



National Agromet Advisory Service Bulletin

Friday 22nd December 2017
(For the period 22nd to 27th December 2017)



Issued by
India Meteorological Department

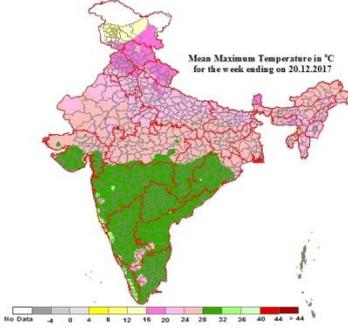
Weblink For

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

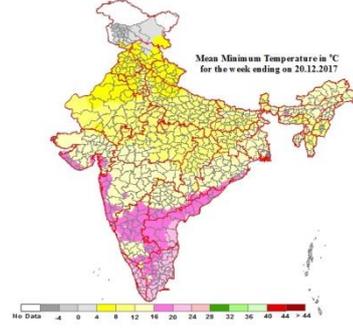
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Spatial distribution of weather parameters for the week ending 20.12.2017

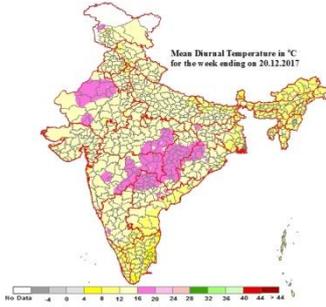
Mean Maximum Temperature (°C) for the week ending 20.12.2017



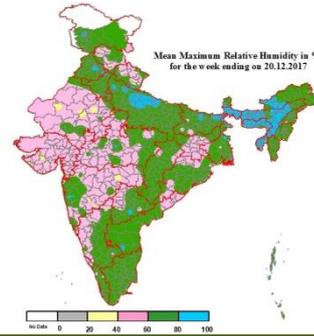
Mean Minimum Temperature (°C) for the week ending 20.12.2017



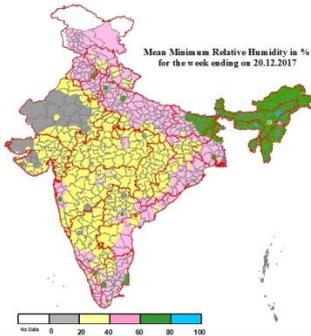
Mean Diurnal Temperature Variation (°C) for the week ending 20.12.2017



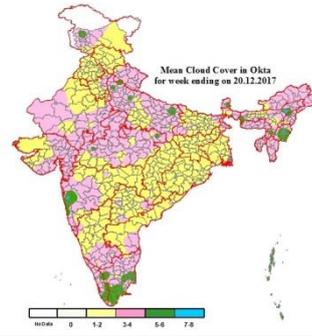
Mean Maximum Relative Humidity (%) for the week ending 20.12.2017



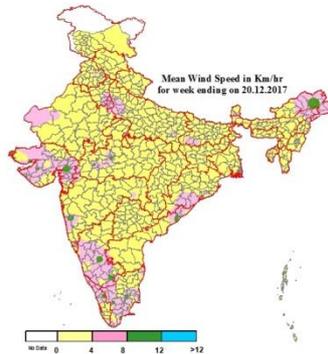
Mean Minimum Relative Humidity (%) for the week ending 20.12.2017



Mean Cloud Cover (okta) for the week ending 20.12.2017

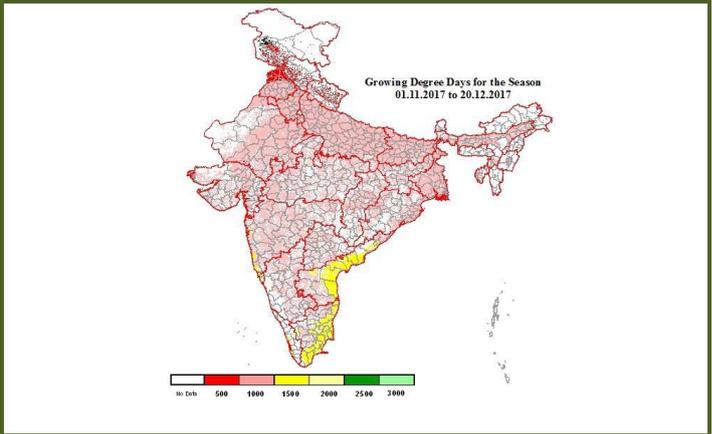
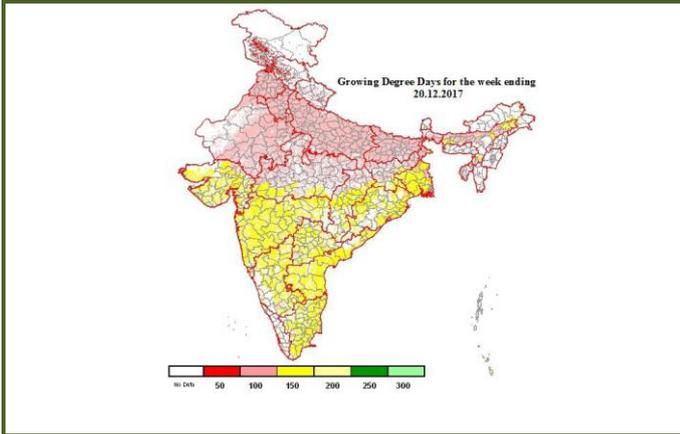


