



National Agromet Advisory Service Bulletin

Friday 17th January 2020
(For the period 17th to 21st January 2020)



Issued by
India Meteorological Department

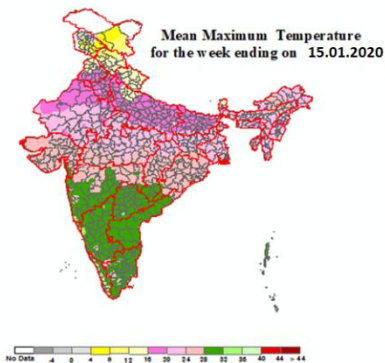
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District AAS Bulletin: <http://www.imdagrimet.gov.in/node/3545>

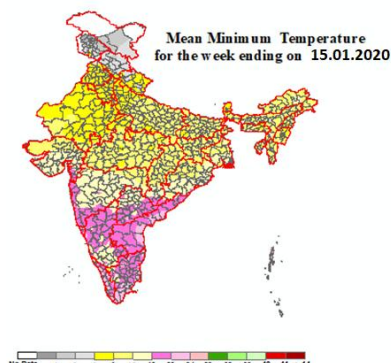
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

spatial distribution of weather parameters for the week ending on 15.01.2020

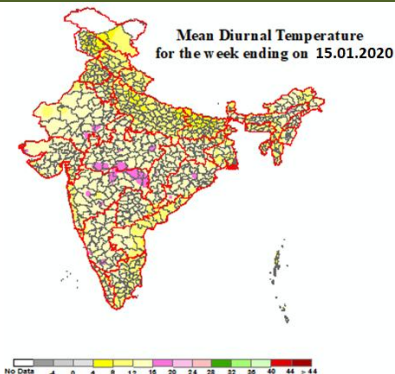
Mean Maximum Temperature (°C) for the week ending on 15.01.2020



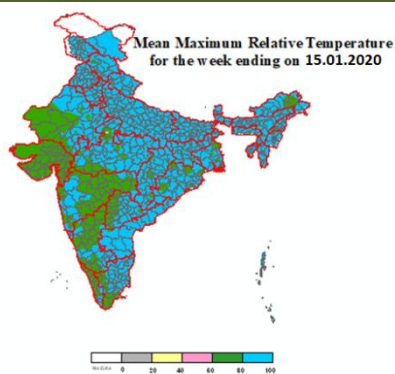
Mean Minimum Temperature (°C) for the week ending on 15.01.2020



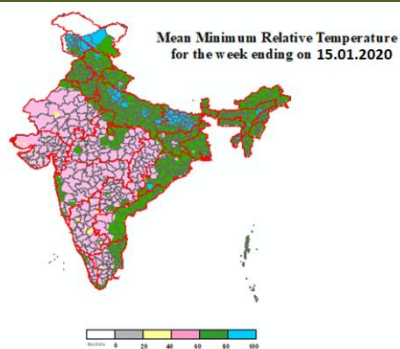
Mean Diurnal Temperature Variation (°C) for the week ending on 15.01.2020



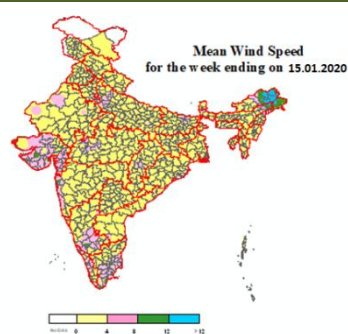
Mean Maximum Relative Humidity (%) for the week ending on 15.01.2020



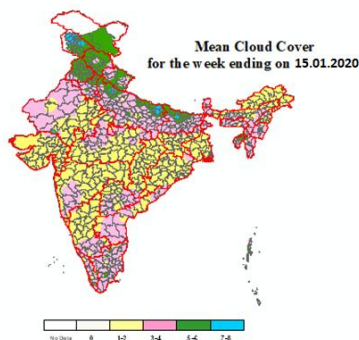
Mean Minimum Relative Humidity (%) for the week ending on 15.01.2020



Mean Wind Speed (km/hr) for the week ending on 15.01.2020

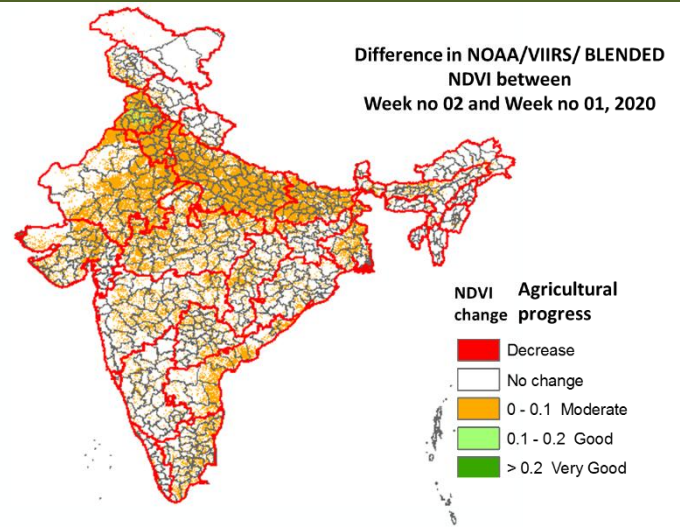
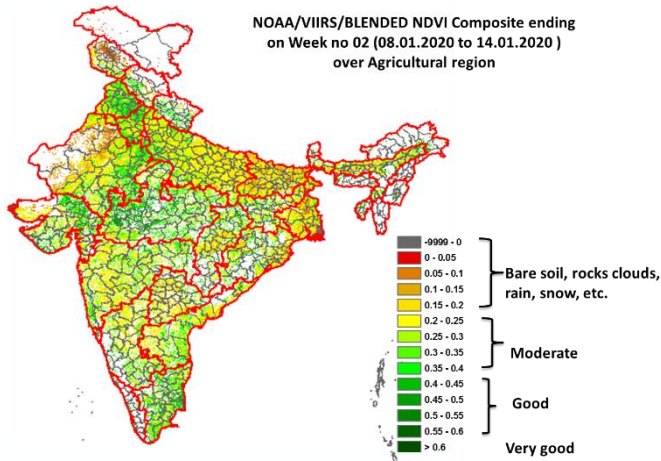


