



National Agromet Advisory Service Bulletin



Friday 30th December 2016

(For the period 30th December 2016 to 3rd January 2017)



Issued by

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

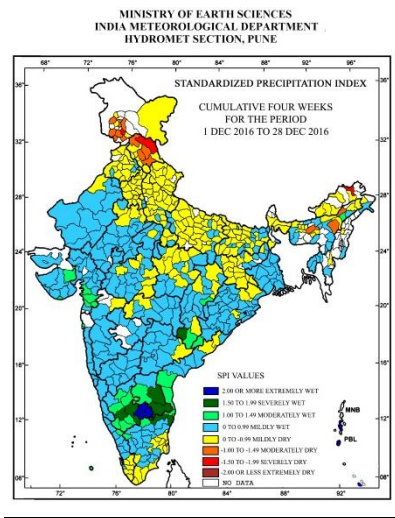
Weblink For

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

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

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

**Standardised Precipitation Index
Four Weekly for the period 1st December to 28th December 2016**

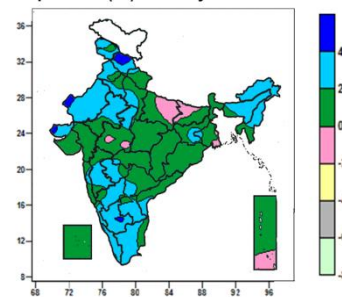
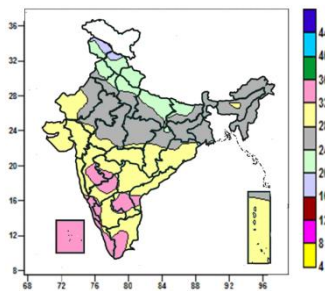


- Extremely/severely wet conditions experienced in all districts of Andaman & Nicobar Islands; Chittoor and Cuddapah districts of Andhra Pradesh, Vellore and Kanchipuram districts of Tamilnadu, few districts of South Interior Karnataka and Bijapur districts of Chattishgarh.
- Extremely/Severely dry conditions experienced in Upper Siang district of Arunachal Pradesh; Lahaul & Spiti district of Himachal Pradesh; Ramban district of Jammu & Kashmir.
- Moderately dry conditions experienced in Kamrup, Lakhimpur and Karbi Anglong districts of Assam; Chamba, Kullu, Mandi and Shimla districts of Himachal Pradesh; Karikal district of Puducherry and few districts of Jammu & Kashmir;.
- Rest of the country experienced moderately wet/mildly dry/mildly wet conditions.

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 28.12.2016

Actual Mean Maximum Temperature (°C) in India for the week ending 28.12.2016

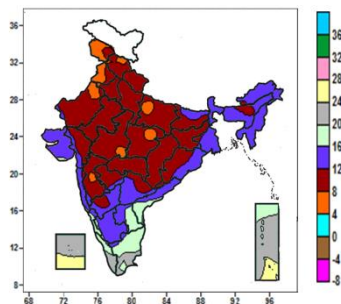
Mean Maximum Temperature (°C) Anomaly in India for the week ending 28.12.2016



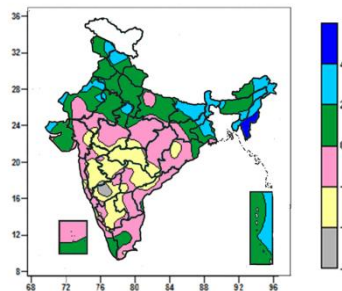
- Mean maximum temperature was between 32 to 36^oC over Lakshadweep, Coastal Karnataka, many parts of North Interior Karnataka, Rayalaseema, Kerala, some parts of Madhya Maharashtra, Marathwada, Coastal Andhra Pradesh, South Interior Karnataka, Tamil Nadu and isolated pockets of Konkan & Goa and Telangana.
- Mean maximum temperature was between 24 to 32^oC over rest of the Country except over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, many parts of Punjab, East Uttar Pradesh, some parts of Haryana & Delhi, West Uttar Pradesh, Bihar and isolated pocket of Chhattisgarh where it was between 16 to 24^oC.

- Mean maximum temperature was above normal by 4 to 6^oC over some parts of Himachal Pradesh and isolated pockets of West Rajasthan, Saurashtra & Kutch and South Interior Karnataka.
- Mean maximum temperature was above normal by 2 to 4^oC over Arunachal Pradesh, Meghalaya, Nagaland, Manipur, Kerala, many parts of Jammu & Kashmir, Himachal Pradesh, Punjab, Assam, Rajasthan, Madhya Maharashtra, Marathwada, Karnataka, Rayalaseema, Tamil Nadu, some parts of Haryana & Delhi, West Uttar Pradesh, Manipur, West Madhya Pradesh, Jharkhand, Konkan, Telangana, Coastal Andhra Pradesh and isolated pockets of Gujarat Region, East Madhya Pradesh, Gangetic West Bengal and Odisha.
- It was normal to near normal over rest of the country.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 28.12.2016



Mean Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 28.12.2016



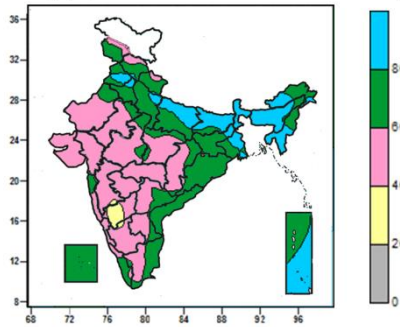
- Mean minimum temperature was between 0 to 4°C over isolated pocket of Jammu & Kashmir.
- Mean minimum temperature was between 4 to 8°C over many parts of Jammu & Kashmir, Punjab and isolated pockets of Himachal Pradesh, Haryana & Delhi, East Uttar Pradesh, West Rajasthan, Madhya Pradesh, Vidarbha and Madhya Maharashtra.
- Mean minimum temperature was between 8 to 12°C over Uttarakhand, West Uttar Pradesh, East Rajasthan, Chhattisgarh, many parts of Himachal Pradesh, Haryana & Delhi, East Uttar Pradesh, Bihar, West Rajasthan, Gujarat Region, Madhya Pradesh, Vidarbha, Madhya Maharashtra, Marathwada, Odisha, some parts of Jammu & Kashmir, Assam, Punjab, Telangana, North Interior Karnataka and isolated pockets of Arunachal Pradesh, Gangetic west Bengal, Konkan and Coastal Andhra Pradesh.
- Mean minimum temperature was between 12 to 16°C over Sikkim, Meghalaya, Nagaland, Manipur, Mizoram, Tripura, Saurashtra & Kutch, many parts of West Bengal, Arunachal Pradesh, Assam, Konkan & Goa, Interior Karnataka, Telangana, some parts of Bihar, Gujarat Region, Rayalaseema, Coastal Andhra Pradesh, Coastal Karnataka and isolated pockets of West Rajasthan and Tamil Nadu.
- Mean minimum temperature was between 16 to 24°C over rest of the country except over some parts of Lakshadweep and Andaman & Nicobar Islands where it was between 24 to 28°C .

- Mean minimum temperature was above normal by 4 to 6°C over Mizoram many parts of Manipur.
- Mean minimum temperature was above normal by 2 to 4°C over Sikkim & Sub Himalayan West Bengal, Nagaland, many parts of Meghalaya, Bihar, Tripura, Arunachal Pradesh, some parts of Jammu & Kashmir, Himachal Pradesh, West Rajasthan, Assam, Jharkhand, Gangetic West Bengal, Andaman & Nicobar Islands and isolated pockets of Haryana & Delhi, West Uttar Pradesh, East Rajasthan, West Madhya Pradesh and Saurashtra & Kutch.
- Mean minimum temperature was normal to near normal over rest of the country except over many parts of Vidarbha, Madhya Maharashtra, Marathwada, Telangana, South Interior Karnataka, some parts of Gujarat Region, Madhya Pradesh, Chhattisgarh, Odisha, North Interior Karnataka, Rayalaseema, Coastal Andhra Pradesh and isolated pockets of East Rajasthan, Konkan & Goa, Coastal Karnataka, Kerala and Tamil Nadu where it was below normal by 2 to 4°C and over some parts of North Interior Karnataka and isolated pocket of Madhya Maharashtra where it was below normal by 4 to 6°C .

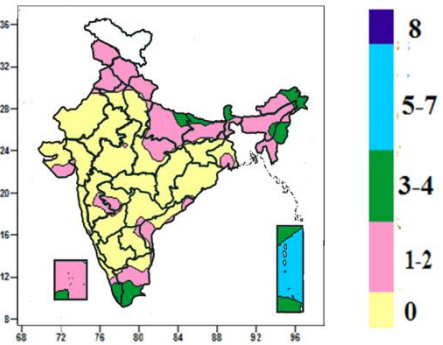
Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 28.12.2016

Relative Humidity (%) over India for the week ending 28.12.2016

Cloud amount (okta) over India for the week ending 28.12.2016

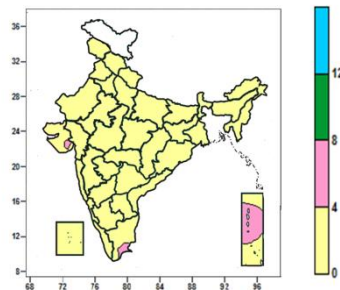


- Mean Relative Humidity was above 80% over Sikkim & Sub Himalayan West Bengal, Meghalaya, Mizoram, Tripura, many parts of Bihar, Assam, Andaman & Nicobar Islands, some parts of Punjab, Haryana & Delhi, Uttar Pradesh, Arunachal Pradesh, Manipur, Gangetic West Bengal and isolated pockets of Himachal Pradesh,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



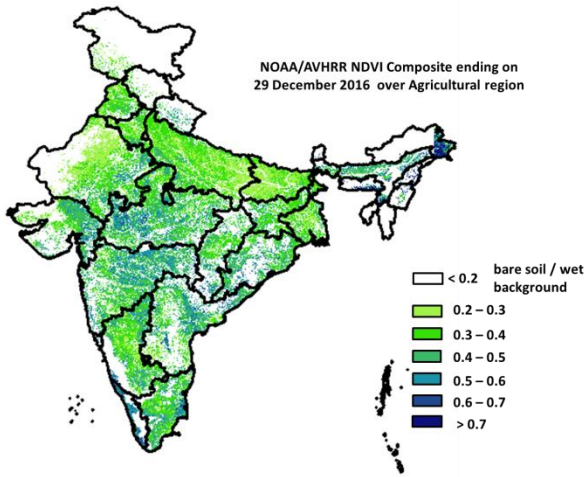
- Sky remained generally cloudy (5-7okta) over many parts of Andaman & Nicobar Islands.
- Sky remained generally partly cloudy (3-4 okta) over Sikkim, Manipur, some parts of East Uttar Pradesh, Bihar, Arunachal Pradesh, Nagaland, Assam, Kerala, Tamil Nadu, Andaman & Nicobar Islands and isolated pockets of Sub Himalayan West Bengal and Lakshadweep.
- 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 28.12.2016



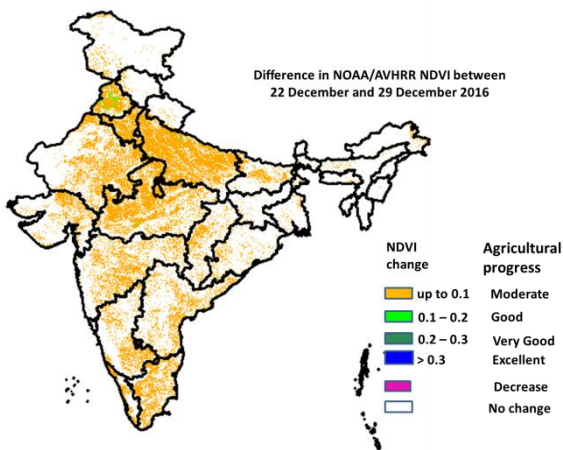
- Mean wind speed was between 0 to 4 knots over the country except some parts of Andaman & Nicobar Islands, and isolated pockets of Gujarat and Tamil Nadu where it was between 4 to 8 knots.