Mean Wind Speed (km/hr) for the week ending 20.12.2017



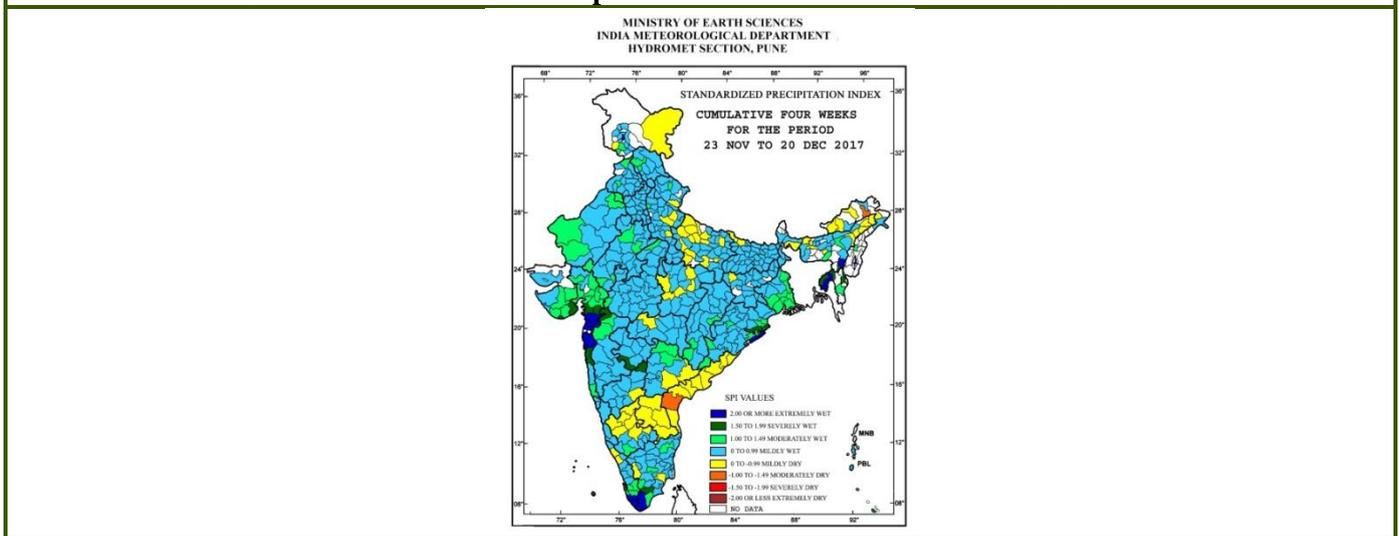
Growing Degree Days for the week ending 20.12.2017

