



National Agromet Advisory Service Bulletin



Friday 23rd December 2016

(For the period 23rd to 27th December 2016)



Issued by

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

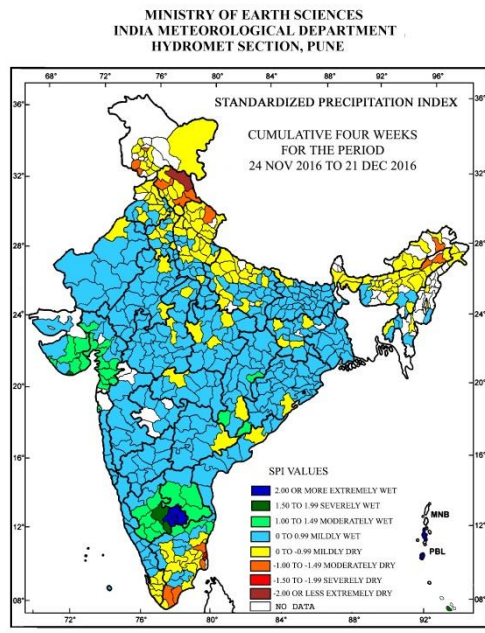
Weblink For

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

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

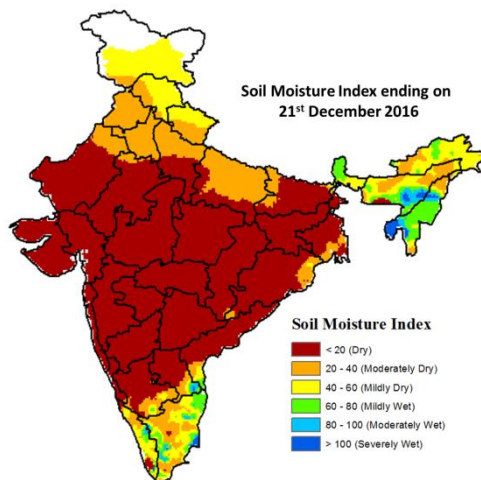
Northeast Monsoon watch: Northeast monsoon is weak over south peninsular India during past 24 hours.

Standardised Precipitation Index Four Weekly for the period 24th Novemberto 21st December 2016



- Extremely/severely wet conditions experienced in most districts of Andaman & Nicobar Islands; Diu district of Saurashtra, Kutch & Diu; Bangalore Rural, Bangalore Urban, Kolar, Tumkur, Ramanagara, Chickballapur districts of Karnataka.
- Extremely/Severely dry conditions experienced in Lahaul & Spiti district of Himachal Pradesh; Nagapattinam, Karaikal districts of Tamil Nadu & Puducherry.
- Moderately dry conditions experienced in few districts of Himachal Pradesh; East Siang district of Arunachal Pradesh; Lakhimpur, Dibrugarh, districts of Assam; Chamoli district of Uttarakhand; Jammu, Srinagar, Rajouri, districts of Jammu & Kashmir; Cuddalore, Tirunelveli, Tiruvarur, Toothukudi districts of Tamil Nadu & Puducherry.
- Rest of the country experienced moderately wet/mildly dry/mildly wet conditions.

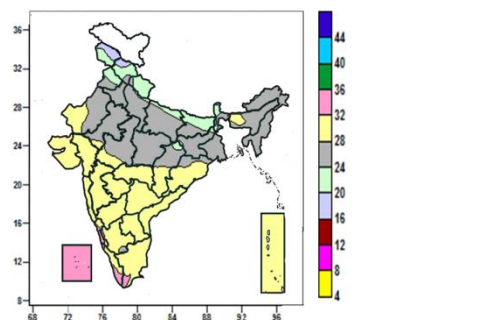
Soil Moisture Index for the week ending on 21st December 2016



- Soil moisture indicates severely and moderately wet condition in some parts of Kerala, Rayalseema, North-East Region, and Tamil Nadu. Mild wet condition in some parts of North-East Region and Kerala, Tamil Nadu, South Interior Karnataka and Rayalseema. Mild dry in many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand and some parts of Rayalseema, North-East Region, Odisha, Kerala and Tamil Nadu. Rest of the country shows Moderate dry and dry condition.

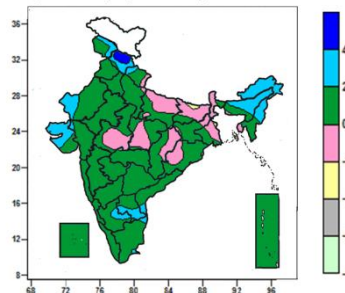
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 21.12.2016

Actual Mean Maximum Temperature (°C) in India for the week ending 21.12.2016



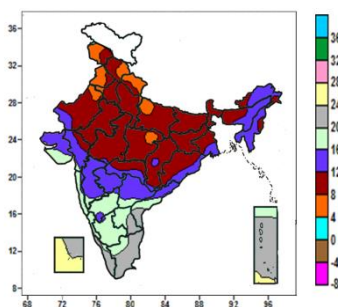
- Mean maximum temperature was between 32 to 36⁰C over Lakshadweep, some parts of Coastal Karnataka, Kerala, Tamil Nadu and isolated pocket of South Interior Karnataka.
- Mean maximum temperature was between 24 to 32⁰C over rest of the Country except over Jammu & Kashmir, Sikkim, many parts of Himachal Pradesh, Uttarakhand, Bihar, Punjab, some parts of East Uttar Pradesh and isolated pockets of West Uttar Pradesh, Sub Himalayan West Bengal, Jharkhand and Chhattisgarh where it was between 16 to 24⁰C.

Mean Maximum Temperature (°C) Anomaly in India for the week ending 21.12.2016



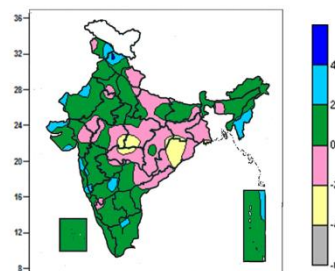
- Mean maximum temperature was above normal by 4 to 6⁰C over some parts of Himachal Pradesh.
- Mean maximum temperature was above normal by 2 to 4⁰C over Arunachal Pradesh, Nagaland, many parts of Himachal Pradesh, Assam, Manipur, Saurashtra & Kutch, some parts of Jammu & Kashmir, Uttarakhand, West Rajasthan, South Interior Karnataka, Rayalaseema and isolated pockets of Gujarat Region, Coastal Andhra Pradesh and Tamil Nadu.
- It was normal to near normal over rest of the country except over isolated pocket of Bihar and Gangetic West Bengal where it was below normal by 2 to 4⁰C.

Actual Mean Minimum Temperature (°C) in India for the week ending 21.12.2016



- Mean minimum temperature was between 0 to 4⁰C over isolated pocket of Jammu & Kashmir.
- Mean minimum temperature was between 4 to 8⁰C over many parts of Jammu & Kashmir, Uttarakhand, Punjab some parts of Himachal Pradesh and isolated pockets of Haryana & Delhi, East & West Uttar Pradesh, West Rajasthan and East Madhya Pradesh.
- Mean minimum temperature was between 8 to 12⁰C over Bihar, Sub Himalayan West Bengal & Sikkim, East Rajasthan, Jharkhand, many parts of Himachal Pradesh, Haryana & Delhi, Uttar Pradesh, Gangetic West Bengal, West Rajasthan, East Madhya Pradesh, Chhattisgarh, Odisha, Vidarbha, some parts of Jammu & Kashmir, Uttarakhand, Punjab, Arunachal Pradesh, Assam, Manipur, Gujarat Region and isolated pocket

Mean Minimum Temperature (°C) Anomaly in India for the week ending 21.12.2016



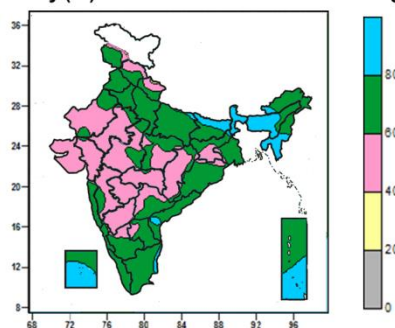
- Mean minimum temperature was above normal by 4 to 6⁰C over isolated pocket of Himachal Pradesh.
- Mean minimum temperature was above normal by 2 to 4⁰C over Mizoram, many parts of Manipur, some parts of Jammu & Kashmir, Himachal Pradesh, Saurashtra & Kutch, Konkan & Goa, North Interior Karnataka and isolated pockets of Meghalaya, Nagaland, West Rajasthan, Madhya Maharashtra, Tamil Nadu and Andaman & Nicobar Islands.
- Mean minimum temperature was normal to near normal over rest of the country except over some parts of Madhya Pradesh, Vidarbha, Odisha and isolated pockets of Jharkhand, Chhattisgarh and Gangetic West Bengal where it was below normal by 2 to 4⁰C.

of Nagaland.

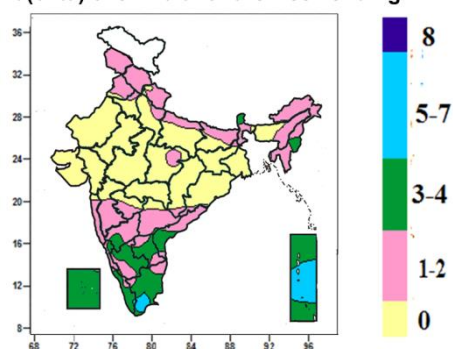
- Mean minimum temperature was between 12 to 16⁰C over Meghalaya, Mizoram, Tripura, many parts of Arunachal Pradesh, Assam, Nagaland, Manipur, Gujarat, Madhya Maharashtra, Marathwada, Telangana, some parts of Gangetic West Bengal, Odisha, Coastal Andhra Pradesh and isolated pockets of Konkan, Interior Karnataka and Chhattisgarh.
- Mean minimum temperature was between 16 to 24⁰C over rest of the country except over many parts of Lakshadweep and isolated pockets of Andaman & Nicobar Islands where it was between 24 to 28⁰C.

Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 21.12.2016

Relative Humidity (%) over India for the week ending 21.12.2016



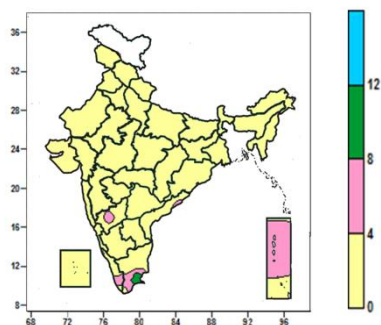
Cloud amount (okta) over India for the week ending 21.12.2016



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

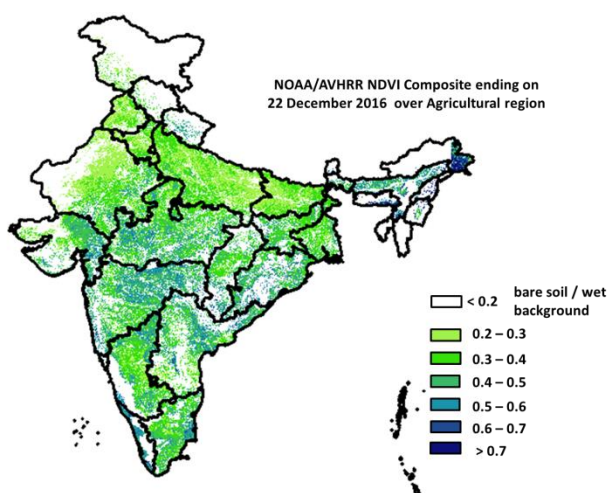
- Sky remained generally cloudy (5-7okta) over some parts of Tamil Nadu and Andaman & Nicobar Islands and isolated pocket of Kerala.
- Sky remained generally partly cloudy (3-4 okta) over many parts of Sikkim, Manipur, South Interior Karnataka, Rayalaseema, Kerala, Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands, some parts of Coastal Karnataka, North Interior Karnataka, Coastal Andhra Pradesh and isolated pockets of Telangana.
- 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 21.12.2016



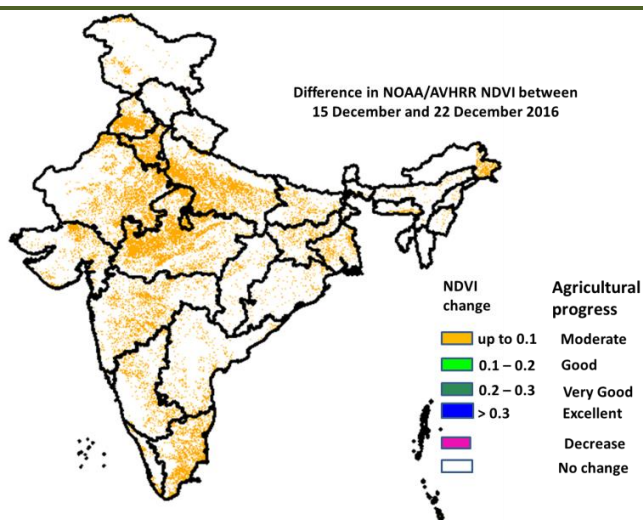
- Mean wind speed was between 8 to 12 knots over isolated pockets of Tamil Nadu.
- Mean wind speed was between 0 to 4 knots over the country except many parts of Andaman & Nicobar Islands, some parts of Kerala, Tamil Nadu and isolated pockets of North Interior Karnataka and Coastal Andhra Pradesh where it was between 4 to 8 knots.

NOAA/AVHRR NDVI composite ending on 22nd December 2016 over Agricultural region of India



- Agricultural vigour is good in East M.P, Odisha, Vidharbha region, patches in north Karnataka, Kerala, Telangana, North Andhra Pradesh, Gujarat and North-east where NDVI value varies from 0.5 to 0.7. NDVI is moderate in Rajasthan, Punjab, Haryana, west MP, UP, Madhya Maharashtra, southern region of Andhra Pradesh, Karnataka and Tamil Nadu (NDVI 0.2 to 0.5).

Difference in NOAA/AVHRR NDVI between 15th December and 22nd December 2016



- Moderate progress in NDVI was observed in Punjab, Haryana, west and central MP, east Rajasthan, south UP, patches in Bihar, West Bengal and patches in Maharashtra, Gujarat, and patches in Karnataka, Kerala and Tamil Nadu.

- NOAA/AVHRR NDVI composite maps for the week ending on 21st December 2016 for different States are given in Annexure II.

Weather Forecast for next 5 days valid upto 0830 hours of 28th December 2016

- Fog / dense fog very likely at a few places over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh and Bihar during next 4-5 days. Moderate to dense fog very likely over Sub Himalayan West Bengal & Sikkim during next 3 days. Shallow to moderate fog very likely at isolated places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 2 days.
- Minimum temperature very likely to fall by 1-2°C over North Interior Karnataka, Telangana, Rayalaseema and north Tamilnadu during next 24 hours and no significant change thereafter. No significant change over rest of the country during next 3 days.

5 Day Rainfall Forecast (Mid day) 23rd December 2016

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

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

Weather Warning during next 5 days

➤ **23 December (Day 1):**

- Dense fog at a few places with very dense at isolated places very likely over Uttar Pradesh.
- Dense fog at isolated places very likely over Punjab, Haryana, Chandigarh & Delhi and Bihar.
- Cold wave conditions very likely to prevail at isolated places over interior Odisha.

➤ **24 December (Day 2):**

- Dense fog at a few places with very dense at isolated places very likely over Uttar Pradesh.
- Dense fog at a few places over Haryana, Chandigarh & Delhi and at isolated places over Punjab, north Rajasthan and Bihar.
- Cold wave conditions very likely to prevail at isolated places over interior Odisha.

➤ **25 December (Day 3):**

- Dense fog at a few places with very dense at isolated places very likely over Uttar Pradesh.
- Dense fog at a few places over Haryana, Chandigarh & Delhi and at isolated places over Bihar.

➤ **26 December (Day 4):**

- Dense fog at a few places very likely over Uttar Pradesh.
- Dense fog at isolated places very likely over Punjab, Haryana, Chandigarh & Delhi and Bihar.