Mean Cloud Cover (okta) for the week ending on 15.01.2020



NOAA/VIIRS/BLENDED NDVI composite for the week number 02 (08.01.2020 to 14.01.2020) over Agricultural regions of India

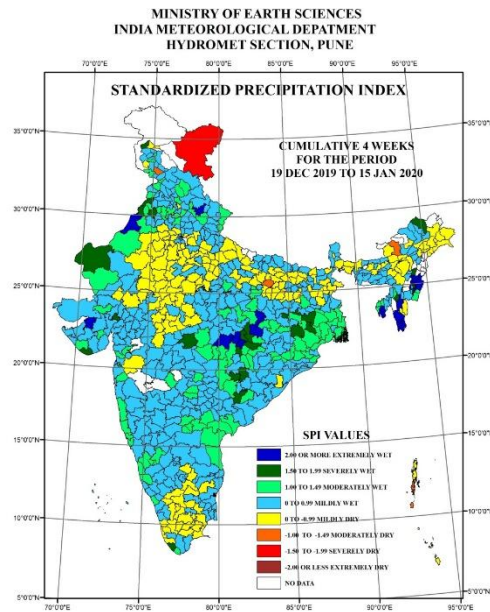
Difference in NOAA/VIIRS/BLENDED NDVI between week number 02, 2020 and week number 01, 2020



Agriculture vigour was good at many parts of West Madhya Pradesh; at few parts of Uttarakhand, East Rajasthan, North Gujarat, Coastal Tamilnadu & Coastal Karnataka; at isolated parts of Punjab, Haryana, Himachal Pradesh, Uttar Pradesh, Saurashtra & Kutch, East Madhya Pradesh, Chattisgarh, Odisha, North Eastern States, Jharkhand, Sub Himalayan West Bengal, Sikkim, Telangana, Andhra Pradesh, North Interior Karnataka, Tamilnadu, Kerala, Konkan & Goa.

Very good difference in agricultural vigour has been observed at District Nellore in Andhra Pradesh; good difference observed at few parts over Punjab; at isolated parts over Uttar Pradesh, Bihar, Madhya Pradesh, Tamilnadu, Coastal Karnataka, East Rajasthan, Bihar, Andhra Pradesh & Kerela and moderate difference observed mostly over Punjab, Haryana, Uttar Pradesh, Bihar, East Rajasthan & North Gujarat.

Standardised Precipitation Index Cumulative 4 weeks for the period 19th Dec 2019 to 15th Jan 2020



- Extremely/Severely wet conditions exist in Upper Siang district of Arunachal Pradesh; Gandhinagar, Gir Somnath, Morbi districts of Gujarat; Kupwara district of Jammu; Trivandrum districts of Kerala; Betul, Balaghat districts of West Madhya Pradesh; Imphal East, Senapati, Thoubal, Ukhrul districts of Manipur; Aizwal, Kolasib, Lawngtlai, Lunglei, Saiha districts of Mizoram; Kohima districts of Nagaland; Bhatinda, Ferozepur districts of Punjab; Sri Ganganagar, Jaisalmer districts of Rajasthan; South Tripura district of Tripura; Purulia district of West Bengal; Lohardaga, East Singbhum, West Singbhum, Ramgarh districts of Jharkhand; Garhwal Tehri district of Uttarakhand; Bilaspur, Durg, Korba, Kowarda, Narayanpur, Baloda Bazaar, Bemetara, Mungeli, Sukma, Surajpur, Kondagaon districts of Chhatisgarh.
- Moderately dry conditions exist in East Kameng district of Arunachal Pradesh; Udhampur district of Jammu; Ghazipur district of Uttar Pradesh; South Andaman districts 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 22nd January, 2020

- ◆ Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table below.
- ◆ Gradual fall in temperatures by 2-3°C over north India and no significant change in Maximum & Minimum temperatures over rest parts of the country during next 2-3 days.