Growing Degree Days for the season ending 20.12.2017

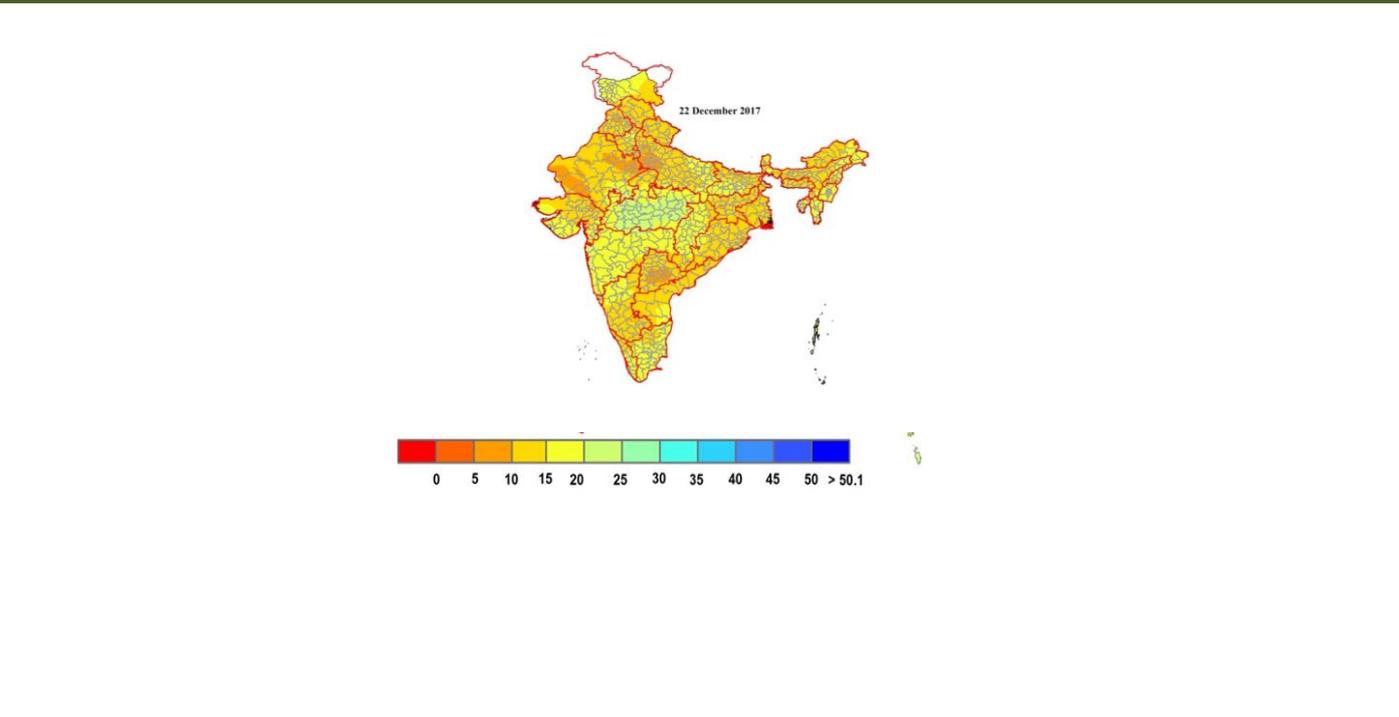


* Base temperature for *Rabi* Season is taken as 05⁰ C

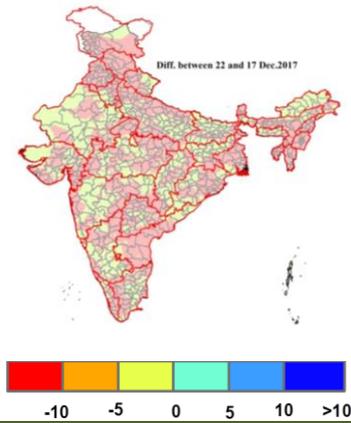
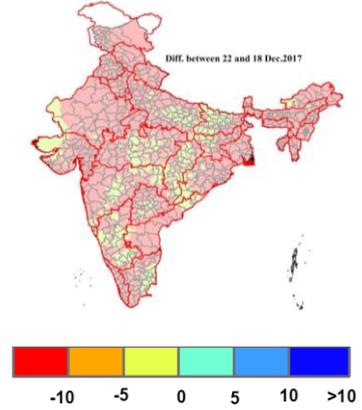
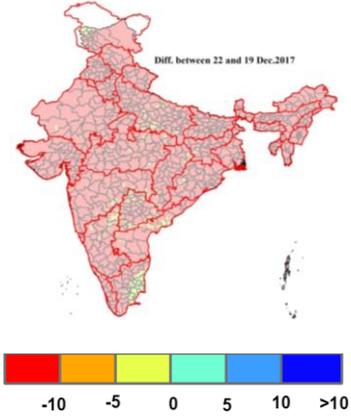
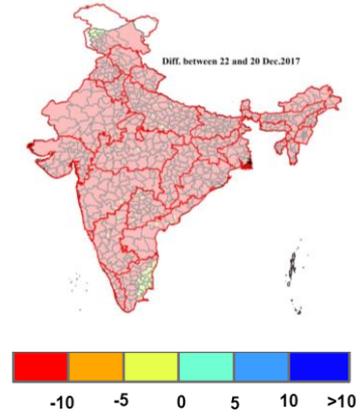
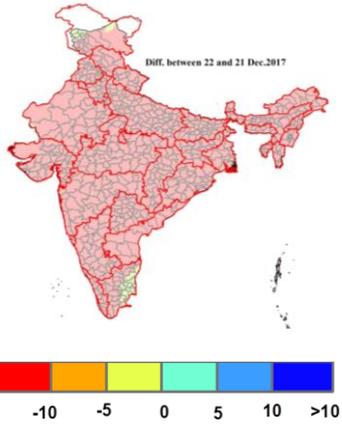
**Standardised Precipitation Index
Cumulative 4 weeks for the period 23rd November to 20th December 2017**



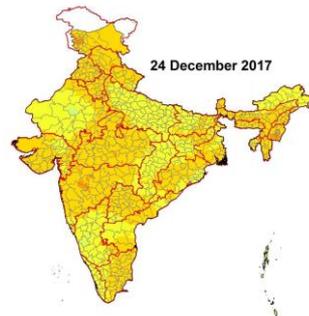
Daily Soil Moisture (mm) for 22nd December 2017 (ending at 0830 IST) for 60 cm depth

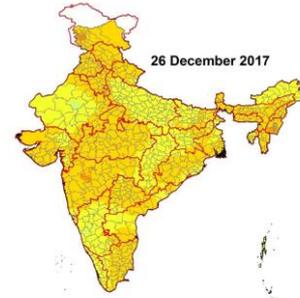


Difference of Soil Moisture (mm) for 60 cm depth



Forecasted Soil Moisture (mm) from 23rd December to 27th December 2017 (ending at 0830 IST) for 60 cm depth





