



National Agromet Advisory Service Bulletin

Friday 10th January 2020

(For the period 10th to 14th January 2020)



Issued by

India Meteorological Department

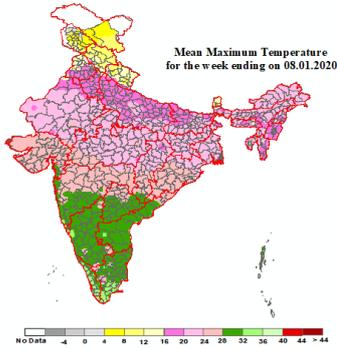
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District AAS Bulletin: <http://www.imdagrimet.gov.in/node/3545>

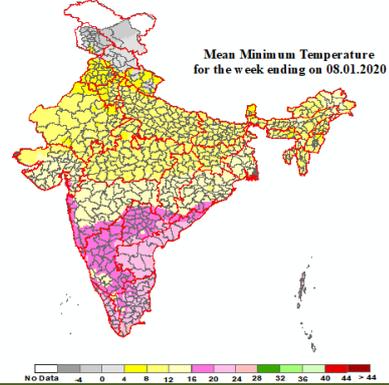
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

spatial distribution of weather parameters for the week ending on 08.01.2020

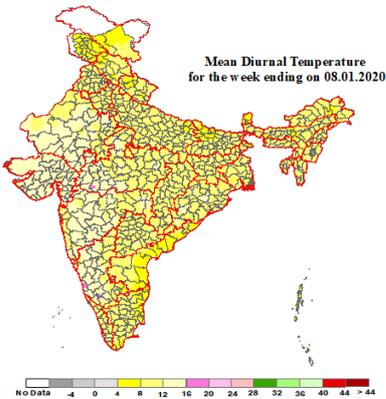
Mean Maximum Temperature (°C) for the week ending on 08.01.2020



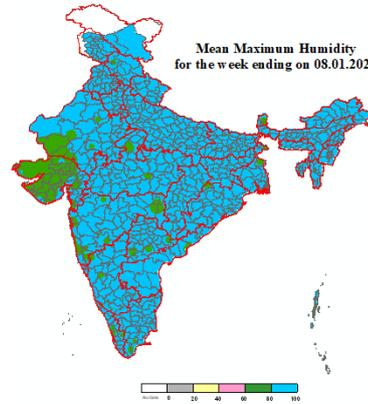
Mean Minimum Temperature (°C) for the week ending on 08.01.2020



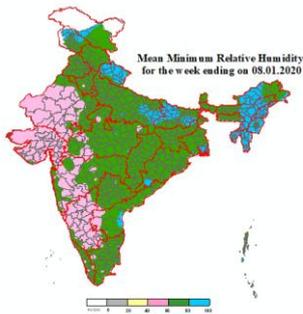
Mean Diurnal Temperature Variation (°C) for the week ending on 08.01.2020



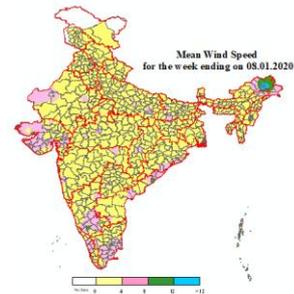
Mean Maximum Relative Humidity (%) for the week ending on 08.01.2020



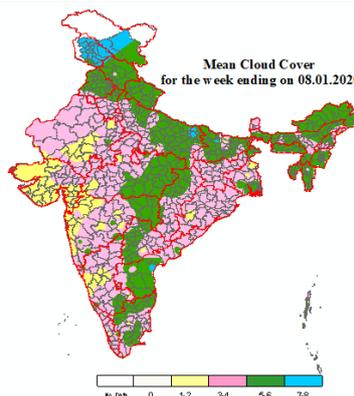
Mean Minimum Relative Humidity (%) for the week ending on 08.01.2020



Mean Wind Speed (km/hr) for the week ending on 08.01.2020

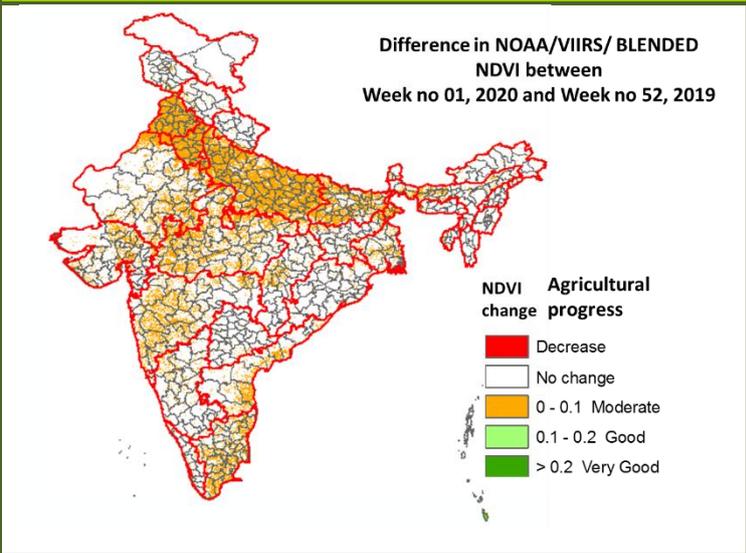
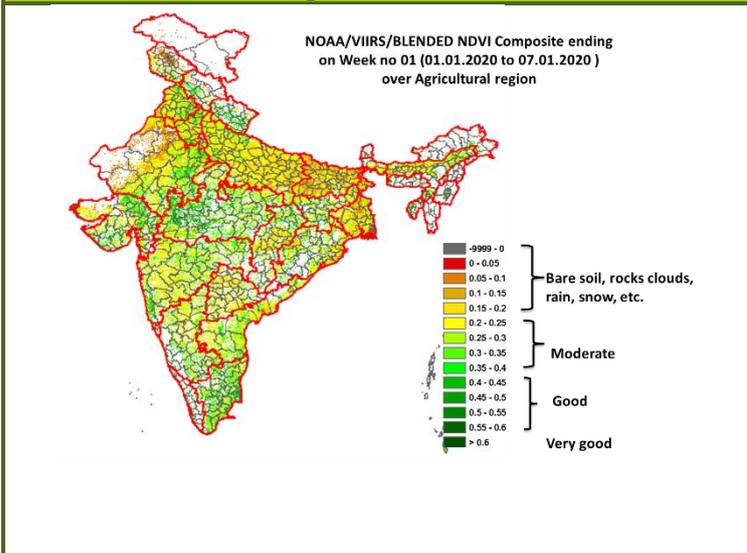


