



National Agromet Advisory Service Bulletin

Friday 29th December 2017

(For the period 29th December 2017 to 3rd January 2018)



Issued by

India Meteorological Department

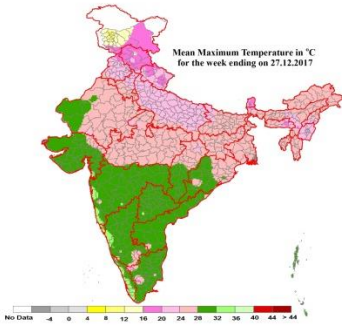
Weblink For

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

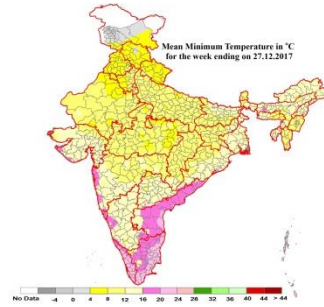
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Spatial distribution of weather parameters for the week ending 27.12.2017

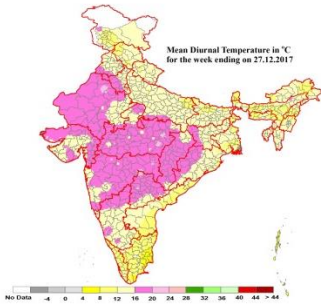
Mean Maximum Temperature (°C) for the week ending 27.12.2017



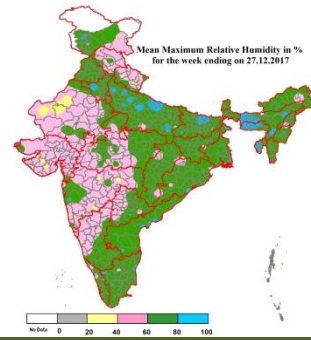
Mean Minimum Temperature (°C) for the week ending 27.12.2017



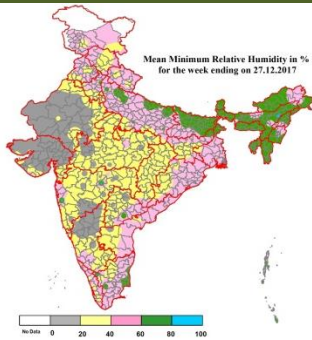
Mean Diurnal Temperature Variation (°C) for the week ending 27.12.2017



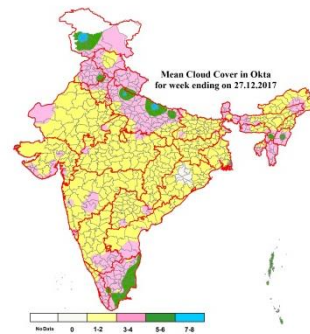
Mean Maximum Relative Humidity (%) for the week ending 27.12.2017



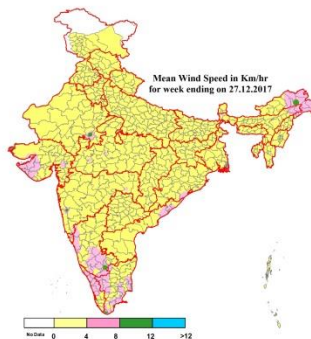
Mean Minimum Relative Humidity (%) for the week ending 27.12.2017



Mean Cloud Cover (okta) for the week ending 27.12.2017

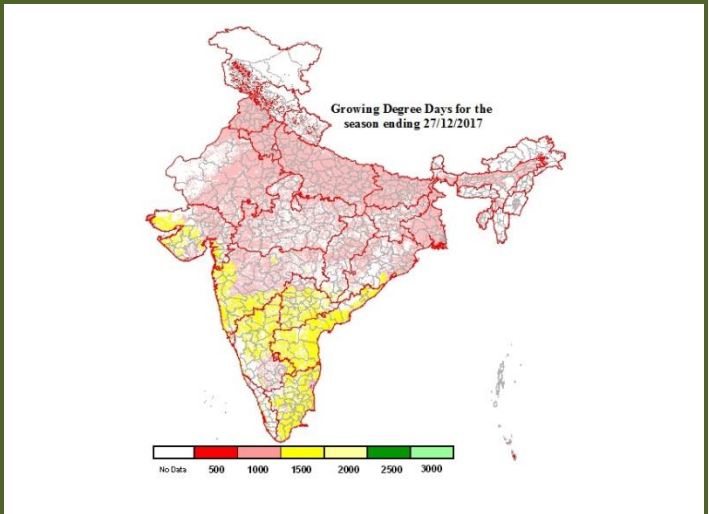
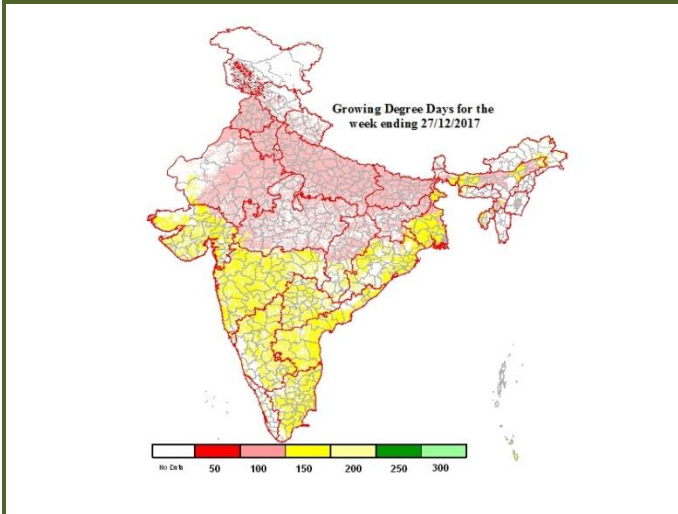


Mean Wind Speed (km/hr) for the week ending 27.12.2017



Growing Degree Days for the week ending 27.12.2017

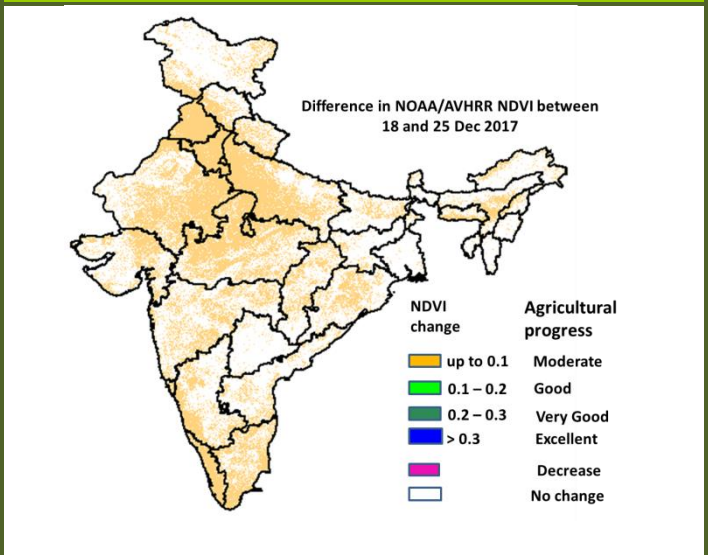
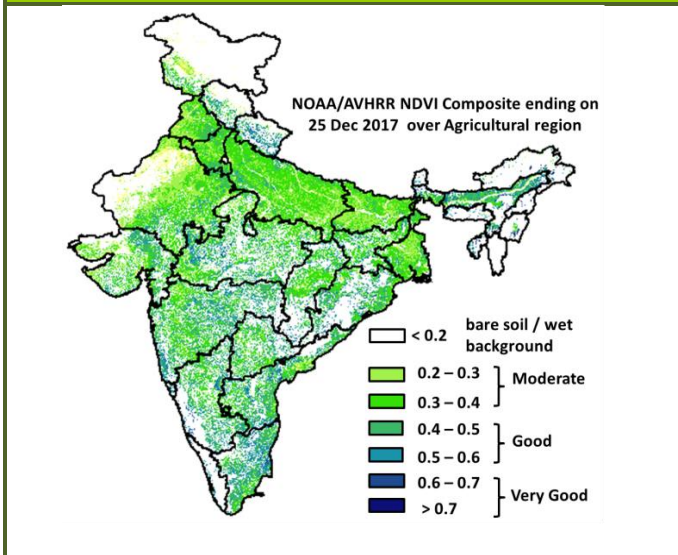
Growing Degree Days for the season ending 27.12.2017