Weather Forecast for next 5 days valid upto 0830 hours of 27th December 2017

- Meteorological subdivision wise detailed 5 days rainfall forecast is given in Table below.
- No significant change in minimum temperatures over entire country during next 24 hours. Minimum temperatures likely to fall by 2-4°C over thereafter during subsequent 48 hours over north Rajasthan, Haryana, Chandigarh & Delhi, Punjab, West Uttar Pradesh.
- Shallow to moderate fog at isolated places very likely over north Madhya Pradesh, Coastal Andhra Pradesh Arunachal Pradesh and Assam & Meghalaya during next 24 hours; Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh and Assam & Meghalaya during subsequent 24 hours and over SubHimalayan West Bengal & Sikkim for subsequent 24 hours.
- High waves in the range of 2.5-3.2 M along the west coast of Nicobar islands from Ten degree channel to Great Channel; 2.5-2.9 M along west coast of Andaman Islands from Ten degree channel to Coco Channel; 2.5-2.8 M along coast of Kerala from Vizhinjam to Kasargod; 2.5-2.7 M along coast of Andhra Pradesh from Dugarajapatnam to Baruva upto 2330 hours IST of today. Fishermen are advised to be cautious while venturing into the sea during the same period.
- High swell waves in the range of 2.0-2.1 M along coast of southern Tamilnadu from Kolachal to Kilakarai; 2.0-2.1 M along coast of Lakshadweep Islands from Minicoy to Bitra. Fishermen are advised to be cautious while venturing into the sea during the same period.

Weather Warning during next 5 days

- **22 December (Day 1):** Dense to very dense fog at isolated places very likely over Uttar Pradesh; Dense fog at isolated places over Uttarakhand; Moderate to dense fog at isolated places very likely over Nagaland, Manipur, Tripura & Mizoram. Cold Wave Conditions at isolated places very likely over south Madhya Maharashtra, Marathwada, Telangana and North Interior Karnataka.
- **23 December (Day 2):** Dense to very dense fog at isolated places very likely over Uttarakhand and Uttar Pradesh; **Dense fog** at isolated places over Punjab and Haryana, Chandigarh & Delhi. Moderate to dense fog at isolated places very likely over Nagaland, Manipur, Tripura & Mizoram.
- **24 December (Day 3):** Heavy rain at isolated places very likely over Nicobar Islands. Dense fog very likely over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh and north Rajasthan.
- **25 December (Day 4):** Heavy rain at isolated places very likely over Nicobar Islands.
- **26 December (Day 5):** No weather warning.

Weather Outlook for subsequent 2 days from 27th to 29th December 2017

- Rainfall at isolated places likely over southern most peninsular India and light isolated precipitation likely over Jammu & Kashmir. Scattered to fairly widespread precipitation likely over Andaman & Nicobar Islands.
- Strong wind speed reaching 30-40 kmph gusting 50 kmph likely to prevail along & off Andaman & Nicobar

islands during the period in association with likely formation of low pressure area over south Andaman sea & adjoining southeast Bay of Bengal around 25th December.

- Weather likely to be dry over remaining parts of the country.

5 Day Rainfall Forecast (Mid day) 22nd December 2017

Met-Sub-Division	22-Dec Today	23Dec Sat	24Dec Sun	25Dec Mon	26Dec Tue
1. Andaman & Nicobar Islands	DRY	ISOL	FWS	FWS	SCT
2. Arunachal Pradesh	DRY	DRY	ISOL	ISOL	ISOL
3. Assam & Meghalaya	DRY	DRY	ISOL	ISOL	ISOL
4. N. M. M. & T.	DRY	DRY	DRY	ISOL	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	ISOL	DRY	DRY
16. Jammu & Kashmir	ISOL	DRY	ISOL	ISOL	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. 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. 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	SCT	ISOL	ISOL	ISOL	ISOL
32. Coastal Karnataka	DRY	DRY	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	DRY	DRY	DRY	DRY	DRY
35. Kerala	DRY	DRY	DRY	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		

Salient Advisories

- As high waves very likely in the range of 2.5-3.2 M along the west coast of **Nicobar islands** from Ten degree channel to Great Channel; 2.5-2.9 M along **west coast of Andaman Islands** from Ten degree channel to Coco Channel upto 2330 hours IST of today and high waves very likely in the range of 2.5-2.8 M along **coast of Kerala** from Vizhinjam to Kasargod; 2.5-2.7 M along coast of Andhra Pradesh from Dugarajapatnam to Baruva upto 2330 hours IST of today and high swell waves in the range of 2.0-2.1M along coast of **southern Tamilnadu** from Kolachal to Kilakarai, fishermen are advised to be cautious while venturing into the sea during the same period.
- As cold wave conditions very likely at isolated places over **South Madhya Maharashtra, Marathwada, Telangana** and **North Interior Karnataka** on 22nd 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. Cover banana bunches with porous polythene bags in Marathwada.