Mean Cloud Cover (okta) for the week ending on 08.01.2020



NOAA/VIIRS/BLENDED NDVI composite for the week number 01 (01.01.2020 to 07.01.2020) over Agricultural regions of India

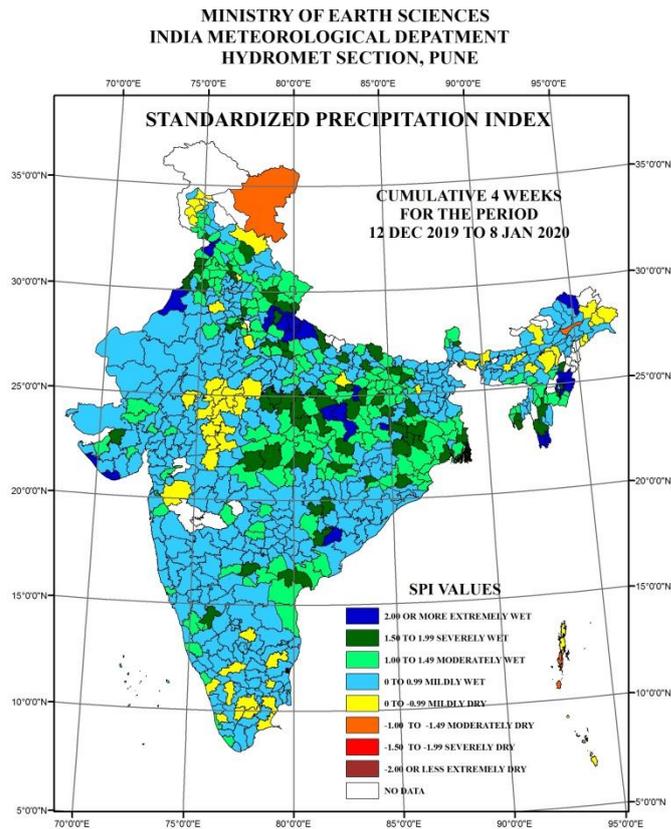
Difference in NOAA/VIIRS/BLENDED NDVI between week number 01, 2020 and week number 52, 2019



Agriculture vigour was good at few parts of Uttarakhand, West Madhya Pradesh, Chattisgarh, odisha, North Eastern states, Coastal Karnataka & Tamilnadu and at isolated places of Haryana, Punjab, Himachal Pradesh, East Rajasthan, Gujarat, East Madhya Pradesh, Jharkhand, Sub Himalayan West Bengal, Sikkim, Telangana, Andhra Pradesh, North Interior Karnataka, Tamilnadu, Kerala, Konkan & Goa.

Good difference in agricultural vigour has been observed at few parts over Punjab, Haryana, Uttar Pradesh, Bihar, Madhya Pradesh, Sub Himalayan West Bengal, Sikkim, North Eastern states, Andhra Pradesh, Tamilnadu & Kerela and at moderate places mostly over Punjab, Haryana, Uttar Pradesh, Bihar and at few places over rest of the country.

Standardised Precipitation Index Cumulative 4 weeks for the period 12th Dec 2019 to 8th Jan 2020



- Extremely/Severely wet conditions exist in Guntur district of Andhra Pradesh; Upper Siang district of Arunachal Pradesh; Aurangabad, Bhabua, West Champaran, Muzaffarpur, Samastipur districts of Bihar; Porbandar, Gir Somnath, Morbi districts of Gujarat; Gurgaon, Rewari districts of Haryana; Kullu district of Himachal Pradesh; Samba district of Jammu; Davangere districts of Karnataka; Betul, Balaghat, Chhatarpur, Chindwara, Katni, Panna, Rewa, Shahdol, Sidhi, Tikamgarh, Singrauli districts of West Madhya Pradesh; Bishnupur, Imphal East, Senapati, Thoubal, Ukhrul districts of Manipur; Aizwal, Lawngtlai, Lunglei, Saiha districts of Mizoram; Kohima district of Nagaland; Dhenkanal, Malkangiri, Sonapur districts of Orissa; Bhatinda, Ferozepur, Gurdaspur, Ropar, Sas Nagar Mohali, Tarn Taran districts of Punjab; Sri Ganganagar districts of Rajasthan; South Tripura district of Tripura; Bahraich, Basti, Chandauli, Deoria, Farrukhabad, Kannauj, Kheri, Sonbhadra, Varanasi, Sahuji Maharaj Nagar, Sant Ravidas Nagar, Baghpat, Bareilly, Etah, Lalitpur, Moradabad, Pilibhit, Rampur, Shahjahanpur, Hapur, Sambhal districts of Uttar Pradesh; Purulia, East Midnapore, North 24 Parganas, Kolkata districts of West Bengal; East Sikkim district of Sikkim; Chatra, Giridih, Lohardaga, Ranchi, East Singhbhum, West Singhbhum, Seraikela-Khar, Ramgarh districts of Jharkhand; Champawat, Nainital, Garhwal Pauri, Udham Singh Nagar districts of Uttarakhand; Korba, Narayanpur, Baloda Bazaar, Sukma, Surajpur, Kondagaon districts of Chhatisgarh; Central Delhi districts of Delhi; Hyderabad, Mahbubnagar districts of Telangana.
- Moderately dry conditions exist in Dhemaji district of Assam; Ladakh (Leh) district of Jammu; South Andaman district of Andaman & Nicobar Islands.
- Moderately wet to mildly dry conditions were experienced in remaining districts in the country.

Weather Forecast for next 5 days valid upto 0830 hours of 15th January, 2020

- ◆ Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table below.
- ◆ Fall in Maximum & Minimum temperatures by 2-3°C over central India during next 2-3 days and slightly rise thereafter. Fall in Minimum temperature by 4-5°C over east India and gradual rise by 2- 3°C over west India during next 3-4 days.
- ◆ No significant change in Minimum & Maximum temperatures over remaining parts of the country.
- ◆ Shallow to moderate fog likely over Jharkhand over next 3 days.