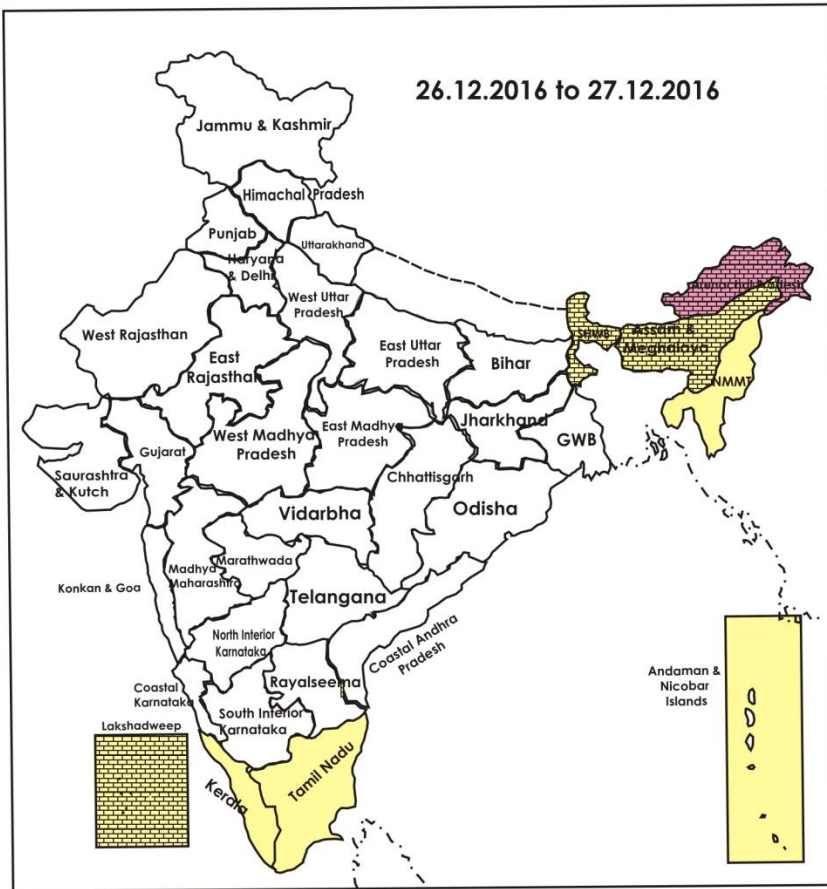
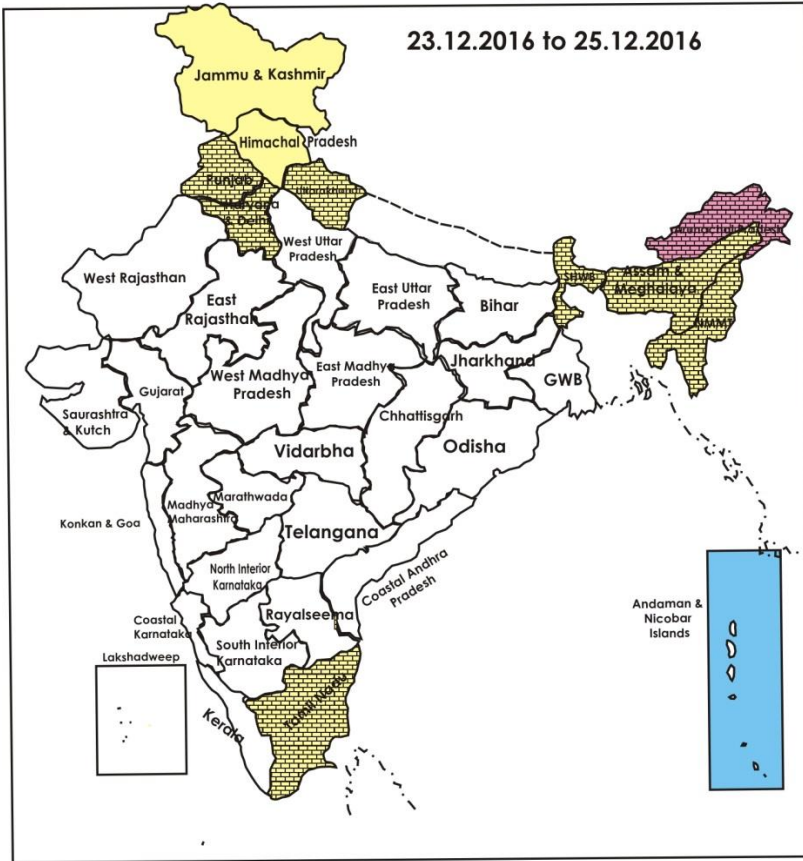
➤ **27 December (Day 5):**

- Dense fog at a few places very likely over East Uttar Pradesh and dense fog at isolated places over Punjab, Haryana, Chandigarh & Delhi and West Uttar Pradesh.

Weather Outlook for subsequent 2 days from 28th to 30th December 2016

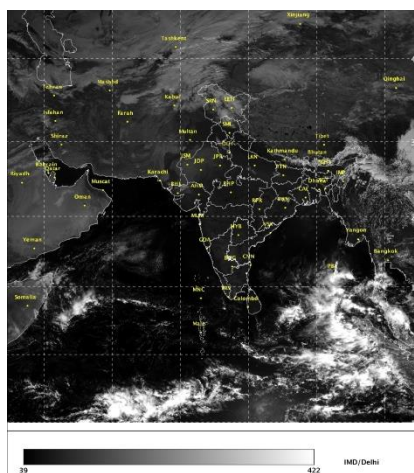
- Rain at isolated places likely over Tamilnadu & Puducherry, Kerala, Andaman & Nicobar Islands and Lakshadweep.
- Rain / snow at isolated places likely over Jammu & Kashmir and Himachal Pradesh.

Weather Forecast Map (valid upto 0830 hours 28th December 2016)



- Most places
- Most/Few places/Dry
- Most/ Few places
- Most / Many places
- Most/Many / Isolated places
- Most / Isolated places
- Most / Many/ Few places
- Most / Few / Isolated places
- Most/Many places/ Dry
- Most / Isolated places/ Dry
- Many places
- Many / Few places
- Many / Isolated places
- Many / Few / Isolated places
- Many / Few places/ Dry
- Many / Isolated places/Dry
- Many places/ Dry
- Few places
- Few / Isolated places
- Few/ Isolated places/Dry
- Few places/Dry
- Isolated places
- Isolated places/ Dry
- Dry

Satellite image dated, 23.12.2016, 0600 UTC



Salient Advisories

- As dense fog at a few places with very dense fog at isolated places very likely over **Uttar Pradesh** from 23rd to 25th, dense fog at a few places on 26th and at a few/isolated places on 27th December, dense fog very likely at a few/isolated places **Punjab, Haryana, Chandigarh & Delhi** from 23rd to 27th December, over **Bihar** from 23rd to 26th December; monitor potato, tomato and onion crops for early /late blight disease. If symptoms are noticed undertake plant protection measures.
- As rain/thundershowers likely at most/many places over **Andaman and Nicobar Islands** on 23rd & 24th Dec., postpone irrigation, application of fertilizers and plant protection methods to standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation. Keep already harvested rice in safer places.
- As prevailing minimum temperature is markedly below normal in isolated places and cold wave conditions very likely to prevail over **interior Odisha** on 23rd & 24th December, apply light irrigation/sprinkler irrigation in standing crop fields during evening hours to protect the crops from cold injury. It is also advised to arrange for smoking around the fields during night hours and to protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/ gunny bags.
- In **Chhattisgarh**, as minimum temperatures are prevailing markedly below normal, apply light and frequent irrigation /sprinkler irrigation in the evening to protect the crops from frost/cold injury.
- In **Madhya Maharashtra**, as minimum temperatures are prevailing below normal, apply light irrigation to gram, safflower, vegetables, banana and grapes during night time. Apply light irrigation to fig in the evening or during night time in Pune district. Cover the banana bunch with 6% perforated white plastic bag.
- In **Punjab**, the young and newly planted fruit plants should be covered with thatches or kullies made of sarkanda or farm waste materials to protect them from cold damage. The South-West side should be left open to allow sufficient sunlight.
- In **Assam**, to protect the seedling of *Boro* rice from cold during night, cover the seedling with polythene sheet to help growth and development of the seedling.
- In view of the prevailing dry weather, apply irrigation to wheat crop which is at CRI stage in **Rajasthan, Punjab, Haryana, Madhya Pradesh, Uttar Pradesh** and **Gujarat**. In Middle Gujarat Zone, provide light irrigation to

potato and in lemon orchards at regular interval to prevent fruit cracking and fast development of fruits.

- 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 of Rogar or Quinalphos @ 2 ml/litre of water. Due to high relative humidity, infection of blight may occur in potato and tomato. Constant monitoring is advised. If symptoms appears then spray of Carbandizam @ 1 gm / litre of water or Dithane-M-45 @ 2.0 g / litre of water is recommended.
- In Lower Bramhapurtra Valley of **Assam**, present weather condition is favourable for occurrence of late blight disease in potato crop. Farmers are advised to take prophylactic measure by spraying the crop with Mancozeb @ 2.5 gm per litre of water.
- In South Zone of **Tamil Nadu**, due to rainy and cloudy weather, leaf folder and stem borer incidence were found in paddy crop. Farmers are advised to spray Acephate 75 SP 400 g/ac or Cartap hydrochloride 50 SP 400 g/ac or Chlorantraniliprole 18.5 SC 60 ml/acre. along with sticking agent @ 1 ml/litre of water and also set up light traps (one/acre) to monitor the pest population.
- In **inerior Odisha and Chhattisgarh**, keep animals in sheds during night hours and cover the floor with paddy straw litter to protect from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy. Vaccinate the goats for control of PPR Disease. Provide artificial light during night time in poultry house. Provide mineral mixture and fresh and clean water to birds. Use 200 watt bulb at night time in poultry shed and protect the birds from cold at night. To control respiratory diseases in poultry birds during winter season, give Furazole @ 1 gram for adult and ½ gram for small birds dissolved in 1 litre of water.

Detailed Zonewise Agromet Advisories

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



Banana



Rice



Sugarcane



Red gram

- **Realised Rainfall:** Rainfall occurred over Nilgiris district of Tamil Nadu and Kasargod district of Kerala. Weather was mainly dry over rest parts of the region.
- **Realised Minimum Temperature:** Minimum temperatures are **appreciably below normal (3.1°C to 5.0°C)** at a few places over Rayalaseema; at isolated places over interior Karnataka and Coastal Andhra Pradesh; **below normal (1.6° C to 3.0°C)** at many places over Telangana. They are **above normal (1.6°C to 3.0°C)** at isolated places over Tamilnadu and near normal over rest of the region.
- **Advisories:**
 - **Andhra Pradesh:**
 - In the North Coastal Zone, continue harvesting of rice and sowing of blackgram, green gram and maize in rice fallows.
 - In the Scarce Rainfall Zone of Rayalaseema, provide life saving irrigation to red gram (pod development stage) and Bengal gram to protect the crops from moisture stress.
 - In the High Altitude Tribal Zone, continue nursery sowing of rabi rice and harvesting of cotton and kharif rice.
 - In Prakasam, Nellore, Guntur, Krishna and West Godavari districts, continue harvesting of matured early sown rice, maize, black gram crops and picking of cotton.
 - In Chittoor, Nellore and Kadapa districts, continue sowing of green gram, black gram, sunflower and maize as irrigated dry crops in fallow lands and sowing of groundnut (varieties like Dharani, Kadiri-6, Narayani, TAG-24,

ICGV-9114,TLG-45).

- In Kurnool district of Scarce Rainfall Zone of Rayalaseema, shoot borer incidence was noticed in maize and aphids in jowar. To control shoot borer, apply Carbofuran 3G granules @ 3kg/acre and spray Methyl-o-demeton or Dimethoate @ 2ml/litre of water to control aphids.
- In the High Altitude Tribal Zone, prevailing weather conditions are congenial for incidence of Cercospora leaf spot in cotton (harvesting stage). To control, spray Propiconazole @ 1ml/litre of water.
- In the Krishna Godavari Zone, due to prevailing weather conditions, there is possibility of attack of bud blight on leaves of red gram crop. If it increases, it can be managed by spraying with Radomli MZ @ 2.5 gram per litre of water.
- In the Southern Zone, to control rice hispa and leaf spot disease in rice, spray Monocrotophos @ 1.6 ml or Hexaconazole @ 2 ml/litre of water.

▪ **Telangana:**

- In Mahabubnagar, Nalgonda, Medak, Rangareddy, Khammam and Warangal districts (South Telangana Zone), low temperatures during the *rabi* may cause cold injury in rice nurseries. To overcome cold injury and for better nursery growth, cover 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, continue picking of cotton. Since flowering and pod formation stages are most critical for moisture stress, provide irrigation to kharif red gram to enhance the yield. Continue nursery sowing of rice. Cover entire rice nursery bed with polythene sheets in the night and remove in the morning to avoid the effect of cool temperatures on germination and growth of nursery. Provide one irrigation to Bengal gram crop at 30 - 35 days (before flowering) to fetch higher yields. Cotton crop is under slight moisture stress condition. If possible, give one irrigation to the protect the crop from the stress.
- In Mahabubnagar, Nalgonda, Medak, Rangareddy, Khammam and Warangal districts (South Telangana Zone), incidence of early leaf spot is noticed in groundnut. To control, spray Carbendazim @ 1 g or Chlorothalonil @ 2 g or Hexaconazole @ 2 ml/litre of water.

▪ **Tamil Nadu:**

- In the Western Zone, due to dry weather, keep sufficient moisture in turmeric which is at its rhizome development stage. Spray NAA @ 40 PPM to control flower and fruit dropping observed due to dry weather in winter combodia cotton. Considering the dry weather in past and current week, provide irrigation to samba rice which is at grain filling stage.
- In the North Western Zone, undertake cultivation of gingelly (TMV-7 and SVPR-1) to get high yield after seed treatment with Trichoderma viride @ 4 g per kilogram of seed before sowing.
- In the High Altitude Zone, due to low temperature, necessary measures like mulching may be adopted to prevent frost damage in crops
- In the High Rainfall Zone, to control wilt disease in banana, uproot and destroy the plant severely affected by fusarium wilt and apply Lime @1-2 kg in the pits after removal of the affected plants.
- In the Cauvery Delta Zone, bacterial leaf blight and bacterial leaf streaks are noticed in *Samba* rice due to prevailing weather condition. To control, spray fresh cow dung extract twice (Starting from initial appearance of the disease and another at fortnightly interval) or Copper Hydroxide @ 500 g/ac in 200 litres of water.
- In the North Eastern Zone of Tamil Nadu, undertake seed treatment with Carbendazim @0.05 % to reduce the incidence of fusarium root rot in rice nursery before sowing.
- In the South Zone, due to rainy and cloudy weather, leaf folder and stem borer incidence were found in paddy crop. Hence farmers are advised to spray Acephate 75 SP 400 g/ac or Cartap hydrochloride 50 SP 400 g/ac or Chlorantraniliprole 18.5 SC 60 ml/ac. along with sticking agent @ 1 ml/litre of water and also set up light traps (one/ac) to monitor the pest population.
- In the High Altitude Zone, undertake seed treatment with 10 grams of Paciliomyces, 10 grams of Trichoderma and 10 grams of Pseudomonas per kg of seed to control root knot nematode infestation in cabbage.

▪ **Kerala:**

- In the Northern Zone, protect pepper vines from direct sunlight, cover the basal portion of vines with banana trashes and provide good mulching.
- In Idukki and Wynad districts of High Altitude Zone, continue providing drip irrigation in coconut fields, daily irrigation in cardamom and arecanut fields and continue harvesting of cardamom, pepper, arecanut and ginger.
- In Pathanamthitta district of the Southern Zone, continue harvesting of turmeric and ginger.
- In the Central Zone, apply Oberon @ 0.75ml/ litre of water to control mite incidence in cow pea.
- In the Problem Area Zone, prevailing weather conditions are congenial for incidence of leaf fall disease & anthracnose in nutmeg. To control, spray Carbendazim+Mancozeb mixture formulation@ 2gm/litre of water. Protect the trees for drought and sun scorching.