- In **Telangana**, to overcome cold injury 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 beds every day in the evening and let the water out in the morning.
- As rainfall is very likely at many places over **Andaman & Nicobar Islands** on 24th and 25th, along with heavy rain at isolated places very likely over Nicobar Islands on 24th December, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- As dense to very dense/dense fog at isolated places very likely over **Uttar Pradesh** on 22nd to 24th, over **Uttarakhand** on 22nd and 23rd, dense fog at isolated places over **Punjab, Haryana, Chandigarh & Delhi** on 23rd and 24th and over **north Rajasthan** on 24th, moderate to dense fog at isolated places very likely over **Nagaland, Manipur, Tripura & Mizoram** on 22nd and 23rd 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 mainly dry/dry weather would prevail, continue harvesting of Sali rice in **Assam, Meghalaya** and picking of cotton in **Gujarat** and **North Interior Karnataka**.
- In **Telangana** and **North Interior Karnataka**, in view of the cold wave conditions on 22nd 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 situation. 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 Kottoayam district of Kerala and weather remained mainly dry/dry over rest of the region during the week.
- **Advisories:**
 - As cold wave conditions very likely at isolated places over Telangana and North Interior Karnataka on 22nd 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 waves very likely in the range of 2.5-2.8 M along coast of Kerala from Vizhinjam to Kasargod; 2.5-2.7 M along coast of Andhra Pradesh from Dugarajapatnam to Baruva upto 2330 hours IST of today and high swell waves in the range of 2.0-2.1M along coast of southern Tamilnadu from Kolachal to Kilakarai, fishermen are advised to be cautious while venturing into the sea during the same period.
 - **Kerala:**
 - In the Problem Area Zone, maintain 5 cm water level in rice fields. Undertake gap filling. There is chance of Sheath blight disease in rice. Spray propiconazol 1ml or hexaconazol 2 ml/ litre of water. Continue harvesting of mature nutmeg fruits.
 - In the Southern Zone, the rice crop is in the maximum tillering to panicle initiation stage. Farmers are advised to keep vigil against White ear. If the disease is very severe, spray Flubendamide (Fame) 2 ml/ 20 litre of water. There is the possibility for the occurrence of powdery mildew in bottle gourd and bitter gourd. Spray Wettable Sulphur 3-4 g/ 1 litre of water.
 - In the Central Zone, in the prevailing weather, there is a chance of Sigatoka disease in banana. As a precautionary measure, Spray Pseudomonas 20g/litre. In case of severe attack, spray 1 gm of Bavistin in 1 litre of water on lower surface of leaf (by mixing with gum). Provide support to fruiting banana plants to reduce the damage due to high wind velocity.

▪ **Andhra Pradesh:**

- In the North Coastal Zone, continue sowing of black gram and green gram.
- In the Scarce Rainfall Zone, provide light irrigation to mango plantation for timely flowering.
- In the North Coastal Zone, spray Chlorpyrifos @ 2.5 ml/litre or Acephate @ 1.5 g/litre for aphids and maruca pod borer in red gram. Spray Acephate @ 1.5 g/litre + Carbendazim @ 1 g/litre for sucking pests and pink ball worm in cotton crop. For control of sucking pests and leaf webber in groundnut crop, spray neem oil @ 5 ml/litre.
- In the Scarce Rainfall Zone, prevailing conditions are favorable for incidence of spotted pod borer and helioverpa in red gram, spray Chlorpyrifos @ 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. For the incidence of pink boll worm incidence in cotton crop, spray 5 % NSKE or neem oil at flowering stage to prevent egg laying. If Incidence was noticed immediately spray Quinalphos @ 2ml/lit or Chlorpyrifos @ 2.5 ml/ lit or Thiodicarb @ 1.5 g/lit is recommended.
- In the Krishna Godavari Zone, for control of BPH incidence in paddy, spray Acephate 1.5 g or Monocrotophos 2.2 ml or Buprofezin 1.6 ml or Pymetrizion 0.6g or Thiamethoxam 2.2 ml or Fenobucarb 2.0 ml per litre of water.

▪ **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 cold injury 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 Aphids/Jassids in red gram. Spray monocrotophos @ 1.6 ml/l or Acephate @ 1.5 g/l or Quinalphos @ 2 ml/l or Thiodicarb @ 1 g/litre for spodoptera in Bengal gram crop. Spray Chlorothalonil @ 2 g/l or Tebuconazole @ 1 ml/l for tikka leaf spot in groundnut crop. Spray Chlorothalonil @ 2 g or Pyraclostrobin @ 1g/ liter of water for early blight in tomato crop.

▪ **Tamil Nadu:**

- In the Western Zone, since light rainfall is expected, carry out picking cotton kapas during sunny days and store at safer places. Harvest early transplanted *Samba* rice and turmeric rhizomes in clear weather.
- In the Southern Zone, prevailing weather condition may give rise to incidence of Pink bollworm in Cotton. Spray Triazophos 40 EC 2.5 l/ha or Phosalone 35% EC 2 l /ha.
- In Northeastern Zone, prevailing weather is congenial for Bacterial leaf blight in rice. To control, spray Copper hydroxide 77 WP @ 2.5 g/litre of water or fresh cowdung extract 20% or NSKE 5%. As a prophylactic measure, spray *Pseudomonas fluorescens* @ 5 g or ml/l from 45 DAT thrice @ 10 days interval.