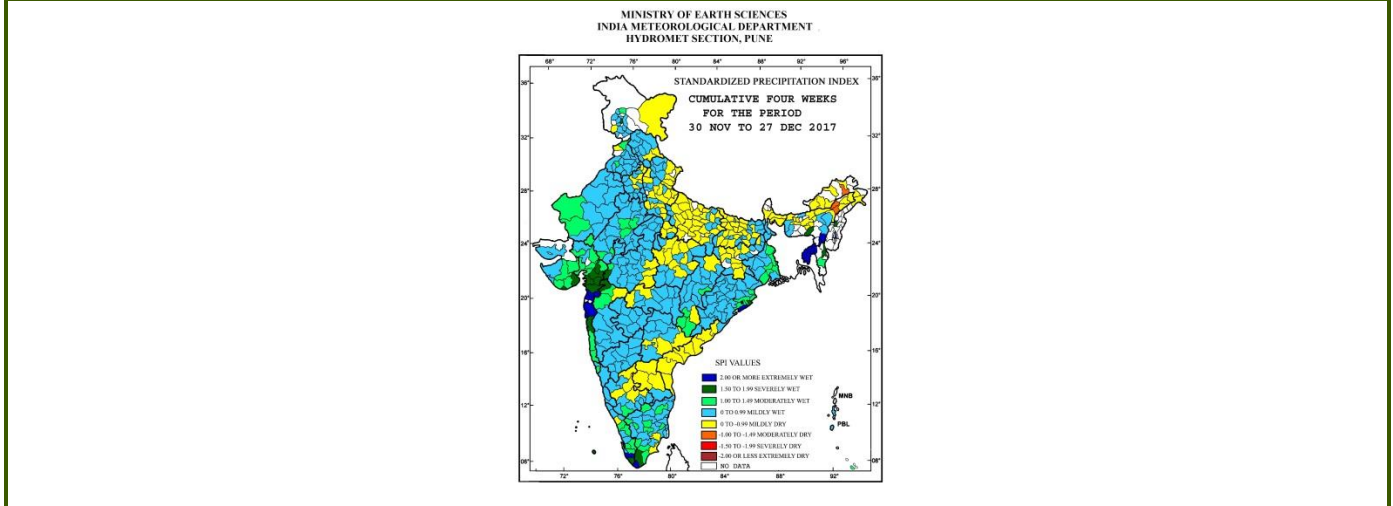
* Base temperature for *Rabi* Season is taken as 05⁰ C

NOAA/AVHRR NDVI composite ending on 25th December 2017 over Agricultural regions of India

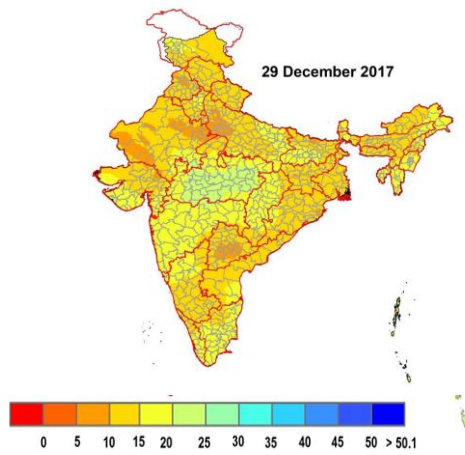
Difference in NOAA/AVHRR NDVI between 18th and 25th December 2017



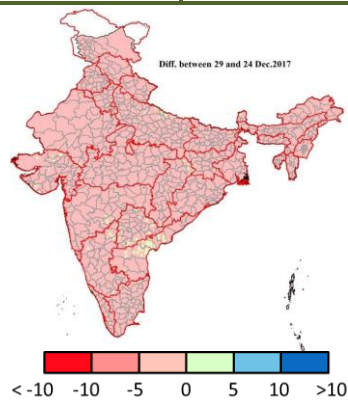
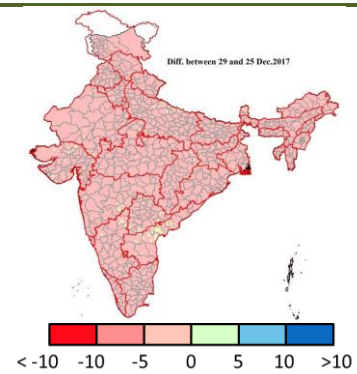
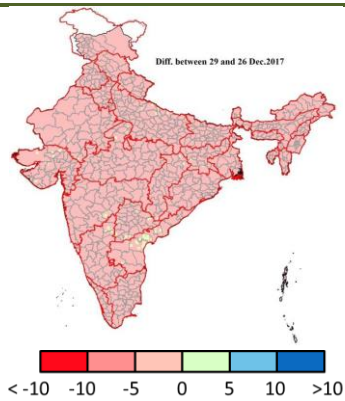
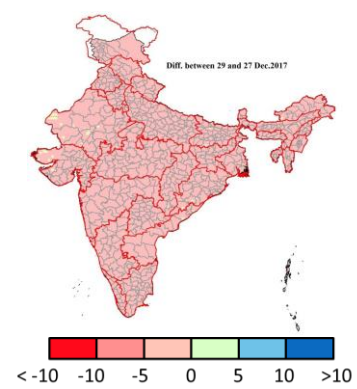
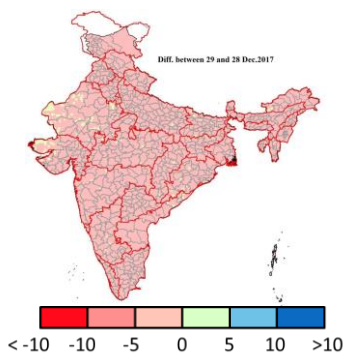
**Standardised Precipitation Index
Cumulative 4 weeks for the period 30th November to 27th December 2017**