5 Day Rainfall Forecast (MID-DAY) 10th January 2020

Met-Sub-Division	10-Jan Today	11Jan Sat	12Jan Sun	13Jan Mon	14Jan Tue
1. Andaman & Nicobar Islands	ISOL	DRY	DRY	DRY	DRY
2. Arunachal Pradesh	ISOL	DRY	DRY	DRY	DRY
3. Assam & Meghalaya	ISOL	DRY	DRY	DRY	DRY
4. N. M. M. & T.	DRY	DRY	DRY	DRY	DRY
5. S.H. West Bengal & Sikkim	ISOL	DRY	DRY	DRY	DRY
6. Gangetic West Bengal	DRY	DRY	DRY	DRY	DRY
7. Odisha	ISOL	DRY	DRY	DRY	DRY
8. Jharkhand	DRY	DRY	DRY	DRY	DRY
9. Bihar	DRY	DRY	DRY	DRY	DRY
10. East Uttar Pradesh	DRY	DRY	DRY	ISOL	ISOL
11. West Uttar Pradesh	DRY	DRY	DRY	SCT	ISOL
12. Uttarakhand	DRY	DRY	ISOL	WS	FWS
13. Haryana, Chd & Delhi	DRY	DRY	DRY	FWS	ISOL
14. Punjab	DRY	DRY	ISOL	WS	ISOL
15. Himachal Pradesh	DRY	ISOL	FWS	WS	SCT
16. Jammu & Kashmir	DRY	SCT	WS	WS	SCT
17. West Rajsthan	DRY	DRY	ISOL	SCT	DRY
18. East Rajasthan	DRY	DRY	DRY	ISOL	DRY
19. West Madhya Pradesh	DRY	DRY	DRY	ISOL	DRY
20. East Madhya Pradesh	DRY	DRY	DRY	DRY	DRY
21. Gujarat Region	DRY	DRY	DRY	ISOL	DRY
22. Saurashtra & Kutch	DRY	DRY	DRY	ISOL	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 A. P. & Yanam	ISOL	ISOL	ISOL	DRY	DRY
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	DRY	DRY	DRY
31. T.N.,Puducherry & Karaikal	DRY	DRY	ISOL	DRY	DRY
32. Coastal Karnataka	DRY	DRY	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	DRY	DRY	DRY	DRY	DRY
35. Kerala & Mahe	DRY	DRY	DRY	DRY	DRY
36. Lakshadweep	DRY	DRY	DRY	DRY	ISOL

% 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

10 January (Day 1):

- ◆ **Cold day conditions** in some pockets with **Severe Cold day** in isolated pockets very likely over West Madhya Pradesh; **Cold day conditions** in some pockets over East Madhya Pradesh and in isolated pockets over Uttarakhand, Punjab, north Haryana, Uttar Pradesh, Chhattisgarh, Bihar and Sub-Himalayan West Bengal & Sikkim.
- ◆ **Cold Wave conditions** in some pockets very likely over West Madhya Pradesh and in isolated pockets over Uttarakhand, north Rajasthan and East Madhya Pradesh.
- ◆ **Dense to very dense fog** very likely in isolated pockets over Uttarakhand, Punjab and Haryana, Chandigarh & Delhi; **dense fog** in isolated pockets over Himachal Pradesh, north Madhya Pradesh, Uttar Pradesh, Bihar, West Bengal & Sikkim, Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ◆ **Ground frost** in isolated pockets very likely over north Rajasthan.

11 January (Day 2):

- ◆ **Cold day conditions** in some pockets over West Madhya Pradesh and in isolated pockets over Uttar Pradesh, East Madhya Pradesh, Chhattisgarh, Bihar and Sub-Himalayan West Bengal & Sikkim.
- ◆ **Cold Wave conditions** in isolated pockets very likely over West Madhya Pradesh.
- ◆ **Dense fog** very likely in isolated pockets over Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar, West Bengal & Sikkim, Odisha, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

12 January (Day 3):

- ◆ **Heavy rain/snow** likely at isolated places over Jammu & Kashmir.
- ◆ **Thunderstorm** accompanied with **hail & lightning** likely at isolated places over Jammu & Kashmir.
- ◆ **Dense fog** in isolated pockets over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

13 January (Day 4):

- ◆ **Heavy rain/snow** likely at a few places over Jammu & Kashmir and Himachal Pradesh and at isolated places over Uttarakhand, Punjab and north Haryana.
- ◆ **Thunderstorm** accompanied with **hail & lightning** likely at isolated places over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi and West Rajasthan.
- ◆ **Dense fog** likely in isolated pockets over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

14 January (Day 5):

- ◆ **Dense fog** likely in isolated pockets over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

Weather Outlook for subsequent 2 days from 15th to 17th January, 2020

- ◆ Isolated to scattered rain/snow likely over Western Himalayan region and isolated rain/thundershowers over adjoining plains of northwest India.
- ◆ Weather likely to be dry over remaining parts of the country.

Salient advisories

- **As cold day conditions** in some pockets with **Severe Cold day** in isolated pockets very likely over West Madhya Pradesh on 10th; **cold day conditions** in some pockets over East Madhya Pradesh on 10th, over West Madhya Pradesh on 11th and in isolated pockets over Uttarakhand, Punjab, north Haryana on 10th, over Uttar Pradesh, Chhattisgarh, Bihar and Sub-Himalayan West Bengal & Sikkim on 10th and 11th, over East Madhya Pradesh on 11th; **cold Wave conditions** in some pockets very likely over West Madhya Pradesh on 10th and in isolated pockets over Uttarakhand, north Rajasthan and East Madhya Pradesh on 10th, over West Madhya Pradesh on 11th; **ground frost** in isolated pockets very likely over north Rajasthan on 10th, apply light and frequent irrigation /sprinkler irrigation in the evening to protect the crops from frost/cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/ gunny bags. Keep the animals inside the sheds and provide dry bedding and use heaters inside cattle sheds to protect them from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy to cope up with the situation. Keep the chicks warm by providing artificial light in the poultry sheds.
- **As dense to very dense fog** very likely in isolated pockets over Uttarakhand, Punjab and Haryana, Chandigarh & Delhi on 10th; **dense fog** in isolated pockets over north Madhya Pradesh on 10th, over Himachal Pradesh, Uttar Pradesh Bihar, West Bengal & Sikkim and Odisha on 10th and 11th, over Uttarakhand, Punjab, Haryana, Chandigarh & Delhi on 11th and over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura from 10th to 14th; **shallow to moderate fog** likely over Jharkhand from 10th to 12th, monitor the standing crops for incidence and spread of pest & diseases and monitor tomato and potato crops for blight disease. If symptoms are noticed, undertake plant protection measures.
- **As rain / thundershowers** likely at **most** places over Jammu & Kashmir on 12th and 13th, over Uttarakhand, Punjab and Himachal Pradesh on 13th with **heavy rain/snow** likely at a few places over Jammu & Kashmir and Himachal Pradesh on 13th, at isolated places over Jammu & Kashmir on 12th, over Uttarakhand, Punjab and north Haryana on 13th, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in crop fields.
- **As thunderstorm** accompanied with **hail & lightning** likely at isolated places over Jammu & Kashmir on 12th and 13th and over Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi and West Rajasthan on 13th, provide mechanical support to young fruit plants, banana and carry out staking of vegetables as well as propping up in sugarcane to prevent crops from lodging. Use hail net for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.
- Undertake sowing/ transplanting of following crops:
 - Continue preparing *boro* rice nursery/transplanting of seedlings in Assam and West Bengal & Sikkim.
 - Continue transplanting of *rabi* onion seedlings in Bihar and Himachal Pradesh.
 - Continue nursery sowing of *rabi* rice and sesame in North Coastal Zone of Andhra Pradesh.
 - Undertake nursery preparation for rice in South Interior Karnataka.
 - Undertake sowing of pulses in North Interior Karnataka.
 - Continue sowing of wheat in West Uttar Pradesh.