▪ **Karnataka:**

- In Central Dry Zone, continue nursery preparation for summer ragi (Indof-7 and Indof-15 varieties) under irrigation.
- In North Dry Zone, if irrigation facility is available, provide irrigation to chick pea (before flowering) and wheat crops.
- In Southern Transition Zone, undertake sowing of horse gram, chickpea, green gram and black gram (after harvest of rice and maize crops), wherever soil moisture is there or availability of one irrigation facility.
- In North East Transition Zone, continue planting of sugarcane (variety Co-86032) crop; adopt paired row system of planting.
- In North East Dry Zone, continue land preparation for transplanting of summer rice. Continue second picking of cotton in late sown cotton.
- In North East transition Zone, application of Lambda Cyhalothrin @ 1ml/liter of water to protect the sorghum crop from the menace of Army worm is recommended.
- In Southern Dry Zone, infestation of blast disease was noticed in late sown ragi and rice crop; spray Tricyclozoal @ 0.6 g/litre of water for control. Due to cloudy weather, infestation of mites, thrips and white flies is noticed in vegetable crops; for control, spray Chlorpyrifos @ 2 ml/litre of water.
- In North Transition Zone, if fruit borer is noticed in tomato, spray Thiodicarb 75WP @ 1gm / litre of water.

• **Animal Husbandry**

- In Telangana and North Interior Karnataka, in view of the cold wave conditions on 22nd December, keep the 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 situation. In Poultry, keep the chicks warm by providing artificial light in the poultry sheds.
- 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.

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 at isolated places very likely over Nagaland, Manipur, Tripura & Mizoram on 22nd and 23rd 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 maize and rice. Cover newly emerged banana bunches with locally available sack to protect from cold. Carry out weeding and earthing up operations in pineapple.
 - 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, continue harvesting of Sali rice. Provide irrigation to the nursery beds and surrounding furrows in Boro rice field. Transplant 30 days old seedlings in the main field. Carry out earthing up operation in potato. Provide irrigation to wheat crop at 25 days from sowing. Provide irrigation to rape seed.
 - 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. Carry out thinning and weeding operations in rape seed and mustard crops and provide irrigation.
 - In the North bank Plain Zone, complete sowing of Boro paddy varieties like Mahsuri, IR-50, Dinanath, Bishnuprasad, Jyotiprasad, Kanaklata and Dinanath in nursery bed during this month. Undertake sowing of late sown varieties of rape seed and mustard like TS-46, TS-67, JT 90-1 (Jeuti) etc. after harvesting of Sali rice. Continue sowing of rabi pulses like lentil, rajmah, pea, lathyrus and provide irrigation 20-25 days after sowing.
 - In the Upper Brahmaputra Valley Zone, complete sowing of boro paddy in nursery beds. Apply light irrigation to Rabi vegetables. Spray potato crop with Mancozeb @ 2.5gm/lit of water as prophylactic measure against late blight disease. Apply 3 sprays at 10-12 days interval for good result. To protect the vegetable seedlings from cut worm, incorporate Malathion 5% dust @ 20kg/ha in the soil around the plant.
 - In the Central Brahmaputra Valley Zone, continue harvesting of matured Sali paddy. Continue nursery bed preparation and sowing of Boro rice varieties like Joymati, Bishnuprasad, Swarnabh, Dinanath, etc.
 - In the Lower Brahmaputra Valley Zone, apply Chloropyrifos 20EC or Dimethoate 30EC, 0.5 lit per 500-700 lit of water per ha for aphid and saw-fly infestation in rapeseed crop. Spray potato crop with Mancozeb @ 2.5gm/lit of water as prophylactic measure against late blight disease. Apply 3 sprays at 10-12 days interval for good result.
 - In the Barak Valley and Hill Zone, apply Redomil @ 2ml/lit of water at the first appearance of late blight in tomato crop. Spray Indofil M-45 @ 2.5 ml/litre of water 10-15 days after application of Redomil alternately until full control of late blight.
 - **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 mature 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, continue sowing lentil and linseed. Keep toria field free of weeding. 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 Hill Zone of Assam, vaccinate cattle against FMD, BQ, Enterotoxaemia and Hemorrhagic Septicemia.
- 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 is very likely at isolated places over South Madhya Maharashtra and Marathwada on 22nd 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. Cover banana bunches with porous polythene bags in Marathwada.
 - **Maharashtra:**
 - In North Konkan, complete sowing of groundnut, sunflower and mustard as early as possible. Apply light irrigation to groundnut crop three days after sowing at an interval of 10 to 12 days. Also apply irrigation to sunflower and mustard crop.
 - In South Konkan, continue preliminary operation for sowing of *rabi* groundnut. Use seed @ 125 to 150 kg for sowing (varieties : TG-26, TAG-24, TPG-41, Konkan Gaurav, Konkan Tapora). As weather is suitable, continue sowing of mustard (varieties : 'Pusa bold' and 'Varuna').
 - In Madhya Maharashtra, complete preparatory tillage practices for planting of Suru sugarcane. Prepare nursery for summer onion. Undertake intercultural operation like hoeing operation to control weeds in gram and wheat.
 - In Vidarbha, continue nursery sowing of *summer* rice. Undertake intercultural operation like hoeing and weeding for 20 DAS for gram crop.
 - In Marathwada, undertake intercultural operation like hoeing and hand weeding in wheat. Cover banana bunches with porous polythene bags. If cracking is observed in matured grapes, spray Chitosan (10 %) @ 1.5 to 2.0 ml per liter of water.
 - 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. Undertake intercultural operation like hoeing and weeding in 20 days old gram. Cover nursery and young fruit plants with thatches of straw, apply organic mulches to protect from cold. Also apply irrigation to orchards during evening and night hours. Undertake transplanting of cabbage and cauliflower and seed sowing of radish, carrot, leafy vegetables and onion/tomato nursery.
 - **Gujarat:**
 - In South Saurashtra Zone, carry out picking of cotton during morning hours. Apply irrigation in pigeon pea, cumin, garlic, onion and coriander as per requirement.
 - In North Gujarat Zone, apply irrigation in potato. Continue intercultural operations in vegetable crops (brinjal, chilli, tomato, cabbage, and cauliflower), mustard, fennel and cumin. Continue harvesting of fruit crops like custard apple, pomegranate and aonla.
 - In Bhal and Coastal Zone, carry out weeding, intercultural operations, earthing up operations in vegetable crops.
 - In North Gujarat Zone and North West Zone of Gujarat, continue picking of matured bolls of cotton. Apply irrigation in potato, mustard, wheat (CRI stage) and lemon orchard. In Middle Gujarat Zone, apply irrigation in wheat (CRI stage) and potato.
 - In North Saurashtra Zone, under present weather conditions, heliothes infestation is observed in chickpea; monitor the crop regularly for heliothes and prodenia infestation. Install "T" shaped bird perches in and around crop field for controlling the insect population. Spray neem seed extract 5 % or neem seed oil 50 ml. If infestation crosses ETL, spray Quinalphos @ 20 ml/10 litres of water. Also to prevent blight infestation in chickpea spray Mencozeb @ 27 g/10 liters of water at 10 days interval as precautionary measure.
 - In South Gujarat Zone, for effective control of maleybug in cotton to spray Chlorpyrifos 20 EC @ 25ml/10 liter of water
- **Animal Husbandry**