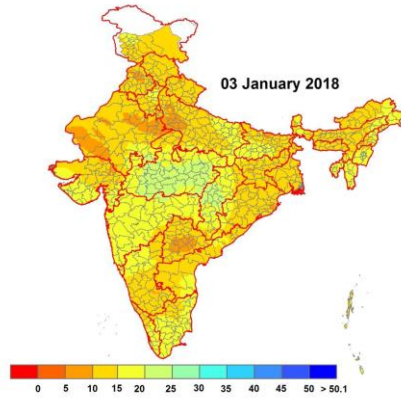
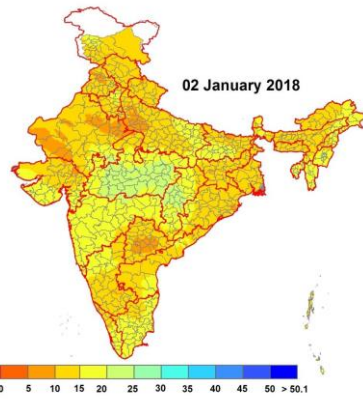
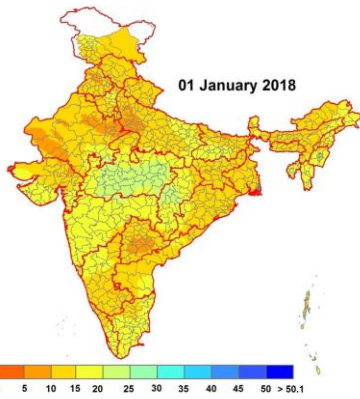
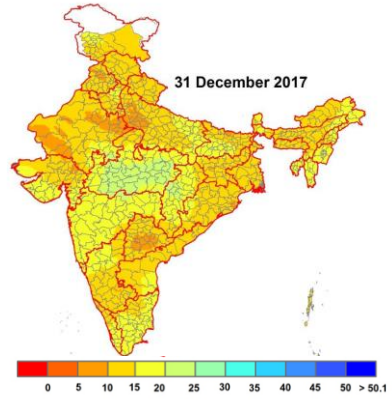
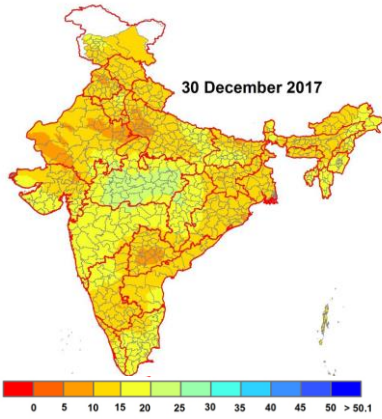
Daily Soil Moisture (mm) for 29th December 2017 (ending at 0830 IST) for 60 cm depth



Difference of Soil Moisture (mm) for 60 cm depth



**Forecasted Soil Moisture (mm) from 30th December 2017 to 3rd January 2018 (ending at 0830 IST)
for 60 cm depth**



Weather Forecast for next 5 days valid upto 0830 hours of 3rd January 2018

- Meteorological subdivision wise detailed 5 days rainfall forecast is given in Table below.
- Minimum temperatures are likely to fall by 1-2°C over planes of northwest India leading to cold wave conditions over Punjab, Haryana, Chandigarh & Delhi and north Rajasthan during next 48 hours. There is no significant change in minimum temperature likely over rest parts of the country during next 2 days.
- Shallow to moderate fog very likely at a few places over Arunachal Pradesh during next 3 days.
- High swell waves in the range of 3.0-3.3 M along coast of Kerala during next 48 hours; 2.5-2.9 M along coast of Lakshadweep Island during next 24 hours; 2.5-2.6 M along coast of south Tamilnadu during next 24 hours; 2.0-2.3 M along coast of Karnataka during next 24 hours; 2.0-2.2 M along coast of Maharashtra during next 48 hours; 2.0-2.2 M along coast of Gujarat during next 24 hours; 2.0-2.1 M along coast of Goa during next 24 hours. Fishermen are advised to be cautious while venturing into the sea along these coasts during the above period.

5 Day Rainfall Forecast (Mid day) 29th December 2017

Met-Sub-Division	29-Dec Today	30Dec Sat	31Dec Sun	01Jan Mon	02Jan Tue
1. Andaman & Nicobar Islands	FWS	FWS	WS	WS	WS
2. Arunachal Pradesh	DRY	DRY	DRY	DRY	DRY
3. Assam & Meghalaya	DRY	DRY	DRY	DRY	DRY
4. N. M. M. & T.	DRY	DRY	DRY	DRY	ISOL
5. S.H. West Bengal & Sikkim	DRY	DRY	DRY	DRY	DRY
6. Gangetic West Bengal	DRY	DRY	DRY	DRY	DRY
7. Odisha	DRY	DRY	DRY	DRY	DRY
8. Jharkhand	DRY	DRY	DRY	DRY	DRY
9. Bihar	DRY	DRY	DRY	DRY	DRY
10. East Uttar Pradesh	DRY	DRY	DRY	DRY	DRY
11. West Uttar Pradesh	DRY	DRY	DRY	DRY	DRY
12. Uttarakhand	DRY	DRY	DRY	DRY	DRY
13. Haryana, Chd & Delhi	DRY	DRY	DRY	DRY	DRY
14. Punjab	DRY	DRY	DRY	DRY	DRY
15. Himachal Pradesh	DRY	DRY	DRY	DRY	DRY
16. Jammu & Kashmir	ISOL	DRY	DRY	DRY	DRY
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. Gujarat Region	DRY	DRY	DRY	DRY	DRY
22. Saurashtra & Kutch	DRY	DRY	DRY	DRY	DRY
23. Konkan & Goa	DRY	DRY	DRY	DRY	DRY
24. Madhya Maharashtra	DRY	DRY	DRY	DRY	DRY
25. Marathawada	DRY	DRY	DRY	DRY	DRY
26. Vidharbha	DRY	DRY	DRY	DRY	DRY
27. Chhattisgarh	DRY	DRY	DRY	DRY	DRY
28. Coastal Andhra Pradesh	DRY	DRY	DRY	DRY	DRY
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	DRY	DRY	DRY
31. Tamilnadu & Puducherry	DRY	DRY	DRY	DRY	DRY
32. Coastal Karnataka	DRY	DRY	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	DRY	DRY	DRY	DRY	DRY
35. Kerala	DRY	DRY	DRY	DRY	DRY
36. Lakshadweep	DRY	DRY	DRY	DRY	DRY

% Station Reporting Rainfall

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

Weather Warning during next 5 days

- **29 December (Day 1):** Dense fog at a few places with very dense fog at isolated places very likely over East

Uttar Pradesh & Bihar. Dense to very dense fog very likely at isolated places over Punjab & West Uttar Pradesh; dense fog at isolated places over Haryana, Chandigarh & Delhi. Moderate to dense fog very likely at isolated places over West Bengal, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; shallow to moderate fog at isolated places over Arunachal Pradesh. Cold wave conditions very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi, north Rajasthan, East Madhya Pradesh, Vidarbha, Chhattisgarh & Odisha. Cold day conditions very likely at a few places over East Uttar Pradesh; at isolated places over Bihar.

- **30 December (Day 2):** Dense fog at a few places with very dense fog at isolated places very likely over East Uttar Pradesh & Bihar. Dense to very dense fog very likely at isolated places over Punjab, West Uttar Pradesh and Haryana, Chandigarh & Delhi. Moderate to dense fog very likely at isolated places over West Bengal & Sikkim, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; shallow to moderate fog at isolated places over Arunachal Pradesh. Cold wave conditions very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi, north Rajasthan, East Madhya Pradesh, Vidarbha, Chhattisgarh & Odisha. Cold day conditions very likely at a few places over East Uttar Pradesh; at isolated places over Bihar.
- **31 December (Day 3):** Dense fog at a few places with very dense fog at isolated places very likely over East Uttar Pradesh & Bihar. Dense to very dense fog very likely at isolated places over Punjab & West Uttar Pradesh; dense fog at isolated places over Haryana, Chandigarh & Delhi. Moderate to dense fog very likely at isolated places over Sub-Himalayan West Bengal, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; shallow to moderate fog at isolated places over Arunachal Pradesh. Cold day conditions very likely at isolated places over East Uttar Pradesh & Bihar. Heavy rain very likely at isolated places over Andaman & Nicobar Islands.
- **01 January (Day 4):** Heavy rain very likely at isolated places over Andaman & Nicobar Islands.
- **02 January (Day 5):** No weather warning.