5 Day Rainfall Forecast (MID-DAY)

17th January 2020

Met-Sub-Division	17-Jan Today	18Jan Sat	19Jan Sun	20Jan Mon	21Jan Tue
1. Andaman & Nicobar Islands	DRY	ISOL	ISOL	ISOL	ISOL
2. Arunachal Pradesh	SCT	FWS	WS	FWS	ISOL
3. Assam & Meghalaya	DRY	ISOL	SCT	ISOL	DRY
4. N. M. M. & T.	DRY	DRY	ISOL	ISOL	DRY
5. S.H. West Bengal & Sikkim	SCT	SCT	ISOL	DRY	DRY
6. Gangetic West Bengal	DRY	ISOL	ISOL	DRY	ISOL
7. Odisha	DRY	DRY	DRY	DRY	DRY
8. Jharkhand	ISOL	ISOL	SCT	ISOL	ISOL
9. Bihar	SCT	SCT	ISOL	DRY	DRY
10. East Uttar Pradesh	FWS	ISOL	DRY	DRY	DRY
11. West Uttar Pradesh	ISOL	ISOL	DRY	DRY	DRY
12. Uttarakhand	WS	SCT	DRY	ISOL	SCT
13. Haryana, Chd & Delhi	DRY	DRY	DRY	DRY	ISOL
14. Punjab	ISOL	ISOL	DRY	DRY	ISOL
15. Himachal Pradesh	SCT	SCT	DRY	ISOL	FWS
16. Jammu & Kashmir	ISOL	ISOL	DRY	SCT	FWS
17. West Rajsthan	DRY	DRY	DRY	DRY	DRY
18. East Rajasthan	DRY	DRY	DRY	DRY	DRY
19. West Madhya Pradesh	ISOL	DRY	DRY	DRY	ISOL
20. East Madhya Pradesh	SCT	ISOL	ISOL	DRY	SCT
21. Gujarat Region	DRY	DRY	DRY	DRY	DRY
22. Saurashtra & Kutch	DRY	DRY	DRY	DRY	DRY
23. Konkan & Goa	DRY	DRY	DRY	DRY	DRY
24. Madhya Maharashtra	DRY	DRY	DRY	DRY	DRY
25. Marathawada	DRY	DRY	DRY	DRY	DRY
26. Vidharbha	ISOL	DRY	DRY	DRY	ISOL
27. Chhattisgarh	ISOL	ISOL	ISOL	DRY	ISOL
28. Coastal A. P. & Yanam	DRY	DRY	DRY	DRY	DRY
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	DRY	DRY	DRY
31. T.N.,Puducherry & Karaikal	ISOL	ISOL	DRY	DRY	DRY
32. Coastal Karnataka	DRY	DRY	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	DRY	DRY	DRY	DRY	DRY
35. Kerala & Mahe	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 Widespred (FWS/ Many Places)	1-25	Isolated (ISOL)
No Rain	Dry		

Weather Warning during next 5 days

17 January (Day 1): ♦ **Heavy rain/snow** very likely at isolated places over Uttarakhand.

- ♦ **Thunderstorm** accompanied with **hail & lightning** very likely at isolated places over Uttarakhand, **with lightning** at isolated places over East Uttar Pradesh, East Madhya Pradesh, Bihar and Chhattisgarh.
- ♦ **Dense to very dense fog** very likely in some pockets over Punjab, Haryana and Chandigarh; in isolated pockets over Delhi, Odisha and West Madhya Pradesh, and **Dense fog** in isolated pockets over Uttarakhand, Uttar Pradesh, West Rajasthan and East Madhya Pradesh,
- ♦ **Cold day conditions** very likely in some pockets over Saurashtra & Kutch, Haryana and Chandigarh and isolated pockets Uttarakhand, Punjab, Madhya Maharashtra and Rajasthan.
- ♦ **Cold wave conditions** very likely in some pockets over Saurashtra & Kutch and in isolated pockets over Madhya Maharashtra.

18 January (Day 2): ♦ **Thunderstorm** accompanied with **lightning** very likely at isolated places over Jharkhand.

- ♦ **Dense to very dense fog** very likely in some pockets over Punjab, Haryana and Chandigarh; in isolated pockets over Delhi and West Madhya Pradesh, and **Dense fog** in isolated pockets over Uttarakhand, Uttar Pradesh, West Rajasthan Odisha and East Madhya Pradesh,
- ♦ **Cold day conditions** very likely in some pockets over Saurashtra & Kutch and isolated pockets over Uttarakhand, Punjab, Haryana and Chandigarh.
- ♦ **Cold wave conditions** very likely in some pockets over Saurashtra & Kutch and in isolated pockets over Madhya Maharashtra.

19 January (Day 3): ♦ **Heavy rain/snow** very likely at isolated places over Arunachal Pradesh.

- ♦ **Thunderstorm** accompanied with **lightning** likely at isolated places over Jharkhand, Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ♦ **Dense to very dense fog** likely in some pockets over East Uttar Pradesh and Punjab; **dense fog** in some pockets over West Uttar Pradesh and Bihar and in isolated pockets over Odisha.

20 January (Day 4): ♦ **Dense to very dense fog** likely in some pockets over East Uttar Pradesh and in isolated pockets over West Madhya Pradesh; **dense fog** in some pockets over Bihar and in isolated pockets over West Uttar Pradesh and Odisha.

21 January (Day 5): ♦ **Dense to very dense fog** likely in some pockets over West Uttar Pradesh and Odisha; **dense fog** in isolated pockets over Punjab, Haryana, Chandigarh, East Uttar Pradesh and Bihar.

