibhav

**Linseed:** Parvati, sharda, Padmini

**Vegetable pea:** Azad-3, Aakril

**Gram:** Zaki-9218, KGD-1168, KWR-108, Uday

**Pea:** KPRM-522, KPRM-400, Vikas, Prakash

**Lentil:** DPL-62, Malika

**Potato:** Kufri Badshah, Kufri Bahar, Kufri Aanand, Chipsona-1, Chipsona-2, Chipsona-3.

### Punjab

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

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

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

**Turnip:** L-1.

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

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

**Okra:** Punjab-8 and Punjab-7

**Cauliflower:** Pusa Snow Ball-1, Pusa Snow Ball K-1

**Wheat:** PBW 725, PBW 677, HD-3086, WH 1105, PBW 621, HD 2967.

**Kabuli gram:** L 552, L 550 & BG-1053.

**Raya:** RLC3, PBR 357, PBR 210, RLC-1, RLM-619, PBR-91

**Gram:** C 235, HC 5

un-irrigated/rainfed (HC 1)

### Delhi

**Wheat:** H.D. 2687, H.D. 2851, H.D. 2894, H.D. 2967, H.D. 3086, D.B.W.-17

**Gram:** Kabuli type - Pusa 267, Pusa 1003, Pusa Chamatkar; local type - C235, Pusa 246, P.B.G. 1, Pusa 372.

**Pea:** Pusa Pragati, Arkel, Azad Matar-3, Pant Matar-3 and Bournville.

**Potato:** Kufri Badshah, Kufri Bahar, Kufri Aanand, Chipsona-1, Chipsona-2, Chipsona-3.

### East Rajasthan:

**Wheat:** Raj-1555, Raj-3765, Lok-1, WH-147, GW-190, GW-322 and GW-273. The suitable varieties for unirrigated wheat are HI-1500 and HI-1531. Raj-4037, Raj-3777, Raj-4120, Raj-4037, Raj-4069, Raj-4238 and MP-3288.

**Barley:** RD-2552, RD-2052, RD-2035, RD-2503, RD-2715, RD-2660, RD-2508 and Jyoti, RD 2668

**Gram:** RSG 44, Dahod yellow, GNG 16, ICCV 10, RSG 888, GNG 469 and Pratap chana 1, RSG-895, RSG-973, RSG-896, RSG-902, RSG-991 and GNG-1581

**Lentil:** T 36, BL 406, Sihore 74-7 and K 75

**Sorghum:** CSH-6, CSH-9, CSV-10, CSV-15, TG37-A, DH-86, Pratap Mungfali-1.

**Maize:** Aravali Makka-1, Pratap Makka-1, Pratap Makka-5, Pratap Hybrid Maize-1, Pratap Hybrid Maize-2 and bio-9637, Hybrid varieties are Mahi Dhawal, PEHM- 2, Pratap Hybrid Maize-1, Pratap Makka-3, Pratap Makka-5, Bio-9637, Bio-9681, Pratap HQPM-1, Pratap Hybrid Maize-3, Pratap Makka-9, Ageti-76, Bassi Selected, Mahi Kanchan

**Greengram:** RMG-62, RMG-268. RMG-492 & RMG-344, IPM-02-3.

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

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

**Carrot:** PusaKeshar is improved variety.

**Mustard:** Pusa jai kisan, RH-30, Pusa bold, Laxmi, kranti, Pusa Jai Kisan, PR-15 (Kranti), Vashundra, RRN 573, RGN-73, Bio-902 (Pusa Jaikisan), Aashirwad, RH-9304 (Vasundhara), RH-9802 (Swarn Jyoti), RH-8812 (Laxmi).

**Radish:** Japanese white & hill queen.

### West Rajasthan

**Wheat:** Raj-3077, Raj-3777, Raj-4037, Raj-1482, WH-147 and Loak-1.

**Jou:** RD-2052, RD-2035, RD-57, RD-31, and Bilada-2, RD-2660, RD-2552, RD-2592 or Mald varieties RD-2503, DWRUB-52 (timely sowing) or DWRUB-64 (late sowing)

**Cumin:** RZ-19, RZ-209, GG-4, RZ-223.

**Fenugreek :** RMt 1 & RMt305.

**Bhindi:** Ark Anamika, varshauphar, Parbhanikranti, pusamakhmali.

**Groundnut:** HNG-123, HNG-69, ICHG-00440, HNG-10, TG-37 A, Girnar-2, R.G.-425, GG-20, TG-39.

**Gram:** c-235, RSG-44, GNG-663( vardan), RSG-888, GNG-469( samrat), GNG\_1581(gangour), for kabulichana-GNG-1499(gouri) and GNG-1292

**Mustard:** RGN-13, RGN-73, Laxmi, Pusa bold, RGN-298, RGN-229, RGN-48, barni (timely sowing) RGN-145, RGN-236 ( for late sowing), Bio-902, T-59, Pusa bold, Arawali and RGN-48,

**Radish:** Japanese white & hill queen.

**Garlic:** lava, maleva

**Onion:** Pusa red, Nasik red, Udaipur-102, pusa white flate

### Madhya Pradesh

**Wheat:** (Irrigated- JW 1203, 1215, HI 1544).

Non irrigated- JW 3288, 3173. HI-1500, HI- 1531, HW-2004, JWS-17.

**Gram:** JG 130, JG 218, JG 11, JG 16, JG 6, JG 315, RVJ 202, JAKI-92-18, RVG-201, RVG-203.

**Garlic:** G 282, 223.

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

**Mustard:** Pusa Jaikisan, RH-749, RH-406, IJ-31, NRCHB-101, RVM- 1, RVM-2.

### Chhattisgarh

**Mustard:** Shiwani, Varuna, Pusa Bold, BR-40. Mustard.

**Wheat:** Lok-1, W.H. 147, Kanchan & Raj, C 308, Sujata, H.W. 2004, Ratan, H.I.-8627 & H.I. 1531.

**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.

**Sugarcane:** CO 86032, CO 419, CO 1305, CO J 86-141, CO 6304, CO 8338, CO 6217, CO 775, CO J 2087.

### Gujarat

**Watermelon:** Sugar Bebi, Ashahi Pameto, Madhu, Jyoti, Pusa Bedana (Seedless).

### Karnataka

**Sugarcane:** CO-86032, 740, 671.

### Andhra Pradesh

**Sorghum:** CSH-9, CSH-13, CSH-14, PSV-15, PSV-19

**Green gram:** LGG 407 LGG 450 LGG 460 MGG 295 ML 267, LGG 410, TM 96-2.

**Field bean:** TFB-1 TFB-5

**black gram:** LBG-752, LBG-20, T-9, LBG-623, PU-31, LB-402, LBG-709 and LBG-787.

**Bengal gram:** JG-11, LBEG-7, JG-130. Nadyal-1 and swetha.

### Telangana

**Cotton:** American Cotton varieties, Desi Cotton varieties (G. arboreum. L and G. herbaceum. L, Intra/Inter – specific Cotton hybrids, Bt. cotton.