Weather Outlook for subsequent 2 days from 3rd to 5th January 2018

- Rainfall at many places very likely over Andaman & Nicobar Islands and at isolated places over northeastern states.
- Rain/snowfall at isolated places likely over western Himalayan region.
- Weather likely to be dry over remaining parts of the country.

Salient Advisories

- As high swell waves in the range of 3.0-3.3 M along coast of **Kerala** during next 48 hours; 2.5-2.9 M along coast of **Lakshadweep Island** during next 24 hours; 2.5-2.6 M along coast of **south Tamilnadu** during next 24 hours; 2.0-2.3 M along coast of **Karnataka** during next 24 hours; 2.0-2.2 M along coast of **Maharashtra** during next 48 hours; 2.0-2.2 M along coast of **Gujarat** during next 24 hours; 2.0-2.1 M along coast of **Goa** during next 24 hours. Fishermen are advised to be cautious while venturing into the sea along these coasts during the above period.
- As cold wave conditions very likely at isolated places over **Punjab, Haryana, Chandigarh & Delhi, north Rajasthan, Vidarbha, Odisha, East Madhya Pradesh** and **Chhattisgarh** on 29th and 30th December, apply light and frequent irrigation /sprinkler irrigation in the evening to protect the crops from cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/gunny bags.
- As rainfall is very likely at most/many places over **Andman & Nicobar Islands** on 29th December to 2nd January, along with heavy rain at isolated places very likely on 31st December & 1st January, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- As dense fog at a few places with very dense fog at isolated places very likely over **Bihar and East Uttar Pradesh** from 29th to 31st, dense to very dense fog very likely at isolated places over **Punjab & West Uttar Pradesh** and dense fog at isolated places over **Haryana, Chandigarh & Delhi** from 29th to 31st December moderate to dense fog very likely at isolated places over **West Bengal & Sikkim** from 29th to 31st December, moderate to dense fog very likely at isolated places over **Assam & Meghalaya** and **Nagaland, Manipur, Mizoram & Tripura**; shallow to moderate fog at isolated places over **Arunachal Pradesh** from 29th to 31st

December, , monitor the standing crops for incidence and spread of pest diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake plant protection measures.

- As dry weather is prevailing, apply irrigation in wheat at CRI stage in Saurashtra, in middle Gujarat, Central Plain Zone of Uttar Pradesh, West Madhya Pradesh and in North Central Plateau Zone and Western Undulating Zone of Odisha.
- In Western Plain Zone of **Punjab**, in the prevailing weather, there are chances of late blight in potato, if symptoms appear, spray the crop with Indofil M-45/Markzeb/Kavach @ 500-700 g in 250-350 litres of water per acre.
- In the Hill Zone of **Assam**, foggy weather may cause blight disease in tomato. Alternate application of Ridomil MZ-72 (2g/litre) and Indofil M-45 2.5g / litre of water at 15 days interval can prevent the disease. Keeping in view of high relative humidity, farmers are advised to do monitoring of late blight in potato & advised to spray Dithane-M-45@ 2g/litre of water.
- In view of the cold wave conditions in **Punjab, Haryana, Chandigarh & Delhi, north Rajasthan, Vidarbha, Odisha, East Madhya Pradesh** and **Chhattisgarh** on 29th and 30th December, keep animals inside the sheds during night and provide dry bedding to protect them from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy to cope up with the cold condition. In Poultry, keep the chicks warm by providing artificial light in the poultry sheds.

Detailed Zonewise Agromet Advisories

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

- **Realised Rainfall:** Rainfall occurred in Karaikal district of Tamil Nadu and weather remained mainly dry/dry over rest of the region during the week.
- **Advisories:**
 - As high swell waves in the range of 3.0-3.3 M along coast of Kerala during next 48 hours; 2.5-2.6 M along coast of south Tamilnadu during next 24 hours; 2.0-2.3 M along coast of Karnataka during next 24 hours, fishermen are advised to be cautious while venturing into the sea during the same period.
 - **Kerala:**
 - In the Problem Area Zone, to prevent viral diseases in cow pea, prepare neem oil emulsion by diluting 65 ml of neem oil in 1 litre of water with bar soap as emulsifying agent. Use fruit traps or tulsii traps in bitter gourd to control fruit flies.
 - In the Southern Zone, farmers are advised to keep vigil against White ear in rice at panicle initiation stage. If the disease is very severe, spray Flubendamide (Fame) 2 ml/ 20 litre of water. Increased humidity may accelerate the incidence of anthracnose diseases in cowpea . Spray Copper oxy chloride 4g / 1litre of water as a prophylactic measure against anthracnose.
 - In the Northern Zone, for control of Mosquito bug – blight disease in cashew plantation, spray the solution of lambda cyhalothrin insecticide 3ml+ copper oxychloride fungicide 5g dissolved in 5 litres of water.
 - In the Central Zone, apply neem based pesticides @ 3 ml per liter of water for rice bug infestation. Pesticides application should be done either before 9 am or after 3 pm. To control white fly, spray mixture of 2% neem oil emulsion with 20 g of biocontrol agent (Verticillium) on lower sides of leaves. If infestation of pseudostem weevil is noticed, the leaf axils and holes on pseudo stem will be drenched with chlorpyrifos 2 ml or quinalphos 2 ml per litre of water.
 - **Andhra Pradesh:**
 - In the North Coastal Zone, harvest sugarcane crop to ground level. Ratoon immediately after harvesting. Spray Chlorpyrifos @ 2.5 ml/litre or Acephate @ 1.5 g/litre for aphids and maruca pod borer in red gram and for control of sucking pests in groundnut crop, spray Dimethoate @ 2 ml/litre of water.
 - In the Scarce Rainfall Zone, prevailing conditions are favorable for incidence of spotted pod borer and helicoverpa in red gram, spray Chloropyrifos @1.5ml/ Novaluron @1ml / Flubendamide @0.2 ml + Nuvan @1ml per one litre of water. For the incidence of bacterial wilt and fungal disease in pomegranate, spray Carbendazim @ 1 g/lit + Streptocyclin 0.5 g/1 lit of water is recommended. If Incidence was noticed immediately spray Quinalphos@ 2ml/lit

or Chlorpyrifos @ 2.5 ml/ lit or Thiodicarb @1.5 g/lit is recommended. Incidence of pod borer and tobacco caterpillar is observed and the present weather conditions are favorable for further spread of the pests. For control, farmers are advised to spray Novaluron@1ml/lit or Thiodicarb@1.5gm/lit or Rynoxpyr@0.2ml/lit of water.

- In the Southern Zone, spray Dithane M-45 3 g. or Redomil MZ 2g./L of water for leaf blight in tomato. Spray Tricyclozole (Beem) @ 0.6 g./L of water to control blast disease and spray Chloripyriphos @ 2.5 ml. (or) Cartap Hydrochloride @ 2 g. (or) Acephate @ 1.5 g./L of water (or) Flubendamide @ 40 ml. or 40 g./acre to control leaf folder and stem borer in paddy.