- In the Northern Zone, to control incidence of downy mildew in vegetables, apply Mancozeb @ 2g/litre of water and spray Akomin® @3ml/litre of water on both surfaces of the leaves, thrice at 15 days interval.
 - In Thiruvananthapuram district of the Southern Zone, spray Flubendamide (Fame) 2 ml/ 20 litre of water to control white ear incidence in rice (maximum tillering to panicle initiation stage).
 - **Karnataka:**
 - Continue sowing of maize, second picking of seed cotton, harvesting of short duration varieties of red gram in North East Dry Zone. Undertake land preparation for transplanting of rice.
 - Complete harvesting of red gram; undertake weeding in mango, guava, sapota orchard and apply weeds to the basin as mulch in Eastern Dry Zone.
 - In Bidar district of North East Transition Zone, undertake intercultural operations and earthing-up of rows in wheat crops. Provide protective irrigation in wheat.
 - Apply irrigation to already sown *rabi* crops as per requirement in Vijayapura, Bagalkote and Gadag districts of North Dry Zone.
 - In Southern Dry Zone, continue harvesting/threshing/drying of matured rice.
 - Continue harvesting of chilli, intercultural operations in *rabi* crops (sorghum, Bengal gram etc.) to control the weeds and for moisture conservation in Dharwad, Belagavi and Haveri districts of North Transition Zone. Apply irrigation in Bengal gram (flowering/pod development stage).
 - Fruit borer was noticed in bhendi crop in North East Transition Zone; to control, spray Quinlophos 25 EC @ 2 ml or Malathion 50 EC @ 2 ml per litre of water.
 - In Hill Zone, as a precautionary measure for control of hoppers in mango spray Melathion @ 2 ml/litre of water or Monocrotophos @ 1.25 ml / litre of water.
 - Suitable varieties for sowing are given in Annexure III.
 - **Animal Husbandry**
 - In the Southern Zone of Tamil Nadu, due to humid condition, mastitis disease may affect the milch animals. Clean the udder with 1% Potassium Permanganate solution, before and after milking.
 - In the North Eastern Zone of Tamil Nadu, animals should be allowed for graze in the morning after the dew dries off to prevent endoparasitic infestation. Dry fodder's and feed ingredients used for the preparation of concentrate mixture should be dry and free from aflatoxin. Undertake fumigation of livestock shed by using neem and notchi leaves to keep the mosquitoes and other vectors away from the animals.
 - In the Western Zone of Tamil Nadu, considering the dry weather, provide adequate good drinking water to animals.
- Maintain optimum room temperature in sericulture, poultry and dairy unit in Eastern Dry Zone and in poultry in North East Transition Zone of Karnataka.

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



Banana



Rice



Cauliflower



Wheat

- **Realised Rainfall:** Weather remained dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are **appreciably above normal (3.1°C to 5.0°C)** at many Places over Nagaland, Manipur, Mizoram & Tripura; at a few places over Assam & Meghalaya and Arunachal Pradesh 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, continue nursery raising for winter vegetables. Continue transplanting of *Boro* rice.
 - In Dhemaji, Lakhimpur, Sonitpur, Dibrugarh, Golghat, Jorhat and Sibsagar districts of Upper Bramhaputra Valley Zone of Assam, continue transplanting of *boro* rice.
 - In Karbi Anglong and NC Hills districts of Hill Zone of Assam, continue transplanting of *Boro* rice and harvesting of cotton.
 - In Marigaon and Nagaon districts of Central Bramhaputra Valley Zone of Assam, continue harvesting of Sali rice, nursery sowing of *Boro* rice, continue sowing of wheat and *rabi* pulses. Continue harvesting of black

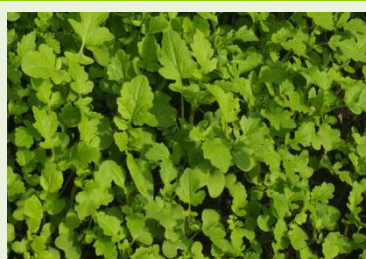
gram/green gram.

- In Barpeta, Bongaigaoin, Dhubri and Goalpara districts of Lower Brahmaputra Valley Zone of Assam, continue transplanting of *Boro* rice. Dead hills are to be replanted within 7-10 days of transplanting.
- In North Bank Plain Zone of Assam, continue planting of potato. Continue transplanting of early sown varieties like Boro1, Boro 2, Dinanath and Swarnabh of *boro* rice for low lying area. Continue sowing of wheat and planting of potato.
- In Arunachal Pradesh, continue harvesting of Wetland rice.
- In Meghalaya, continue transplanting of cauliflower/cabbage/broccoli. Complete sowing of pea. Also continue harvesting of matured Upland rice, *Sali/kharif* rice, groundnut, soybean and ginger/turmeric.
- In North Bank Plain Zone, Barak Valley Zone and Hill Zone of Assam, spray Malathion 50 EC @ 2ml/litre against infestation of aphid/saw fly in rapeseed and mustard at vegetative stage. Also due to humid and cloudy weather there is chance of late light in tomato. Spray Ridomil MZ-72 (2g/ litre) and Indofil M-45 2.5g/litre.
- In Lower Brahmaputra Valley of Assam, weather condition is favourable for occurrence of late blight disease in potato crop. Farmers are advised to take prophylactic measure by spraying the crop with Mancozeb @ 2.5 gm per litre of water.
- In North Bank Plain Zone Upper Brahmaputra Valley Zone of Assam, weather condition is becoming favourable for occurrence of late blight disease in potato crop. Spray the crop with Mancozeb @ 2.5 g per litre of water. Generally 3 such sprays are required at 12 days interval for good result. Alternatively, Zineb @ 25 g per 10 litre of water may also be used.
- In Arunachal Pradesh, spray Indofilm-45@ 2.5g/litre as preventive measure against alternaria blight and Dimethoate 30 EC @ 3ml/litre for aphid in mustard. Foliar spray of urea@2% for moisture stress against powdery mildew in pea.
- **Nagaland, Manipur, Mizoram and Tripura:**
 - In Nagaland, continue harvesting of TRC/WRC rice.
 - In Manipur, continue transplanting of cole crops/onion. Continue land preparation and sowing of *rabi* maize.
 - In Mizoram, continue harvesting of *khasi* mandarin/acid lime, oil palm, banana and colocasia. Continue nursery sowing of onion, winter vegetables and planting of potato.
 - In Nagaland, spray 4% neem seed kernel extract to kill early stages larvae in vegetables like cabbage/cauliflower etc.
 - In Tripura, as dry weather prevails, provide light irrigation with mulching in *rabi* legumes like mustard, lentil, cole crops, *rabi* maize.
 - In Manipur, to control aphid in rapeseed/mustard, spray Monocrotophos @ 1.5 ml/litre of water to the infected patches only. Also spray Propiconazole @ 15ml/15 litre water against rust/ powdery mildew in pulses.
 - In Mizoram, apply insecticide like Imidacloprid 0.5 ml or Phosolone 1.5 ml or Acephate 1.0 g or Dimethoate 2 ml/litre of water against banana rhizome weevil disease in banana.
 - In Tripura, due to foggy condition, there is chance of infestation of early blight in potato. Spray Cymoxanil+ Mancozeb or Metalaxyl+ Mancozeb @ 1.5gm per litre of water in the potato.
 - Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
 - In Nagaland, provide ample quantity of clean drinking water to animals.
 - In Assam, 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 of Assam, the cattle, goat and pigs should be vaccinated against BQ, HS, Foot and Mouth disease. Vaccination to control the ranikhet disease of poultry may be done during this period.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



Maize



Mustard



Groundnut



Wheat

- **Realised Rainfall:** Weather remained dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are **appreciably below normal (3.1°C to 5.0°C)** at a few places over Vidarbha; at isolated places over south Gujarat, south Konkan & Goa; **below normal (1.6°C to 3.0°C)** at many places over Madhya Maharashtra; at a few places over Marathwada and near normal over rest of the

region.

- **Advisories:**

- **Maharashtra:**

- In Vidarbha, as minimum temperatures are prevailing appreciably below normal, apply light and frequent irrigation /sprinkler irrigation in the evening to protect the crops from frost/cold injury. Apply light irrigation to gram, vegetables and orchards during evening/ night hours. Carry out weeding and hoeing in gram and wheat. Continue picking fully opened cotton bolls during morning hours. Undertake nursery sowing for summer onion.
- In Konkan, continue sowing of rabi groundnut (Varieties : TG-26, TAG-24, TPG-41, Konkan Gaurav, Konkan Tapora) with assured irrigation. Continue nursery sowing of *rabi* rice and sowing of mustard, cow pea and maize. Apply irrigation to orchards and vegetable crops.
- In Madhya Maharashtra, as minimum temperatures are prevailing below normal, apply light irrigation to gram, safflower, vegetables, banana and grapes during night time. Apply light irrigation to fig in the evening or during night time in Pune district. Cover the banana bunch with 6% perforated white plastic bag. Continue picking fully opened cotton bolls during morning hours.
- In Marathwada, as dry weather would prevail, apply protective irrigation in sugarcane, wheat, gram, maize and vegetable crops. Undertake land preparation for plantation of *Suru* sugarcane and sowing of fodder crops Oat and Lucerne. In wheat crop apply 60 kg per hectare of nitrogenous fertilizer when the crop is more than 21-25 days and irrigate the field
- In Marathwada, to control attack of *Helicoverpa armigera* in chick pea crop, spray Chlorpyrifos @ 20 ml or Quinalphos @ 20 ml per 10 litres of water.

- **Gujarat:**

- Continue nursery sowing of summer paddy in South Gujarat Heavy Rainfall Zone. Continue transplanting of cole crops. Apply irrigation in cole crops as per need.
- In North Gujarat Zone, apply light irrigation in vegetable crops during evening hours; apply irrigation in fruit crops, mustard (at flowering stage), potato, cumin and castor as per need. Carry out weeding and intercultural operations in cumin, potato, amaranth, castor and fennel. Continue harvesting of mature fruits of pomegranate, guava, papaya, ber and amla etc. Apply 40 kg Nitrogen / ha in late sown wheat variety in South Gujarat Zone.
- Undertake intercultural operation in garlic, chickpea, coriander, cumin and vegetable crops in South Saurashtra Zone. Apply irrigation in vegetable (flowering/fruitlet stage) crops. Continue picking of matured cotton bolls during morning hours and picking of matured clusters of castor.
- Apply irrigation in wheat (CRI stage), light irrigation in vegetable crops during evening hours, if required, in North West Zone. Carry out intercultural operations in brinjal, cabbage, cauliflower, chili and tomato. Continue harvesting of matured pomegranate, aonla and custard apple. Under dry weather condition regularly apply irrigation to avoid moisture stress.
- In Middle Gujarat Zone, undertake nipping in chickpea for more tillering. Provide light irrigation to potato in furrows and flatbed sown field.
- Apply Irrigation in lemon orchard at regular interval without stress to prevent fruit cracking and fast development of fruits.
- Due to moist weather, infestation of alternaria blight is observed in garlic in North Saurashtra Zone; increase periods between irrigations; make two Spray @ 27 g Mencozeb/10 litres of water at 10 days interval. Heavy infestation of thrips is observed in pigeon pea; for control, spray Profenofos @ 20 ml/10 litres of water.
- Due to dew formation there are chances of powdery mildew in cucurbits in North Gujarat Zone; dust 300 mesh Sulphur @ 20 kg/ha to manage the disease.
- Suitable varieties for sowing are given in Annexure III.

- **Animal Husbandry**

- Provide luke warm water to lactating animals, keep young calves indoors during night time to avoid cold stress in North Gujarat Zone, North West Zone of Gujarat and North Saurashtra Zone.
- In north Madhya Maharashtra, kids & lambs should be kept under protection. In large flocks the electric bulbs (200 to 500 w) be provided to keep the byre warm and comfortable. It is noticed that in early morning, dew falls on grasses and shrubs which may cause throat and lung infections, which can be avoided by restricting grazing before sunshine. Cows and buffaloes may be protected from winter by using gunny bags to cover the body and in byres use bonfire

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 dry over rest of the region.
- **Realised Minimum Temperature:** Minimum temperatures are **markedly below normal (5.1°C or less)** at isolated places over interior Odisha. They are **appreciably above normal (3.1°C to 5.0°C)** at a few places over Sub Himalayan West Bengal & Sikkim; **above normal (1.6°C to 3.0°C)** at many places over Bihar and near normal over rest of the region.
- **Advisories:**
 - **Odisha:**
 - As prevailing minimum temperature is markedly below normal in isolated places and cold wave conditions likely to prevail over interior Odisha on 23rd & 24th December, apply light irrigation/sprinkler irrigation in standing crop fields during evening hours to protect the crops from cold injury. It is also advised to arrange for smoking around the fields during night hours and to protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/ gunny bags.
 - In East and South Eastern Coastal Plain Zone, continue planting of potato. Continue harvesting of medium duration varieties of rice. The irrigated mustard is at 15 to 20 days stage. Go for hoeing and weeding. Thin out the plants and maintain optimum plant population. It is found to be affected by *Crociodollema* and aphids. Spray 400 ml Dimethoiate per acre for controlling aphids and 200 ml Ethofenprox or Deltamethrin in 200 litre water per acre.
 - In North Eastern Coastal Plain Zone, complete harvesting of rice crops.
 - In Deogarh and Sundargarh districts of North Eastern Plateau Zone, complete sowing of groundnut, Mung, Biri, gram 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 mustard and nursery sowing of onion. Continue harvesting of matured direct seeded rice. Keep watch on false smut disease during grain development stage. If noticed spray Carbendazim or Matalaxyl + Mancozeb 2g/litre of water.
 - In Mayurbhanj and Keonjhar districts, continue sowing of green pea in fallow uplands and nursery raising of tomato, cauliflower and cabbage.
 - In Kalahandi and Nuapara districts of Western Undulating Zone, sucking pests like aphids, jassids infestation may occur in cotton crop at boll development to boll bursting stage. Spray Buprofez @ 2ml/litre water for controlling sucking pests.
 - In Angul and Dhenkanal districts of mid Central Table Land Zone, the wide fluctuation in day and night temperature is conducive for attack of BPH/WBPH in rice. To control it, drain out water from the field and spray Thiomethoxam 25WG @ 1ml/3litre of water or Buprofezin @ 1.5ml/litre of water + Neem Oil @ 3ml/litre of water. Make alleys in the field at a distance of 2 m for proper ventilation and penetration of sunlight.
 - **West Bengal:**
 - In Burdwan, Murshidabad, Nadia, North 24 Parganas districts of New Alluvial Zone, undertake sowing of wheat and planting of potato. Continue transplanting the nursery seedling of brinjal and tomato. Before transplanting dip the roots of seedling to the solution of Carbendazim 12% + Mancozeb 63% @ mixture (2 gm per litre of water). Continue harvesting of early transplanted *Aman* rice and prepare the field for sowing of rabi crop. Continue sowing of winter vegetables.
 - In Purba Midnapore and South 24-parganas districts of Coastal Saline Zone, complete seed bed preparation and sowing of boro rice within last week of December. Maintain a thin layer of water over the seed bed and if possible arrange polythene shade over seed bed. Undertake sowing of lentil and cultivation of sunflower.
 - In Hill zone, undertake land preparation for sowing of potato. Before sowing of tubers full dose of FYM @ 10 tonns/ha and 1/3 dose of nitrogen (66kg/ha) and full dose of phosphorus (150kg/ha) and 1/3 dose potassium (50kg/ha) should be incorporated to the soil. Undertake harvesting of turmeric, mustard and mandarin orange.
 - In Laterite and Red Soil Zone, Give light irrigation to maintain the optimum moisture content in the soil. Continue sowing of wheat crop. When the crop at 20-25 days after sowing, apply 17.4 kg Urea per bigha.
 - In Malda & Dakshin Dinajpur districts, undertake seedbed preparation of *boro* rice. Thinning should be done in

wheat at 21 days after sowing, then apply first top dressing of urea after light irrigation.