- ♦ **Thunderstorm** accompanied with **lightning** likely at isolated places over East Madhya Pradesh and Chhattisgarh.

Weather Outlook for subsequent 2 days from 22nd to 24th January, 2020

- ♦ Scattered precipitation likely over Western Himalayan region and isolated to scattered rainfall likely over East Madhya Pradesh, Chhattisgarh, Bihar, Gangetic West Bengal & Arunachal Pradesh.
- ♦ Weather likely to be dry over remaining parts of the country.

Salient advisories

- As **rain/thundershowers** very likely at most/many places over over Arunachal Pradesh during 18th to 20th and rain/snow at most places likely over Uttarakhand on 17th alongwith rain/snow at few places, postpone irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in crop fields.
- As **Thunderstorm accompanied with hail & lightning** very likely at isolated places over Uttarakhand on 17th; **with lightning** at isolated places over East Uttar Pradesh, East Madhya Pradesh, Bihar and Chhattisgarh on 17th; **Thunderstorm accompanied with lightning** very likely at isolated places over Jharkhand on 18th & 19th; over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur,

Mizoram & Tripura on 19th and over East Madhya Pradesh and Chhattisgarh on 21st, use hail net for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.

- As **Cold day conditions** very likely in some pockets over Saurashtra & Kutch on 17th & 18th and over Haryana and Chandigarh on 17th; in isolated pockets over Uttarakhand, Punjab on 17th & 18th; over Madhya Maharashtra and Rajasthan on 17th and over Haryana and Chandigarh on 18th; **Cold wave conditions** very likely in some pockets over Saurashtra & Kutch and in isolated pockets over Madhya Maharashtra on 17th & 18th, 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 some pockets over Haryana and Chandigarh on 17th & 18th ; over Punjab on 17th, 18th & 19th; over East Uttar Pradesh on 19th and over West Uttar Pradesh and Odisha on 20th & 21st; in isolated pockets over Odisha on 17th and over Delhi and West Madhya Pradesh on 17th & 18th and **Dense fog** in isolated pockets over Uttarakhand, Uttar Pradesh, West Rajasthan and East Madhya Pradesh on 17th & 18th; over Odisha on 18th & 19th and over Punjab, Haryana, Chandigarh, East Uttar Pradesh and Bihar on 20th and 21st; in some pockets over West Uttar Pradesh and Bihar on 19th, 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.
- Undertake sowing/ transplanting of following crops:
 - Undertake sowing of short duration vegetable crops like amaranthus, cow pea, etc. in the interspaces of newly planted banana crop in High Altitude Zone of Kerala.
 - Continue nursery sowing of sesame in North Coastal Zone of Andhra Pradesh.
 - Undertake nursery preparation for rice and planting of sugarcane in South Interior Karnataka.
 - Undertake nursery bed preparation for sowing of tomato seeds in Meghalaya.
 - Undertake nursery raising of summer rice in Jharkhand and South Gujarat.
 - Carry out sowing of maize and sunflower crops in Chhattisgarh Plain Zone.
 - Complete transplanting of 6-8 weeks old seedlings of onion in Western Zone of Punjab.
 - Carry out nursery raising for summer tomato in Semi Arid Eastern Plain Zone of Rajasthan.
 - Undertake sowing of groundnut with assured irrigation facility in Vidarbha.

Detailed Agromet Advisories

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

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

Advisories:

Kerala

- In High Altitude Zone, undertake sowing of short duration vegetable crops like amaranthus, cow pea, etc. in the interspaces of newly planted banana crop. Undertake harvesting of ginger.
- In Problem Area Zone, undertake planting of tapioca. Weather is congenial for bud rot disease in coconut; spray Bordeaux mixture 1% on spindle leaves and crown of disease affected as well as neighbouring palms.
- In Southern Zone, undertake harvesting of paddy. Weather is congenial for sucking pests in vegetables; spray 2% neem oil garlic emulsion or Beauveria bassiana (20g/litre)
- In Central Zone, there is a chance of blast disease in *mundakan* paddy; spray 20g Pseudomonas per one 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 Krishna Godavari Zone, present weather conditions are congenial for white fly incidence in black gram and green gram; spray Monocrotophos @ 1.6 ml or Triazophos @ 1.5 ml or Acephate @ 1.0 g or Dimethoate @ 2.0 ml or Acetamiprid @ 0.2 g per litre of water at 7-10 days interval. Monitor Bengal gram for *spodoptera exigua* damage. Spray either Chlorpyrifos @ 2.5 ml or Acephate @ 1.0 g or Monocrotophos @ 1.6 ml per litre of water.