Detailed Agromet Advisories

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

Realised Rainfall : Significant rainfall occurred in Nellore and Prakasam districts of Andhra Pradesh; in Hyderabad and Nizamabad districts of Telangana; Thiruvananthapuram district of Kerala and in Chennai, Kanchipuram and Tiruvallur districts of Tamil Nadu. Weather remained mainly dry over rest of the region.

Advisories:

Kerala

- Provide support to banana plants so as to withstand high winds. Go for inter cropping with banana, colocasia, vegetables, ginger, turmeric, mulberry, tuber crops, etc. in coconut garden.
- In High Altitude Zone, undertake harvesting of ginger. As weather is congenial for berry borer in coffee, spray Quinalphos (0.05%) 400 ml in 200 litres of water.
- In Problem Area Zone, young banana plants of 3-4 months age are prone to attack of pseudostem weevil; spray Chlorpyrifos 2 ml/litres of water.
- In Southern Zone, weather is congenial for leaf blight in coconut, spray Bordeaux mixture 1% or Propiconazole 25 EC 2 ml/litre of water

Andhra Pradesh

- In North Coastal Zone, continue nursery sowing of rabi rice and sesame. Spray Tricyclozole @ 0.6 g / litre of water to keep field bunds weed free.
- In Scarce Rainfall Zone of Rayalaseema, present weather conditions are favourable for leaf minor, spodoptera, sucking pest and tikka leaf spot in groundnut. To control leaf minor and spodoptera, spray Chlorpyrifos @ 2.5 ml (or) Quinalphos @ 2 ml or Thiodicarb 1 g per litre of water; for sucking pest, spray Monochrotophos @ 1.6 ml (or) Imidacloprid @ 0.3 ml (or) Dimethoate @ 2 ml per litre of water and for tikka leaf spot, spray Mancozeb @ 400 g + Carbendazim @ 200 g (or) Hexaconazole @ 400 g per acre. The prevailing weather conditions are favorable for helicovarpa and spodoptera exigua in bengal gram crop; to control, spray Thiodicarb 1.5 g or Acephate 1.5 g or Quinalphos 2ml per litre of water.
- In Krishna Godavari Zone and Southern Zone, undertake inter-cultivation and apply Gypsum @ 200 kg/ acre in groundnut which is at flowering stage.
Present weather conditions are congenial for white fly incidence in blackgram; spray Triazophos @ 1.5 ml (or) Prophenophos @ 1.5 ml. (or) Dimethoate @ 2 ml per litre of water. Present weather conditions are favourable for spodoptera in groundnut; to control early stage larvae, spray Chlorpyrifos 2.5 ml/ litre of water and to control 2nd & 3rd instar larvae, spray Larvin @ 1 g per litre of water. The present weather conditions are favourable for pod borers in redgram, spray Chlorpyrifos 2.5 ml (or) Quinalphos @ 2 ml (or) Acephate @ 1.5 g per litre of water.

Telangana

- Undertake sowing of sesame from second fortnight of January to first fortnight of February. Undertake transplanting of paddy at 4-6 leaf stage. Cover polythene or tarpaulin sheets on entire nursery bed in the night and remove in the morning to avoid adverse effects of low temperatures on germination and growth of nursery. Irrigate the rice nursery with water in the night time and remove water early in the morning to speed up nursery growth.
- In South Telangana Zone, incidence of fall armyworm is noticed in rabi maize crop. To control, go for poison baiting on the whorl of maize plants with Thiodicarb (mix 10kg rice bran + 2 kg jiggery + 2-3 litres of water; keep the mixture for 24 hours to ferment and add 100 g Thiodicarb just half an hour before the application in the field). Spray Emamectin benzoate @ 0.4g (@80g/acre) or Chlorantriliprole @ 0.3 ml (@60ml/acre) per litre of water into the whorl of the plant. Prevailing weather conditions are congenial for incidence of leaf spot disease in groundnut. To control, spray Mancozeb + Carbendazim @ 2.0 g or Chlorothalonil @ 2.0 g or Tebuconazole @ 1.0 ml or Carbendazim @ 1.0 g per litre of water.

- In North Telangana Zone, prevailing weather conditions are favourable for blast in paddy nursery. For control, spray Tricyclozole @ 0.6 g or Isoprothoilane @ 1.5 ml per litre of water on non rainy day. The prevailing weather conditions are favourable for *spodoptera exigua* in Bengal gram, spray Thiodicarb @ 1g or Quinolphos @ 2ml or Acephate @ 1.5 g per litre of water.

Tamil Nadu

- In Cauvery Delta Zone, the prevailing weather is conducive for stem borer in rice, spray Chlorantraniliprole 18.5% SC 150 ml/ha or Chlorpyriphos 20% EC 1.25 litre/ha.
- In Western Zone, prevailing weather condition is favorable for the blotch incidence in turmeric, spray Mancozeb @ 2.5 g/litre of water.
- In Southern Zone, weather is congenial for brown leaf hopper in brinjal; remove and destroy the infected plants and spray Methyl parathion 0.5% or Dimethoate 0.3%. For prevention, dip brinjal seedlings in 0.2% Carbofuran 50 STD solution before transplantation.
- In High Rainfall Zone, weather is congenial for sigatoka leaf spot in banana; spray Propiconazole 1 ml + Teepol 0.5 ml per litre.

Karnataka:

- In South Interior Karnataka, undertake nursery preparation for rice. To manage Phytopthera blight in pigeon pea crop, spray Ridomil Gold @ 2.5 g dissolved in one liter of water. Spray 0.125% Metalaxyl 72 WP or 2% Copper Oxychloride 50 WP or 1% Bordeaux mixture @ 5 to 10 liters per plant against quick wilt in pepper.
- In North Interior Karnataka, provide irrigation to wheat and sorghum crops. Undertake sowing of pulses where rice crop harvesting is completed. There is a chance of leaf reddening in late sown cotton due to low temperature; if noticed, spray 1% Magnesium Sulphate (MgSO₄) or 2% Urea/DAP for control.
- In Coastal Karnataka, apply irrigation in arecanut, coconut and pepper gardens. For control of wilt in black pepper, spray Metalaxyl MZ @ 1gm/litre of water.