- In Terai Zone of West Bengal, undertake sowing of potato. Seed treatment with (Carbendimz 1g+Mancozeb 2.5g) per litre of water by dipping the seeds for atleast 30 minutes to 1 hour. Treated seed to be dried in shade before sowing.
- In New Alluvial Zone, in prevailing weather condition, attack of early blight may be severe in potato. To control the disease, apply 2.5 gm Mancozeb per litre of water. If required, apply the same again after 10 to 12 days.
- In Old Alluvial Zone, prevailing weather condition is favourable for attack of mustard Sawfly larva, Leaf blight in mustard. To control sawfly larva, spray B.t. @ 1.5 gram per liter water at evening hour. To control Alternaria leaf blight of Mustard, spray Metalaxyl + Mancozeb @ 2.5 gram per liter of water.
- In Laterite and Red soil Zone, low temperature favours the rust disease in wheat. Spray Mancozeb 75 Wettable Powder @2ml/litre of water.
- **Andaman and Nicobar Islands:**
 - As rain/thundershowers likely at most/many places over Andaman and Nicobar Islands on 23rd & 24th Dec., postpone irrigation, application of fertilizers and plant protection methods to standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation. Keep already harvested rice in safer places.
 - In North, Middle & South Andaman, undertake nursery preparation of vegetables. Prepare raised nursery beds of 20 to 25 cm height with water channels for sowing of brinjal seed @ 400 to 500 g/ha.
 - In Nicobar, clear the channels in the community garden of vegetable field to avoid stagnation of water.
- **Bihar:**
 - As dense fog very likely to prevail over Bihar from 23rd to 26th December, monitor potato, tomato and onion crops for early/late blight disease. If symptoms are noticed undertake plant protection measures.
 - In Araria, Katihar, Kishanganj, Madhepura, Purnea, Saharsa and Supaul districts in North East Alluvial Zone, undertake sowing of late sowing wheat. Seed should be treated with Bavistin or Thiram @ 2-2.5 g per kilogram of seed. Undertake earthing-up in potato if crop has attained a height of 15-22 cm. Provide light irrigation in vegetables such as cauliflower, cabbage, tomato, pea, chilli, brinjal, garlic etc as per soil moisture status.
 - In Darbhanga, East Champaran, Gopalganj, Samastipur, West Champaran districts of North West Alluvial Plain Zone, complete the sowing of late sown wheat up to 25th December, Undertake transplanting the seedling of *rabi* onion. Undertake Weeding in vegetables crops. Provide light irrigation in vegetables such as cauliflower, cabbage, tomato, pea, chilli, brinjal, onion nursery, garlic etc as per soil moisture status.
 - In South Bihar Alluvial Zone, complete the sowing of late sown wheat and Irrigate timely sown wheat crop after 20-25 days of sowing at crown root initiation stage.
 - In South Bihar Alluvial Zone, in Present weather condition is conducive for the infestation of fruit and shoot borer in brinjal crop, to control, spray Quinalfos 25EC@1ml/L of water. It is also conducive for attack of Diamond Back Moth (DBM) in cabbage/cauliflower, for control, spray Dimethoate 30 EC@1ml/litre of water.
- **Jharkhand:**
 - In South Eastern Plateau Zone, complete harvesting of rice. In harvested fields, continue land preparation and sowing of wheat, lentil, gram and cultivation of potato and green pea.
 - In South Eastern Plateau Zone, continue nursery raising of onion.
 - In Central and North Eastern Plateau Zone, low land rice crop are at milky stage and this stage is susceptible to the attack of Gundhi bug. To control the insects, dusting of Chlorpyrifos/Quinolphos/Methyl Parathion dust @ 10 kg per acre is recommended.
 - In South Eastern Plateau Zone, there may be attack of leaf eating and sucking pests in pigeon pea at flowering stage, for control, spray Monochrotophos @ 1 ml or Chlorpyrifos @ 1.5 ml per liter of water during evening time.
 - In South Eastern Plateau Zone, green pea crop is at vegetative stage and mostly are seen with the infestation of leaf eating insects due to variable weather condition and can be controlled by spraying of prepared concentration of neem or tobacco leaf extract diluted in the ratio of 1:10 liters or neem oil @ 5 ml per liter of water.
 - In South Eastern Plateau Zone, green pea crop is mostly seen with the infestation of leaf eating insects and can be controlled by spraying of prepared concentration of neem or tobacco leaf extract diluted in the ratio of 1:10 liters or neem oil @ 5 ml per litre of water. Also attack of leaf eating insects have been increased in cucurbitaceous crops. Spray, Imidachlorpid @ 1g or Kung fu @ 2 ml per litre of water for control.
 - 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 gm per litre of water.
 - Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
 - As cold wave condition would prevail over interior Odisha, cover the poultry shed with gunny bags in order to protect the birds from cold weather. Provide artificial light during night time in poultry house. Animals 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. 10% extra dry matter should be provided over and above the total requirement to fulfill the extra energy requirement in winter.

- 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 dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are **markedly below normal (5.1°C or less)** at isolated places over Chhattisgarh and near normal over rest of the region.
- **Advisories:**
 - **Madhya Pradesh:**
 - In Indore and Ujjain districts, apply irrigation in potato, pea, coriander and other vegetables as per requirement. Undertake earthing up in potato and repeat after 15 days.
 - In Nimar Valley Zone, continue nursery preparation for onion. Undertake top dressing of urea@30kg/acre after irrigation in one month old wheat crop.
 - In Gwalior, Bhind, Morena, Guna, Ashoknagar and Shivpuri districts, apply irrigation in vegetables and in wheat after 20-21 days of sowing.
 - In Chhindwara and Betul districts, continue nursery preparation for tomato, chilli, brinjal, cabbage, cauliflower and sowing of garlic, cumin, coriander etc. Apply irrigation in wheat at CRI stage. Continue sowing of late varieties of wheat and gram.
 - In Vindhya Plateau Zone, continue nursery preparation for winter vegetables like brinjal, chilli, cabbage, cauliflower, tomato and onion. Apply irrigation in early sown gram and wheat.
 - In Tikamgarh, Chhatarpur and Datia districts, continue sowing of late varieties of wheat in irrigated areas. Apply irrigation in vegetables, mustard and in wheat at crown root initiation stage. Continue earthing up in potato. Continue weeding and hoeing in onion and garlic.
 - In Jhabua, Alirajpur and Dhar districts, continue sowing of wheat and Bengal Gram. Apply irrigation in early sown wheat and vegetables. Undertake picking of cotton.
 - In Jabalpur, Rewa, Satna districts, apply irrigation in vegetables, mustard and in wheat at CRI stage. Undertake earthing up in potato.
 - In Malwa Plateau Zone, to control the attack of saw fly and cabbage butter fly in cole crops, spray Malathion 5% or Carbaryl 5% dust @ 20-25 kg per hectare or spray Malathion 50 EC @ 1 ml per liter in 500 liter of water. To control cut worm in gram at vegetative, apply Chlorpyrifos dust or Malathion dust @ 20 kg/ha.
 - In Nimar Valley Zone, to control of pod borer in pigeon pea, spray Indoxacarb@200ml (20ml/pump) per acre.
 - **Chhattisgarh:**
 - As prevailing minimum temperature is markedly below normal in isolated places over Chhattisgarh, apply light irrigation in standing crop fields during evening hours to protect the crops from cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/ gunny bags during night hours.
 - In North Hill Zone, apply irrigation in wheat after 20-25 days of sowing. Apply light irrigation in potato and tomato and undertake earthing up in potato. Continue planting of autumn sugarcane.
 - In Chhattisgarh Plain Zone, continue transplanting of vegetables and onion. Continue seedling preparation of cucurbitaceous crops in polythene bags. Apply irrigation in wheat at CRI stage.
 - In Bastar Plateau Zone, continue sowing of sweet potato. Apply irrigation in wheat at CRI stage.

- In North Hill Zone, due to partly cloudy weather, there are chances of infestation of pod borer in pigeon pea, spray Endoxacarb @ 300 ml/ha.
- Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
- In Chhattisgarh and Madhya Pradesh, keep animals in sheds during night hours and cover the floor with paddy straw litter to protect from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy. Vaccinate the goats for control of PPR Disease. Keep goat in sunlight at day time and protect to goat from cold in night. Provide artificial light during night time in poultry house. Provide mineral mixture and fresh and clean water to birds. Use 200 watt bulb at night time in poultry shed and protect the birds from cold at night. To control of respiratory diseases to poultry birds during winter season give Furazole @ 1 gram for adult and ½ gram for small birds. Medicine should be dissolved in 1 litre water.

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



Mustard



Maize



Cauliflower



Wheat

- **Realised Rainfall:** Weather remained dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are **below normal (1.6° C to 3.0°C)** at a few places over Jammu & Kashmir, Haryana, Chandigarh & Delhi and at isolated places over Punjab. They are **appreciably above normal (3.1°C to 5.0°C)** at isolated places over Himachal Pradesh & West Rajasthan; **above normal (1.6°C to 3.0°C)** at a few places over East Rajasthan and near normal over rest of the region. The lowest minimum temperature of **3.5°C** recorded at Narnaul (**Haryana**) in the plains of the country.
- **Advisories:**
 - As dense fog at a few places with very dense fog at isolated places very likely over Uttar Pradesh from 23rd to 25th, dense fog at a few places on 26th and at a few/isolated places on 27th December, dense fog very likely at a few/isolated places Punjab, Haryana, Chandigarh & Delhi from 23rd to 27th December; monitor potato, tomato and onion crops for early /late blight disease. If symptoms are noticed undertake plant protection measures.
 - **Rajasthan:**
 - In East Rajasthan, In Sub Humid Southern Plain and Aravali Hill Zone, in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts, complete sowing of late sown wheat. Apply first irrigation in barely at 30-35 days after sowing and in mustard crop at 35-40 days. In mustard at the application of first irrigation broadcast of Urea @ 65 kg/ha. Continue weeding and hoeing operation in vegetables and fruit orchards. Undertake weeding and hoeing operation in garlic where crop is 20-25 days and irrigation after every 8-12 days.
 - In Dungarpur and Banswara districts of Southern Humid Plain Zone, apply first irrigation in wheat crop with top dressing of urea at crown root initiation (21 DAS) and rabimaize with top dressing of urea. Undertake intercultural operation in maize crop.
 - In Arid Western Plain Zone, in Barmer, Churu, Jalore, Jodhpur, Pali districts, apply irrigation with nitrogen @ 30 kg per hectare in wheat crop after 45 days of sowing. Undertake hoeing and weeding operation in cumine crop and vegetable crops.
 - In Irrigated North Western Plain Zone, Hanumangarh and Sriganganagar, apply first irrigation to wheat crop at 25-30 days after sowing and in jou crop 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.
 - In Alwar, Bharatpur, Dhauhpur, Karauli, Sawaimadhapur districts of Flood Prone Eastern Plain Zone, continue nipping operation to enhance branching in gram crop.
 - In Alwar, Bharatpur, Dhauhpur, Karauli, Sawaimadhapur districts of Flood Prone Eastern Plain Zone, prevailing weather condition is congenial for attack of early blight in potato crop for control spray Mancozeb @ 2 gm per litre water.
 - In Alwar, Bharatpur, Dhauhpur, Karauli, Sawaimadhapur districts of Flood Prone Eastern Plain Zone, prevailing weather condition is congenial for attack of cutworm in gram crop for control apply Methyl Parathion 2% dust.

- 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 gram crop for control spray Chloropyrifos 20 EC @ 1 litre per bhiga with irrigation.
- In East Rajasthan, in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts, prevailing weather condition is congenial for attack of shoot fly and termite in wheat crop for control shootfly spray Monocrotophos 36 SL @ 500 ml, for control termites in standing crop of wheat apply Chloropyrifos 20 EC @ 4 litres per hectare with irrigation.
- In East Rajasthan, in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts, prevailing weather condition is congenial for attack of moyala in wheat, mustard and fenugreek for control apply Dimethoate 30 EC @ 1litre per hectare.
- In Dungarpur and Banswara districts of Southern Humid Plain Zone, prevailing weather condition is congenial for attack of pod borer in gram crop, for control apply dusting of Methyl Parathion 2% dust @ 25kg/hectare before flowering or apply Acephate 75 SP @ 650 g/hectare.
- In Dungarpur and Banswara districts of Southern Humid Plain Zone, prevailing weather condition is congenial for attack of Stem borer in maize crop, for control apply Phorate 10 G or Carbofuran 3G @ 5-7.5 kg/ha.
- In Arid Western Plain Zone, in Barmer, Churu, Jalore, Jodhpur, Pali districts, prevailing weather condition is congenial for attack of white rust at flowering stage in mustard crop, for control spray Mancozeb @ 2.5 gm per litre of water.
- **Jammu & Kashmir:**
- In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, farmers are advised to go for one hoeing to control weeds where the wheat crop is one month old. Complete transplanting of late cauliflower and onion. Give sprinkle irrigation after next day of sowing/transplanting. Complete sowing of garlic. Continue first cut of Berseem where the crop is 40-45 days old. Irrigate the crop after each cut. Provide staking to garden pea and give irrigation at first flower and pod formation stage. Give irrigation regularly every 3-4 days interval to all leafy vegetables.
- In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, continue sowing of late varieties of wheat (WH-1021, PBW-590, PBW-373, Raj-3077, Raj-3765 DBW-1) under irrigated conditions. Apply irrigation in lentil crop after 45-50 days of sowing. Undertake hoeing and weeding after 20 days of sowing. Undertake proper earthing-up in potato crop after attaining height of 15-22 cm.
- In Valley Temperate Zone of Jammu and Kashmir, continue planting of healthy bulbs of onion for seed production. Replanting of cabbage, kale, knoll and root crops may be done for seed production. 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, farmers are advised to harvest Chinese cabbage, Palak, Pakchoi, knolkhol and Lettuce in protected structures. Timely hoeing and weeding should be done for proper root aeration. Apply first dose of nitrogenous fertilizer in Cabbage, Cauliflower and Broccoli in green houses. Proper irrigation should be applied at 7-10 days intervals. Cover the trenches and poly houses with blankets after 6:00pm in the evening hours till next morning to avoid loss due to sudden temperature dip below (-16.5 deg.C). Direct seed sowing of Spinach, Turnip & Radish should be done in greenhouses.
- In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, there may be aphid attack on mustard crop at flowering stage, if 50-60 aphids observed per plant, spray Chlorpyrifos 20EC @ 0.05% or Monocrotophos 36 WSC @ 0.04% or Methyl demeton 25EC @ 0.03%. Install yellow sticky trap @ 10/kanal to control aphid. If attack of larger moth (Leaf webber) is severe then spray Carbaryl (Sevin) @ 1 gram/litre of water.
- In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, %, if symptoms of late blight and early blight are observed in potato as potato is in tuber formation stage, spray Mancozeb @ 0.25% or Metalaxy+Mancozeb @ 0.25 %.
- In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, there may be infestation of Alternaria Blight or attack of aphid on mustard. Take proper protection measures to control above pest/ disease.
- **Uttarakhand:**
- In Udhampur Singh Nagar district of Bhabar and Tarai Zone, undertake late sowing variety of barley like-Jyoti, Preeti, Manjula, Jagrati. In timely sown wheat, first irrigation should be given after 20-25 days of sowing. Weeding and hoeing is necessary two times in the timely sown gram crop. First weeding and hoeing should be done after 25-30 days of sowing and second 45-50 days after sowing and after first irrigation. Complete sowing of coriander. If moisture is not available in the field then pre sowing-irrigation should be given. In case of frost, irrigation should be applied in newly transplanted plants. To save the newly transplanted seedlings of papaya, mango and litchi from frost, dry straw should be collected so that these plants should be covered by straw.
- In Nainital district of Bhabar and Tarai Zone, on the occurrence of frost/fog, timely irrigation should be applied in

the standing crop field. Continue sowing of wheat. In valley, to save the potato from frost timely irrigation should be applied at required interval. In hilly areas, if rai vegetable is transplanted earlier in the polyhouses then hoeing should be done after top dressing of Urea in proper moisture condition.