Telangana

- Continue sowing of sesame from second fortnight of January to first fortnight of February. Continue transplanting of paddy at 4-6 leaf stage.
- In South Telangana Zone, prevailing weather conditions are congenial for maruca and helicoverpa in red gram; spray Chlorpyrifos @ 2.5 ml or Novaluron @ 0.75 ml along with Dichlorvos @ 2 ml per litre of water. Present weather conditions are favourable for rhizome rot in turmeric. Remove excess water and drench with Cymoxanil + Mancozeb @ 3g or Metalaxyl + Mancozeb @ 3g per litre of water. For leaf spot in turmeric, spray Propiconazole @ 1 ml or Pyraclostrobin @ 1g + gum 1 ml 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 Isoprothiolane @ 1.5 ml per litre of water. 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 Northeastern Zone, undertake harvesting of matured paddy.
- In Cauvery Delta Zone, the prevailing weather is conducive for stem borer in rice; spray Chlorantraniliprole 18.5% SC 150 ml/ha or Chlorpyrifos 20% EC 1.25 litre/ha.
- In Western Zone, due to high relative humidity and low minimum temperature, sooty mould disease may occur in mango. Spray Phosphamidon @ 2ml/ litre + 5% maida.
- In High Rainfall Zone, harvest flower buds of clove when they change in colour from green to slightly pinkish tinge; separate the clusters and dry them in the sun for four to five days.

Karnataka

- In North Interior Karnataka, undertake land preparation for planting of sugarcane. Continue sowing of pulses and mustard crops. Incidence of leaf eating caterpillars has been noticed in niger crop; spray Dimethoate @ 1.7 ml /litre of water.
- In South Interior Karnataka, continue nursery preparation for rice. Undertake planting of sugarcane. Undertake harvesting of matured rhizomes of ginger and turmeric. To manage, sucking pests and

powdery mildew in mango, spray Carbaryl @ 4 g or Carbendazim @ 2 g dissolved in one liter of water. Repeat the same spray if necessary at an interval of 15 days.

- In Coastal Karnataka, for control of panama disease in banana, spray Carbendazim @ 1 gm per litre of water; drench 3-4 litres per plant.

Animal Husbandry:

- In Karnataka, for milch animals, regularly follow schedule of 1 kg feed + 50 g mineral mixture / 2 litres of milk yield. Feed animals with a mixture of green grass + hay + minerals + dry feed like a khichri.
- In Karaikal and Pondicherry, as a preventive measure for Babesiosis disease, apply Butox @ 2 ml/litre of water on cattle and also spray it on the nearby areas of the cattle shed. As a preventive measure against Enterotoxaemia disease in goat, vaccinate animals once in a year before the onset of monsoon; don't allow goats to feed on wet and young grass.
- To maintain milk yield in milch animals, keep animals cool by sprinkling water on them during daytime and feed them azolla during summer season.

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

Realised Rainfall: Rainfall occurred in Upper Siang district of Arunachal Pradesh. Weather was mainly dry over rest of the region.

Advisories:

- As **Heavy rain/snow** very likely at isolated places over Arunachal Pradesh on 19th, avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in crop fields.
- As **Thunderstorm accompanied with lightning** very likely at isolated places over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura on 19th, 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.

Arunachal Pradesh

- In Arunachal Pradesh, carry out weeding operation in potato and apply light irrigation if required. Follow suitable soil water conservation techniques in the field and ensure secondary source of irrigation for vegetable crops. Spray Azadirachtin 0.15% EC 2@ 6ml/litre to control leaf eating insects in cauliflower on a clear day.

Assam & Meghalaya

- In Lower Brahmaputra Valley Zone of Assam, undertake gap filling in the main summer rice field within 7 -10 days after transplanting; maintain 5cm water level in the main field. Apply irrigation to coconut plants at 15 days interval. Weather is congenial for occurrence of blight disease in potato; to control, spray Mancozeb 75% (Indofil M 45/ Dithane M 45) @ 2.5g/litre at canopy closure at an interval of 7-10 days in fair weather.
- In Upper Brahmaputra Valley Zone, apply irrigation in *Boro* rice to maintain 5cm water level. Carry out pruning operation in citrus plantations. Undertake land preparation for okra cultivation. Monitor potato crop for late blight disease; to control, spray Indofil M-45 @ 2gm/litre of water at 10-12 days interval followed by Dithane M-45 @ 2.5 gm/litre of water at an interval of 7-10 days on clear day.
- In North Bank Plain Zone, undertake field preparation for transplanting of *Boro* rice seedlings. Carry out second earthing up operation in 60-65 days old potato crop. Cloudy and foggy weather is favourable for appearance of late blight in potato. To protect the crop, spray Mancozeb @2.5g/litre of water in clear weather.
- In Meghalaya, undertake nursery bed preparation for sowing of tomato seeds. Apply irrigation to mustard

/ rapeseed at flowering stage. Maintain proper soil moisture in carrot / raddish at vegetative stage. Undertake mulching in cole crops at vegetative stage. Undertake harvesting of ginger and turmeric.

Manipur, Mizoram, Tripura and Nagaland

- In Manipur, carry out thinning operation in *Rabi* maize at vegetative stage. Carry out light hoeing and earthing up operation in potato. Spray Redomil MZ 72 WP @ 2g/ litre of water to control it from Downy mildew, Powdery mildew, white rust and Alternaria in rapeseed crop at vegetative stage on clear day.
- In Mizoram, cover maize crop field surface with legume crops and vegetable crops like pumpkin and cucumber for conserving soil moisture. Provide irrigation at every three days interval. Use straw mulch where irrigation is not possible. Complete harvesting of matured pods of soybean. Undertake harvesting of turmeric.
- In Nagaland, continue harvesting of maize. For blister beetle management in green gram, collect the adults manually or with insect net and kill them in Kerosenized water.