- **Telangana:**

- In North Telangana Zone, continue sowing of rabi rice in nursery beds. Cover entire nursery bed with polythene sheets at night and remove in the morning to avoid the effect of cool temperatures on germination and growth. Provide irrigation during flowering and grain filling stage in sorghum crop, two irrigations at flower initiation stage in Bengal gram crop and one irrigation at pod development stage in red gram crop.
- In South Telangana Zone, to overcome low minimum temperature and for better nursery growth in rice, adopt the following measures. 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.
- In North Telangana Zone, spray Methyl-o-demeton or Dimethoate or Malathion 5% @ 2 ml per litre of water for aphids in sorghum crop. Spray Monocrotophos @ 1.6 ml/ litre of water for leaf folder and Dimethoate @ 2.0 ml or Monocrotophos @ 1.6 ml/ litre for control of Aphids/Jassids in red gram. Spray Chlorothalonil @ 2 g or Pyraclostrobin @ 1g/ liter of water for early blight in tomato crop.

- **Tamil Nadu:**

- In the Western Zone, by utilizing the expected dry weather, matured early Samba paddy may be harvested and thrashed, dried and stocked properly. Wind speed is expected more than 10 km per hour. Provide adequate support to 5 months old banana and propping up in sugarcane.
- In the Heavy Rainfall Zone, provide irrigation to the newly planted fruit trees and other horticultural crops. As strong winds (16 - 18 kmph) are expected support should be given to young rubber and banana plants.
- In the Southern Zone, prevailing weather conditions is congenial for occurrence of Whitefly in Cotton. To monitor and control the adult white flies yellow pan traps and sticky traps 12/ha can be setup at 1 feet height above the plant canopy. Collect and remove the whitefly infested leaves from the plants. And spray any one of the Chemical Acetamiprid 20% SP 100 g/ha or Chlorpyrifos 20% EC 1.25 l /ha.
- In the Cauvery Delta Zone, false smut incidence is being noticed in the *thaladi* paddy fields in the prevailing weather condition. To control this, spray propiconazole @ 200 ml/acre or copper hydroxide @ 500g/acre in 200 litre of water. Also BPH incidence is being noticed in the thaladi paddy fields. To manage this, spray thiamethoxam 40 g/acre or buprofezin 25 SC 300 ml/acre. Ensure that the spray solution thoroughly wet the base of the tillers.
- In the Heavy Rainfall Zone, apply Chlorantriliprole 0.3 ml/l or Flubendiamide 0.1ml/l for rice stem borer and leaf folder.
- In the South Zone, thrips incidence was noticed in chilli. For controlling this pest, spray Imidachlopid 17.8 % SL @ 3 ml/ 10 litre of water or Dimethoate 30 % EC @1.0 ml/litre. In the prevailing weather condition, pod borer (*Helicoverpa armigera*) incidence was noticed in pulses, spray Chlorantraniliprole 18.5 SC @ 150 ml/ha or Emamectin Benzoate 5% SG @ 220 g/ha.

- **Karnataka:**

- In North East Dry Zone, continue sowing of summer groundnut under irrigation. Undertake harvesting of matured red gram and sunflower crops. Undertake last picking of cotton in early sown cotton and third picking of seed cotton in late sown cotton.
- In Central Dry Zone, continue nursery preparation for summer ragi (Indof-7 and Indof-15 varieties) with irrigation.
- In North East Transition Zone, continue planting of sugarcane (variety Co-86032) crop.
- In Hill Zone, complete harvesting and threshing of rice.
- In Eastern Dry Zone, clear the weeds in mango, guava, sapota orchard; put it under the basin as mulch.
- In North East Transition Zone, incidence of leaf webber has been noticed in some of the mango growing belts; for effective management, spray Nuvan @ 0.5ml /liter of water.
- In North Transition Zone, if fruit borer is noticed in tomato, spray Thiodicarb 75WP @ 1gm / litre of water.

- **Animal Husbandry**

- In North and South Telangana Zones, treat /vaccinate animals against FMD and HS; vaccinate sheep/goat against sheep pox disease and vaccinate poultry birds against Ranikhet disease.
- In North East Transition Zone of Karnataka, for effective management of livestock ectoparasites, application of Flumethrin 1% is recommended.

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

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

• **Advisories:**

- As moderate to dense fog very likely at isolated places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; shallow to moderate fog at isolated places over Arunachal Pradesh from 29th to 31st December, monitor the standing crops for incidence and spread of pest diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake plant protection measures.
- **Assam & Meghalaya, Arunachal Pradesh:**
 - In Arunachal Pradesh, as mainly dry weather would prevail, continue harvesting of matured rice. Cover newly emerged banana bunches with locally available sack to protect from cold. Carry out harvesting of mature citrus fruits. Apply light irrigation to cole crops.
 - In Meghalaya, continue harvesting of Sali/kharif rice. Continue harvesting of ginger and turmeric crops. Continue transplanting of 3-5 weeks old seedlings of cabbage, cauliflower and broccoli.
 - In Lower Brahmaputra Valley Zone of Assam, as dry weather is expected, irrigation should be provided to the seed beds/nursery beds of Boro rice and surrounding furrows to keep the soil under saturated condition. Seedlings of age about 30 days or 45 days (for hybrid varieties) with 5-6 leave stage are ready for transplanting in the main field. Carry out earthing up operation in potato.
 - In the Barak Valley Zone of Assam, continue transplanting of boro paddy in the main field. In the potato crop, earthing up should be done just before the first irrigation, after 25 days of planting.
 - In the Hill Zone of Assam, continue nursery sowing of Boro paddy varieties like Mahsuri, IR-50, Dinanath, Bishnuprasad, Jyotiprasad, Kanaklata and Dinanath in nursery bed during this month. Continue land preparation and sowing of lentil varieties like B-77, L-9, L-12, etc. Provide irrigation to rape seed and mustard crops. Undertake harvesting of mature Sali rice and matured balls of cotton.
 - In the North bank Plain Zone, undertake transplanting of Boro rice seedlings in the main field. Complete sowing of wheat and rabi pulses like lentil, rajmah, pea, lathyrus during this week.
 - In the Upper Brahmaputra Valley Zone, continue transplanting of boro paddy in the main field. Apply light irrigation to cole crops, pea and rape seed.
 - In the Upper Brahmaputra Valley Zone, spray potato crop with Mancozeb @ 2.5gm/litre of water as prophylactic measure against late blight disease. Spray Indofil M-45 @ 2.5g/lit of water for blight disease in tomato. To protect the cole crops from leaf eating caterpillar, spray Malathion 50EC @ 1.5ml/lit of water.
 - In the Lower Brahmaputra Valley Zone, to protect potato crop against late blight disease, spray with Mancozeb @ 2.5gm/lit of water as prophylactic measure. Apply 3 sprays at 10-12 days interval for good result.
 - In the Barak Valley Zone, spray Dimethoate 30 EC or Ragor @ 2 ml per liter of water to control aphids and saw fly in rape seed and mustard.
 - In the Hill Zone of Assam, foggy weather may cause blight disease in tomato. Alternate application of Ridomil MZ-72 (2g/ lit) and Indofil M-45 2.5g / lit at 15 days interval can prevent the disease. Keeping in view of high relative humidity, farmers are advised to do monitoring of late blight in potato & advised to spray Dithane-M-45 @ 2g/lit of water.
 - In Arunachal Pradesh, apply need-based foliar spray of Sulfex@2g/lit water to control powdery mildew in black/green gram/pea.
- **Nagaland, Mizoram, Manipur and Tripura:**
 - In Manipur, continue land preparation and sowing of *rabi* maize. Carry out thinning operation in mustard/ rapeseed, lentil, field pea and black gram crops.
 - In Mizoram, continue harvesting of matured kharif rice. Carry out field preparation for cole crops and continue planting of potato, tomato and chilli. Carry out weeding, thinning and earthing up operations.
 - In Nagaland, carry out thinning and weeding in mustard field. Carry out thinning, weeding and earthing up in Rabi maize. Continue transplanting cabbage and cauliflower.
 - In Manipur, spray Borax @ 3g/ lit of water or spray Tracel (micronutrient @ 5 g/ litre of water) in addition to recommended dose of fertilizer if Whip tail is observed in cauliflower. Spray Flubendiamide (Fame) @ 2ml/ 10 lit of water for leaf eating caterpillar in Cabbage, Cauliflower, Tomato and Potato.
 - In Tripura, to prevent fungal attack in potato, tomato and cole crops, stop the irrigation for next 72 hours and apply combination of either Carbendazim & Chlorothalonil or Bavistin & Mancozeb or Metalaxyl and Mancozeb @ 2 gm per litre of water along with sticker Fandovit to prevent wastage of fungicide. Apply Dimethoate (Rogor) or Imidacloprid @ 0.8ml per liter of water in banana for aphid attack.
 - In Tripura, complete the sowing of toria, sesame, lentil, etc
- **Animal Husbandry**
 - In Arunachal Pradesh, provide proper bedding materials especially to new-born piglets and lukewarm food & water. Apply Iron injection within 10 days of birth to newly born piglets if they are kept in confined system. Deworm with anti helminthic drugs (particularly Tapeworms) viz. Fento Plus @ 1 tablet per 30 kg body weight. In present weather conditions vaccinate against swine fever (Vaccines available in State Veterinary Depts). Vaccinate cattle against FMD.
 - In Meghalaya, provide artificial heating to poultry birds. Provide vitamin B complex @ 7ml/litre in drinking water