NOAA/AVHRR NDVI composite ending on 29th December 2016 over Agricultural region of India



- Agricultural vigour is good in east Madhya Pradesh, 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 22nd December and 29th December 2016



- Moderate progress in NDVI was observed in Punjab, Haryana, MP, Rajasthan, UP, patches in Bihar, and patches in Maharashtra, Gujarat, Karnataka, Kerala and Tamil Nadu. Good progress was observed in few patches in Punjab.

- NOAA/AVHRR NDVI composite maps for the week ending on 29th December 2016 for different States are given in Annexure II.

Weather Forecast for next 5 days valid upto 0830 hours of 4th January 2017

Meteorological subdivision wise detailed 5 days rainfall forecast is given in following Table.

- Minimum temperatures very likely to rise by 1-2°C over northwest India during next 3 days; by 2-3°C over Bihar, Jharkhand and West Bengal & Sikkim during next 2 days and no significant change thereafter. Maximum temperatures very likely to fall by 2-3°C over Punjab, Haryana, Chandigarh & Delhi and north Rajasthan during next 2 days.
- Fog/dense fog at many places very likely over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh and Bihar and at isolated places over north Rajasthan, Sub Himalayan West Bengal, north Jharkhand and Nagaland, Manipur, Mizoram & Tripura during next 3-4 days.

**5 Day Rainfall Forecast (Mid day)
30th December 2016**

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

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

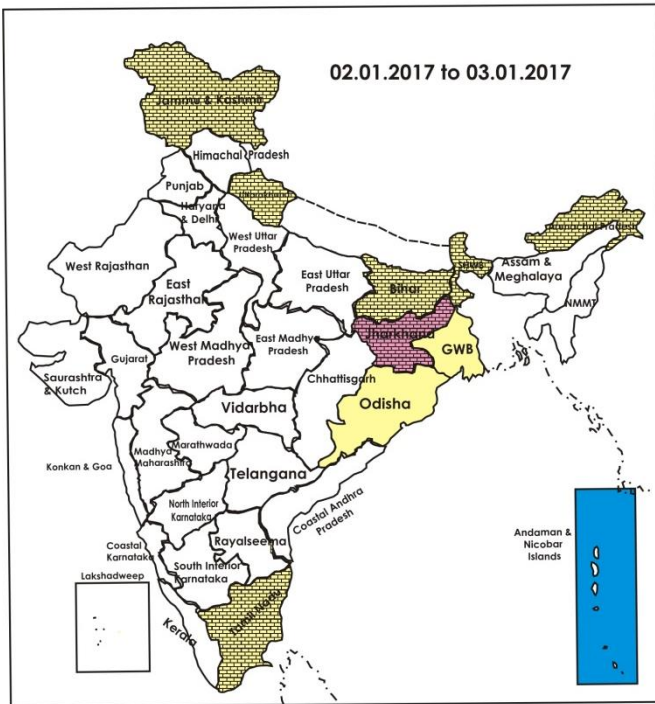
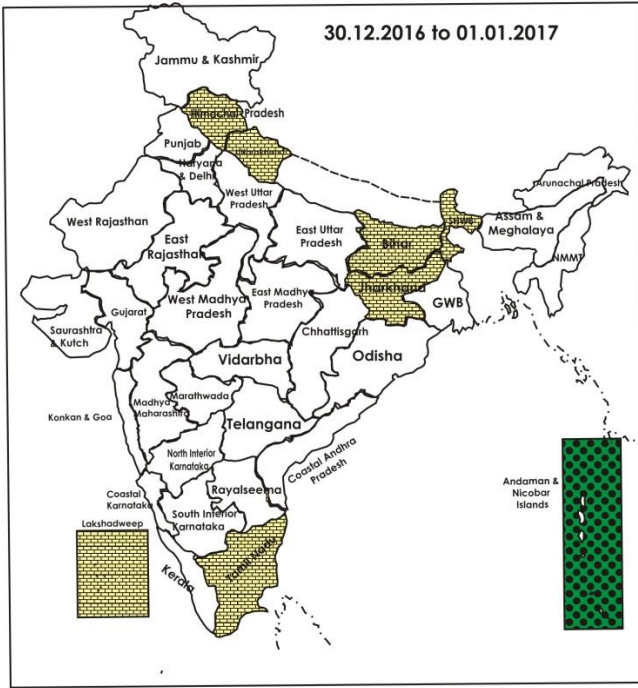
Weather Warning during next 5 days

- **30 December (Day 1):**
 - Dense fog at a few places with very dense at isolated places very likely over Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh.
 - Dense fog at a few places very likely over Bihar; at isolated places over southern parts of Uttarakhand, north Rajasthan, north Madhya Pradesh, Jharkhand and Nagaland, Manipur, Mizoram & Tripura.
 - Cold day conditions very likely at isolated places over Uttar Pradesh.
 - Cold wave conditions at isolated places very likely over interior Odisha.
- **31 December (Day 2):**
 - Dense fog at a few places with very dense at isolated places very likely over Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh.
 - Dense fog at a few places very likely over Bihar; at isolated places over southern parts of Uttarakhand, north Rajasthan, north Madhya Pradesh, Jharkhand and Nagaland, Manipur, Mizoram & Tripura.
 - Cold day conditions very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh.
 - Cold wave conditions at isolated places very likely over interior Odisha.
- **01 January (Day 3):**
 - Dense fog at a few places with very dense at isolated places over Haryana, Chandigarh & Delhi and Uttar Pradesh; dense to very dense fog at isolated places very likely over Punjab.
 - Dense fog at isolated places over southern parts of Uttarakhand and north Rajasthan.
 - Cold day conditions very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh.
 - Heavy rain very likely at isolated places over Andaman & Nicobar Islands.
- **02 January (Day 5):**
 - Dense fog at a few places with very dense at isolated places very likely over East Uttar Pradesh; dense to very dense at isolated places over Haryana, Chandigarh & Delhi and dense fog at isolated places over West Uttar Pradesh.
 - Heavy rain very likely at isolated places over Andaman & Nicobar Islands.
- **03 January (Day 5):**
 - No weather warning.

Weather Outlook for subsequent 2 days from 4th January to 6th January, 2017

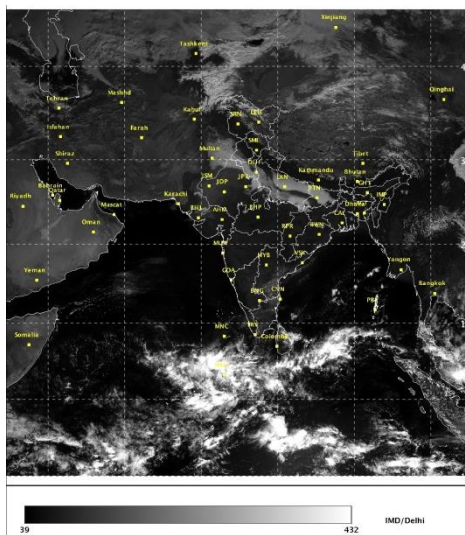
- Rain/snow at a few places very likely over Jammu & Kashmir and at isolated places over Himachal Pradesh & Uttarakhand.
- Rain at a few places very likely over Andaman & Nicobar Islands and at isolated places over Tamilnadu & Puducherry.

Weather Forecast Map (valid upto 0830 hours 4th January 2017)



- 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, 30.12.2016, 0600 UTC



Salient Advisories

- As dense fog at a few places with very dense fog at isolated places very likely over **Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh** from 30th Dec. to 2nd Jan., dense fog very likely at a few places over **Bihar** on 30th & 31st Dec. and dense fog very likely at isolated places over **north Rajasthan** and **southern parts of Uttarakhand** from 30th Dec. to 1st Jan., and over **north Madhya Pradesh, Nagaland, Manipur, Mizoram & Tripura** and **Jharkhand** on 30th & 31st December, monitor potato, tomato and onion crops for early/late blight disease. If symptoms are noticed undertake plant protection measures.
- As cold wave conditions very likely to prevail at isolated places over **interior Odisha** on 30th & 31st Dec., cold day wave conditions very likely to prevail at isolated places over **Uttar Pradesh** from 30th Dec. to 1st Jan and over **Punjab, Haryana, Chandigarh & Delhi** on 31st December & 1st Jan., 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.
- As rain/thundershowers likely at most/many places over **Andaman** and **Nicobar** Islands from 1st to 3rd January along with heavy rain at isolated places on 1st & 2nd Jan., postpone irrigation, application of fertilizers and plant protection methods to standing crops. Provide adequate drainage in standing crop fields.
- In **West Bengal**, to protect the seedlings of *Boro* rice from cold injury, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially during the night-time.
- In **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 Malwa Plateau Zone of **Madhya Pradesh**, if symptoms of early blight appear in potato, apply Dithane M 45 @ 2 gram/litre of water twice at 10 days interval.
- In Lower Brahmaputra Valley, North Bank Plain Zone and Upper Brahmaputra Valley Zone of **Assam**, weather

condition is 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 **interior Odisha**, as cold wave condition would prevail, 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. 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 Karaikal and Tiruvarur districts of Tamil Nadu. Weather was mainly dry over Kerala and dry over remaining parts of the region.
- **Realised Minimum Temperature:** Minimum temperatures are **below normal (1.6°C to 3.0°C)** at a few places over Telangana and at isolated places over Tamilnadu, **above normal (1.6°C to 3.0°C)** at a few places over Coastal Andhra Pradesh and at isolated places over Kerala and near normal over rest of the region.
- **Advisories:**
 - **Andhra Pradesh:**
 - In the North Coastal Zone, continue harvesting of rice and matured sugarcane and continue sowing of black gram, 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 and undertake picking of cotton.
 - In the High Altitude Tribal Zone, continue nursery sowing of rabi rice and harvesting of cotton and kharif rice.
 - In Krishna Godavari Zone, continue harvesting of matured early sown rice, maize, black gram crops and picking of cotton.
 - In Southern Zone, 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 North Coastal Zone, prevailing weather conditions are congenial for incidence of Pod borer in Red gram which is at pod filling stage. To control, spray Chlorpyrifos @ 2.5 ml/l of water.
 - In the High Altitude Tribal Zone, prevailing weather conditions are congenial for incidence of Cercospora leaf spot in greengram and blackgram (harvesting stage). To control, spray Hexaconazole @ 2ml/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 Thrips and Collar rot in rabi groundnut, spray Monocrotophos @ 1.6 ml or Hexaconazole @ 2 ml/litre of water.