- In Udham Singh Nagar district of Bhabar and Tarai Zone, there may be occurrence of Mahu in mustard crop, spraying of 1liter of Methyl-O-Demeton 25 EC in 800-1000 litre of water should be done. Spraying should be done after 02:00 PM.
- In Tehri Garhwal, Chamoli, Champawat, Pithoragarh, Rudraprayag and Uttarkashi districts of Hill Zone, complete sowing of wheat, gram, mustard and lentil at the earliest. Give first irrigation to wheat crop after 21-25 days of sowing. Continue transplanting of nursery of onion crop. Cover nursery of onion crop with grass to protect from frost and cold injury. Give light irrigation to vegetable crops to protect from frost.
- In Dehradun, Pauri and Haridwar districts of Sub Humid Sub Tropic Zone, if wheat crop is sown timely then give first irrigation at CRI stage which is very important. Try to complete the sowing operation of wheat if not done earlier, then undertake sowing of late varieties viz., PBW-343, UP-2338, etc. Complete sowing of spinach, radish, carrot etc. Give irrigation to potato crop, avoid damage due to excess water on tubers. Continue nursery sowing of tomato and onion crop where irrigation facility is available.
- In Bhabar and Tarai Zone, weather is favourable for late blight disease in potato and it has crossed the critical limit. So, it is advised that Mancozeb @ 2.5g/litre should be sprayed immediately. This spraying should also be done in the tomato crop.

▪ **Himachal Pradesh:**

- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts. Apply irrigation to wheat crop which is at CRI stage (21-25 days after sowing), after 3-4 days of irrigation broadcast second dose of nitrogen. Continue intercultural operations in radish, carrot, turnip, palak and methi carrot, broccoli, lettuce. Training, skiffing and cleaning work can be completed in the tea. Continue lopping of the tree in the tea orchards to have more sunlight. Continue sowing of Dingri in closed room, maintain temperature of 25-28 degree Celsius and relative humidity of 80-85 % for good crop, fill compost bags with span for button mushrooms. Complete sowing of potato in lower and mid hill regions. Continue thinning and weeding operation in timely sown mustard crop. Continue intercultural operations & weed control in sarsonsaag, bathua, radish, spinach, fenugreek, coriander, turnip, apply mulch and well rotten FYM on these crops.
- In Mild Hills Sub-Humid Zone of Himachal Pradesh, in Kullu and Mandi districts, start pruning in stone fruits by removing diseased and unwanted branches etc. Apply Chaubatia paint (copper carbonate 800 gm + Red lead 800 gm+ Alsi oil 1 litre) on cut ends. Undertake transplanting of onion nursery in field. Undertake hoeing 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 Mild Hills Sub-Humid Zone of Himachal Pradesh, in Kullu and Mandi districts, apply Blitox or Copper Hydroxide @ 600 g per 200 litre of water after harvesting apple orchards and apply Blitox @ 600 g per 200 litres of water or Bourdeaux mixture (1%) after harvesting Pomegranate orchards.
- In Mild Hills Sub-Humid Zone of Himachal Pradesh, in Kullu and Mandi districts, present weather is conducive for attack of woolly apple aphid in apple orchards, for control spray of Ektara @ 200gms or Marshal @ 200ml in 200 litres of water.
- In Mild Hills Sub-Humid Zone of Himachal Pradesh, in Kullu and Mandi districts, present weather is conducive for attack of various fungal diseases in apple orchards, for control whitewash apple tree stem with lime and Copper Sulphate (lime 15 Kg. +5 Kg. Copper Sulphate+ 50 litre water +2 litre Alsi oil).
- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, present weather is conducive for attack of damping off disease in vegetable crop for control apply Dithane M 45 dust @ 10-15 g in 1X3 metre beds. For control of powdery mildew in peas, spray Celfex @ 25 g per 10 litres of water or Karathane @ 5 ml per 10 litres of water.
- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, present weather is conducive for attack of leaf feeders in cole crop for control spray Spinosad @ 1 ml per 3 litres of water in clear sky. The downy mildew is expected in cruciferous vegetables, for control spray Ridomil M-Z @ 25 g per litre of water at 15 days interval.

▪ **Punjab, Haryana and Delhi:**

- In Western Zone of Punjab, due to dry weather forecast during next 4-5 days, farmers may irrigate the crops, if needed. Apply first irrigation in wheat crop after four weeks of sowing. On light textured soils, first irrigation should be advanced by one week. Apply second dose of 55 kg urea per acre with first irrigation. Under late sown conditions, short duration varieties PBW 658 and PBW 590 should be sown for wheat sown after 15th December. For the control of loose smut and flag smut in late sown wheat, treat the seed in seed treating drum with Raxil Easy/Orius 6 FS @ 13ml or Vitavax Power @ 120g or Vitavax @ 80g or Seedex 2 DS/Exzole 2 DS @ 40g per 40kg seed before sowing. Restrict irrigation in potato and later withheld completely so that the haulms wilt and

fall down before the aphid population builds up. For seed multiplication in cauliflower, select the most ideal heads of the main season varieties and rogue out loose, ricy, leafy and otherwise undesirable heads. In case, seed multiplication is to be done on a small scale, transplant the selected heads along with root system intact at the desired place.

- In Gurdaspur and Hoshiarpur district of undulating Plain Zone of Punjab, continue sowing of short duration varieties of wheat like PBW 658 and PBW 950. Complete harvesting of toria sown in October to avoid losses due to shattering. Give irrigation to Gobi Sarson sown in November.
- In Central Plain Zone of Punjab and S.B.S nagar district of Sub Montane Undulating Zone, if sowing is not done farmer can do sowing of late sown variety of wheat like PBW 658, PBW 590. If harvested rain water is available apply at CRI stage to rainfed wheat.
- In Western Zone of Haryana, give first irrigation to timely sown wheat after 20 days of sowing. Complete thinning and weeding in mustard crop. Continue sowing of barley crop in the region. Monitor attack of Aphid in mustard crop.
- In Eastern Zone of Haryana, continue sowing of wheat. Apply irrigation in vegetables and sugarcane as per requirement. Continue harvesting of early varieties of sugarcane.
- 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 to control the disease.
- In Western Semi-Arid Zone of Delhi, in view of dry weather conditions, farmers are advised to irrigate wheat crop which is in CRI stage (21-25 days after sowing). After 3-4 days of irrigation, second dose of nitrogen should be broadcasted in the field. In timely sown mustard crop farmers are advised to do thinning and weeding. If mustard crop is 35-40 days old, farmers are advised to apply irrigation as there is no rain forecast for the next five days. Farmers who are interested for late sowing of wheat are advised to undertake sowing of wheat varieties like P.B.W.373, WR-544, U.P.2338, U.P.2425. Transplantation of onion should be done in this week. Irrigation in timely sown potato crop is advised.
- 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 of 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 appears then spray of Carbandizam @ 1.0 gm / litre of water or Dithane-M-45 @ 2.0 g / litre of water is recommended.
- Undertake monitoring of mustard crop against attack of painted bug. If attack is severe then, spraying of Carbaryl (Sevin) 2 gram/litre of water is advised.
- **Uttar Pradesh:**
 - In Central Plain Zone of Uttar Pradesh, continue harvesting of matured sugarcane. Undertake thinning and weeding operation in mustard and gram crop. Apply light irrigation in timely sown wheat crop after 20 to 25 days of sowing at CRI stage. Apply 1st irrigation in barely at tillering stage, after 30-35 days of sowing and in gram 45-60 days of sowing. Undertake transplanting of tomato seedling. Continue transplanting of onion nursery. Apply light irrigation in vegetable as per requirement.
 - In Western Plain Zone of Uttar Pradesh, keeping in view of dry weather conditions, apply irrigation in wheat crop at CRI stage (21-25 days after sowing), after 3-4 days of irrigation second dose of nitrogen broadcast in the field. Continue sowing of late sown wheat. Treat seeds with Thiram @ 2 gm, Chloropyrifos @ 3 mg per kg of seeds.
 - In Eastern Plain Zone of Uttar Pradesh, continue sowing of late sown of wheat.
 - 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 Dimethoet 30% EC or Methyl -O- Demeton 25% EC or Chlorpyrifos 20% @ 1 litre or Monochrotophos 36% SL @ 500 ml per 600 to 750 litres of water per hectare.
 - In Central Plain Zone of East Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of powdery mildew in pea crop, for control broadcast Sulphur 80% @ 2 kg. or Tridemorph 80% EC @ 500 ml in 500 to 600 litres of water per hectare.
 - In Central Plain Zone of East Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of rust in wheat crop, for control spray Zinc Carbonate @ 2 kg dissolved in 1000 litres of water twice at 10 days of interval.
 - 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 Central Plain Zone of East Uttar Pradesh, due to prevailing foggy weather condition, there may be chances of attack of blight in potato crop, for control, spray Indofil-M-45 / Kavach /Antracol @ 500-700 g per acre or Blitox @ 750-1000 g per acre in 250 to 350 litres of water per acre at weekly interval 2-3 times.
 - In North Eastern plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of blight and aphid in potato crop, for control apply Redomil MZ @ 0.2% + Monochrotophos @ 0.2%.

- In Eastern Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of pod fly and pod borer in pigeon pea crop and downy mildew in pea crop, for control pod fly and pod borer in pigeon pea spray Imidacloprid @ 1 ml per litre of water per hectare and for control of downy mildew in peaspray Mancozeb 75% @ 2 kg in 800 litres of water per hectare.
- In Western Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of white rust in mustard crop and late blight in potato, for control powdery mildew in mustard crop spray Dithane-M-45 @ 2 gm/ litre of water in clear sky and for control of late blight in potato spray of Mancozeb @ 2 gm/ litre of water along with Tepol (sticky material).
- In Western Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of leaf feeders in cole crop, if pest population is above ETL than for control spray B.T. @ 1gm\ litre of water or Spinosad @1 ml \ 3 litre of water when sky remains clear.
- Suitable varieties for sowing are given in Annexure III.
- **Horticulture**
 - In Western Plain Zone of Uttar Pradesh, undertake wrapping of plastic sheets around mango trunk for preventing climbing of young mealy bugs. Apply grease to seal any cracks in the polythene sheets. Apply irrigation in all orchards.
 - In Punjab, it is the right time for layout, preparation of fields (digging and filling of pits) for planting deciduous fruit plants in January. The young and newly planted fruit plants should be covered with thatches or kullies made of sarkanda or farm waste materials to protect them from cold damage. The South-West side should be left open to allow sufficient sunlight.
 - In Gurdaspur and Hoshiarpur districts of Punjab, irrigate young fruit plants and orchard trees at regular interval for proper growth and to avoid adverse effects of low temperature.
 - In Himachal Pradesh present weather is conducive for the Citrus canker in citrus, for control spray Streptocycline Sulphate 500 ppm solution.
 - In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, provide thatching prepared from Sarkanda or any other material to young plants and burn garden waste in night to give protection against frost.
 - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, farmers are advised to go for preparation of nursery beds and sowing of seeds for raising of root stocks of stone fruits like peach, plum, apricot, almond walnut and peacan nut. As dry weather is prevailing give irrigation to orchards.
 - 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 blue beetle in roses and balsam, for control spray Endosulfan @ 0.1% or Cypermethrin @ 0.05%.
 - In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, spray chrysanthemum with Bavistin or DM-45 @ 1g/litre or 2g/litre respectively to protect from fungal diseases.
 - 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 nector 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, give sugar feeding (1:1). Migrate colonies to areas having floral resources (near toria/vegetable crops). Provide winter packing to bee colonies to protect them from cold. Reduce the entrance. Sulphur dusting/oxalic acid spray @ 3.5% in one litre of water is recommended at fortnight intervals to control ectoparasitic mites.
 - In Rajouri, Ramban, Poonch and Udhampur districts of Jammu & Kashmir, farmers are advised to miagate the honey bee colonies from hilly regions to plains to avoid mortality due to decline in temperature.
- **Animal Husbandry**
 - In Rajasthan, due to cold winds milch and baby animals are likely to be affected with infection of respiratory tracts. If symptoms like droppings from nose, fever etc. are observed in animals, 3 days course of Ciprofloxacin, Anorflaxin or Sulpha may be given under the guidance of Veterinary Doctor.
 - 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, provide the curtain at the windows in poultry sheds. Temperature inside the shed should not be below 60°F. If the temperature falls, there is need for doubling the curtains and to provide artificial heating system so

that production did not drop. Keep the chicks warm by giving them artificial heat according to age. For the first week keep 90-95° F and go on decreasing 5° F per week according to the season. Poultry ration should have more energy. Therefore, increase cereals by 5-8% in the ration and adjust the rice bran content.

- In Jammu & Kashmir, give special care to young calves as they are more sensitive to pneumonia. Protect the pregnant and milch animals from cold and feed them mineral mixture regularly. Provide dry bedding during night. Use dry gunny bags as bedding material for protection against low night temperatures. Do not allow animals to leave khurli early in morning directly to open area.
- In Nainital district of Bhabar and Tarai Zone, 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 (Sheetlarog). 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. Toxocaravitulorum (patera) are found in the food tube of buffalo calf in the age of 1-4 month. More than 50% buffalo calf die because of delay in treatment. Piperazine should be given to the infected calf on identification of Patera disease.
- **Fishries**
 - 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 cocksedia 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 bukhari.

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

Annexure I

Week by week Rainfall Distribution

Sub-Divisions	07.12.16		14.12.16		21.12.16	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
Arunachal Pradesh						
Anjaw	**	**	**	**	**	**
Changlang	0.0	-100	0.0	-100	0.0	-100
Dibang Valley	0.0	-100	0.0	-100	0.0	-100
East Kameng	0.0	-100	0.0	-100	0.0	-100
East Siang	0.0	-100	0.0	-100	0.0	-100
Kurung Kumey	**	**	**	**	**	**
Lohit	0.3	-97	0.0	-100	0.0	-100
Lower Dibang Valley	0.0	-100	0.0	-100	0.0	-100
Lower Subansari	**	**	**	**	**	**
Papumpare	0.0	-100	0.0	-100	1.2	-8
Tawang	9.0	157	0.0	-100	3.0	-52
Tirap	0.0	-100	0.0	-100	0.0	-100
Upper Siang	0.0	-100	0.0	-100	0.0	-100
Upper Subansari	0.8	-11	0.0	-100	0.0	-100
West Kameng	0.0	-100	0.0	-100	0.0	-100
West Siang	0.0	-100	0.0	-100	0.0	-100
Assam&Meghalaya						

Assam						
Baksa	0.0	-100	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	0.0	-100	0.0	-100	0.0	-100
Chirang	0.0	-100	0.0	-100	0.0	-100
Darrang	**	**	**	**	**	**
Dhemaji	0.0	-100	0.0	-100	0.0	-100
Dhubri	0.0	-100	0.0	-100	0.0	-100
Dibrugarh	0.0	-100	0.0	-100	0.0	-100
Goalpara	0.0	-100	0.0	-100	0.0	-100
Golaghat	0.0	-100	0.0	-100	0.0	-100
Hailakandi	0.0	-100	0.0	-100	0.0	-100
Jorhat	0.0	-100	0.0	-100	0.0	-100
Kamrup(Rural)	0.0	-100	0.0	-100	0.0	-100
Kamrup(Metro)	0.0	-100	0.0	-100	0.0	-100
Karbi Anglong	0.0	-100	0.0	-100	0.0	-100
Karimganj	0.0	-100	0.0	-100	0.0	-100
Kokrajhar	0.0	-100	0.0	-100	0.0	-100
Lakhimpur	0.0	-100	0.0	-100	0.0	-100
Morigaon	0.0	-100	0.0	-100	0.0	-100
N.C.Hills	0.0	-100	0.0	-100	0.0	-100
Nagaon	0.0	-100	0.0	-100	0.0	-100
Nalbari	0.0	-100	0.0	-100	0.0	-100
Sonitpur	0.0	-100	0.0	-100	0.0	-100
Sibsagar	0.0	-100	0.0	-100	0.0	-100
Tinsukia	0.0	-100	0.0	-100	0.0	-100
Udalgiri	0.0	-100	0.0	-100	0.0	-100
Meghalaya						
East Garo Hills	0.0	-100	0.0	-100	0.0	-100
East Khasi Hills	0.0	-100	0.0	-100	0.4	-49
Jaintia Hills	0.0	-100	0.0	-100	0.0	-100
Ribhoi	0.1	-94	0.0	-100	0.0	-100
South Garo Hills	3.0	900	0.0	-100	29.0	133
West Garo Hills	0.0	-100	0.0	-100	0.0	-100
West Khasi Hills	0.0	-100	0.0	-100	0.0	-100
NMMT						
Mizoram						
Aizwal	0.0	-100	0.0	-100	0.0	-100
Champhai	**	**	**	**	**	**
Kolasib	0.0	-100	0.0	-100	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	0.0	-100	0.0	-100	0.0	-100
Mamit	**	**	**	**	**	**
Saiha	**	**	**	**	0.0	-100
Serchhip	**	**	**	**	0.0	-100
Manipur						
Bishnupur	**	**	**	**	**	**
Chandel	**	**	**	**	0.0	-100