Animal Husbandry

- To protect livestock from sudden drop in temperature, keep animals in shed/ covered area during the night; arrange proper ventilation to avoid respiratory problem due to ammonia gas.

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

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

Advisories:

- As **Thunderstorm accompanied with lightning** very likely at isolated places over Jharkhand on 18th & 19th; **with lightning** at isolated places over Bihar on 17th; 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.
- As **Dense to very dense fog** very likely in isolated pockets over Odisha on 17th and in some pockets over Odisha on 20th & 21st with **Dense fog** in isolated pockets over Odisha on 18th & 19th; over Bihar on 20th & 21st and in some pockets over Bihar on 19th, 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 nursery raising of summer paddy; prepare main field for transplanting three to four week old seedlings. Take up sowing of summer groundnut, maize and sunflower. Continue picking cotton from matured dry bolls. Harvest matured arhar (pigeon pea) crop. Harvest matured sugarcane and crush immediately for better sugar recovery. Carry out hoeing, weeding and fertilizer application in tomato, brinjal, chilli and onion crops followed by irrigation. To control aphids in black gram and green gram crops, spray 60ml Imidacloprid 17.8% SL or 50ml Thiamethoxam 25%WG mixing with 200 litres of water per acre crop area on clear day.

Bihar

- Continue transplanting of *Rabi* onion seedlings. Carry out second weeding in maize at 40-45 DAS. Irrigate wheat crop at regular intervals. Apply NPK soluble @ 1 kg/acre in 200 litres of water for vegetative growth of lentil crop; during initial stage, if lentil leaves turn slightly yellowish and start dying, apply 2-3 doses of Propiconazole @ 1ml/ litre water at 10-15 days interval. For the control of late blight in potato, spray Redomil @ 2g/litre of water. To control aphids in mustard crop, spray of Rogar or Quinalphos @ 2.0 ml/litre water in clear weather.

Jharkhand

- Collect seeds for nursery raising of summer rice; place seeds in wet jute bag for two days for early

germination. Mustard crop is at pod formation stage; go for inter-cultural operations followed by irrigation and after 48 hours, top dressing of urea @ 30-35 kg per acre. Pigeon pea crop is at pod formation stage; attack of insects is common due to variation in temperature; spray Imidacloprid @ 4 ml or Acephate 75 % SP @ 5 g or Quinalphos 25EC @ 20 ml per 10 litres of water on clear day.

West Bengal

- In Sub-Himalayan West Bengal, continue preparing nursery for *Boro* rice; prepare main land for transplanting 25-30 days old seedlings. Mark healthy plots for ginger seed rhizome for next season. Carry out earthing up in potato crop followed by irrigation. Apply light irrigation to mustard crop. Carry out harvesting of matured cole crops. Hand pick leaf eating caterpillars in large cardamom and destroy them.
- In Gangetic West Bengal, maintain proper water level in *Boro* paddy nursery bed; prepare main field for transplanting seedlings. Take up sowing of sunflower. Carry out earthing up in 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 early and late blight in potato crop in clear weather.

Andaman & Nicobar Islands

- Harvest late sown matured rice; keep the stubbles 10-15 cm in field as fodder for grazing animals. Harvest matured vegetables. Apply Trichoderma 2.5 kg mixed with 50 kg FYM to avoid damping off during second sowing of cauliflowers.

Animal Husbandry

- Provide clean drinking water to cattle and keep their sheds clean. Vaccinate animals at regular intervals. Give mineral mixture along with salt regularly and provide wheat grains, jaggery, etc. @ 10-20% in daily ration during winter season to meet the energy requirement of the animals. Keep poultry shed dry and warm. Provide 60 watt electric bulbs in poultry sheds during night as cold weather is likely to continue.

Fishery

- As low temperature is expected to continue, feed intake of fishes is likely to decline. Use 3ml Vitapet oil per kilogram of artificial feed as feed attractant to increase feeding rate.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

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

Advisories:

- As **Cold day conditions** very likely in some pockets over Saurashtra & Kutch on 17th & 18th and over Madhya Maharashtra on 17th; **Cold wave conditions** very likely in some pockets over Saurashtra & Kutch and in isolated pockets over Madhya Maharashtra on 17th & 18th, 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.

Maharashtra

- In Konkan, farmers are advised to undertake inter-cultural operation like weeding and earthing up in groundnut. To control leaf folder in rice, spray Monocrotophos @ 12 ml per 10 litres of water. Apply irrigation to orchards and vegetable crops during evening hours. To control powdery mildew in inflorescence of mango, spray Lambda cyhalothrin 5% EC @ 6 ml + Hexaconazole @ 5 ml in 10 liters of water.
- In Madhya Maharashtra, farmers are advised to undertake land preparation for plantation of sugarcane. Continue land preparation for plantation of suru sugarcane [varieties- CO-86032 (Nira), CO-94012 (Savitri), CO M-0265 (Phule-265)]. Undertake sowing of groundnut (varieties : Phule Unnati,

TAG24, TPG41, JL501). To control pod borer in gram, spray Chlorantriliniprole 18.5 SC @ 2.5 ml per 10 liters of water. To control aphids in safflower, spray Dimethoate 30% EC @ 10 ml in 10 liters of water. To control rust in wheat, spray Mancozeb @ 1.5 kg in 500 liters of water.