▪ **Telangana:**

- In South Telangana Zone, low temperatures during the *rabi season* may cause cold injury in rice nurseries. To overcome cold injury and for better nursery growth, 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, undertake transplanting of early sown rice 4-6 leaf age rice seedlings and transplant minimum 44 hills/m² at 2-3 cm depth @ 2-3 seedlings /hill to main fields. Undertake nursery sowing of rice with suitable varieties like Early duration: Bathukamma (JGL 18047), Kunaram Sannalu (KNM 118), Cotton dora Sannalu (MTU 1010), IR 64, Tellahamsa (RNR 10754), Anjana (JGL 11118), Jagtial Samba (JGL 3844) & Telangana Sona (RNR 15048) Extra early duration: Prathyumna (JGL 17004), Rajendra (RNR 12329) & Varalu (WGL 14377). Undertake seed treatment before sowing with Carbendazim @ 1 g or Mancozeb @ 2.5 g per kg seed and follow the recommended seed rate for sowing like sow the sprouted seed @ 5 kg/cent (40 m²) in nursery bed and 25 kg seed in 4 – 5 cents nursery is sufficient for one acre of main field. For cold management for cold and cover the polythene sheets entire nursery bed in the night and remove in the morning to avoid the effect of cool temperatures on germination and growth of nursery.
- In South Telangana Zone, weather is congenial for incidence of Leaf webber, Maruca and Helicoverpa on red gram. To control, Leaf webber, spray Monocrotophos @ 1.6 ml or Quinalphos @ 2 ml per litre of water, for Maruca, spray Chlorpyrifos @ 2.5 ml or Novoluran @ 0.75 ml along with Dichlorovas @ 1.0 ml per litre of water and for Helicoverpa adopt the measures like - arrange 10-15 bird perches per acre to facilitate picking up of larvae or arrange 4 pheromone traps per acre to monitor the pest or spray 5 % NSKE to kill the eggs and early instar larvae.
- In North Telangana Zone, weather is congenial for incidence of Helicoverpa on redgram which is at flowering stage. To control, spray Chlorantraniliprole @ 0.3 ml per liter of water

▪ **Tamil Nadu:**

- In the Western Zone, continue harvesting of turmeric and picking of irrigated Combodia cotton may be done.
- 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 South Zone, weather is congenial for incidence sigatoka leaf spot on banana. To control, spray 3 times Carbendazim @ 0.1 % or Propiconazole @ 0.1 % or Mancozeb @ 0.25 % per litre of water along with Teepol at 10-15 days interval.
- In the South Zone, weather is congenial for incidence leaf hopper on cotton which is at squaring to boll formation stage. To control, spray Imidacloprid 200 SL @ 100 ml/ha or Fipronil 5%SC @ 1500-2000 ml/ha or Phosphamidon 40 SL @ 600 ml/ha.
- 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 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 Thiruvananthapuram district, plough the coconut fields. Inter cropping with banana and colocasia can be done in coconut gardens. This is for ensuring more aeration and retention of moisture. Burying of fresh or dried coconut husk around the palm is a desirable practice for moisture retention. The husks are to be placed in layers with concave surface facing upwards and covered with soil.
- In the Central Zone, apply neem based pesticides (3-4 ml per one liter of water).to control rice bug incidence in rice.
- 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 per litre of water.
- In Thiruvananthapuram district of the Southern Zone weather is congenial for incidence of White ear on rice crop. To control spray Flubendamide (Fame) 2 ml/ 20 litre of water to control (maximum tillering to panicle initiation stage).
- In High Altitude Zone prevailing weather is congenial for incidence of stem borer and leaf roller in seedling

transplanted uma rice which is 20-35 days. To control, spray Corragen @ 3ml per litre of water or trichocards can be placed in fields.

▪ **Animal Husbandary:**

- In Scarce Rainfall Zone of Andhra Pradesh, provide artificial brooding to chicks to maintain adequate temperature. Sides should be covered with curtains during cool hours of the day. Wet litter material should be removed regularly Ensure proper cross ventilation to avoid ammonia accumulation in the poultry sheds.

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



Banana



Rice



Cauliflower



Wheat

- **Realised Rainfall:** Rainfall occurred in Jorhat district of Assam. Mainly dry weather prevailed over rest of the region.
- **Realised Minimum Temperature:** Minimum temperatures are **appreciably above normal (3.1°C to 5.0°C)** at a few places over Nagaland, Manipur, Mizoram & Tripura; **above normal (1.6°C to 3.0°C)** at isolated places over Assam & Meghalaya and near normal over rest of the region.
- **Advisories:**
 - As dense fog very likely at isolated places over Nagaland, Manipur, Mizoram & Tripura on 30th & 31st December, monitor potato, tomato and onion crops for early blight disease. If symptoms are noticed undertake plant protection measures.
 - **Assam, Meghalaya & Arunachal Pradesh:**
 - In Karimganj, Hailakandi and Cachar districts of Barak Valley Zone of Assam, continue nursery raising for winter vegetables. Complete transplanting of *Boro* rice in the main field. Those farmers who already transplanted the seedling are advised to maintain 5 cm standing water in the field. Undertake gap filling within a week of transplanting.
 - 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 complete harvesting of cotton. Undertake harvesting of khasi mandarin and potato.
 - In Marigaon and Nagaon districts of Central Bramhaputra Valley Zone of Assam, continue harvesting of Sali rice, nursery sowing of *Boro* rice. Undertake main field preparation for transplanting. Complete sowing of wheat and *rabi* pulses. Complete harvesting of black gram/green gram.
 - In Barpeta, Bongaigaoin, Dhubri and Goalpara districts of Lower Bramhapurtra Valley Zone of Assam, maintain 5±2 cm of standing water in the field after 2-3 days of transplanting up to 7-10 days before harvest.
 - In North Bank Plain Zone of Assam, 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, complete harvesting of Wetland rice. Undertake mulching with straw/crop residue at root zone to avoid frost injury in banana.
 - In Meghalaya, complete transplanting of cauliflower/cabbage/broccoli and matured upland rice, *Sali/kharif* rice, groundnut, soybean and ginger/turmeric.
 - In 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 potato. Spray Ridomil (2ml/ litre) and Indofil M-45 2.5g/litre.
 - In Central Bramhaputra Valley and North Bank Plain Zone of Assam, weather condition is favourable for aphid and sawfly in rapeseed and mustard. Farmers are advised to apply Dimethoate 30EC or Chloropyriphos @ 2ml/litre with a spray volume of 500-700 l/ha for hand sprayer & 200-250 l/ha for power sprayer.
 - In Lower Bramhapurtra Valley, North Bank Plain Zone and Upper Bramhaputra Valley Zone of Assam, weather condition is 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 Barak Valley Zone of Assam, cloudy weather and humid condition is most favorable for black spot disease in cole Crops, leafy vegetables and blight in tomato. To manage the disease in leafy vegetables and cole crops, spray

Mancozeb @ 2gm per litre of water. To manage the blight in tomato, apply Ridomil or Indofil @ 2 gm per litre of water. Application of irrigation should be stopped for a few days to control the disease completely.

➤ In Central Brahmaputra Valley Zone of Assam, farmers are advised to drench the soil with Bavistin @ 1ml/lit of water to protect linseed/ *rabi* pulses crop from wilt. Farmers are also advised to apply Chlorpyrifos @ 3 ml per lit. of water during evening hours to control cutworm infected field.

➤ In Meghalaya, spray Dithane M-45 (0.2 %) against rust in pea. Also for control of Dimond black moth infestation in cauliflower and cabbage, install pheromone traps @12/ha & spray Neem seed Kernel Extract@ 5% or Chlorpyrifos 20%EC @2mL/litre or Dinethoate (30 %) 10 ml in 10L or 3 sprays of Femvalerate @ 50g.a.i./ha.

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

➤ In Nagaland, complete harvesting of TRC/WRC rice.

➤ In Manipur, continue transplanting of cole crops/onion. Continue 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. Continue sowing of *rabi* maize 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 and Mancozeb and Chlorothalonil against early blight in potato.

➤ 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 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.

➤ In Tripura, cover poultry house with gunny bags/ polythene sheet to prevent the expose of animal to cool night. Heating during night may also be given to chicks less than 21 days old.

• **Fishery**

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

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



Maize



Mustard



Groundnut



Wheat

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

• **Realised Minimum Temperature:** Minimum temperatures are **below normal (1.6°C to 3.0°C)** at a few places over Vidarbha, Konkan & Goa and at isolated places over Gujarat . They are **above normal (1.6°C to 3.0°C)** at isolated places over rest Gujarat and near normal over rest of the region.

• **Advisories:**

• **Maharashtra:**

➤ In Vidarbha, apply light irrigation to gram, vegetables and orchards. Complete picking fully opened cotton bolls during morning hours. Undertake nursery sowing for summer onion.

➤ In Konkan, complete sowing of *rabi* groundnut, sunflower and mustard. Apply light irrigation to groundnut crop three days after sowing. Irrigation interval should be 10-12 days for this stage. Also irrigate the sunflower and mustard crop timely. Undertake thinning of water melon plants @ 2 plants per basin. Continue planting of seasonal fodder crops viz. maize, sorghum and bajra.

➤ In Madhya Maharashtra, apply light irrigation to gram, safflower, vegetables and orchards like fig, banana and

grapes. Undertake planting of rabi onion. Complete picking fully opened cotton bolls during morning hours.

- In Marathwada, as dry weather would prevail, Apply light irrigation to sugarcane, wheat, gram, maize, vegetable crops and orchards. Continue intercultural operation like hoeing and weeding in sugarcane and vegetables. Complete picking of fully opened cotton bolls during morning hours.
- In Konkan, to control incidence of leaf folder in rice, spray Monocrotophos @ 12 ml per 10 litres of water.
- In Marathwada, to control attack of aphids in wheat, spray Thiomithoxon 25 WG @ 1 g in 10 litres of water.
- In Western Maharashtra scarcity zone, to control pod borer in Pea, spray Cyphermethrin 25 EC @ 5 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 requirement.
- 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/fruitletting 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 branching. 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.
- 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**
- In Marathwada, to protect the animals from cold, during early morning hang curtains of gunny bags around animal sheds. Use electric bulbs in poultry sheds. If Sore mouth in sheep and goat observed to control this separate the infected goats as soon as they get infected. Use ointment Vet-O-Max and Glycerin twice a day on the infected areas, after completely washing the infected area with hydrogen peroxide and cotton for seven days. One can use turmeric powder and fresh butter mixture if these ointments are not available. Mix two tablespoon of turmeric in one tablespoon of butter, and apply the paste gently on infected areas.
- In Vidarbha, farm livestock should be protected from exposure to cold particularly during night time, use electric bulbs for heat in animal sheds. Also apply two drops of Eucalyptus oil in the nose of animals.