Churachandpur	0.0	-100	0.0	-100	**	**
Imphal east	**	**	**	**	0.0	-100
Imphal west	0.0	-100	0.0	-100	0.0	-100
Senapati	0.0	-100	0.0	-100	**	**
Tamenglong	0.0	-100	0.0	-100	**	**
Thoubal	**	**	**	**	0.0	-100
Ukhrul	0.0	-100	0.0	-100	**	**
Nagaland						
Dimapur	0.0	-100	0.0	-100	0.0	-100
Kephire	**	**	**	**	0.0	-100
Kohima	0.0	-100	0.0	-100	0.0	-100
Longleng	0.0	-100	0.0	-100	**	**
Mokokchung	0.0	-100	0.0	-100	0.0	-100
Mon	**	**	**	**	**	**
Paren	0.0	-100	0.0	-100	**	**
Phek	0.0	-100	0.0	-100	0.0	-100
Tuensang	0.0	-100	0.0	-100	**	**
Wokha	0.0	-100	0.0	-100	0.0	-100
Zunheboto	0.0	-100	0.0	-100	**	**
Tripura						
Dhalai	**	**	0.0	-100	0.0	-100
NorthTripura	**	**	0.0	-100	0.0	-100
SouthTripura	**	**	0.0	-100	0.0	-100
West Tripura	0.0	-100	0.0	-100	0.0	-100
Himachal Pradesh						
Bilaspur	0.0	-100	0.0	-100	0.0	-100
Chamba	0.0	-100	0.0	-100	0.0	-100
Hamirpur	0.0	-100	0.0	-100	0.0	-100
Kangra	0.0	-100	0.0	-100	0.0	-100
Kinnaur	0.0	-100	0.0	-100	0.0	-100
Kullu	0.0	-100	0.0	-100	0.0	-100
Lahaul and Spiti	0.0	-100	0.0	-100	0.0	-100
Mandi	0.0	-100	0.0	-100	0.0	-100
Shimla	0.0	-100	0.0	-100	0.0	-100
Sirmaur	0.0	-100	0.0	-100	0.0	-100
Solan	0.0	-100	0.0	-100	0.0	-100
Una	0.0	-100	0.0	-100	0.0	-100
Punjab						
Amritsar	0.0	-100	0.0	-100	0.0	-100
Barnala	0.0	-100	0.0	-100	0.0	-100
Bhatinda	0.0	-100	0.0	-100	0.0	-100
Faridkot	0.0	-100	0.0	-100	0.0	-100
Fatehgarh Saheb	0.0	-100	0.0	-100	0.0	-100
Ferozpur	0.0	-100	0.0	-100	0.0	-100
Gurdaspur	0.0	-100	0.0	-100	0.0	-100
Hoshiarpur	0.0	-100	0.0	-100	0.0	-100
Jalandhar	0.0	-100	0.0	-100	0.0	-100
Kapurthala	0.0	-100	0.0	-100	0.0	-100
Ludhiana	0.0	-100	0.0	-100	0.0	-100

Mansa	0.0	-100	0.0	-100	0.0	-100
Moga	0.0	-100	0.0	-100	0.0	-100
Muktesar	0.0	-100	0.0	-100	0.0	-100
Nawashahar	0.0	-100	0.0	-100	0.0	-100
Patiala	0.0	-100	0.0	-100	0.0	-100
Ropar	0.0	-100	0.0	-100	0.0	-100
Sangrur	0.0	-100	0.0	-100	0.0	-100
Mohali	0.0	-100	0.0	-100	0.0	-100
TarnTaran	0.0	-100	0.0	-100	0.0	-100
Haryana,Chd,Delhi						
Haryana						
Ambala	0.0	-100	0.0	-100	0.0	-100
Bhiwani	0.0	-100	0.0	-100	0.0	-100
Chandigarh	0.0	-100	0.0	-100	0.0	-100
Faridabad	0.0	-100	0.0	-100	0.0	-100
Fatehabad	0.0	-100	0.0	-100	0.0	-100
Gurgaon	0.0	-100	0.0	-100	0.0	-100
Hissar	0.0	-100	0.0	-100	0.0	-100
Jhajar	0.0	-100	0.0	-100	0.0	-100
Jind	0.0	-100	0.0	-100	0.0	-100
Katihah	0.0	-100	0.0	-100	0.0	-100
Karnal	0.0	-100	0.0	-100	0.0	-100
Kurukshetra	0.0	-100	0.0	-100	0.0	-100
Mahendragarh	0.0	-100	0.0	-100	0.0	-100
Mewat	0.0	-100	0.0	-100	0.0	-100
Palwal	0.0	-100	0.0	-100	0.0	-100
Panchkkula	0.0	-100	0.0	-100	0.0	-100
Panipat	0.0	-100	0.0	-100	0.0	-100
Rewari	0.0	-100	0.0	-100	0.0	-100
Rohtak	0.0	-100	0.0	-100	0.0	-100
Sirsa	0.0	-100	0.0	-100	0.0	-100
Sonepat	0.0	-100	0.0	-100	0.0	-100
Yamunanagar	0.0	-100	0.0	-100	0.0	-100
Delhi						
Central Delhi	0.0	-100	0.0	-100	0.0	-100
East Delhi	0.0	-100	0.0	-100	0.0	-100
New Delhi	0.0	-100	0.0	-100	0.0	-100
North Delhi	0.0	-100	0.0	-100	0.0	-100
North East Delhi	0.0	-100	0.0	-100	0.0	-100
North West Delhi	0.0	-100	0.0	-100	0.0	-100
South Delhi	0.0	-100	0.0	-100	0.0	-100
South West Delhi	0.0	-100	0.0	-100	0.0	-100
West Delhi	**	**	**	**	**	**
Jammu & Kashmir						
Anantnag	0.1	-98	2.9	-80	0.0	-100
Badgam	0.0	-100	2.2	-70	0.0	-100
Bandipore	**	**	**	**	**	**
Baramula	0.0	-100	6.1	-56	0.0	-100
Doda	0.0	-100	7.0	-55	0.0	-100

Ganderbal	0.0	-100	3.8	-72	0.0	-100
Jammu	0.0	-100	0.0	-100	0.0	-100
Kargil	**	**	**	**	**	**
Kathua	0.0	-100	0.0	-100	0.0	-100
Kistwar	**	**	**	**	**	**
Kulgam	0.0	-100	1.9	-74	0.0	-100
Kupwara	0.0	-100	20.4	-17	0.0	-100
Ladakh(Leh)	0.0	-100	0.0	-100	0.0	-100
Poonch	**	**	2.2	-31	**	**
Pulwama	0.0	-100	**	**	0.0	-100
Rajouri	0.0	-100	0.0	-100	0.0	-100
Ramban	0.0	-100	7.8	-62	0.0	-100
Reasi	0.0	-100	0.0	-100	0.0	-100
Samba	0.0	-100	0.0	-100	0.0	-100
Shopian	**	**	**	**	**	**
Srinagar	0.0	-100	2.9	-79	0.0	-100
Udhampur	0.0	-100	2.5	-58	0.0	-100
East Madhya Pradesh						
Anuppur	0.0	-100	0.0	-100	0.0	-100
Balaghat	0.0	-100	0.0	-100	0.0	-100
Chhatarpur	0.0	-100	0.0	-100	0.0	-100
Chindwara	0.0	-100	0.0	-100	0.0	-100
Damoh	0.0	-100	0.0	-100	0.0	-100
Dindori	0.0	-100	0.0	-100	0.0	-100
Jabalpur	0.0	-100	0.0	-100	0.0	-100
Katni	0.0	-100	0.0	-100	0.0	-100
Mandla	0.0	-100	0.0	-100	0.0	-100
Narsingpur	0.0	-100	0.0	-100	0.0	-100
Panna	0.0	-100	0.0	-100	0.0	-100
Rewa	0.0	-100	0.0	-100	0.0	-100
Sagar	0.0	-100	0.0	-100	0.0	-100
Satna	0.0	-100	0.0	-100	0.0	-100
Seoni	0.0	-100	0.0	-100	0.0	-100
Shahdol	0.0	-100	0.0	-100	0.0	-100
Sidhi	0.0	-100	0.0	-100	0.0	-100
Singrauli	0.0	-100	0.0	-100	0.0	-100
Tikamgarh	0.0	-100	0.0	-100	0.0	-100
Umaria	0.0	-100	0.0	-100	0.0	-100
West Madhya Pradesh						
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	0.0	-100
Ujjain	0.0	-100	0.0	-100	0.0	-100
Vidisha	0.0	-100	0.0	-100	0.0	-100
Chhattisgarh						
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	0.0	-100	0.0	-100
Bastar	0.0	-100	0.0	-100	0.0	-100
Bemetara	0.0	-100	0.0	-100	0.0	-100
Bijapur	0.0	-100	0.0	-100	0.0	-100
Bilaspur	0.0	-100	0.0	-100	0.0	-100
Dantewara	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	0.0	-100
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	0.0	-100	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	0.0	-100
Narayanpur	0.0	-100	0.0	-100	0.0	-100
Raigarh	0.0	-100	0.0	-100	0.0	-100
Raipur	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100	0.0	-100
East Uttar Pradesh						
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	0.0	-100
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	0.0	-100
Basti	0.0	-100	0.0	-100	0.0	-100
Chandauli	0.0	-100	0.0	-100	0.0	-100
Deoria	0.0	-100	0.0	-100	0.0	-100
Faizabad	0.0	-100	0.0	-100	0.0	-100
Farrukhabad	0.0	-100	0.0	-100	0.0	-100
Fatehpur	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100	0.0	-100
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	0.0	-100
Maharajganj	0.0	-100	0.0	-100	0.0	-100
Mau	0.0	-100	0.0	-100	0.0	-100
Mirzapur	0.0	-100	0.0	-100	0.0	-100
Pratapgarh	0.0	-100	0.0	-100	0.0	-100
RaiBareilly	0.0	-100	0.0	-100	0.0	-100
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	0.0	-100	0.0	-100
Sultanpur	0.0	-100	0.0	-100	0.0	-100
Unnao	0.0	-100	0.0	-100	0.0	-100
Varanasi	0.0	-100	0.0	-100	0.0	-100
West Uttar Pradesh						
Agra	0.0	-100	0.0	-100	0.0	-100
Aligarh	0.0	-100	0.0	-100	0.0	-100
Auraiya	0.0	-100	0.0	-100	0.0	-100
Badaun	0.0	-100	0.0	-100	0.0	-100

Baghpat	0.0	-100	0.0	-100	0.0	-100
Bareilly	0.0	-100	0.0	-100	0.0	-100
Bijnor	0.0	-100	0.0	-100	0.0	-100
Bulandsahar	0.0	-100	0.0	-100	0.0	-100
Etah	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	0.0	-100
Ghaziabad	0.0	-100	0.0	-100	0.0	-100
Hamirpur	0.0	-100	0.0	-100	0.0	-100
Jalaun	0.0	-100	0.0	-100	0.0	-100
Jhansi	0.0	-100	0.0	-100	0.0	-100
Jotiba Phule Nagar	0.0	-100	0.0	-100	0.0	-100
Kanshiramnagar	0.0	-100	0.0	-100	0.0	-100
Lalitpur	0.0	-100	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	0.0	-100
Moradabad	0.0	-100	0.0	-100	0.0	-100
Muzzaffarnagar	0.0	-100	0.0	-100	0.0	-100
Pilibhit	0.0	-100	0.0	-100	0.0	-100
Rampur	0.0	-100	0.0	-100	0.0	-100
Saharanpur	0.0	-100	0.0	-100	0.0	-100
Shahjahanpur	0.0	-100	0.0	-100	0.0	-100
Uttarakhand						
Almora	0.0	-100	0.0	-100	0.0	-100
Bageshwar	0.0	-100	0.0	-100	0.0	-100
Chamoli	0.0	-100	0.0	-100	0.0	-100
Champawat	0.0	-100	0.0	-100	0.0	-100
Dehradun	0.0	-100	0.0	-100	0.0	-100
Garhwal Pauri	0.0	-100	0.0	-100	0.0	-100
Garhwal Tehri	0.0	-100	0.0	-100	0.0	-100
Haridwar	0.0	-100	0.0	-100	0.0	-100
Nainital	0.0	-100	0.0	-100	0.0	-100
Pithorgarh	0.0	-100	0.0	-100	0.0	-100
Rudraprayag	0.0	-100	0.0	-100	0.0	-100
Udham Sing Nagar	0.0	-100	0.0	-100	0.0	-100
Uttarkashi	0.0	-100	0.0	-100	0.0	-100
Bihar						
Araria	0.0	-100	0.0	-100	0.0	-100
Arwal	0.0	-100	0.0	-100	0.0	-100
Aurangabad	0.0	-100	0.0	-100	0.0	-100
Banka	0.0	-100	0.0	-100	0.0	-100
Begusarai	0.0	-100	0.0	-100	0.0	-100
Bhabua	0.0	-100	0.0	-100	0.0	-100
Bhagalpur	0.0	-100	0.0	-100	0.0	-100
Bhojpur	0.0	-100	0.0	-100	0.0	-100

Buxar	0.0	-100	0.0	-100	0.0	-100
Darbhanga	0.0	-100	0.0	-100	0.0	-100
East Champaran	0.0	-100	0.0	-100	0.0	-100
Gaya	0.0	-100	0.0	-100	0.0	-100
Gopalganj	0.0	-100	0.0	-100	0.0	-100
Jahanabad	0.0	-100	0.0	-100	0.0	-100
Jamui	0.0	-100	0.0	-100	0.0	-100
Kathihar	0.0	-100	0.0	-100	0.0	-100
Khagadia	0.0	-100	0.0	-100	0.0	-100
Kishanganj	0.0	-100	0.0	-100	0.0	-100
Lakhisarai	0.0	-100	0.0	-100	0.0	-100
Madhepura	0.0	-100	0.0	-100	0.0	-100
Madhubani	0.0	-100	0.0	-100	0.0	-100
Monghyar	0.0	-100	0.0	-100	0.0	-100
Muzaffarpur	0.0	-100	0.0	-100	0.0	-100
Nalanda	0.0	-100	0.0	-100	0.0	-100
Nawada	0.0	-100	0.0	-100	0.0	-100
Patna	0.0	-100	0.0	-100	0.0	-100
Purnea	0.0	-100	0.0	-100	0.0	-100
Rohtas	0.0	-100	0.0	-100	0.0	-100
Saharsha	0.0	-100	0.0	-100	0.0	-100
Samstipur	0.0	-100	0.0	-100	0.0	-100
Saran	0.0	-100	0.0	-100	0.0	-100
Sheikpura	0.0	-100	0.0	-100	0.0	-100
Sheohar	0.0	-100	0.0	-100	0.0	-100
Sitamarhi	0.0	-100	0.0	-100	0.0	-100
Siwan	0.0	-100	0.0	-100	0.0	-100
Supaul	0.0	-100	0.0	-100	0.0	-100
Vaishali	0.0	-100	0.0	-100	0.0	-100
West Champaran	0.0	-100	0.0	-100	0.0	-100
Jharkhand						
Bokaro	0.0	-100	0.0	-100	0.0	-100
Chatra	0.0	-100	0.0	-100	0.0	-100
Deoghar	0.0	-100	0.0	-100	0.0	-100
Dhanbad	0.0	-100	0.0	-100	0.0	-100
Dumka	0.0	-100	0.0	-100	0.0	-100
East Singbhum	0.0	-100	0.0	-100	0.0	-100
Garhwa	0.0	-100	0.0	-100	0.0	-100
Giridih	0.0	-100	0.0	-100	0.0	-100
Godda	0.0	-100	0.0	-100	0.0	-100
Gumla	0.0	-100	0.0	-100	0.0	-100
Hazaribagh	0.0	-100	0.0	-100	0.0	-100
Jamtara	**	**	**	**	**	**
Khunti	0.0	-100	0.0	-100	0.0	-100
Koderna	0.0	-100	0.0	-100	0.0	-100
Latehar	0.0	-100	0.0	-100	0.0	-100
Lohardagga	0.0	-100	0.0	-100	0.0	-100
Pakur	0.0	-100	0.0	-100	0.0	-100
Palamau	0.0	-100	0.0	-100	0.0	-100