- In Marathawada, continue harvesting of matured pigeon pea. To control stem fly in wheat, spray cypermethrin 10 % EC @ 10 ml per 10 liter of water.
- In Vidharbha, continue harvesting of matured pigeon pea. In late sown irrigated wheat (20-25 days old), undertake top dressing of nitrogenous fertilizer @ 40 kg per ha followed by irrigation. Undertake sowing of groundnut with assured irrigation facilities. Complete transplanting of onion seedlings (6-8 weeks old). To control pod borer in late sown pigeon pea, spray 5% neem seed kernel extract. To control sucking pest in mustard, spray Thiamethoxam 25% WG @ 10 g in 10 liters of water.

Gujarat

- In Middle Gujarat, apply irrigation to wheat (CRI stage) crop. There are chances of early blight in the potato crop. To control, spray Propiconazole 25 EC @ 10 ml in 10 litre of water 35 days after planting. Spray next four doses at an interval of 12 days.
- In South Gujarat, continue nursery sowing of summer rice; protect nursery from cold winds by providing fencing on outer side of field or cover the nursery area by 4-5 feet fencing with net; keep standing water 3-5 cm in the nursery. Undertake land preparation for planting of sugarcane. Continue nursery sowing of brinjal and chilli.
- In North Gujarat, continue picking of matured pods of pigeon pea. Undertake harvesting of fruits of vegetables. Apply light irrigation to wheat, potato and castor crops during evening hours. There are chances of blight in the potato crop; to control, spray Mencozeb 0.2% @ 30 gram plus 25 ml of concentrated desi soap solution in 10 litre of water. Spray next three doses at the interval of 10 days.
- In Saurashtra & Kutch, apply light irrigation to wheat crop during evening time. Under present weather condition, spray Hexaconazole @15 ml/10 litres of water to prevent blight and powdery mildew infestation in cumin and coriander crops.

Animal Husbandry:

- Keep the animals indoor at night time for protecting against extreme cold wind. Provide warm drinking water to animals.

CENTRAL INDIA [M.P., CHHATTISGARH]

Realised Rainfall: Rainfall occurred in Balaghat district of Madhya Pradesh and in Bemetara, Bilaspur, Janjgir, Kabirdham, Korba and Mungeli districts of Chhattisgarh. Weather remained dry/mainly dry over rest of the region during the week.

Advisories:

- As **Thunderstorm accompanied with lightning** very likely at isolated places over East Madhya Pradesh and Chhattisgarh on 21st, **with lightning** at isolated places over East Madhya Pradesh and Chhattisgarh on 17th; 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.
- As **Dense to very dense fog** very likely in isolated pockets over West Madhya Pradesh on 17th & 18th and **Dense fog** in isolated pockets over East Madhya Pradesh on 17th & 18th, 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, apply manure and fertilizer in fruit orchards. Take up sowing of Rabi onion after seed treatment with Captan @ 2.5 g/ kg of seeds. Carry out earthing up in potato crop. Monitor mustard plants for aphids; cut and destroy infested plant parts.
- In Kymore Plateau Zone, it is right time to transplant egg plant, tomatoes, chilli, cauliflower, cabbage

seedlings and sow garden pea, spinach, coriander, carrot, radish, garlic vegetables, etc. Apply first irrigation to mustard crop before flowering. Spray recommended insecticide for leaf curler and pod borer in pigeon pea.

- 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 for tuberation. Chick Pea and Pigeon pea is in flowering stage and this is crucial time for incidence of pod borers. Spray Profenophos 50 EC @ 1500ml per hectare in 600-700 litres of water or carry out dusting with Parathion 2% dust @ 25 kg per hectare. .
- In Satpura Plateau Zone, give irrigation to wheat crop at 20 days interval; avoid water logging in wheat field. Carry out roguing in wheat field after ear-head emergence to maintain healthy and pure seed production. Spray Mancozeb @ 2.5 g per litre of water for blight disease in potato crop.
- In Jhabua Hills Zone, apply third irrigation to wheat crop at booting stage (50-55 DAS) and fourth irrigation at head initiation stage (65-70 DAS) so as to maintain sufficient moisture in the field. Irrigate winter vegetable crops. 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 Plain Zone, prepare field and start sowing of maize and sunflower crops. At 50% flowering stage in mango, give irrigation strictly at an interval of 15 days or more. Spray Spinosad @ 150 ml per hectare for control of leaf caterpillar in vegetable crops on clear day. Place pheromone traps @ 20-25 nos. per hectare to control pod borer in chick pea.
- In Northern Hill Zone, wheat crop is at CRI/tillering stage; irrigate rop and apply nitrogen. Prepare field by the first week of February for planting sugarcane. Maintain cleanness in mango orchard, prepare basin around the tree and apply recommended dose of manure and fertilizer. Continue transplanting of onion seedlings. Monitor pigeon pea crop for pod borer infestation; if found above ETL, spray Polytrin C @ 1 litre or Indoxacarb @ 300 ml per hectare on clear day.
- In Bastar Plateau Zone, carry out weeding in wheat crop. Spray Indoxacarb @ 300 g in 500 litres of water per acre for pod borer in pigeon pea crop on clear day.