daily in broiler for healthy growth. Provide coccidiostatic like Amprolium @ 25-65 mg/kg feed once a day as a preventive measure against coccidiosis. Vaccinate the poultry birds with F1/ Lasota vaccine (1 drop) at the age of 4-7 days old and 35 days old through eye and nostril. Vaccinate 6-9 months old calves with Brucella abortus cotton strain-19 @ 5ml subcutaneous on the neck. Undertake regular immunization of cattle & buffaloes against Foot & Mouth disease, Haemorrhagic septicaemia & Black Quarter.

➤ In Manipur, vaccinate and de-worm cattle, sheep, goat and pigs. Protect animals/ birds from sudden drop in temperature by covering the walls with hessian cloth/ polythene sheet during night time.

• **Fishery**

➤ In the Lower Brahmaputra Valley and In Barak Valley Zones, pond fishes may be affected by EUS disease Apply CIFAX @ 1 litter per hectare for 1 meter water depth to prevent the disease.

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

➤ In Tripura, apply an extra dose of Lime @ 200 kg per ha to prevent the outbreak of EUS (ulcer disease).

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

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

• **Advisories:**

➤ As cold wave conditions very likely at isolated places over Vidarbha on 29th and 30th December, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/gunny bags.

➤ As high swell waves in the range of 2.0-2.2 M along coast of Maharashtra during next 48 hours; 2.0-2.2 M along coast of Gujarat during next 24 hours; 2.0-2.1 M along coast of Goa during next 24 hours, fishermen are advised to be cautious while venturing into the sea during the same period.

▪ **Maharashtra:**

➤ In Konkan, undertake transplanting of rice seedlings. Maintain water level 2-3 cm for first 8-10 days. Undertake gap filling in groundnut crop. Undertake thinning of water melon plants @ 2 plants per basin.

➤ In Madhya Maharashtra, Complete preparatory tillage for planting of suru sugarcane. Prepare nursery for summer onion. Undertake intercultural operation like hoeing to control weeds. Apply irrigation to orchards to protect from cold injury.

➤ In Marathwada, as minimum temperature is around 10^oC, use skirting bags to cover the banana bunch with 2 - 6 meshed white bags with thickness of 100 gauges. Undertake harvesting of mature early sown pigeonpea crop.

➤ In Vidarbha, continue nursery sowing of summer rice. Apply 60 kg per hectare of nitrogenous fertilizer when wheat crop is more than 21 to 25 days and also apply irrigation at an interval of 18 to 21 days.

➤ In Konkan, if the incidence of rice leaf folder observed in rice crop, spray Monocrotophos @12 ml per 10 litres of water. If incidence of aphids and leaf miner is noticed in pulse crops, spray Dimethoate @10 ml per 10 litres of water at an interval of 15-20 days.

▪ **Gujarat:**

➤ In North Saurashtra Zone, apply irrigation in wheat.

➤ In Middle Gujarat Zone, undertake intercultural operations in chickpea. Apply irrigation to wheat (CRI stage), pigeon pea at pod development stage, cumin, chickpea and potato crops.

➤ In South Saurashtra Zone, continue picking of cotton during morning hours and undertake picking of matured clusters of castor. Apply irrigation in wheat (at CRI stage), pigeon pea, cumin, garlic, onion and coriander at regular interval.

➤ In South Gujarat Zone, carry out intercultural operations in pigeon pea before flowering. Undertake mulching in sugarcane crop with its leaves for control of stem borer and to conserve moisture in the field.

➤ In North Gujarat Zone Gujarat, carry out sowing of water melon and harvesting of mature fruits of vegetable and fruit crops (pomegranate, guava, papaya, bare and aonla).

➤ In Bhal and Coastal Zone, carry out intercultural operations in mustard, fennel and vegetable crops.

➤ In South Gujarat Zone, weather condition is favorable for sucking pest in cotton; spray Acetamidrid 20 Sp @ 2g/10 liters of water.

➤ In North Gujarat Zone, there is chance of blight disease in potato crop; to control, spray Mencozeb 0.2% @ 30 g plus 25 ml of concentrated desi soap solution in 10 litres of water.

➤ In North Saurashtra Zone, under present weather condition, attack of thrips and aphids in cumin has been reported; for control, spray Acetamidrid @ 5 g/10 liters of water. Spray Hexaconazole @15 ml/10 litres of water to prevent blight and powdery mildew infestation in cumin.

➤ In Bhal and Coastal Zone of Gujarat, to control powdery mildew in cucurbits, spray the dust 20 kg/ha 300 mesh sulphur to manage the disease.

- **Animal Husbandry**

- In Gujarat, keep young calves indoors during night time to avoid cold stress. Provide dry fodder to animals twice a day.
- In Vidarbha, use electric bulbs in poultry and apply two drops of Eucalyptus oil in the nose of animals for protection against cold.

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

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

- **Advisories:**

- As rainfall is very likely at most/many places over Andman & Nicobar Islands during the period, along with heavy rain at isolated places very likely on 31st December and 1st January, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- As dense fog at a few places with very dense fog at isolated places very likely over Bihar from 29th to 31st December, moderate to dense fog very likely at isolated places over West Bengal & Sikkim from 29th to 31st December, monitor the standing crops for incidence and spread of pest diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake plant protection measures.
- As cold wave conditions very likely at isolated places over Odisha on 29th and 30th December, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/gunny bags.