Animal Husbandry:

- In Karnataka, manage the humidity in the silk worm rearing house by providing good cross-ventilation. Dust dry slaked lime powder when silkworms settle for moult. Maintain the ambient room temperature of the poultry house.
- In Karaikal and Pondicherry, as a preventive measure for Babesiasis disease in cattle, apply Butox @ 2 ml/litre of water on cattle and also spray it on the nearby areas of the cattle shed to control ectoparasites.

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

Realised Rainfall: Rainfall occurred in Anjaw, East Siang, Lohit, Lower Dibang Valley, Papumpare, Upper Siang and West Siang districts of Arunachal Pradesh; Cachar, Hailakandi and Karimganj districts of Assam; Jaintia Hills and West Khasi Hills districts of Meghalaya: Aizwal, Kolasib, Lawngtlai, Lunglei, Mamit and Saiha districts of Mizoram; Bishnupur, Imphal East, Senapati, Thoubal and Ukhrul districts of Manipur; Kephire, Kohima, Mokokchung, Phek, Tuensang, and Zunheboto districts of Nagaland and South Tripura district of Tripura.

Advisories:

- **As Dense fog very likely** in isolated pockets over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura from 10th to 14th, monitor the standing crops for incidence and spread of pest & diseases and monitor tomato and potato crops for blight disease. If symptoms are noticed, undertake plant protection measures.

Arunachal Pradesh

- In Arunachal Pradesh, continue harvesting of rice. If infestation of cut worm in field pea is above ETL, apply Lannate 40 SP @ 5 gram per 10 litre of water.

Assam & Meghalaya

- In Assam, continue transplanting of *Boro* rice seedlings in the main field, which have attained 5-6 leaf stage. Undertake gap filling in the main field within 7 -10 days after transplanting. Maintain 5 cm of

standing water in the field after transplanting the seedling in the main field.

- Weather is congenial for occurrence of blight disease in potato. To control, spray Mancozeb 75% (Indofil M 45/ Dithane M 45) @ 2.5g/litre of water at canopy closure at an interval of 7-10 days in fair weather. Alternatively, spray 1% Bordeaux mixture (10g CuSO₄ + 10g lime) in 1 litre of water. In Central Brahmaputra Valley, continue transplanting of tomato.
- In Barak Valley Zone, prevailing weather condition may lead to infestation of aphids, jassids and beetles in rajmah crops. So for effective control, spray Dimethoate or Malathion @ 1ml/litre of water.
- In North Bank Plain Zone, apply Dimethoate 30EC or Chloropyrifos @ 2ml litre of water with a spray volume of 500-700 litres/ha for hand sprayer & 200-250 litres/ha for power sprayer against aphid and saw fly attack in rapeseed and mustard.
- In Hill Zone of Assam, monitor leaf feeders in cole crops. If pest population is above ETL, spray B.t. @ 1.0 gram/litre of water or Spinosad @ 1 ml / 3 litres of water.
- In Lower Brahmaputra Valley Zone, irrigate the wheat crop at the time of Crown Root Initiation stage (25 days after sowing).
- In Upper Brahmaputra Valley Zone, to protect the banana bunches from low temperature stress, cover it with white polythene bags. Bagging of the bunches with muslin cloth or polyethylene also protects the crop from fruit scaring beetle. Spray Malathion (@ 1 litre per 400 litre of water per hectare) against infestation of tea mosquito bug, aphids, thrips, bugs etc. in the tea plantations.
- In Meghalaya, maintain proper soil moisture in the field of standing crops by irrigation. To prevent bird damage to Khasi Mandarin fruits, use bird netting or use traditional methods of bird control. Undertake nursery raising of tomato and harvesting of root/cole crops and ginger/turmeric.

Manipur, Mizoram, Tripura and Nagaland

- In Nagaland, for blister beetle management in green gram, collect the adults manually or with insect net and kill them in Kerosenized water. Undertake harvesting of maize.
- In Manipur, spray Propiconazole @ 15ml per 15 litres water against rust or powdery mildew disease attack in field pea/ lentil.
- In Mizoram, continue harvesting of matured pods of soybean. Cover maize crop field surface with legume crop and vegetable crops like pumpkin and cucumber for conserving soil moisture. Provide irrigation every three days interval. Use straw mulch where irrigation is not possible.
- In Tripura, continue sowing of Boro rice after necessary seed treatment. Foggy and cloudy weather may be sensitive for infestation of blight in potato. To manage, apply Cymoxanil+ Mancozeb or Metalaxyl+ Mancozeb @ 1.5gm per litre of water at least twice at an interval of 15 days on clear day.

Animal Husbandry

- To protect the livestock from sudden drop in temperature, keep the animals in a shed or in covered area during the night. Carry out vaccination against FMD, Haemorrhagic Septicaemia, Black Quarter etc.

Fishery

- In North Bank Plain Zone of Assam, apply Potash @ 4-5 mg/litre of water or Lime in required doses to protect the fish population against various bacterial diseases prevalent in winter season.

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

Realised Rainfall: Rainfall occurred in East Midnapore, Hooghly, Kolkata, North 24 Paragans, South 24 Paraganas and Purulia districts of Gangetic West Bengal; in Darjeling, East Sikkim and north Sikkim districts of Sub Himalayan West Bengal; in Bhadrak, Boudh, Mayurbhanj and Sonapur districts of Odisha and in East Singhbhum, West Singhbhum, Lohardagga and Ramgarh districts of Jharkhand. Weather remained dry/mainly dry over rest of the region.

Advisories:

- As cold day conditions very likely Bihar and Sub-Himalayan West Bengal & Sikkim on 10th & 11th, apply light and frequent irrigation /sprinkler irrigation in the evening to protect the crops from frost /

cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/ gunny bags. Keep the animals inside the sheds and provide dry bedding and use heaters inside cattle sheds to protect them from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy to cope up with the situation. Keep the chicks warm by providing artificial light in the poultry sheds.

- As dense fog very likely Bihar, West Bengal & Sikkim and Odisha on 10th and 11th with shallow to moderate fog likely over Jharkhand from 10th to 12th, monitor the standing crops for incidence and spread of pest & diseases and monitor tomato and potato crops for blight disease. If symptoms are noticed, undertake plant protection measures.