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



Red gram



Okra



Maize



Wheat

- **Realised Rainfall:** Significant rainfall occurred in all districts of Andaman & Nicobar Islands. Weather remained mainly dry/dry over rest of the region.
- **Realised Minimum Temperature:** Minimum temperatures are **markedly below normal (5.0°C or more)** at isolated places over interior Odisha; **above normal (1.6°C to 3.0°C)** at many places over Andaman & Nicobar Islands; at a few places over Sub Himalayan West Bengal & Sikkim and near normal over rest of the region.

- **Advisories:**

- As dense fog very likely at a few places over **Bihar** dense fog very likely at isolated places over **Jharkhand** on 30th & 31st Dec., monitor potato, tomato and onion crops for early /late blight disease. If symptoms are noticed undertake plant protection measures.

- **Odisha:**

- As cold wave conditions very likely to prevail at isolated places over **interior Odisha** on 30th & 31st Dec., 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. Complete harvesting of rice. Undertake hoeing and weeding in irrigated mustard. Thin out the plants and maintain optimum plant population. In North Eastern Coastal Plain Zone, complete harvesting of rice crops.
- In Deogarh and Sundargarh districts of North Eastern Plateau Zone, complete sowing of 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, continue sowing of wheat and planting of potato. To protect the seedlings of *Boro* rice from cold, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially for the night-time. Irrigate the nursery bed regularly. Keep 2 to 3 cm stagnant water. Undertake preparation of the main field for transplanting. Complete harvesting of early transplanted *Aman* rice.
- In Purba Midnapore and South 24-parganas districts of Coastal Saline Zone, maintain a thin layer of water over the seed bed of *boro* rice and if possible arrange polythene shade over seed bed. Continue sowing of lentil and cultivation of sunflower.
- In Hill zone, undertake land preparation for sowing of potato. Continue harvesting of turmeric, mustard and mandarin orange.
- In Laterite and Red Soil Zone, apply light irrigation to maintain the optimum moisture content in the soil to standing crops.
- In Malda & Dakshin Dinajpur districts of Old Alluvial Zone, continue 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 Coastal Saline Zone, due to cloudy and foggy weather, there is chance of attack of late blight in potato. Apply any Copper fungicide as a precautionary measure.
- In New Alluvial Zone, in prevailing weather condition, attack of mite or thrips be severe in potato. To control the disease, apply Acephate-75%WP @0.75 gm litre of water.
- In Old Alluvial Zone, prevailing weather condition is favourable for attack of mustard aphid and leaf blight in mustard. Spray Imidachloropid @ 2 ml/5 litre water against mustard aphid and to control Alternaria leaf blight of, spray Metalaxyl + Mencozeb @ 2.5 gram per litre of water. For controlling of potato late blight, spray (Metalaxyl + Mancozeb) @ 2 gram /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. Also spray Ridomil MZ @2g/litre of water against early blight disease in potato and Imidacloprid @ 1ml/1.5 litre of water against aphid in mustard.

- **Andaman and Nicobar Islands:**

- As rain/thundershowers likely at most/many places over Andaman and Nicobar Islands from 1st to 3rd January along with heavy rain at isolated places from 1st & 2nd Jan., postpone irrigation, application of fertilizers and plant protection methods to standing crops. Provide adequate drainage in standing crop fields.
- In North, Middle & South Andaman, spray Neem oil @ 3.0 % to control fruit flies in vegetables after current

spells of rain.

▪ **Bihar**

- In Araria, Katihar, Kishanganj, Madhepura, Purnea, Saharsa and Supaul districts in North East Alluvial Zone, complete sowing of late sowing wheat at the earliest. 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, continue 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 nurse, 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 North East Alluvial Zone, there is chance of termite/cut worm infestation in maize crop at early vegetative stage. Spray Chlorpyrifos 20EC @ 2-3ml/litre of water. Also spray Rogar or Quinalphos @ 2.0 ml/litre water against aphid infestation in mustard if insect population is above ETL. Spray of Mancozeb @ 2 gram/ litre of water along with tepol (sticky material) against late blight in potato.
- In South Bihar Alluvial Zone, due to foggy weather condition there is chance of late blight in potato. Farmers are also advised to spray Dithane-M-45 @ 2 gram/ litre of water or Carbandazim @ 1 gram/ litre of water along with Tepol (sticky material) for controlling the late blight. Also spray Dithane-M-45 @ 2 gram/ litre water against white rust in mustard.
- In North West Alluvial Plain Zone, weather is likely to remain favorable for spread of fungi borne early blight disease in potato. Spray Di- Ethane M-45 @ 2.5 gram/litre of water.

▪ **Jharkhand**

- 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 Central and North Eastern Plateau Zone, Weather is favorable for Powdery Mildew, spraying of Karathen @ 1 ml per litre of water or Sulfex @ 3 gm per litre 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.
- In Central and North Eastern Plateau Zone, Cloudy, high humidity and cold weather, flourish late blight disease, to control it - spraying of Metalaxyl MZ + Mancozeb @ 1.5g /lt water solution 3) Mustard aphid transmit viral disease causes leaf curling, to control aphid spraying of Methyl Dematone or Emidachlorpid @ 1.5 to 2 ml/lt of water solution in 15 days interval.

- 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 **appreciably below normal (3.1°C to 5.0°C)** at isolated places over Chhattisgarh; **above normal (1.6°C to 3.0°C)** at a few places over, Madhya Pradesh and near normal over rest of the region.
- **Advisories:**
 - **Madhya Pradesh:**
 - As dense fog very likely at isolated places over **north Madhya Pradesh** on 30th & 31st December, monitor potato, tomato and onion crops for early/late blight disease. If symptoms are noticed undertake plant protection measures.
 - In Nimar Valley Zone, apply first irrigation in chickpea at 30-35 days after sowing (Branching stage), in tomato, chilli, brinjal, okra and early cauliflower. Nipping of upper stem of gram plant is advised for more branching.
 - In Gwalior, Bhind, Morena, Guna, Ashoknagar and Shivpuri districts, apply irrigation in vegetables and in wheat after 20-21 days of sowing.
 - 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 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, if the symptoms of early blight appear in potato, apply Dithane M 45 @ 2 gram/litre of water twice at 10 days interval if required.
 - In Bundelkhand Zone, in present weather condition, there is chances of leaf curl disease in the brinjal, chilli and papaya crops, if found, spray Methyl demeton 25 E.C. @ 2.0 ml. per litre of water on.
 - **Chhattisgarh:**
 - 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 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 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 mainly dry over the region.
- **Realised Minimum Temperature:** Minimum temperatures are **markedly above normal (5.0°C or more)** at isolated places over West Rajasthan; **appreciably above normal (3.1°C to 5.0°C)** at a few places over rest Rajasthan, Jammu & Kashmir, Himachal Pradesh, Haryana, Chandigarh & Delhi; **above normal (1.6°C to 3.0°C)** at many places over Uttarakhand ; at a few places over Punjab and near normal over rest of the region.
- **Advisories:**
 - As cold day conditions very likely to prevail at isolated places over **Uttar Pradesh** from 30th Dec. to 1st Jan and over **Punjab, Haryana, Chandigarh & Delhi** on 31st December & 1st Jan., 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.
 - As dense fog at a few places with very dense fog at isolated places very likely over Punjab Haryana, Chandigarh & Delhi, and Uttar Pradesh from 30th Dec. to 2nd Jan., dense fog at isolated places over north Rajasthan and southern parts of Uttarakhand from 30th Dec. to 1st Jan., monitor potato, tomato and onion crops for early /late blight disease. If symptoms are noticed undertake plant protection measures.
- **Rajasthan:**
 - In Arid Western Plain Zone, in Barmer, Churu, Jalore, Jodhpur, Pali districts, apply irrigation in wheat crop after 45 days of sowing as per requirement. Apply light irrigation in cumine crop and vegetable as per requirement. In Jaisalmer and Bikaner districts, in timely sown wheat and barley crops, irrigate the crop and top dressing of urea @ 66 kg/ha in standing wheat crop at 21-25 DAS and top dressing of urea @ 100 kg/ha in standing barley crop with 1st irrigation at 25-30 DAS.
 - 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, Dhaultpur, Karauli, Sawaimadhapur districts of Flood Prone Eastern Plain Zone, continue nipping operation to enhance branching in gram crop. Apply irrigation to wheat crop at CRI (21-25 days) and Booting stage (45-50 days).
 - In Arid Western Plain Zone, in Jaisalmer and Bikaner districts, prevailing weather condition is congenial for attack of termite infestation in wheat barley and other rabi crops, for control apply Chloropyriphos 20 EC @ 2400 ml per hectare along with irrigation.
 - In Arid Western Plain Zone, in Barmer, Churu, Jalore, Jodhpur, Pali districts, prevailing weather condition is congenial for attack of pod borer in gram crop, for control, broadcast Methyl Parathion 2% @ 20 kg per hectare.
 - In Irrigated North Western Plain Zone, Hanumangarh and Sriganganagar, 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 Sriganganagar, prevailing weather condition is congenial for attack of jassid in gram crop for control broadcast Quinalphos 1.5% @ 20 EC @ 6 kg per bhiga.
 - In Alwar, Bharatpur, Dhaultpur, 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, Dhaultpur, 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 Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of aphid in mustard crop, for control dusting of Malathion 2% @ 25 kg per hectare. If, facility of water exists, then spray Malathion 50 EC @ 1 ml per litre of water.
 - In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of mustard saw fly, leaf eaters and cabbage butter fly in cauliflower and cabbage, for control

spray Malathion 5% or Carbaryl 5% dust @ 20-25 kg per hectare or spray Malathion 50 EC @ 1 ml per litre of water.

- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of stem and fruit borer and pod borer in brinjal crop, for control stem and fruit borer remove affected fruits and stems and spray Malathion 50 EC @ 1.0 ml per litre water and for control of pod borer spray Malathion 50 EC @ 1.0 ml per litre water..
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of aphid insects in radish, for control spray Dimethoate 30 EC or Methyl Demeton 25 EC @ 1 litre per hectare.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of pod borer in pea crop, for control spray Malathion 50 EC @ 1.0 ml per litre water.
- **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, due to the decrease in minimum temperature farmers are advised to go for very late sown wheat varieties such as Raj 3077, HD-2285, Raj-3765 and HD-2402 with the seed rate of 125 kg/ha under irrigated conditions. Give irrigation in mustard crop if crop is at flowering stage. Undertake sowing of radish (Pusa Himani) and spinach beet (All green prickly seed) with seed rate of 10 – 12 kg and 35 kg/ha, respectively. Transplanting of onion and knoll khol can be done during this period. Undertake hoeing and weeding after 20 days of sowing.
 - 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 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. Keep strict vigil on yellow rust infestation in wheat crop. If observed, apply prophylactic spray on the crop with Propiconazole (Tilt) 25 EC @ 0.1 % (1ml/litre of water) on clear weather .
- **Uttarakhand:**
 - In Udhham Singh Nagar district of Bhabar and Tarai Zone, complete late sowing variety of barley like-Jyoti, Preeti, Manjula, Jagrati till end of the month. Continue sowing of late 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. 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. Complete late 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 mid hilly areas which are very much prone to the hail, complete sowing of Arkel or other early variety of pea immediately.
 - In Udhham 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 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 downy mildew in Cruciferous vegetables, for control spray Redomil M-Z @ 25 g per litres of water at 15 days interval.
- 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, apply first irrigation in wheat after four weeks of sowing. 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. For the control of root rot, foot rot, seedling blight, black tip and black spot of glumes, treat the seed with Captan @ 3 g/kg seed. 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 under late sown conditions. Start crushing / harvesting early maturing sugarcane varieties like CoJ-64, CoJ-85 and Co118 as dry weather is expected during the period. Give irrigation to Gobi Sarson sown in November.
- 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 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 20-22 days of sowing and second irrigation after around 45 days after sowing. Apply irrigation in mustard crop as per their requirement. Continue sowing of barley crop in the region. Intercultural operations may be done in vegetables for removing the weeds. Apply irrigation in vegetable crops as per their requirement. Earthing up may be done in potato crop. Transplant the nursery plants of tomato, cauliflower and dam cabbage in the field. 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 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 Rogar or Quinalphos @ 2.0 ml/litre water. Due to high relative humidity, infection of blight may occur in potato and tomato. Constant monitoring is advised. If symptoms appear then spray Carbandizam @ 1.0 gm / litre of water or Dithane-M-45 @ 2.0 g / litre of water.
- 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. Apply light irrigation in timely sown wheat crop after 20 to 25 days of sowing at CRI stage. Apply light irrigation in gram crop after 45 to 60 days of sowing before flowering stage. Undertake nursery sowing of chilli and tomato. Continue transplanting of onion nursery. Apply light irrigation in vegetable as per requirement. Apply second irrigation in mustard crop at 55 to 60 days of sowing. Undertake weeding operation and light irrigation as per requirement in standing crops of gram and linseed.
- In Western Plain Zone, undertake transplanting of onion seedling. The average temperature of last week and forecasted temperature for next week will be below the optimum temperature required for the wheat germination. Therefore, farmers who are interested for late sowing of wheat are advised to undertake sowing of varieties P.B.W.373, WR-544, U.P.2338, U.P.2425, H.D.-3059, Raj. 3765 and increase the seed rate.
- In Western Plain Zone, keeping in view of high relative humidity, there may be attack of late blight in potato (kufri bahar), spray of Dithane-M-45 @ 2 gram/ litre of water or Carbandazim @1 gram/ litre of water along with Tepol (sticky material) in the seed potato crop for controlling the late blight. Also there may be attack of white rust and aphid on mustard crop, spray Dithane-M-45 @ 2 gram/ litre of water or Chlorothalonil 75 WP @1 gram/ litre of water to control white rust and spray Rogar or Quinalphos @ 2.0 ml\litre water to control aphid if infestation is above ETL.
- In Central Plain Zone of East Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of mosaic in potato crop, for control, uproot infected plant and spray Demecron @ 250 ml or Metasistocs @ 1 litre in 800 to 1000 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 blight in potato crop, for control, spray Mancozeb @ 2 gm per litre of water or Phosphomedon @ 0.6 ml per litre of water at the 10 to 15 days of intervals.
- In North Eastern plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of fungal blight in mustard crop, for control apply Redomil MZ @ 0.2%.
- 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 Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of mealy bug in mango, guava and pomegranate fruit plants for control apply Quinalphos 1.5 % dust @ 50-100 gm per plant at 10-15 cm depth. If the mealybug has climbed up the trees, then spray Dimethoate 30 EC @ 1.5 ml or Fenthion 50 EC @ 1 ml per litre.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of pomegranate butter fly in aonla trees at fruiting stage, for control

spray 50 WP 2-4 gm Carbaryl @ 1 ml per litre water.

- 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.
- In Udhampur district of Bhabar and Tarai Zone, to control the Mango mealy bug in mango, polythene strips should be used so that plants can be protected from these insects. For this, stem of plants should be covered by 25-30 cm broad polythene and above 30-40 cm from the ground. After covering the stem, grease and unusable oil should be applied in the upper and lower part of polythene and both the end of polythene should be tied with the help of chord/string.
- In Himachal Pradesh present weather is conducive for the Citrus canker in citrus, for control spray Streptocycline Sulphate 500 ppm solution.

- **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 nectar and give artificial food to honey bees as there is scarcity of flowers during these days. And keep colonies in sun on clear day.
- In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, protect bee colonies from extreme climatic conditions through reduced entrance and proper packing. Maintain adequate reserves of honey and pollen in the bee colony. Sulphur dusting should be continued at fortnight interval.
- In Rajouri, Ramban, Poonch and Udhampur districts of Jammu & Kashmir, farmers are advised to migrate the honey bee colonies from hilly regions to plains to avoid mortality due to decline in temperature.

- **Animal Husbandry**

- In Rajasthan, 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, keep the animals in dry place and change the bedding material as and when required. Cover the animals with Jhull (Jute cloth) in extreme cold. The energy content of the concentrate mixture should be increased by 5-10 % where the protein in the concentrate can be reduced by 2-3 per cent during cold season. Provide the curtain for 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 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.

- **Fisheries**

- 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 of Kashmir, 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	14.12.16		21.12.16		28.12.16	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
Arunachal Pradesh						
Anjaw	**	**	**	**	**	**
Changlang	0.0	-100	0.0	-100	6.6	-48
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	11.7	38
Kurung Kumey	**	**	**	**	**	**
Lohit	0.0	-100	0.0	-100	13.4	18
Lower Dibang Valley	0.0	-100	0.0	-100	0.0	-100
Lower Subansari	**	**	**	**	**	**
Papumpare	0.0	-100	1.2	-8	5.6	81
Tawang	0.0	-100	3.0	-52	0.0	-100
Tirap	0.0	-100	0.0	-100	3.2	-57
Upper Siang	0.0	-100	0.0	-100	0.0	-100
Upper Subansari	0.0	-100	0.0	-100	10.0	355
West Kameng	0.0	-100	0.0	-100	0.9	-80
West Siang	0.0	-100	0.0	-100	7.0	13
Assam&Meghalaya						
Assam						
Baksa	0.0	-100	0.0	-100	11.6	347
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	10.8	259
Chirang	0.0	-100	0.0	-100	0.0	-100
Darrang	**	**	**	**	**	**
Dhemaji	0.0	-100	0.0	-100	9.0	91
Dhubri	0.0	-100	0.0	-100	1.4	59
Dibrugarh	0.0	-100	0.0	-100	4.2	-18
Goalpara	0.0	-100	0.0	-100	0.8	-66
Golaghat	0.0	-100	0.0	-100	3.1	-35
Hailakandi	0.0	-100	0.0	-100	8.6	72
Jorhat	0.0	-100	0.0	-100	32.9	866
Kamrup(Rural)	0.0	-100	0.0	-100	0.0	-100
Kamrup(Metro)	0.0	-100	0.0	-100	1.6	-6
Karbi Anglong	0.0	-100	0.0	-100	0.0	-100

Karimganj	0.0	-100	0.0	-100	17.6	96
Kokrajhar	0.0	-100	0.0	-100	0.3	-92
Lakhimpur	0.0	-100	0.0	-100	0.9	-80
Morigaon	0.0	-100	0.0	-100	9.2	384
N.C.Hills	0.0	-100	0.0	-100	4.4	529
Nagaon	0.0	-100	0.0	-100	10.1	290
Nalbari	0.0	-100	0.0	-100	1.4	200
Sonitpur	0.0	-100	0.0	-100	2.4	20
Sibsagar	0.0	-100	0.0	-100	10.2	920
Tinsukia	0.0	-100	0.0	-100	3.6	-37
Udalgiri	0.0	-100	0.0	-100	11.1	1750
Meghalaya						
East Garo Hills	0.0	-100	0.0	-100	15.6	271
East Khasi Hills	0.0	-100	0.4	-49	7.1	296
Jaintia Hills	0.0	-100	0.0	-100	**	**
Ribhoi	0.0	-100	0.0	-100	1.7	-45
South Garo Hills	0.0	-100	29.0	133	0.0	-100
West Garo Hills	0.0	-100	0.0	-100	4.8	60
West Khasi Hills	0.0	-100	0.0	-100	**	**
NMMT						
Mizoram						
Aizwal	0.0	-100	0.0	-100	0.0	-100
Champhai	**	**	**	**	**	**
Kolasib	0.0	-100	**	**	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	0.0	-100	0.0	-100	0.0	-100
Mamit	**	**	**	**	**	**
Saiha	**	**	0.0	-100	0.0	-100
Serchhip	**	**	0.0	-100	0.0	-100
Manipur						
Bishnupur	**	**	**	**	**	**
Chandel	**	**	0.0	-100	0.0	-100
Churachandpur	0.0	-100	**	**	**	**
Imphal east	**	**	0.0	-100	2.1	17
Imphal west	0.0	-100	0.0	-100	0.8	-64
Senapati	0.0	-100	**	**	**	**
Tamenglong	0.0	-100	**	**	**	**
Thoubal	**	**	0.0	-100	0.0	-100
Ukhrul	0.0	-100	**	**	**	**
Nagaland						
Dimapur	0.0	-100	0.0	-100	5.8	1833
Kephire	**	**	0.0	-100	3.0	-19
Kohima	0.0	-100	0.0	-100	2.4	33
Longleng	0.0	-100	**	**	**	**
Mokokchung	0.0	-100	0.0	-100	0.0	-100
Mon	**	**	**	**	**	**
Paren	0.0	-100	**	**	**	**
Phek	0.0	-100	0.0	-100	0.0	-100
Tuensang	0.0	-100	**	**	**	**