- **Odisha:**

- In Western Undulating Zone, continue sowing of pre germinated rice seed in puddled nursery bed. Prepare the main filed for transplanting at three week stage of seedling. Continue picking up of matured bolls of cotton and harvesting of matured rice. Continue transplanting of onion. Undertake plucking of matured castor and harvesting of sugarcane.
- In North Eastern Coastal Plain Zone, continue nursery sowing of SRI rice. As temperature will remain low, cover the nursery bed with FYM & paddy straw/banana leaves after sowing. After weeding, apply 44 kg urea per acre in tomato & cauliflower while 52 kg urea in cabbage.
- In North Eastern Plateau Zone, complete nursery sowing of rice. Apply irrigation in wheat at CRI stage. Complete sowing of pulses.
- In North Eastern Ghat Zone, continue weeding hoeing in groundnut and mustard.
- In North Central Plateau Zone, continue harvesting of rice. Continue land preparation for nursery sowing of rabi paddy in irrigated areas. Complete earthing up in late planted potato crop. Complete planting of onion. Apply irrigation in wheat at CRI stage.
- In Mid Central Table Land Zone, continue harvesting of matured rice.
- In South Eastern Ghat Zone, complete nursery raising of summer rice. Continue harvesting of *kharif* rice. Continue weeding in vegetables and groundnut.
- In Eastern Ghat High Land Zone, continue harvesting of matured rice. Complete sowing of green gram and black gram in upland. Continue sowing of green pea in the fallow uplands. Apply light and frequent irrigation in vegetables in morning and evening hours to protect from low temperature.
- In Mid Central Table Land Zone, to control fruit and shoot borer in brinjal spray Neem based pesticide 1500 ppm @ 600ml/acre at initial stages. Spray Spinosad 45% SC @ 70ml/acre and Thiodicarb @ 250g/acre at 15 days interval alternately.

- **Bihar:**

- In North West Alluvial Plain Zone, under the prevailing low temperature and cold wave condition, farmers are advised to protect the rice nursery from cold stress by irrigation through fresh water at the evening time. Apply irrigation wheat crop. Apply 30 kg nitrogen per hectare after irrigation. Undertake intercultural operations in vegetables.
- In South Bihar Alluvial Zone, complete sowing of late sown wheat (varieties - PBW 373, HD 2285, HD 2307, DBW14). Apply irrigation at CRI stage in timely sown wheat. Undertake thinning and weeding in mustard.
- In North East Alluvial Zone, continue sowing of late varieties of wheat. apply irrigation in mustard as per the requirement of crop. Complete the sowing of sarson varieties like Rajendra Rai Peecheti, Rajendra Anukul and Rajendra Suflam. Transplanting of mature seedlings of cauliflower, cabbage, broccoli may be done in raised bed.
- In North East Alluvial Zone, infection of blight may occur in potato and tomato. If symptoms appear then spray Carbandizam @ 1.0 gm/litre of water or Dithane-M-45 @ 2.0 gm/litre of water.
- In South Bihar Alluvial Zone, there are chances of attack of white rust in mustard, spray Dithane-M-45 @ 2 g/ litre of water.

- **Jharkhand:**

- In South Eastern Plateau Zone, broadcast Nitrogen @ 10-12.5 kg (22-27 Kg urea/acre) two days after irrigation in wheat at CRI stage.

- In Central and North Eastern Plateau Zone, undertake nursery raising of summer rice with improved varieties like IR 36, IR 64, Naveen, Lalat and Parijat. Apply irrigation in wheat.
- In South Eastern Plateau Zone, there are chances of attack of aphids in mustard (High humid, foggy weather and partial cloudy condition), spray Rogor (Dimethoate) @ 2 ml or or Monocrotophos 36 EC @ 1 ml/litre of water during evening time.
- In Western Plateau Zone, undertake intercultural operations in pulse and oilseed crops to conserve soil moisture and control weeds. Harvest rapeseed crop when siliqua turns into bright yellow colour and dry the harvested crop in the sun for 2-3 days before threshing.
- In Central and North Eastern Plateau Zone, due to decrease in temperature, there are chances of infestation of early and late blight disease in potato, spray Endofil M-45 or Redomil MZ @ 2g/litre of water.
- **West Bengal:**
 - In Coastal Saline Zone, complete seed bed preparation and sowing of Boro rice. Apply water during afternoon and drain it during morning. Stop irrigation if seedlings turn reddish. Make shade by polythene over seed bed. Continue sowing of sunflower variety like Kaberi, Abinash-2, ganga, j.K. etc.
 - In the Hill Zone, apply irrigation as per requirement to cabbage and cauliflower crops. Continue harvesting of Mandarin orange and provide irrigation to the orchard. Apply irrigation to wheat, mustard and potato. Continue harvesting of ginger and turmeric seed rhizome.
 - In Laterite and Red Soil Zone, carry out hand weeding in potato fields. Apply light irrigation to potato crop.
 - In New Alluvial Zone, complete seed bed preparation and sowing of Boro rice within last week of December. Maintain a thin layer of water over the seed bed and, if possible, arrange polythene shade over seed bed.
 - In Old Alluvial Zone, spray Nemastra (Nemastra = 5 kg Neem leaf + 5 liter cow Urine + 2 kg row cow dung) @10ml/liter of water in the evening hours to control different insects & pests transplanted cabbage, cauliflower, brinjal, chilli, etc. To avoid the incidence of Alternaria blight of Mustard, spray Copper Oxy- chloride @ 3-4gram /liter of water. If after germination lentil plants show yellowing leaves, spray Carbendazim @ 2 gram/liter water. For each spraying take 5tanks of water (15 liter) for one bigha.
 - In the New Alluvial Zone, apply 1.5 to 2 ml Metasystox per litre of water or 1 ml Confidor per 1.5 litre of water to control aphids in mustard crop.
 - In Laterite and Red Soil Zone, spray Imidacloprid @1ml/1.5 lit of water to control aphids in mustard. Spray Neem Seed Kernal Extract solution @ 30ml/lit of water for aphids and Neem Seed Kernal Extract solution @ 50ml/lit of water for Diamond Blackmoth in cabbage/cauliflower.
- **Andaman & Nicobar Islands**
 - In North and Middle Andaman, take all the harvested rice from field to nearby shelter to avoid losses as moderate to heavy rainfall is expected during next five days. Harvest the mature vegetable and take it to the nearby market as good amount of rainfall is expected.
- **Animal Husbandry**
 - In Old Alluvial Zone of West Bengal, keep the animals in a covered shed area during the night. The bedding/hay in the animal shed must be changed regularly in this winter season for better health of animals.
 - In Andaman and Nicobar Islands, keep the goat under dry clean shelter to avoid pneumonia or breathing problem.
- **Fisheries**
 - In Old Alluvial Zone of West Bengal, apply CIFAX @ 1 liter/ha pond area, per meter water or Sukrena W.S. @ 500-1000ml /Acre pond area to control Ulcer disease of fish.
 - In the Coastal Saline Zone, practice feeding during mid day when temperature remain high. Remove all the bushes and aquatic weed from the surrounding of pond so that more sunlight is available over pond water.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Weather remained dry over the region during the week.
- **Advisories:**
 - As cold wave conditions very likely at isolated places over East Madhya Pradesh and Chhattisgarh on 29th and 30th December, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/gunny bags.
 - **Madhya Pradesh:**
 - In Bundelkhand Zone, apply irrigation in wheat at tillering stage and then apply remaining dose of fertilizer.
 - In Central Narmada Valley Zone, apply irrigation in wheat at CRI stage. Undertake intercultural operations in vegetables and chickpea.
 - In Nimar Valley Zone, apply 30kg Urea per acre after first irrigation in wheat crop.
 - In Malwa Plateau Zone, continue earthing up in potato. Undertake transplanting of onion. Continue intercultural operations in vegetables.
 - In Jhabua Hill Zone, apply irrigation in wheat at CRI stage, after first irrigation give 1/3dose of urea as top dressing.

Continue picking up of cotton bolls. Apply irrigation and recommended dose of fertilizers in winter vegetable i.e. tomato, cauliflower, cabbage, potato, pea, fenugreek, spinach, radish etc. Undertake digging up of matted rhizomes of ginger.