Odisha

- Complete the nursery raising of summer paddy. Prepare wet nursery for sowing pre-germinated seeds of short and medium duration paddy varieties.
- Drain out excess water from the vegetable and paddy nurseries as well as potato and onion fields. Take up sowing of non-paddy Rabi crops such as green gram and black gram after the rain stops; in low land areas, drain out water to get the soil at optimum moisture. Harvest mature cauliflower and cabbage heads to avoid discolouration and splitting.
- Rain may aggravate the infestation of Spodoptera in pulses and groundnut; spray 2 ml Quinalphos per litre water or carry out dusting with 10 kg Chlorpyrifos per acre.

Bihar

- Continue transplanting of Rabi onion seedlings. Carry out hand weeding in maize (at 20-25 and 40-45 DAS). Postpone irrigation to wheat crop in case of rainfall.
- For the control of late blight in potato, spray Redomil @ 2g/litre of water. Spray Dithane-M-45 @ 2 g/ litre of water for white rust and Rogar 30 EC @ 1 litre per hectare in 1000 litres of water against attack of painted bug and aphids in mustard crop.

Jharkhand

- Wheat crop sown in November is at tillering stage; broadcast Nitrogen @ 10-12.5 kg (22-27 Kg urea/acre) two days after irrigation. Irrigate timely sown lentil crop at branching stage (45 DAS). Mustard crop is at flowering to capsule formation stage; go for intercultural operation followed by irrigation.
- Pigeon pea crop is at pod formation stage; to prevent pod borer, sucking bug, mites and blister beetle, spray Indoxacarb 14.5 % SC @ 120 ml/ acre or Emamectin Benzoate 5 % SG @ 5 g/acre or Spinosad 14.5 % SC @ 30 g/acre or Neem 1500 ppm @ 800 ml/acre or Profenophos 50 EC @ 800 ml/acre.

West Bengal

- In Sub-Himalayan West Bengal, continue preparing nursery for Boro rice. Prepare main land for transplanting 25-30 days old seedlings of Boro paddy. Carry out weeding in green pea, potato, mustard and cole crops. Complete the harvesting of Mandarin orange. Mark healthy plots for ginger seed rhizome for next season.
- To control dieback/fruit rot in chilli crop, spray Carbendazim @ 1g/litre of water.
- In Gangetic West Bengal, keep the base of Boro paddy nursery bed dry to avoid seedling death due to low temperatures; put polythene cover over the seed bed to avoid adverse effects of fog. Carry out earthing up at the base of potato crop. Protect betel vine plants from cold winds by covering the northern side of the fence with polythene sheet or cotton cloth.
- Apply Mancozeb 75% WP @ 2.5 g per litre of water for late blight in potato crop.
- **Andaman & Nicobar Islands**
- Do line sowing of vegetable seeds in raised bed with proper drainage facility. Mix thoroughly 2 kg of vermin-compost per square meter and make vegetable nursery in raised beds. Carry out residue mulching around the coconut and areca nut to avoid loss of soil moisture.
- To manage wilt disease in pulses, mix Trichoderma harzianum @ 10 g per kg FYM and apply before

sowing. Remove yellow vein mosaic virus infected plants of bhendi.

➤ **Animal Husbandry**

- Provide clean drinking water to cattle and keep their sheds clean. Vaccinate animals at regular intervals. Keep poultry shed dry and warm. Provide green fodder at the rate 25 kg/animal/day to lactating cows to enhance milk production. Contact veterinarian for lumpy skin disease in cattle.

Fishery

- Reduce the fish feed to 50% as intake is low during winter season. Apply CIFAX or AQUANEEM 10X @ 1 litre in 100 litres of water for red spot disease (Epizootic Ulcerative Syndrome-EUS) occurring due to decreasing water temperature and overcrowding of fish.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

Realised Rainfall: Weather remained mainly dry/dry over the region.

Advisories:

Maharashtra

- In Konkan, apply irrigation to rice nursery. Apply Urea @ 1 kg per guntha to 15 days old rice nurseries. Maintain 5 cm water level in rice fields. Apply irrigation to sunflower and mustard. Undertake intercultural operation like weeding and earthing up in cole crop like cabbage (20-25 days old). To control powdery mildew in inflorescence of mango, spray Lambda Cyhalothrin 5% EC @ 6 ml + Hexaconazole @ 5 ml in 10 liters of water. To control pod borer in *Kadva wal* (flowering stage), spray Malathion @ 2 ml per liter of water.
- In Madhya maharashtra, farmers are advised to keep inputs ready for sowing of *rabi* groundnut. Undertake land preparation for plantation of *suru* Sugarcane. Apply irrigation to wheat. Continue sowing of watermelon (varieties: Sugar Baby, Arka Manik, Arka Jyoti). To control thrips in onion, spray Dimethoate 30% EC @ 15 ml in 10 liters of water. To control rust in wheat, spray Mancozeb @ 1.5 kg in 500 liters of water. To control pod borer in gram, spray Chlorantraniliprole 18.5 S.C @ 2.5 ml in 10 litres of water.
- In Marathawada, continue harvesting of matured pigeon pea. Undertake land preparation for sugarcane with assured irrigation facilities. Undertake intercultural operation like weeding and apply irrigation to citrus orchards. To control leaf spot in late sown turmeric, spray Mancozeb (75 WP) @ 25 g or Carbendazim (50 WP) @ 10 g per 10 liters of water.
- In Vidharbha, continue nursery sowing of *summer* rice. Apply irrigation to wheat. Apply light irrigation during evening hours and also apply mulch in orchards. Farmers are advised to keep inputs ready for sowing of *rabi* groundnut. Continue harvesting of matured pigeon pea. To control pod borer in pigeon pea, spray 5% *Neemark*.

Gujarat

- In Saurashtra & Kutch, to prevent cold injury, apply light irrigation to wheat and castor crops during evening time. As precautionary measure to prevent leaf blight (yellowing) disease infestation in garlic, spray Mencozeb @ 27 gm in 10 liters of water at 10 days interval.
- In South Gujarat, undertake nursery sowing of summer rice and intercropping of onion, garlic, mustard, cabbage, cauliflower, green gram and black gram in sugarcane crop. Continue nursery sowing of brinjal. For controlling sucking pests like aphid, jassid, thrips and disease like mosaic in Green gram crop, apply Dimethoate 30 EC @ 10 ml or Imidacloprid 200 SL @ 4 ml or Acephate 75 SP @ 15 gram in 10 litres of water.
- In North Gujarat, apply light irrigation to wheat, potato and castor crops during evening hours to minimize the effect of cold weather. Undertake picking of matured pods of pigeon pea. For effective control of blight disease in cumin, spray Mencozeb @ 35 gm and 25 ml concentrated desi soap solution in 10 litres of water; four sprays in 10 days interval is advised.
- In Middle Gujarat, apply irrigation to wheat (CRI stage) crop. For the control of sigatoka disease in banana, spray Carbendazim 50 WP @ 10 gm in 10 litres of water along with sticker for two to three times

at 15 days interval as per disease severity.