Ramgarh	**	**	**	**	**	**
Ranchi	0.0	-100	0.0	-100	0.0	-100
Sahebganj	0.0	-100	0.0	-100	0.0	-100
Saraikela	0.0	-100	0.0	-100	0.0	-100
Simdega	0.0	-100	0.0	-100	0.0	-100
West Singhbhum	0.0	-100	0.0	-100	0.0	-100
East Rajasthan						
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
West Rajasthan						
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
Gujarat Region						
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	**	**	**	**	0.0	-100
Dangs	0.0	-100	0.0	-100	0.0	-100
Gandhinagar	0.0	-100	0.0	-100	0.0	-100
Kheda	0.0	-100	0.0	-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
S K & Diu region						
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	0.0	-100
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
Maharashtra						
Konkan & Goa						
Mumbai City	0.0	-100	0.0	-100	0.0	-100
Mumbai Suburban	0.0	-100	0.0	-100	0.0	-100
North Goa	0.0	-100	0.0	-100	0.5	60
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	1.1	175
Thane	**	**	**	**	**	**
Madhya Maharashtra						
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	0.0	-100
Satara	0.0	-100	0.0	-100	0.0	-100
Solapur	0.0	-100	0.0	-100	3.4	244
Marathwada						
Aurangabad	0.0	-100	0.0	-100	0.0	-100
Beed	**	**	**	**	**	**
Hingoli	**	**	**	**	**	**
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	**	**	**	**	1.0	11
Parbhani	0.0	-100	0.0	-100	0.0	-100
Vidarbha						
Akola	0.0	-100	0.0	-100	0.0	-100
Amraoti	0.0	-100	0.0	-100	0.0	-100
Bhandara	0.0	-100	0.0	-100	0.0	-100
Buldhana	0.0	-100	0.0	-100	0.0	-100
Chandrapur	0.0	-100	0.0	-100	0.0	-100
Gadchiroli	0.0	-100	0.0	-100	0.0	-100
Gondia	0.0	-100	0.0	-100	0.0	-100
Nagpur	0.0	-100	0.0	-100	0.0	-100
Wardha	0.0	-100	0.0	-100	0.0	-100
Washim	0.0	-100	0.0	-100	0.0	-100
Yeotmal	0.0	-100	0.0	-100	0.0	-100
Odisha						
Angul	0.0	-100	0.0	-100	0.0	-100
Balasore	0.0	-100	0.0	-100	0.0	-100
Bargarh	0.0	-100	0.0	-100	0.0	-100
Bhadrak	0.0	-100	0.0	-100	0.0	-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	0.0	-100	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	0.0	-100	0.0	-100
Kalahandi	0.0	-100	0.0	-100	0.0	-100
Kandhamal	0.0	-100	0.0	-100	0.0	-100
Kendrapara	0.0	-100	0.0	-100	0.0	-100
Keonjhar	0.0	-100	0.0	-100	0.0	-100
Khurda	0.0	-100	0.0	-100	0.0	-100
Koraput	4.5	200	0.0	-100	0.0	-100
Malkangiri	6.4	3100	0.0	-100	0.0	-100
Mayurbhanj	0.0	-100	0.0	-100	0.0	-100
Nawapara	0.0	-100	0.0	-100	0.0	-100
Nawarangpur	0.0	-100	0.0	-100	0.0	-100






Nayagarh	0.0	-100	0.0	-100	0.0	-100
Puri	0.0	-100	0.0	-100	0.0	-100
Rayagada	0.0	-100	0.0	-100	0.0	-100
Sambalpur	0.0	-100	0.0	-100	0.0	-100
Sonepur	0.0	-100	0.0	-100	0.0	-100
Sundargarh	0.0	-100	0.0	-100	0.0	-100
West Bengal & Andaman Nicobar Islands						
A & N ISLAND						
Nicobar	375.3	431	83.2	27	11.2	-80
North & Middle Andaman	77.8	198	314.5	844	25.4	95
South Andaman	274.4	543	166.1	290	51.4	257
GWB						
Bankura	0.0	-100	0.0	-100	0.0	-100
Birbhum	0.0	-100	0.0	-100	0.0	-100
Burdwan	0.0	-100	0.0	-100	0.0	-100
East Midnapore	0.0	-100	0.0	-100	0.0	-100
Hooghly	0.0	-100	0.0	-100	0.0	-100
Howrah	0.0	-100	0.0	-100	0.0	-100
Kolkata	0.0	-100	0.0	-100	0.0	-100
Murshidabad	0.0	-100	0.0	-100	0.0	-100
Nadia	0.0	-100	0.0	-100	0.0	-100
24 Pargana (N)	0.0	-100	0.0	-100	0.0	-100
Purulia	0.0	-100	0.0	-100	0.0	-100
24 Pargana (S)	0.0	-100	0.0	-100	0.0	-100
West Midnapore	0.0	-100	0.0	-100	0.0	-100
SHWB & Sikkim						
Cooch Behar	0.0	-100	0.0	-100	0.0	-100
Darjeeling	0.0	-100	0.0	-100	0.0	-100
East Sikkim	0.4	-93	0.0	-100	0.0	-100
Jalpaiguri	0.4	-86	0.0	-100	0.0	-100
Malda	0.0	-100	0.0	-100	0.0	-100
North Dinajpur	**	**	**	**	0.0	-100
North Sikkim	0.0	-100	0.0	-100	0.0	-100
South Dinajpur	0.0	-100	0.0	-100	0.0	-100
South Sikkim	1.8	-62	0.0	-100	0.0	-100
West Sikkim	**	**	**	**	**	**
Karnataka						
Coastal Karnataka						
Dakshina Kannada	5.4	3	2.5	-61	2.9	38
Udupi	9.6	37	0.6	-95	8.3	421
Uttara Kannada	0.0	-100	0.2	-97	0.6	-48
N I Karnataka						
Bagalkote	0.0	-100	0.0	-100	0.0	-96
Belagavi	0.0	-100	0.2	-92	0.0	-100
Bidar	0.0	-100	0.0	-100	0.2	-50
Dharwad	0.0	-100	0.0	-100	0.0	-100
Gadag	0.4	-88	2.5	13	1.3	44
Haveri	0.0	-100	2.2	-18	0.1	-92

Kalaburgi	0.0	-100	0.2	-98	0.5	128
Koppal	0.0	-100	0.1	-98	0.6	-39
Raichur	0.0	-100	0.3	-87	0.2	-52
Vijayapura	0.0	-100	0.0	-100	1.4	41
Yadgir	0.0	-100	0.0	-100	2.1	419
S I Karnataka						
Ballari	0.3	-95	5.2	60.9	0.1	-94
Bangalore Rural	9.6	96	54.6	1417	4.5	67
Bangalore Urban	13.8	97	60.3	1131	0.2	-95
Chamarajanagar	2.9	-71	21.4	206	0.0	-100
Chikaballapur	22.7	344	35.3	530	0.5	-72
Chikkamagaluru	8.9	147	9.0	104	2.3	14
Chitradurga	6.4	88	11.1	216	0.0	-100
Davangere	1.0	-73	6.6	175	0.3	-25
Hassan	3.0	-7	26.1	669	1.4	-29
Kodagu	9.5	83	34.0	449	7.9	127
Kolar	26.1	223	65.7	800	5.0	74
Mandya	4.9	53	39.3	514	0.9	-55
Mysuru	4.0	14	24.1	363	0.7	-51
Ramanagara	8.9	106	45.2	605	1.0	-62
Shivamogga	1.3	-49	1.2	-66	1.4	-4
Tumakuru	12.7	272	22.6	464	0.0	-100
Kerala						
Alappuzha	16.4	-18	3.6	-77	0.6	-93
Kannur	0.0	-100	9.6	1	7.7	252
Ernakulam	9.4	-17	10.0	-48	0.1	-99
Idukki	12.9	-23	0.6	-96	3.9	-56
Kasaragod	0.7	-86	1.3	-85	23.7	887
Kollam	16.4	-14	1.9	-86	1.1	-90
Kottayam	7.0	-44	0.7	-95	0.0	-100
Kozhikode	4.5	-60	13.9	14	4.8	92
Malappuram	4.2	-53	11.0	14	1.2	-64
Palakkad	14.1	38	13.3	66	0.2	-94
Pathanamthitta	6.3	-69	1.4	-89	0.0	-100
Thiruvananthapuram	14.8	-32	0.8	-95	0.1	-99
Thrissur	17.2	60	23.6	51	6.6	58
Wyand	4.8	-37	12.6	27	16.8	424
Tamil Nadu						
Ariyalur	27.1	-53	1.3	-96	1.4	-94
Chennai	91.7	65	152.5	231	3.0	-84
Coimbatore	32.9	96	6.3	-59	5.7	-23
Cuddalore	24.8	-65	6.9	-86	5.5	-80
Dharmapuri	6.8	-60	39.6	144	0.0	-100
Dindigul	39.7	32	0.3	-99	3.6	-79
Erode	21.1	29	5.7	-61	0.0	-100
Kanchipuram	92.6	80	187.3	33	0.1	-99
Kanyakumari	12.9	-37	1.3	-94	0.0	-100
Karaikal	27.8	-65	0.0	-100	1.0	-98
Karur	28.4	48	1.3	-89	0.1	-98

Krishnagiri	10.5	-8	65.8	448	0.6	-92
Madurai	51.3	177	1.1	-94	1.3	-87
Nagapattinam	28.1	-74	0.3	-99	10.1	-78
Namakkal	21.2	45	4.7	-54	0.0	-100
Nilgiris	48.0	62	34.1	68	25.5	104
Perambalur	32.3	-1	2.0	-93	0.0	-100
Puducherry	85.1	12	28.7	-37	4.4	-89
Pudukottai	22.6	-41	0.0	-100	17.0	14
Ramanathapuram	35.4	-17	0.0	-100	1.9	-91
Salem	13.3	-30	44.1	122	0.8	-90
Sivaganga	55.8	100	0.0	-100	13.3	-10
Thanjavur	33.1	-44	0.0	-100	12.2	-41
Theni	10.6	-32	0.0	-100	2.1	-82
Tirunelveli	16.1	-43	0.3	-99	7.6	-65
Tirupur	20.5	14	0.7	-94	7.8	21
Tiruvallur	72.8	51	140.5	286	1.1	-93
Tiruvannamalai	38.9	19	60.2	180	2.5	-78
Tiruvarur	34.3	-59	0.0	-100	9.6	-69
Toothukudi	2.9	-91	8.3	-61	0.1	-99
Trichy	20.2	-30	1.6	-92	0.5	-96
Vellore	42.0	105	97.9	337	0.1	-99
Villupuram	31.6	-26	36.2	5	6.9	-59
Virudhunagar	42.6	121	13.8	-29	1.4	-90
Andhra Pradesh						
Coastal Andhra Pradesh						
East Godavari	1.3	-13	2.7	-44	0.0	-100
Guntur	0.8	-80	4.9	-44	2.0	81
Krishna	1.8	-36	7.5	2	0.9	-17
Nellore	54.6	38	103.2	165	1.2	-92
Prakasam	7.9	-20	50.7	243	2.3	-49
Sirkakulam	0.5	-57	0.1	-94	0.0	-100
Visakhapatnam	1.0	29	0.0	-99	0.0	-100
Vizianagram	0.3	-84	0.3	-91	0.0	-100
West Godavari	3.8	53	0.1	-98	0.0	-100
Rayalaseema						
Anantapur	5.5	10	14.1	282	0.0	-98
Chittoor	56.8	148	82.8	333	7.9	18
Cuddapah	25.6	122	40.3	437	0.8	-69
Kurnool	0.0	-100	0.7	-66	0.9	123
Telangana						
Adilabad	0.0	-100	0.0	-100	0.0	-100
Hyderabad	0.1	-96	1.5	-29	0.9	133
Karimnagar	0.0	-100	0.0	-100	0.0	-100
Khammam	0.2	-79	0.0	-100	0.0	-100
Mehabubnagar	0.0	-100	0.2	-65	0.4	84
Medak	0.0	-100	0.0	-100	0.2	-17
Nalgonda	0.0	-100	2.1	-35	0.2	-71
Nizamabad	0.0	-100	0.0	-100	0.0	-100

Rangareddy	0.0	-100	0.1	-93	0.2	-8
Warangal	0.0	-100	0.0	-100	0.0	-100

Legends

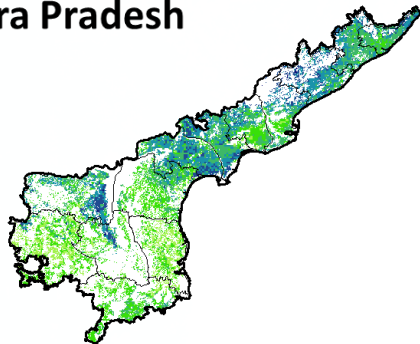
	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

Annexure II

NOAA/AVHRR NDVI COMPOSITE MAPS FOR THE WEEK ENDING ON

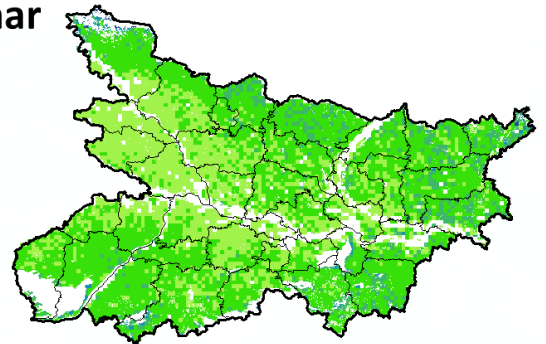
22nd December 2016 FOR DIFFERENT STATES

Andhra Pradesh



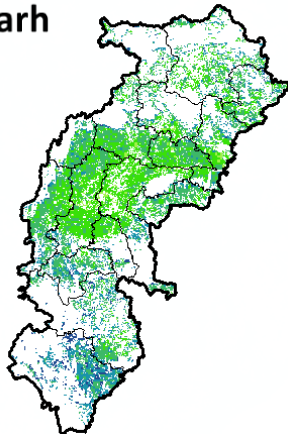
Agriculture vigour is moderate over southern part whereas, northern parts and patches in central region show good to very good NDVI in the state of Andhra Pradesh.

Bihar



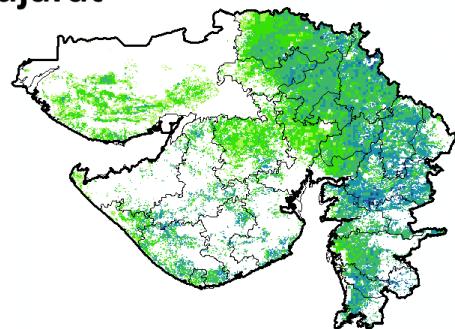
Agriculture vigour is moderate over entire state of Bihar.

Chhattisgarh



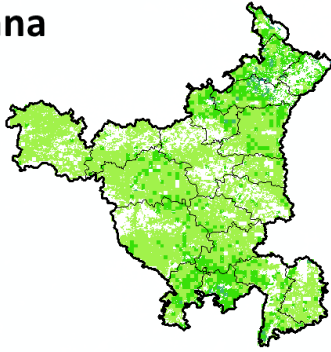
Agriculture vigour is good in southern region whereas, very moderate vigour is seen in central and northern region of Chhattisgarh.

Gujarat



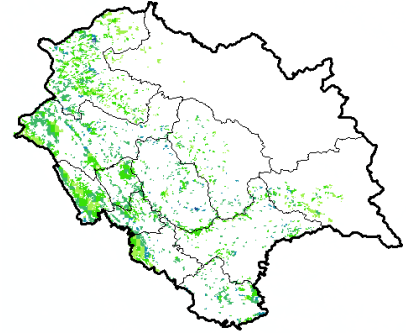
Moderate NDVI values are observed in patches in Kutch region whereas, good to very good NDVI is observed in Saurashtra and Gujarat.