- In Kymore Plateau and Satpura Hill Zone, continue harvesting of matured pea. Undertake weeding in mustard and chickpea. Apply irrigation in vegetables, mustard and chickpea.
- In Nimar Valley Zone, there are chances of attack of pod borer in arhar, spray Indoxacarb @ 1 ml/litre of water.
- **Chhattisgarh:**
- In Chhattisgarh Plain Zone, continue transplanting of onion. Continue preparation of seedlings of cucurbits in polythene bags.
- In Bastar Plateau Zone, apply irrigation in wheat at CRI stage.
- In North Hill Zone, continue intercultural operations in pulse and oilseed crops. Apply irrigation in wheat at CRI stage and broadcast urea @ 22 kg per acre in 22-25 days old crop after weeding. Continue earthing up in potato.
- In Plain Zone, there are chances of attack of pod borer in pigeon pea, spray Indoxacarb @ 300 g/ha dissolved in 500 litre of water.
- **Animal Husbandry**
- In Madhya Pradesh, provide 3-4 hours light in poultry houses during night and give the food, mixed with vitamins and energy food material. Protect cattle from cold at night. Use litter in cattle shed.
- In Chhattisgarh, low temperature condition may adversely affect the milk production and performance of domestic animals; give protein enriched diet to the animals. Keep animal indoor. Provide supplementary wormicide medicine in feed of poultry birds.

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

- **Realised Rainfall:** Weather remained mainly dry/dry over the region.
- **Advisories:**
 - As dense fog at a few places with very dense fog at isolated places very likely over East Uttar Pradesh from 29th to 31st December. Dense to very dense fog very likely at isolated places over Punjab & West Uttar Pradesh and dense fog at isolated places over Haryana, Chandigarh & Delhi from 29th to 31st December, monitor the standing crops for incidence and spread of pest diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake plant protection measures.
 - As cold wave conditions very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi, north Rajasthan on 29th & 30th December, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/gunny bags.
 - **Jammu & Kashmir:**
 - In Sub Tropical Zone, apply 2nd dose of urea (25% of basal dose) as top dressing in wheat.
 - In Intermediate Zone, as clear weather conditions are prevailing, carry out intercultural operation (hoeing) in one month old wheat crop. Continue light weeding and hoeing in vegetables followed by irrigation depending upon soil moisture conditions.
 - In Valley Temperate Zone, provide drainage channels in wheat fields wherever there is probability of water accumulation during winter month. Complete transplanting of onion. Provide proper drainage in apple orchards.
 - In Sub Tropical Zone, to control early blight in tomato and potato, spray Mancozeb @ 0.25% at 15 days interval.
 - In Intermediate Zone, weather conditions are favourable for the attack of alternaria blight in mustard crop. If observed in the crop, apply Mancozeb @ 2.5 g/liter of water and Ridomil MZ @ 2.5 g/liter of water.
 - **Uttarakhand:**
 - In Sub Humid Sub Tropic Zone, as mainly dry weather would prevail, apply light irrigation in oat and wheat.
 - In Hill Zone, apply light irrigation in potato, continue intercultural operations in vegetables.
 - In Bhabar and Tarai Zone, undertake weeding and hoeing in sugarcane crop and apply remaining dose of nitrogen.
 - In Bhabar and Tarai Zone, to control the late blight disease in potato and tomato, spray Mancozeb @ 2.5g/liter or Copper Oxochloride @ 3g/litre of water.
 - **Himachal Pradesh:**
 - In High Hill Temperate Dry Zone, keep the poly house closed to maintain optimum temperature.
 - In Solan Shimla, Bilaspur and Sirmour districts of Mid Hills Sub Humid Zone, continue transplanting of onion. Continue cultivation of mushroom. Dig the pits for planting of new orchards, keep it open for 15-20 days and then fill with FYM mix soil.
 - In Sub-Monate and Low Hill Tropical Zone, add mulch material in space between two rows of vegetables crops for conservation of soil moisture and maintaining the soil temperature. Undertake thinning and weeding in mustard.
 - **Punjab & Delhi:**
 - In Western Zone of Punjab, apply irrigation in wheat and undertake weeding. Apply light irrigation in vegetables

and fruit plants to protect from low temperature.

- In Western Plain Zone of Punjab, apply irrigation in wheat at CRI stage (at 21-25 days after sowing) and apply second dose of urea @ 55 kg /acre with first irrigation. Continue harvesting of sugarcane. Continue picking of matured pods of pea.
- In Undulating Plain Zone of Punjab, apply irrigation in wheat, oilseeds and vegetables. Undertake intercultural operations in vegetables and oilseeds.
- In Delhi, continue thinning and weeding in mustard and transplanting of onion. Undertake intercultural operations in vegetables and apply irrigation. Undertake sowing of spinach, coriander and fenugreek.
- In Western Zone of Punjab, in the prevailing weather, powdery mildew may appear in ber and lead to premature fruit drop. The incidence of the disease may be reduced by spraying the ber plantation with Karathane 40 EC @ 50 ml or Bayleton 25 WP 50 g per 100 litres of water.
- In Western Plain Zone of Punjab, there are chances of late blight in potato and if symptoms appear, spray the crop with Indofil M-45/Markzeb/Kavach @ 500-700 g in 250-350 litres of water per acre.
- In Delhi, spray Dithane-M-45 @ 2 g/litre of water or Carbandazim @ 1 g/litre of water along with Tepol (sticky material) in the seed potato crop for control of late blight.
- **Uttar Pradesh:**
 - In Central Plain Zone, apply irrigation in wheat at CRI stage. Continue transplanting of onion .Continue harvesting of matured vegetables.
- **Rajasthan:**
 - In Flood Prone Eastern Plain Zone, apply irrigation in wheat and continue weeding.
 - In Arid Western Plain Zone, apply irrigation in standing *rabi* crops as and when required and as per critical growth stages. Undertake hoeing and weeding in gram and mustard.
 - In Sub Humid Southern Plain and Aravalli Hill Zone, apply irrigation in wheat at tillering stage. Continue thinning and weeding in mustard. Continue transplanting of seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli crop in the raised bed.
 - In Flood Prone Eastern Plain Zone, spray a solution of Mancozeb @ 2g/litre of water to manage early blight in potato crop.
 - In Semi Arid Eastern Plain Zone, pod borer attack may be seen in Pea crop at pod formation stage. To control pod borer, spray Malathion 50 EC @ 1.0 ml per litre water.
- **Animal Husbandry**
 - In Jammu & Kashmir, give special care to young calves as they are more sensitive to pneumonia. Protect the pregnant and milch animals from cold and feed them mineral mixture regularly. To avoid cracking or fissuring of teats in cold dry weather, clean the teats with warm water and apply ghee or butter after every milking. Put some bedding material like puual etc. to keep animals warm. Provide dry bedding during night. Do not allow animals to leave khurli early in morning directly to open area. In Poultry keep the chicks warm by providing artificial light in the poultry sheds.
 - In Punjab, keep the chicks warm by providing artificial heat. Keep the animals under roof at night time.
 - In Uttarakhand, maintain optimum temperature in day and night inside the poultry farm to minimize the mortality losses.
- **Apiculture:**

In Jammu & Kashmir, protect bee colonies from extreme climatic conditions through reduced entrance and proper packing. Maintain adequate reserves of honey and pollen in the bee colony. Stimulating feeding of sugar, syrup should be given for expansion of brood area, if needed at the start of the month. Sulphur dusting should be continued at fortnight interval.

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