Animal Husbandry

- In Gujarat, protect livestock and poultry birds from adverse effect of cold.

CENTRAL INDIA [M.P., CHHATTISGARH]

Realised Rainfall: Rainfall occurred in Annupur, Balaghat, Betul, Chhindwara, Shahdol and Tikamgarh districts of Madhya Pradesh and in Bilaspur, Jashpurnagar, Kabirdham, Kondagaon, Korba, Narayanpur, Surajpur and Sarguja districts of Chhattisgarh. Weather remained dry/mainly dry over rest of the region during the week.

Advisories:

- As cold day conditions in some pockets with Severe Cold day in isolated pockets very likely over West Madhya Pradesh on 10th; cold day conditions in some pockets over East Madhya Pradesh on 10th, over West Madhya Pradesh on 11th, in isolated pockets over Chhattisgarh on 10th and 11th and over East Madhya Pradesh on 11th; cold Wave conditions in some pockets very likely over West Madhya Pradesh on 10th and in isolated pockets over East Madhya Pradesh on 10th and over West Madhya Pradesh on 11th, apply light and frequent irrigation /sprinkler irrigation in the evening to protect the crops from frost / cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/ gunny bags. Keep the animals inside the sheds and provide dry bedding and use heaters inside cattle sheds to protect them from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy to cope up with the situation. Keep the chicks warm by providing artificial light in the poultry sheds.
- As dense fog very likely in isolated pockets over north Madhya Pradesh on 10th, monitor the standing crops for incidence and spread of pest & diseases and monitor tomato and potato crops for blight disease. If symptoms are noticed, undertake plant protection measures.

Madhya Pradesh

- In Malwa Plateau Zone, irrigate fruit orchards and apply manure and fertilizer. Install pheromone traps @ 3-4 traps per acre for management of pod borer in chickpea crop @ 10-15% flowering stage; place "T" shaped bird perches in and around crop field to control insect population. Spray Carbandizam @ 1.0 g or Dithane-M-45 @ 2 g per litre of water for blight disease in potato and tomato crops.
- In Vindhya Plateau Zone, carry out gap filling with new plants in the orchards. Cover new orchards with hay to protect them from cold weather. Carry out transplanting of brinjal seedlings. Carry out earthing up in potato crop. To control thrips in garlic crop, spray Chlorpyrifos 20 EC @ 1.5 litres per hectare.
- In Central Narmada Valley Zone, do not irrigate wheat, gram and mustard crops if soil is sufficiently moist. Carry out earthing up and apply fertilizers to one month old potato crop. Monitor mustard crop for aphid infestation; if found above ETL, spray Imidachloprid @ 0.5 ml/litre of water.
- In Satpura Plateau Zone, give irrigation to wheat crop at 20 days interval; avoid water logging in wheat field. Postpone irrigation to chick pea crop for a few days if bacterial wilt is observed.
- In Jhabua Hills Zone, apply second irrigation to wheat crop at jointing stage (35-40 DAS) and third irrigation at head initiation stage (55-60 DAS) so as to maintain sufficient moisture in the field. Irrigate mustard crop at 60-65 DAS at seed formation stage. Stop irrigation to turmeric and ginger crops; dig mature rhizomes. Harvest mature tomato, early cauliflower, brinjal and chilli crops. Timely cut /dig/ pick spinach, fenugreek, pea, radish, etc. and market them.

Chhattisgarh

- In Chhattisgarh, carry out intercultural operations in pulses, oilseeds and potato crops. Carry out transplanting of onion seedlings. Carry out pruning of gram crop for better yield. Spray Karathane @ 1 ml or Sulfex @ 3 gm per litre of water to control powdery mildew in green pea.
- In Northern Hill Zone, carry out inter culture operations in pulses and oilseed crops to conserve soil moisture and control weeds. Continue transplanting of onion seedlings. Monitor mustard, beans and radish crops for aphid infestation; if found above ETL spray Carbaryl @ 2 kg/ha.

- In Bastar Plateau Zone, provide irrigation to wheat crop at important growth stages; especially at crown root initiation and flower initiation stages.

Animal Husbandry

- Low temperatures may adversely affect the milk production and performance of domestic animals. Give protein enriched diet to the animals. Do not keep the animal in the open. Vaccinate cattle against FMD, HS and BQ diseases.

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

Realised Rainfall : Significant rainfall occurred in all districts of Himachal Pradesh except Chamba, Lahaul & Spiti and Una; in Baramulla, Doda, Kathua, Kulgam, Jammu, Kupwara, Ramban, Samba and Reasi districts of Jammu & Kashmir; Chandigarh and Ambala districts of Haryana; Gurdaspur, Ropar, Sasnagar and Patiala districts of Punjab; Lalitpur district of Uttar Pradesh and in Almora, Chamoli, Dehradun, Garhwal Tehri, Pithoragarh, Rudraprayag and Uttarkashi districts of Uttarakhand.

Advisories:

- As cold day conditions very likely in isolated pockets over Uttarakhand, Punjab, north Haryana on 10th, over Uttar Pradesh, on 10th and 11th, cold Wave in isolated pockets over Uttarakhand, north Rajasthan and East Madhya Pradesh on 10th; ground frost in isolated pockets very likely over north Rajasthan on 10th, apply light and frequent irrigation /sprinkler irrigation in the evening to protect the crops from frost/cold injury. To protect young fruit plants from chilly winds, cover young fruit plants with straw/polythene sheets/ gunny bags. Keep the animals inside the sheds and provide dry bedding and use heaters inside cattle sheds to protect them from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy to cope up with the situation. Keep the chicks warm by providing artificial light in the poultry sheds.
- As dense to very dense fog very likely in isolated pockets over Uttarakhand, Punjab and Haryana, Chandigarh & Delhi on 10th; dense fog in isolated pockets over Himachal Pradesh, Uttar Pradesh on 10th and 11th and over Uttarakhand, Punjab, Haryana, Chandigarh & Delhi on 11th, monitor the standing crops for incidence and spread of pest & diseases and monitor tomato and potato crops for blight disease. If symptoms are noticed, undertake plant protection measures.
- As rain / thundershowers likely at most places over Jammu & Kashmir on 12th and 13th, over Uttarakhand, Punjab and Himachal Pradesh on 13th with heavy rain/snow likely at a few places over Jammu & Kashmir and Himachal Pradesh on 13th, at isolated places over Jammu & Kashmir on 12th, over Uttarakhand, Punjab and north Haryana on 13th, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in crop fields.
- As thunderstorm accompanied with hail & lightning likely at isolated places over Jammu & Kashmir on 12th and 13th and over Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi and West Rajasthan on 13th, provide mechanical support to young fruit plants, banana and carry out staking of vegetables as well as propping up in sugarcane to prevent crops from lodging. Use hail net for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.