- In Gujarat, keep young calves indoors during night time to avoid cold stress. Provide dry fodder to animals twice a day.

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 many places over Andman & Nicobar Islands on 24th and 25th, along with heavy rain at isolated places very likely over Nicobar Islands on 24th December, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - As high waves very likely in the range of 2.5-3.2 M along the west coast of Nicobar islands from Ten degree channel to Great Channel; 2.5-2.9 M along west coast of Andaman Islands from Ten degree channel to Coco Channel upto 2330 hours IST of today, fishermen are advised to be cautious while venturing into the sea during the same period.
 - **Odisha:**
 - In Western Undulating Zone, undertake sowing of pre germinated seed in puddled nursery bed. Undertake picking up of matured bolls of cotton and harvesting of matured rice. Undertake transplanting of onion.
 - In West Central Table Land Zone, complete sowing of pulses. Undertake intercultural operations in potato.
 - In North Eastern Ghat Zone, continue sowing of coriander. Undertake weeding hoeing in groundnut.
 - In North Central Plateau Zone, continue harvesting of rice. Undertake land preparation for nursery sowing of rabi paddy in irrigated areas. Complete earthing up in late planted potato crop.
 - In Mid Central Table Land Zone, complete sowing of pulses, groundnut and planting of vegetables. Continue harvesting of matured rice.
 - In South Eastern Ghat Zone, complete nursery raising of summer rice by end of December. Continue harvesting of *kharif* rice. Undertake weeding in vegetables and groundnut.
 - In North Eastern Coastal Plain Zone, undertake nursery preparation for 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 52kg urea in Cabbage.
 - In Eastern Ghat High Land Zone, continue harvesting of matured rice. 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 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.
 - **Jharkhand:**
 - In South Eastern Plateau Zone, In chickpea for more branching and subsequently more flowering followed by profuse fruiting, nipping should be done 30 DAS. After nipping light irrigation and 2 days after irrigation, broadcast 5 kg urea.
 - In South Eastern Plateau Zone, there are chances of attack of aphids (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.
 - **West Bengal:**
 - In Coastal Saline Zone, complete seed bed preparation and sowing of *Boro* rice within last week of December. Maintain a thin layer of water over the seed bed. If possible arrange polythene shade over seed bed. Continue sowing of lentil and sunflower.
 - 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. Undertake sowing of wheat, mustard and planting of potato. Continue harvesting of ginger and turmeric seed rhizome.
 - In Laterite and Red Soil Zone, carry out hand weeding in wheat, mustard and potato fields. Apply light irrigation to wheat, mustard and potato crops.
 - In New Alluvial Zone, to protect seedling stage of cauliflower, cabbage from cutworm infestation undertake drenching of soil by Chloropyriphos 50 EC @ 3ml/litre of water.
 - 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.