Haryana



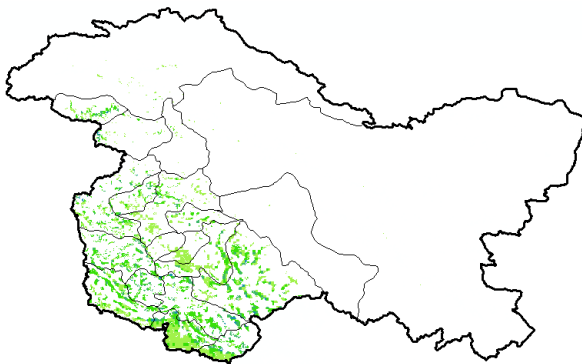
Moderate agriculture vigour is observed over entire state of Haryana.

Himachal Pradesh



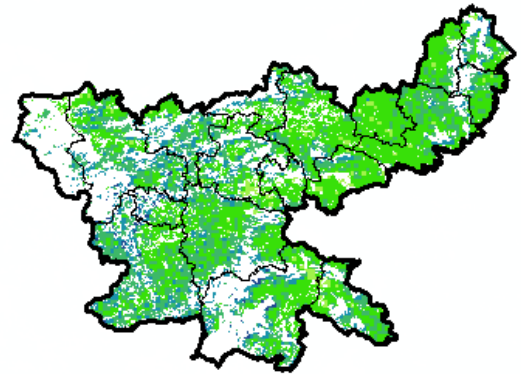
Agriculture vigour is moderate to good over Himachal Pradesh.

Jammu & Kashmir



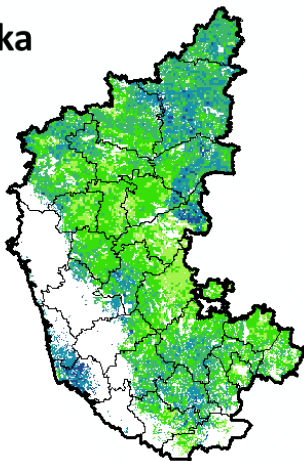
Agriculture vigour is moderate over entire state of Jammu & Kashmir.

Jharkhand



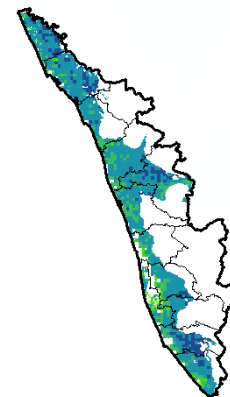
Agriculture vigour is very good over few patches in western region of Jharkhand whereas, remaining states shows good to moderate NDVI values.

Karnataka



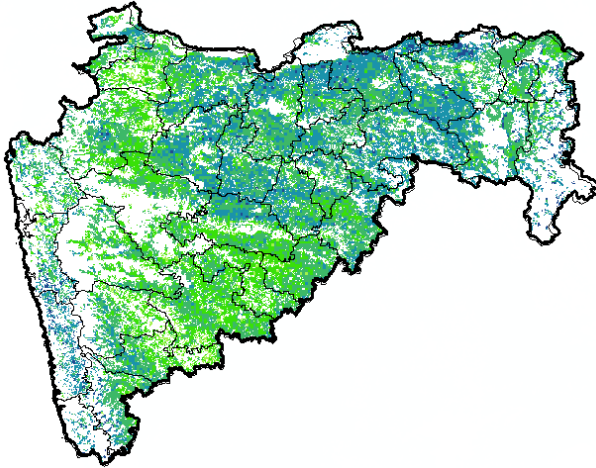
Agriculture vigour is moderate over patches in central region of the state whereas good vigour is observed in the northern and patches in southern regions.

Kerala



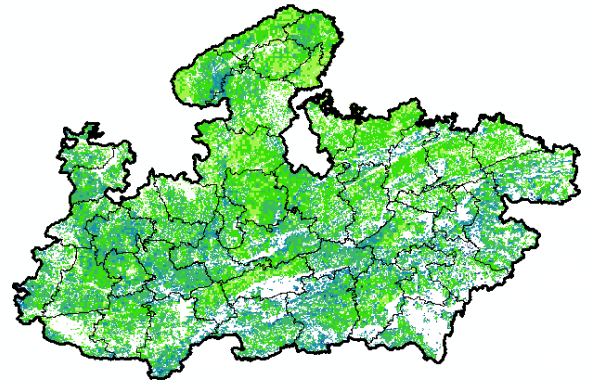
Agriculture vigour is good over entire state of Kerala except central part which shows moderate NDVI values.

Maharashtra



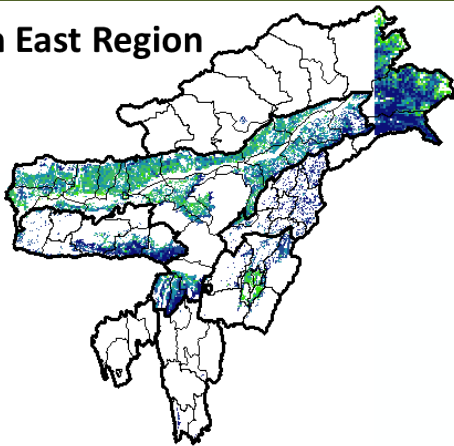
Agricultural vigour is moderate over central Maharashtra whereas, good to very good vigour is observed in the north and eastern regions.

Madhya Pradesh



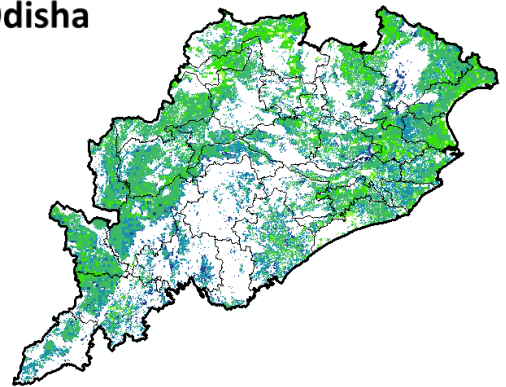
Agriculture vigour is moderate over patches in western and northern region of the state of Madhya Pradesh whereas, good vigour is observed over eastern and southern region.

North East Region



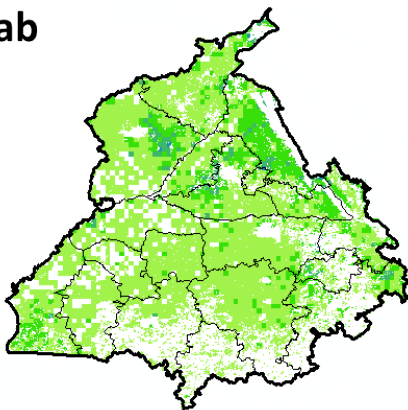
Agriculture vigour is good & very good over north-east states of country.

Odisha



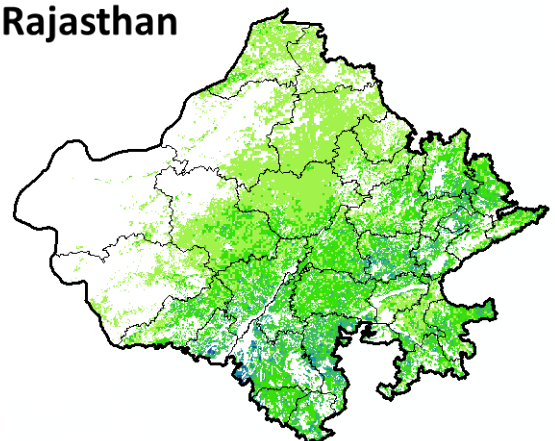
Agricultural vigour is moderate over few patches in coastal region of Odisha whereas, good vigour is observed in entire state.

Punjab



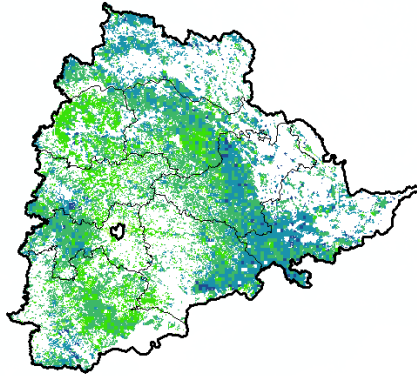
Agricultural vigour is moderate over entire state of Punjab.

Rajasthan



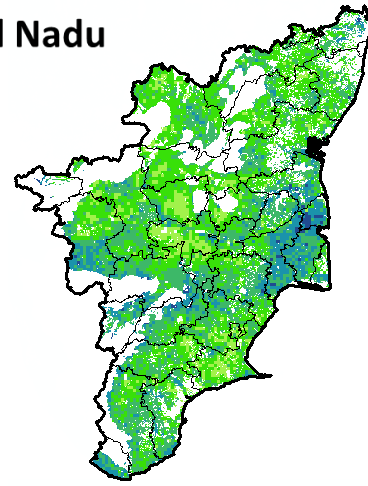
Agriculture vigour is moderate over western and northern Rajasthan whereas, good vigour is observed over patches in southern region.

Telangana



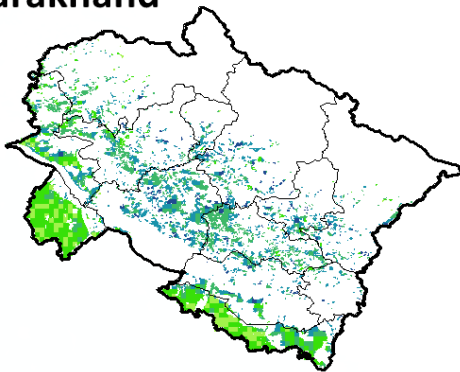
Agriculture vigour is good to very good over northern region of Telangana whereas, moderate vigour is observed in patches in the central and southern region.

Tamil Nadu



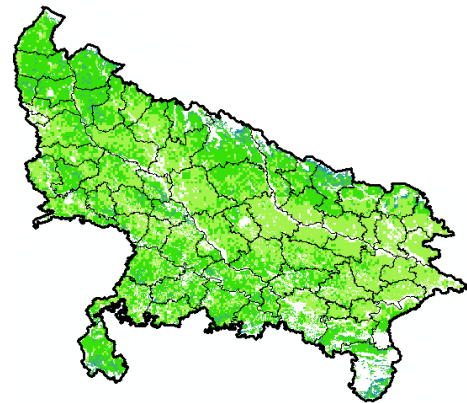
Agricultural vigour is good in patches in northern and central part of Tamil Nadu, whereas rest of the part shows moderate NDVI.

Uttarakhand



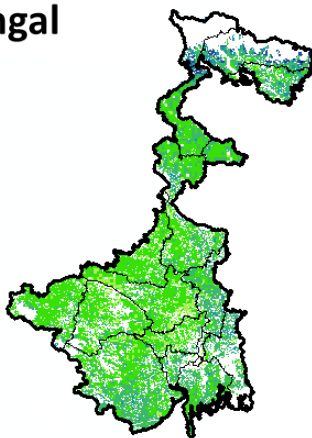
Agricultural vigour is good to very good in central region whereas, moderate in southern region of Uttarakhand.

Uttar Pradesh

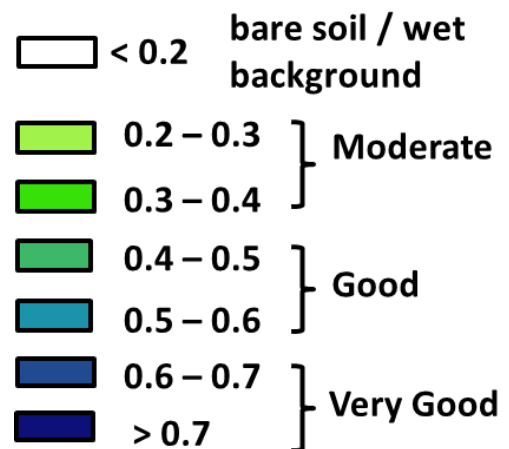


Agricultural vigour is moderate over entire state of Uttar Pradesh.

West Bengal



Agricultural vigour is good in northern regions in West Bengal, whereas patches remaining region of the state show moderate NDVI.



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

Annexure III

Assam

Okra: Pusa Sawani, Arka Anamika, Parbhdani Kranti.

Cauliflower : Early Kunwari, Pusa Ketki, Pusa Dipali.

Winter brinjal: Pusa Kranti, Pusa Purple Long, Pusa Purple Round, Pusa Vairab, Pant Samra.

Pumpkin: Arke Suryamukhi, Arka Chandan.

Radish : Pusa Desi, Pusa Chetki.

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).

Brinjal : Cluster, Barbengena, JC-1, Kuchia, Pusa Kranti, Pusa Purple Long (for long varieties).

Pusa Purple Round, Pusa Vairab, JC-2, BWR-12 (round varieties).

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).

Manipur

Pea : Arkel.

Tripura

Tomato: Trishul, Allrounder, T- 1408, T- 1458, Anup.

Cauliflower: CFL- 4048, Pusa early synthetic, Kamaya, Suhasihi.

Cabbage: BC- 76, Pusa Drum Head, Pusa Synthetic.

Broccoli: Everest, Ayeshwaria.

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

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, ICC-2, HK94-134(Kabuli) and Pusa 256, Pusa 372, Pant G-114, KWR 108, ICC 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.

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, Pusa Himani.
Carrot:Pusa Vrishi,
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.

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
Arahar:Bahar, Amar, Narendra Arahar-1,2, pusa-2001, pusa-991, pusa-992, parasmanak, UPAS 120.
Moong: Type-27, 56
Toria:TA-9, Bhawani, PT-30, PT-507, TA-36, PT-303.
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: chatmatkar, 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.
Toria: bhavani
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 Chhuhara, 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: Arawali 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.

Cowpea: FS-68, RC-19 and RC-101.

Moth: RMO-40, IPCMO-912, RMO-257, RMO-225, RMO-435 (Vikash) (improved varieties)

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: Pusa Keshar 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.

Isabgol: RI 89 & GI-2.

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.

Maharashtra

Jowar : Maldandi (M-35 – 1), SPV-655, SPV-839, Phule Yashoda, Parbhani Moti, Swati.

Wheat: NIAW-301 (Trimbak), NIAW-917 (Tapovan), NIDW-295 (Godavari), Late sowing- NIDW-15 (Panchavati), NIAW- 1495, NIAW-5439, MACS-1967, Ajinta.

For irrigated- NIAW-34, Tapovan, Godavari, Trimbak and PBN – 51.

Linseed: PKV NL-260, NL-97, NL-142 and NL-165.

Gujarat

Wheat: Lok-1, GW-496, GW -503, GW -273, GW -322, GW 173, GW 11.

Mustard: Gujarat Mustard 1, 2, 3, 4, Varuna.

Chick pea: Gujarat chana-2 (Unirrigated), Gujarat chana-3 (irrigated), Dahod Yellow, Chaffa.

Maize: Ganga safed -2, GM -6.

Cumin: Gujarat cumin-1, GC-2, GC 3 or MC-43.

Garlic: Gujarat Garlic-4 or Local, GG- 2,3,4, G-41, 50, 282.

Carrot: Patan Local, Pusa Kesar and Pusa Chamdagni.

Cabbage: Kranti, Golden Acre Pride of India, Copen Market.

Coriander: Gujarat Coriander-1, Gujarat Coriander-2.

Pea: Pusa Pragati.

Carrot: Pusa Rudhira, Pusa Kesar.

Fenugreek: Gujarat Fenugreek -1.

Onion: Junagadh local (pili patti), Talaja red, Agri found dark red, pusa white flat.

Potato: Pankharaj, Kufari Chandramukhi, Kufari Jawahar, Kufari Bahar, Asoka; long duration cultivars viz., Kufari Laukar, Kufari Jyoti, Kufari Badshah, Kufari Sinduri, Satalaj.

Karnataka

Sugarcane: CO-86032, 740, 671.

Andhra Pradesh

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

Bajra: ICTP 8203, PBH 3

Korra: Prasad, Krishnadevaraya, Narashimharaya, Srilakshmi, Surya nandi

Cowpea: C 152 GC3 CO-4 CO-5

Sunflower: NDSH1 KBSH1 KBSH 44 DRSH 1

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.