Jammu & Kashmir

- In Sub-Tropical Zone, monitor gram crop for wilt and blight attack. If observed, apply Bavistin or Carbendazim @ 3gm/litre of water during clear weather. Carry out hoeing, weeding and thinning operation in very late sown mustard crop in order to keep the crop free from weeds.
- In Intermediate Zone, weather conditions are favourable for the attack of alternaria blight in mustard crop. If observed, spray Mancozeb @ 2.5 g/litre of water and Ridomil MZ @ 2.5g/litre of water alternately during clear weather conditions.
- In Valley Temperate Zone, ensure field sanitation and proper drainage of excess moisture in saffron fields.

- In Cold Arid Zone, undertake sanitation of orchards with removal and destruction of infested shoots and fruits. Carry out bark scraping of trunks of fruit trees to expose the winter larvae to sub-zero temperatures. To expose spores to harsh cold, keep open the cover of greenhouse in which no vegetables are grown.

Himachal Pradesh

- In High Hill Temperate Dry Zone, cover small apple plants with grass to avoid cold paralysis.
- In Mid Hills Sub-Humid Zone, complete transplanting of onion and sowing of pea. Continue harvesting of ginger and turmeric. Protect the nurseries of temperate as well as other fruit plants from cold and frost by covering them with thatches, straw and gunny bags.

Punjab, Haryana and New Delhi

- In Punjab, avoid application of irrigation, fertilizer and other chemical and plant protection sprays; remove excess water from fields.
- In Western Zone of Punjab, due to cold to severe cold conditions and rain thereafter, do not irrigate crops like wheat, mustard; vegetables like radish, turnip, carrot and newly planted orchards. Provide polythene sheet/Sarkanda/Kahi/ rice straw to protect tomato plants from frost.
- In Western Plain Zone of Punjab, harvest mid and late season maturing variety of sugarcane. Monitor the wheat crop for occurrence of yellow rust; if symptoms are noticed, spray the crop with Tilt/Shine/Bumper/Compass/Markzole @ 200 ml in 200 litres of water/acre during clear weather conditions. Complete thinning and weeding in late sown mustard crop. As the weather is congenial, monitor raya and mustard crops for aphid attack.
- In Western Zone of Haryana, undertake intercultural operations in wheat, barley and chickpea crops. Apply need based irrigation and fertilizer doses to wheat, barley and mustard crops.
- In **Delhi**, continue sowing of late maturing varieties of wheat, Undertake transplanting of onion, tomato, cauliflower, cabbage, knolkhol and broccoli crops in raised bed. Due to high relative humidity, infection of blight may occur in potato and tomato crops; to control, spray Carbandizam @ 1gm or Dithane-M-45 @ 2gm per litre of water on clear day. In present weather conditions, monitor mustard crop for aphids; if crop is in early stage, cut and destroy the infested part of the plant. If symptoms of termite appear in wheat crop, apply mixture of 20 kg sand with Chlorpyrifos EC @ 2.0 litre/acre in evening hours when sky is clear.

Uttar Pradesh

- In East Uttar Pradesh, apply first irrigation to late sown wheat crop. Provide first irrigation to gram crop before flowering stage. Apply Furadan @ 30kg /ha to protect sugarcane from stem borer attack. To control powdery mildew in field pea, spray 2 g Mancozeb in 1 litre of water on clear day.
- In West Uttar Pradesh, continue sowing of wheat if the field is ready. Postpone irrigation /top dressing urea to the already sown wheat crop. Transplant onion seedlings in the main field. To prevent the plum fruits from falling, spray the Super 6 hormone @ 1ml per 4.5 litres of water when sky is clear. Due cloudy weather, there is a possibility of pest/disease in mustard crop; spray Chlorpyrifos 20% EC @ 1liter / ha or Monocrotophos 37% SL @ 500 ml / ha in 600 - 700 litres of water on clear day. For pest in gram crop, spray Chlorpyrifos 20% EC @ 2.5 liters / ha in 600 to 700 liters of water on clear day.

Uttarakhand

- In Bhabar and Tarai Zone, apply light irrigation in mustard at the time of grain filling stage. Carry out weeding and hoeing operations in barley, lentil and pea. Undertake sowing of fruit crops like apple, pear, plum, wall nut etc. and nursery sowing of tomato, brinjal and capsicum.

Rajasthan

- In Semi Arid Eastern Plain Zone, for management of mango hopper, spray Malathion 50 EC @ 1.0 ml per litre of water.
- In South Eastern Humid Plain Zone, weather is congenial for pod borer in green gram; spray Emamectin Benzoate SG @ 100 gram per hectare with 500-600 litre of water. Dust Quinalphos 1.5 % powder 25 kg /hectare to control cutworm attack in green gram.

- In Sub Humid Southern Plain and Aravali Hill Zone, present weather is congenial for aphid in mustard; if insect population above ETL, spray Rogar or Quinalphos @ 2.0 ml/ litre water.
- In Arid Western Plain Zone, spray Ridomil (Metalaxyl + Mancozeb) 2 gm/litre of water for downy mildew in lucerne or mustard.

Animal Husbandry

- In Uttar Pradesh, increase the amount of grains in animal feed. Provide adequate light and heat to chicks in poultry shed.
- In Jammu & Kashmir, maintain good source of light and heat in poultry houses. Cover the poultry shed with gunny bags in order to protect the birds from cold weather. Well-insulated windows can act as a sun trap during winters. Maintain proper hygiene. Make adequate clean drinking water available.

Floriculture

- In Sub Tropical Zone of Jammu & Kashmir, carry out hoeing and weeding operations in Gladiolus in vegetative stage during clear weather. Continue transplanting of marigold. If aphid attack is observed in marigold, chrysanthemum or rose, spray Imidacloprid @ 1.5 ml/litre of water during clear weather.

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