Wokha	0.0	-100	0.0	-100	6.0	253
Zunheboto	0.0	-100	**	**	**	**
Tripura						
Dhalai	0.0	-100	0.0	-100	0.0	-100
NorthTripura	0.0	-100	0.0	-100	6.9	50
SouthTripura	0.0	-100	0.0	-100	0.0	-100
West Tripura	0.0	-100	0.0	-100	0.5	-85
Himachal Pradesh						
Bilaspur	0.0	-100	0.0	-100	4.5	-69
Chamba	0.0	-100	0.0	-100	0.9	-96
Hamirpur	0.0	-100	0.0	-100	2.5	-83
Kangra	0.0	-100	0.0	-100	3.4	-80
Kinnaur	0.0	-100	0.0	-100	5.0	-76
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	2.7	-75
Sirmaur	0.0	-100	0.0	-100	3.4	-77
Solan	0.0	-100	0.0	-100	5.9	-55
Una	0.0	-100	0.0	-100	0.8	-93
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	6.3	-39
Ferozpur	0.0	-100	0.0	-100	0.0	-100
Gurdaspur	0.0	-100	0.0	-100	2.6	-75
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	1.3	-83
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	1.7	-85
Patiala	0.0	-100	0.0	-100	1.9	-75
Ropar	0.0	-100	0.0	-100	5.5	-47
Sangrur	0.0	-100	0.0	-100	0.0	-100
Mohali	0.0	-100	0.0	-100	19.0	83
TarnTaran	0.0	-100	0.0	-100	0.0	-100
Haryana,Chd,Delhi						
Haryana						
Ambala	0.0	-100	0.0	-100	8.0	-10
Bhiwani	0.0	-100	0.0	-100	0.0	-100
Chandigarh	0.0	-100	0.0	-100	22.8	94
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	17.6	117
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	9.8	38
Delhi						
Central Delhi	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	2.9	-80	0.0	-100	0.0	-100
Badgam	2.2	-70	0.0	-100	0.0	-100
Bandipore	**	**	**	**	**	**
Baramula	6.1	-56	0.0	-100	0.0	-100
Doda	7.0	-55	0.0	-100	10.8	-65
Ganderbal	3.8	-72	0.0	-100	0.0	-100
Jammu	0.0	-100	0.0	-100	0.0	-100
Kargil	**	**	**	**	**	**
Kathua	0.0	-100	0.0	-100	0.0	-100
Kistwar	**	**	**	**	**	**
Kulgam	1.9	-74	0.0	-100	0.2	-98
Kupwara	20.4	-17	0.0	-100	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	7.8	-62	0.0	-100	1.7	-96
Reasi	0.0	-100	0.0	-100	4.1	-80
Samba	0.0	-100	0.0	-100	0.0	-100
Shopian	**	**	**	**	**	**
Srinagar	2.9	-79	0.0	-100	0.0	-100

Udhampur	2.5	-58	0.0	-100	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	0.4	-95
Bageshwar	0.0	-100	0.0	-100	0.0	-100
Chamoli	0.0	-100	0.0	-100	2.7	-57
Champawat	0.0	-100	0.0	-100	0.0	-100
Dehradun	0.0	-100	0.0	-100	0.9	-86
Garhwal Pauri	0.0	-100	0.0	-100	1.5	-81
Garhwal Tehri	0.0	-100	0.0	-100	5.6	-46
Haridwar	0.0	-100	0.0	-100	1.4	-80
Nainital	0.0	-100	0.0	-100	0.3	-94
Pithorgarh	0.0	-100	0.0	-100	8.4	32
Rudraprayag	0.0	-100	0.0	-100	4.2	-57
Udham Sing Nagar	0.0	-100	0.0	-100	3.9	50
Uttarkashi	0.0	-100	0.0	-100	7.3	-12
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
Koderrna	0.0	-100	0.0	-100	0.0	-100
Latehar	0.0	-100	0.0	-100	0.0	-100
Lohardagga	0.0	-100	0.0	-100	0.0	-100
Pakur	0.0	-100	0.0	-100	0.0	-100
Palamau	0.0	-100	0.0	-100	0.0	-100
Ramgarh	**	**	**	**	**	**
Ranchi	0.0	-100	0.0	-100	0.0	-100
Sahebganj	0.0	-100	0.0	-100	0.0	-100
Saraikela	0.0	-100	0.0	-100	0.0	-100
Simdega	0.0	-100	0.0	-100	0.0	-100
West Singbhum	0.0	-100	0.0	-100	0.0	-100
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	0.5	60	0.2	-67
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	1.1	175	0.0	-100
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	0.0	-100	1.0	-100
Satara	0.0	-100	0.0	-100	0.0	-100
Solapur	0.0	-100	3.4	244	0.0	-100
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	0.0	-100
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	0.0	-100	0.0	-100	0.0	-100
Malkangiri	0.0	-100	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	83.2	27	11.2	-80	216.9	416
North & Middle Andaman	314.5	844	25.4	95	10.3	-33
South Andaman	166.1	290	51.4	257	56.9	298
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	0.0	-100	0.0	-100	0.0	-100
Jalpaiguri	0.0	-100	0.0	-100	0.0	-100
Malda	0.0	-100	0.0	-100	0.0	-100
North Dinajpur	**	**	0.0	-100	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	0.0	-100	0.0	-100	0.0	-100
West Sikkim	**	**	**	**	**	**
Karnataka						
Coastal Karnataka						
Dakshina Kannada	2.5	-61	2.9	38	0.0	-100
Udupi	0.6	-95	8.3	421	0.0	-100
Uttara Kannada	0.2	-97	0.6	-48	0.0	-100
NI Karnataka						
Bagalkote	0.0	-100	0.0	-96	0.0	-100
Belagavi	0.2	-92	0.0	-100	0.0	-100
Bidar	0.0	-100	0.2	-50	0.0	-100
Dharwad	0.0	-100	0.0	-100	0.0	-100
Gadag	2.5	13	1.3	44	0.0	-100
Haveri	2.2	-18	0.1	-92	0.0	-100
Kalaburgi	0.2	-98	0.5	128	0.0	-100
Koppal	0.1	-98	0.6	-39	0.0	-100
Raichur	0.3	-87	0.2	-52	0.0	-100
Vijayapura	0.0	-100	1.4	41	0.0	-100
Yadgir	0.0	-100	2.1	419	0.0	-100
SI Karnataka						
Ballari	5.2	60.9	0.1	-94	0.0	-100
Bangalore Rural	54.6	1417	4.5	67	0.0	-100
Bangalore Urban	60.3	1131	0.2	-95	0.0	-100
Chamarajanagar	21.4	206	0.0	-100	0.0	-100
Chikaballapur	35.3	530	0.5	-72	0.0	-100
Chikkamagaluru	9.0	104	2.3	14	0.0	-100
Chitradurga	11.1	216	0.0	-100	0.0	-100
Davangere	6.6	175	0.3	-25	0.0	-100
Hassan	26.1	669	1.4	-29	0.0	-100
Kodagu	34.0	449	7.9	127	0.0	-100

Kolar	65.7	800	5.0	74	0.0	-100
Mandya	39.3	514	0.9	-55	0.0	-100
Mysuru	24.1	363	0.7	-51	0.0	-100
Ramanagara	45.2	605	1.0	-62	0.0	-100
Shivamogga	1.2	-66	1.4	-4	0.0	-100
Tumakuru	22.6	464	0.0	-100	0.0	-100
Kerala						
Alappuzha	3.6	-77	0.6	-93	0.5	-91
Kannur	9.6	1	7.7	252	0.0	-100
Ernakulam	10.0	-48	0.1	-99	0.0	-100
Idukki	0.6	-96	3.9	-56	0.5	-91
Kasaragod	1.3	-85	23.7	887	0.0	-100
Kollam	1.9	-86	1.1	-90	0.3	-95
Kottayam	0.7	-95	0.0	-100	0.0	-100
Kozhikode	13.9	14	4.8	92	0.0	-100
Malappuram	11.0	14	1.2	-64	0.0	-100
Palakkad	13.3	66	0.2	-94	0.0	-100
Pathanamthitta	1.4	-89	0.0	-100	0.0	-100
Thiruvananthapuram	0.8	-95	0.1	-99	0.0	-100
Thrissur	23.6	51	6.6	58	0.0	-100
Wyand	12.6	27	16.8	424	0.0	-100
Tamil Nadu						
Ariyalur	1.3	-96	1.4	-94	0.6	-98
Chennai	152.5	231	3.0	-84	0.0	-100
Coimbatore	6.3	-59	5.7	-23	0.0	-100
Cuddalore	6.9	-86	5.5	-80	0.5	-98
Dharmapuri	39.6	144	0.0	-100	0.0	-100
Dindigul	0.3	-99	3.6	-79	2.0	-88
Erode	5.7	-61	0.0	-100	0.0	-100
Kanchipuram	187.3	33	0.1	-99	0.0	-100
Kanyakumari	1.3	-94	0.0	-100	0.2	-98
Karaikal	0.0	-100	1.0	-98	35.9	-49
Karur	1.3	-89	0.1	-98	0.0	-100
Krishnagiri	65.8	448	0.6	-92	0.0	-100
Madurai	1.1	-94	1.3	-87	1.1	-92
Nagapattinam	0.3	-99	10.1	-78	16.6	-72
Namakkal	4.7	-54	0.0	-100	0.0	-100
Nilgiris	34.1	68	25.5	104	0.0	-100
Perambalur	2.0	-93	0.0	-100	0.0	-100
Puducherry	28.7	-37	4.4	-89	0.0	-100
Pudukottai	0.0	-100	17.0	14	10.0	-46
Ramanathapuram	0.0	-100	1.9	-91	12.4	-50
Salem	44.1	122	0.8	-90	0.0	-100
Sivaganga	0.0	-100	13.3	-10	1.5	-93
Thanjavur	0.0	-100	12.2	-41	13.5	-54
Theni	0.0	-100	2.1	-82	0.6	-92
Tirunelveli	0.3	-99	7.6	-65	0.7	-96
Tirupur	0.7	-94	7.8	21	0.2	-98
Tiruvallur	140.5	286	1.1	-93	0.0	-100

Tiruvannamalai	60.2	180	2.5	-78	0.0	-100
Tiruvarur	0.0	-100	9.6	-69	31.1	-29
Toothukudi	8.3	-61	0.1	-99	1.2	-92
Trichy	1.6	-92	0.5	-96	3.1	-80
Vellore	97.9	337	0.1	-99	0.0	-100
Villupuram	36.2	5	6.9	-59	0.0	-100
Virudhunagar	13.8	-29	1.4	-90	0.1	-99
Andhra Pradesh						
Coastal Andhra Pradesh						
East Godavari	2.7	-44	0.0	-100	0.0	-100
Guntur	4.9	-44	2.0	81	0.0	-100
Krishna	7.5	2	0.9	-17	0.0	-100
Nellore	103.2	165	1.2	-92	0.0	-100
Prakasam	50.7	243	2.3	-49	0.0	-100
Sirkakulam	0.1	-94	0.0	-100	0.0	-100
Visakhapatnam	0.0	-99	0.0	-100	0.0	-100
Vizianagram	0.3	-91	0.0	-100	0.0	-100
West Godavari	0.1	-98	0.0	-100	0.0	-100
Rayalaseema						
Anantapur	14.1	282	0.0	-98	0.0	-100
Chittoor	82.8	333	7.9	18	0.0	-100
Cuddapah	40.3	437	0.8	-69	0.0	-100
Kurnool	0.7	-66	0.9	123	0.0	-100
Telangana						
Adilabad	0.0	-100	0.0	-100	0.0	-100
Hyderabad	1.5	-29	0.9	133	0.0	-100
Karimnagar	0.0	-100	0.0	-100	0.0	-100
Khammam	0.0	-100	0.0	-100	0.0	-100
Mehabubnagar	0.2	-65	0.4	84	0.0	-100
Medak	0.0	-100	0.2	-17	0.0	-100
Nalgonda	2.1	-35	0.2	-71	0.0	-100
Nizamabad	0.0	-100	0.0	-100	0.0	-100
Rangareddy	0.1	-93	0.2	-8	0.0	-100
Warangal	0.0	-100	0.0	-100	0.0	-100