- In Laterite and Red Soil Zone, spray Imidacloprid @ 1ml/1.5 lit of water to control aphids in mustard. Spray Neem Seed Kernel Extract solution @ 30ml/lit of water for aphids and Neem Seed Kernel Extract solution @ 50ml/lit of water for Diamond Blackmoth in cabbage/cauliflower.
- **Andaman & Nicobar Islands**
 - In North and Middle Andaman, prepare raised nursery beds of 20 to 25 cm height with water channels for sowing of brinjal seed @ 400 to 500 g/ha after current spells of heavy rain.
- **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, provide Calcium Carbonate @ 3 % mixed with feed to the poultry birds.
- **Fisheries**
 - In Old Alluvial Zone of West Bengal, apply lime @ 20kg/bigha of pond area and after 4days KMNO₄ @ 250gram/bigha pond to prevent the Ulcer disease in fish.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Weather remained dry over the region during the week.
- **Advisories:**
 - **Madhya Pradesh:**
 - In Bundelkhand Zone, apply irrigation in wheat at CRI stage. Continue weeding and hoeing in onion and garlic. Continue earthing up in potato.
 - In Nimar Valley Zone, apply 30kg Urea per acre after first irrigating in wheat crop.
 - In Malwa Plateau Zone, continue earthing up in potato. Continue nursery sowing 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.
 - In Kymore Plateau and Satpura Hill Zone, complete sowing of wheat. Continue harvesting of matured pea.
 - 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, apply irrigation in wheat at CRI stage. Continue transplanting of onion and intercultural operations in vegetables. 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 North Hill Zone, there are chances of infestation of powdery mildew disease in pea, spray Karathen @ 1 ml per litre of water or Sulfex @ 3 gm per litre of water to control the disease.
- **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. (HP,UP)
- **Advisories:**
 - As dense to very dense/dense fog at isolated places very likely over Uttar Pradesh on 22nd, 23rd and 24th, over Uttarakhand on 22nd and 23rd, Dense fog at isolated places over Punjab and Haryana, Chandigarh & Delhi on 23rd and 24th and over north Rajasthan on 24th 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.
 - **Jammu & Kashmir:**
 - In Sub Tropical Zone, continue sowing of late sown irrigated wheat crop (varieties: WH-1021, PBW-590, PBW-373, Raj-3077, Raj-3765, DBW-16) and rainfed wheat WH-1080, Raj-3077 with enhanced seed rate 125 kg /ha and recommended dose of fertilizers. Treat the seed with Carboxin/Carbendazim @ 2g/kg or Tebuconazole @ 1.25g/kg of seed to reduce seed borne diseases. Apply irrigation in chickpea, mustard and vegetables.
 - In Intermediate Zone, as clear weather conditions are prevailing, carry out intercultural operation (hoeing) in one

month old wheat crop. Undertake light weeding and hoeing in vegetables followed by irrigation depending upon soil moisture conditions.

- 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, continue weeding in wheat and intercultural operations in onion and garlic crops.
- In Hill Zone, apply light irrigation in potato, continue intercultural operations in vegetables.
- In Bhabar and Tarai Zone, continue intercultural operations in vegetables. Apply light and frequent irrigation.

- **Himachal Pradesh:**

- In High Hill Temperate Dry Zone, continue sowing of seeds of Chinese cabbage, spinach and coriander in poly house.
- In Solan Shimla, Bilaspur and Sirmour districts of Mid Hills Sub Humid Zone, continue transplanting of onion. Continue cultivation of mushroom.

- **Punjab & Delhi:**

- In Western Zone of Punjab, continue sowing of short duration varieties (PBW 658 and PBW 590) of wheat. Continue transplanting of tomato seedlings.
- In Western Plain Zone of Punjab, undertake harvesting of sugarcane. Undertake picking of matured pods of pea.
- In Delhi, continue thinning and weeding in mustard and transplanting of onion. Continue transplanting of mature seedlings of tomato, cauliflower, cabbage, knolksol and broccoli crop in the raised bed.
- 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.

- **Uttar Pradesh:**

- In Central Plain Zone, apply irrigation in wheat at CRI stage. Undertake transplanting of onion. Undertake harvesting of matured vegetables.

- **Rajasthan:**

- In Flood Prone Eastern Plain Zone, undertake weeding in wheat and undertake nipping in gram to enhance branching.
- In Arid Western Plain Zone, apply irrigation in standing rabi crops as and when required and as per critical growth stages. Also apply remaining dose of nitrogen through urea along with irrigation water.
- In Southeastern Humid Plain Zone, complete late sowing of wheat upto end of December. Apply first irrigation in mustard at 35-40 days after sowing.
- In Sub Humid Southern Plain and Aravalli Hill Zone, continue thinning in mustard. Undertake transplanting of seedlings of tomato, cauliflower, cabbage, knolksol and broccoli crop in the raised bed.
- In Irrigated North Western Plain Zone, apply irrigation in sugarcane, mustard and gram.
- In Flood Prone Eastern Plain Zone, spray a solution of Mencozeb @ 2g/litre of water to manage early blight in potato crop.

- **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 puaal 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.

- **Apiculture:**

- In Jammu & Kashmir, farmers are advised to migrate the honey bee colonies from hilly regions to plains to avoid mortality due to decline in temperature. Farmers are advised to inspect honey bee colonies after every fortnight interval to maintain cleanliness and to avoid mortality of honey bees due to brood and disease infestation. In case of non-availability/insufficient flora, give artificial feeding to the honey bee colonies after every 7 – 10 days. Proper winter packaging of honey bee colonies should be done to avoid mortality of honey bees from cold in Intermediate lower and higher zone.

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