Legends

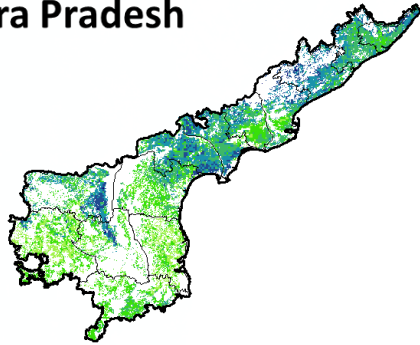
	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

Annexure II

NOAA/AVHRR NDVI COMPOSITE MAPS FOR THE WEEK ENDING ON

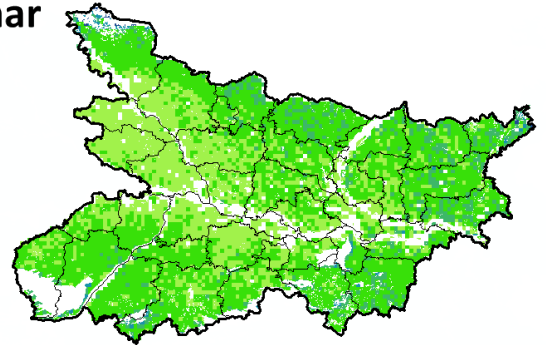
29th December 2016 FOR DIFFERENT STATES

Andhra Pradesh



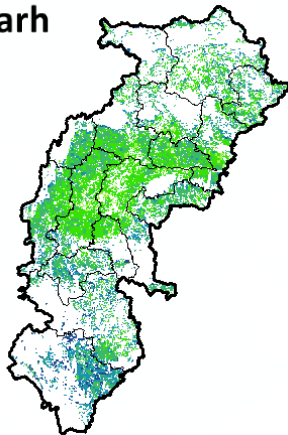
Agriculture vigour is moderate over southern part whereas, northern parts and patches in central region show good to very good NDVI in the state of Andhra Pradesh.

Bihar



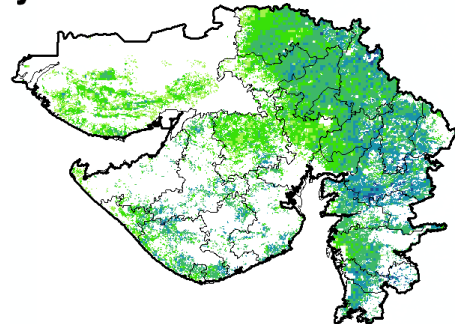
Agriculture vigour is moderate over entire state of Bihar.

Chhattisgarh



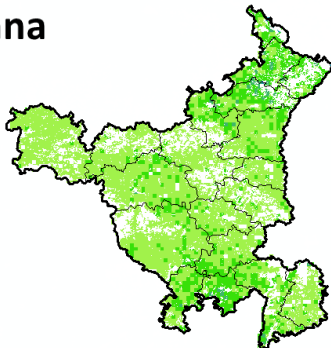
Agriculture vigour is good in southern region whereas, very moderate vigour is seen in central and northern region of Chhattisgarh.

Gujarat



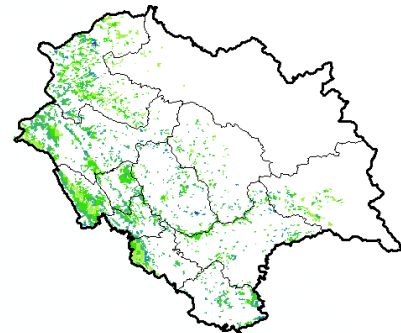
Moderate NDVI values are observed in patches in Kutch region whereas, good to very good NDVI is observed in Saurashtra and Gujarat.

Haryana



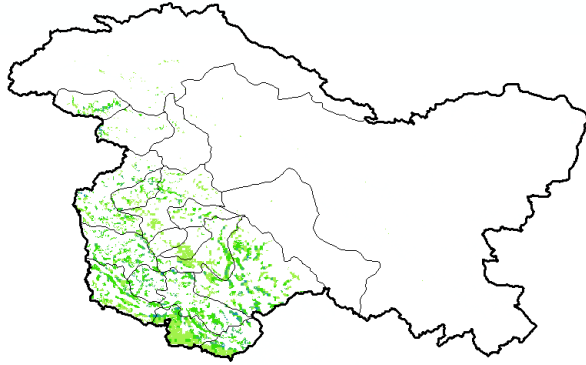
Moderate agriculture vigour is observed over entire state of Haryana.

Himachal Pradesh



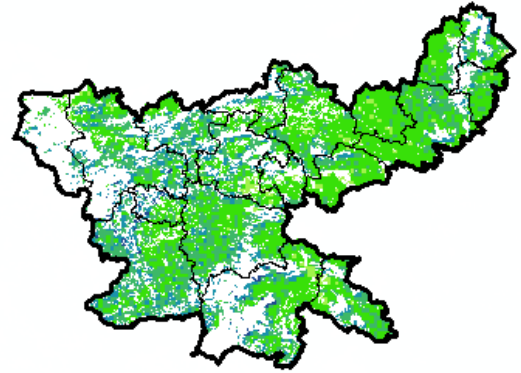
Agriculture vigour is moderate to good over Himachal Pradesh.

Jammu & Kashmir



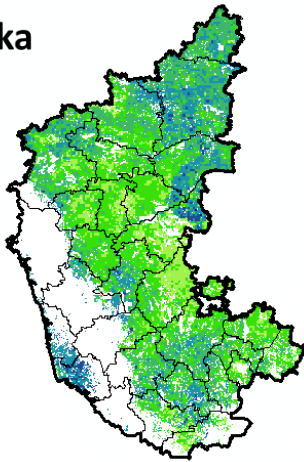
Agriculture vigour is moderate over entire state of Jammu & Kashmir.

Jharkhand



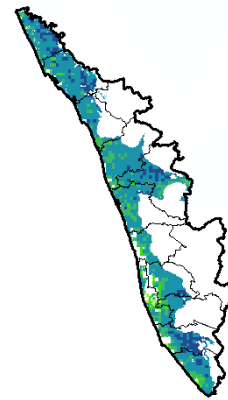
Agriculture vigour is very good over few patches in western region of Jharkhand whereas, remaining states shows good to moderate NDVI values.

Karnataka



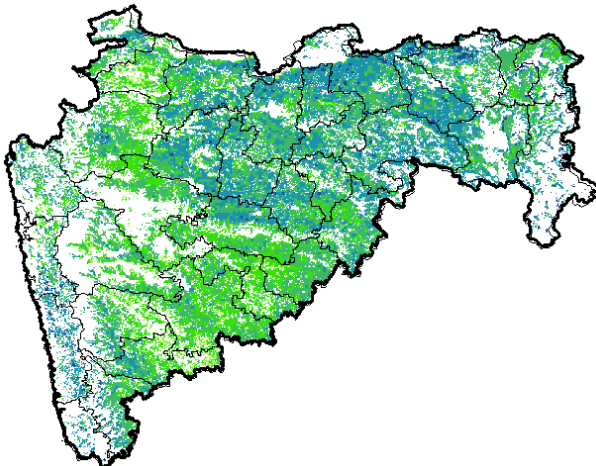
Agriculture vigour is moderate over patches in central region of the state whereas good vigour is observed in the northern and patches in southern regions.

Kerala



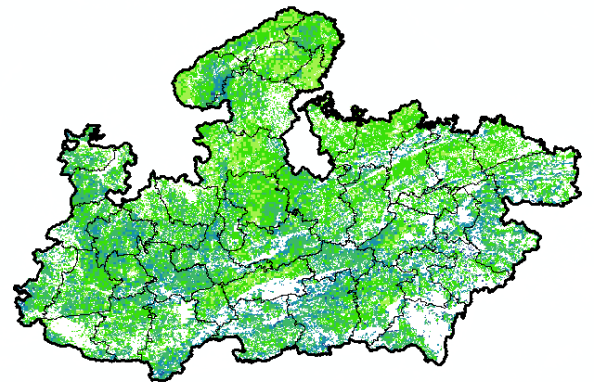
Agriculture vigour is good over entire state of Kerala except central part which shows moderate NDVI values.

Maharashtra



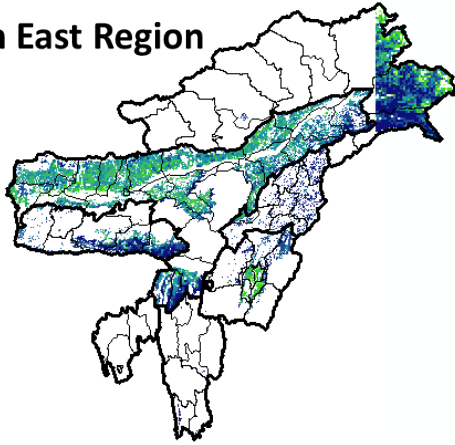
Agricultural vigour is moderate over central Maharashtra whereas, good to very good vigour is observed in the north and eastern regions.

Madhya Pradesh



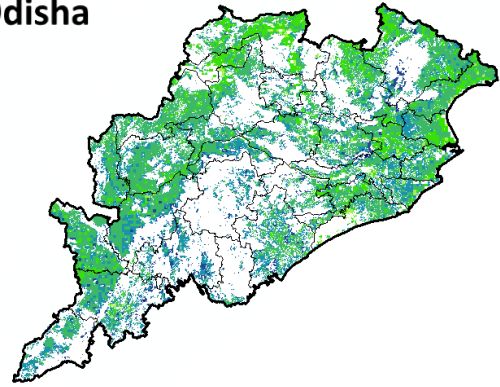
Agriculture vigour is moderate over patches in western and northern region of the state of Madhya Pradesh whereas, good vigour is observed over eastern and southern region.

North East Region



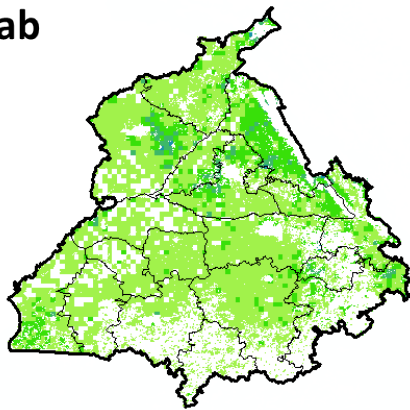
Agriculture vigour is good & very good over north-east states of country.

Odisha



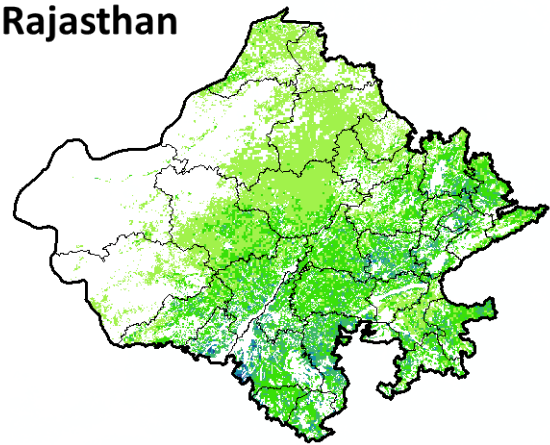
Agricultural vigour is moderate over few patches in coastal region of Odisha whereas, good vigour is observed in entire state.

Punjab



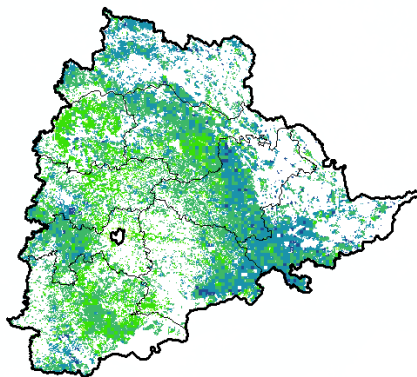
Agricultural vigour is moderate over entire state of Punjab.

Rajasthan



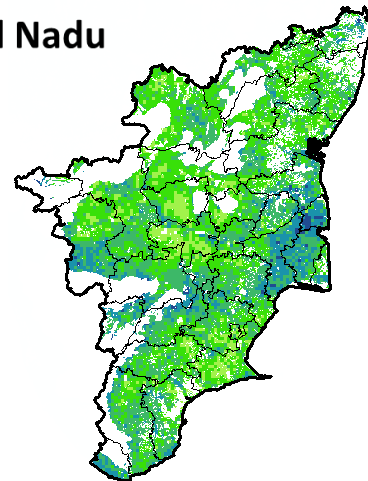
Agriculture vigour is moderate over western and northern Rajasthan whereas, good vigour is observed over patches in southern region.

Telangana

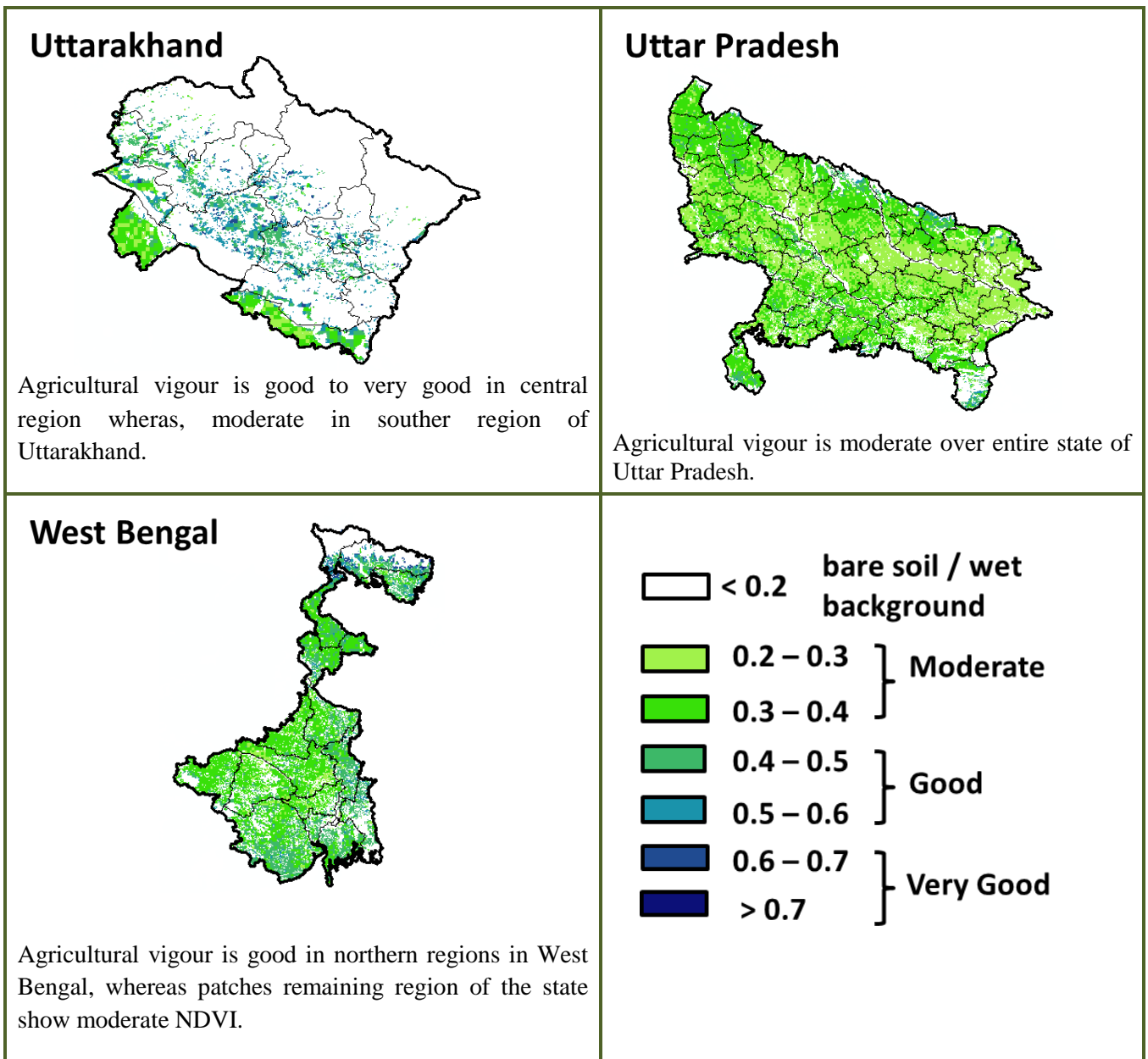


Agriculture vigour is good to very good over northern region of Telangana whereas, moderate vigour is observed in patches in the central and southern region.

Tamil Nadu



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



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

Annexure III

- Assam**
Winter brinjal: Pusa Kranti, Pusa Purple Long, Pusa Purple Round, Pusa Vairab, Pant Samra.
Tomato : Punjab Chhuhara, S-12, Punjab Kesri, Pusa Early Dwarf, Sioux, Pusa Ruby, VC- 48-1, Arka Abha (BWR-1), Arka Alok (BWR-5), BT-1, Bilahi-1, Bilahi-2).
Potato : Kufri Chandramukhi, Kufri Jyoti, Kufri Megha, Kufri Badshah, Kufri Sindhuri.
Onion : Pusa Red, Pusa Ratnar, Pusa white (Round), Pusa white (Flat), N-53, Agrifound Light Red, Punjab Red Round, Pusa Madhuri, Arka Niketan.
Cauliflower : Early Kunwari, Pusa Katki and Pusa Deepali (for early maturity).
Improved Japanese, Pusa Synthetic, Pusa Snowhall (for mid maturity).
Snowball-16, Pusa Snowball, K-1 and Hissar 1 (for late maturity) etc.
Cabbage : Golden Acre, Pride of India, Pusa Mukta (Sel – 8) (for early maturity).
Drum Head and Eclipse Drum Head (for late maturity).
Knol-Khol : White Vienna (for early maturity).
Purple Viena (for late maturity).
Odisha:
Green pea: Rachana, Arkel. and T -163.
Mustard: Parbhathi, Anuradha, TS-29 & M-27.

Garlic:Phawari, Rajalbadi, Jamnagar and G-282
Potato: Kufri Chandramukhi, Kufri Chamatkar, Kufri Jyoti, Kufri Sinduri and Kufri Alankar, etc
Greengram- TARM1, OUM11-5, Hum-1
Blackgram-PU-19, LBG-17
Gram-Radhey, Annegiri, Sweta, Bharati, JG 11
Groundnut:are Smruti, AK 12-24, JL-24.

Bihar

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
Onoin:VL-Pyaj-3,Nasik Red,Pusa Red
Pea: Vivek 10,Vivek 11,Pant 3,
Radish:Meenu early, Japanese white, PusaHimani.
Carrot:PusaVrishi,
Rai:Varuna, Rohini, Krishna, Kanti, Vardan, Vaibhav, Basanti, Narendra, Early rai-4, Urvashi and varieties
Yellow Mustard: Ragini, Binoy (B-9), Pant peeli Sarso-1.

Jammu and Kashmir

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

Himachal Pradesh

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

East Uttar Pradesh

Wheat: PVW-343, UP-2338, WH-542, K-9107, K-9006, HP-1731, NW-1012, UP-2382, HUW-468, PVW-443, HD-2733, HD-2824, K-307, K-9423, NW-1067, KRL-210, KRL-213 , PBW-323, CBW-38, DBW-39, UP2332 and HUW510, C-306, K-65,78,8027 and HUW-533.
Mustard: varuna, Rohini, kranti, krushna, vardan, vaibhav, narendra rai (8501).
Onion: Kalyanpur Lal gol, Pusa ratnakar, Agrifound lite red, bargandi, KP, Orient, Rosi.
Jou: Azad, K-141/11.
Turmeric:Kasturi, Paspu, Amlapuram, Madhukar, Sugna, Rajendra

Ginger -suprabha, suruchi, surbhi and Himgiri

Moong: Type-27, 56

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

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

Kabuli gram: 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.

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 Chatmatkar; local type – C235, Pusa 246, P.B.G. 1, Pusa 372.

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

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

East Rajasthan:

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

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

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

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

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

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

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

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

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

Carrot: 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.

Fenugreek :RMt 1 & Rmt305.

Bhindi: Ark Anamika, varshauphar, Parbhanikranti, pusamakhmali.

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

Gram: c-235, RSG-44, GNG-663(vardan), RSG-888, GNG-469(samrat), GNG_1581(gangour), for kabulichana-GNG-1499(gouri) and GNG-1292

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

Radish: Japanese white & hill queen.

Garlic: lava, maleva

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

Madhya Pradesh

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

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

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

Garlic:G 282, 223.

Lentil:RVL 31, JL 2.

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

Chhattisgarh

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

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

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

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

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

Gujarat

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 Acaire Pride of India, Coppin 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: Punkharaj, 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

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.