Animal Husbandry

- For maximum milk production, provide mineral mixture @25-30 grams and 50 gram salt to milch cattle. Calf may become weak and start losing hair due to deficiency of vitamin A; administer vitamin A injection in consultation with veterinarian. Vaccinate cattle against FMD, HS and BQ diseases.

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

Realised Rainfall : Rainfall occurred in Banda district of East Uttar Pradesh and in Bareilly, Bijnor, Moradabad, Rampur and Saharanpur districts of West Uttar Pradesh; in all districts of Himachal Pradesh; in all districts of Jammu & Kashmir except Ladakh, Shopian and Udhampur and in all districts of Uttarakhand.

Advisories:

- As **Heavy rain/snow** very likely at isolated places over Uttarakhand on 17th, avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in crop fields.
- As **Thunderstorm accompanied with hail & lightning** very likely at isolated places over Uttarakhand on 17th; **with lightning** at isolated places over East Uttar Pradesh on 17th, 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.
- As **Cold day conditions** very likely in some pockets over Haryana and Chandigarh on 17th; in isolated

pockets over Uttarakhand, Punjab on 17th & 18th; over Rajasthan on 17th and over Haryana and Chandigarh on 18th, 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 some pockets over Haryana and Chandigarh on 17th & 18th ; over Punjab on 17th, 18th & 19th; over East Uttar Pradesh on 19th and over West Uttar Pradesh on 20th & 21st; in isolated pockets over Delhi on 17th & 18th and **Dense fog** in isolated pockets over Uttarakhand, Uttar Pradesh and West Rajasthan on 17th & 18th; and over Punjab, Haryana, Chandigarh and East Uttar Pradesh on 20th and 21st and in some pockets over West Uttar Pradesh on 19th, 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.

Jammu & Kashmir

- In Sub-Tropical Zone, postpone irrigation at branching and pod formation stage in gram. Spray Mancozeb @ 0.25% during clear weather, if attack of alternaria blight is observed on mustard. Monitor gram crop for wilt and blight attack; if observed, apply Bavistin or Carbendazim @ 3gm/litre of water during clear weather.
- In Cold Arid Zone, undertake sanitation of orchards with removal and destruction of infested shoots and fruits. To expose spores to harsh cold, keep open the cover of greenhouse in which no vegetables are grown.
- In Valley Temperate Zone, ensure field sanitation and proper drainage of excess moisture in saffron fields. Remove snow from polyhouses and poly tunnels and provide adequate drainage in all vegetable crops. Drain out excess water from orchards by making drainage channels. If trees have tilted, reduce snow load; support plants.
- In Intermediate Zone, weather conditions are favourable for 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.

Himachal Pradesh

- In High Hill Temperate Dry Zone, remove and destroy disease-stricken apple branches. While making apple beds, add cow's compost, superphosphate and muriate of potash.
- In Mid Hills Sub-Humid Zone, carry out thinning and weeding operation in timely sown mustard crop. Carry out weeding and hoeing operations in all crops and vegetables for optimum growth. Carry out earthing-up operation in potato if crop has attained a height of 15-22 cm. Use pheromone traps @ 3-4/acre to monitor borer insect in vegetables like brinjal, cauliflower, cabbage, tomato etc. To control fruit borer, spray Spinosad 1 ml/4 litres of water in clear weather.

Punjab, Haryana and New Delhi

- In Western Zone of Punjab, considering 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. Complete transplanting of 6-8 weeks old seedlings of onion; apply 20 tonnes well rotten farmyard manure together with 45 kg of urea, 125 kg single superphosphate and 35 kg muriate of potash per acre before transplanting.
- In Western Plain Zone of Punjab, monitor wheat crop for yellowing of leaves due to manganese deficiency; if noticed, spray the crop with Manganese sulphate and if symptoms of sulphur deficiency are noticed, broadcast one quintal gypsum/acre followed by light irrigation or, if the soil is having proper moisture, mix it by hoeing.

- In Undulating Zone of Punjab, remove excess water from the field of wheat, lentil, bengal gram and vegetable crops.
- In Western Plain Zone of Punjab and Undulating Zone of Punjab, regularly monitor potato crop; if symptoms of late blight are observed, spray Indofil M45/Mass M45/Markzeb/Kavach @ 500-750g using 250-350 liters of water per acre at 7 days interval in clear weather conditions.
- In Western Zone of Haryana, if symptoms of termite appear in wheat apply mixture of 20 kg sand with Chlorpyrifos 20 EC @ 2.0 liter/acre in evening hours. In present weather condition, monitor mustard crop against aphid, in early stage cut and destroy the infested part of the plant. For monitoring of the pod borer in the gram crop, install pheromone trap @ 3-4 traps per acre, if flowering has reached 10-15%. For controlling insect population install “T” shaped bird perches in and around crop field.
- In Delhi, continue sowing of late maturing varieties of wheat. Avoid irrigation or spraying in standing crops and vegetables. Continue transplanting of onion, tomato, cauliflower, cabbage, knolkhol and broccoli crops in raised bed. Monitor pod borer in the gram crop; install pheromone traps @ 3-4 traps per acre; if flowering has reached 10-15%, install “T” shaped bird perches in and around crop field for controlling insect population.

Uttar Pradesh

In East Uttar Pradesh, give remaining dose of Nitrogen i.e 40kg N₂/ha or 88kg Urea/ha to wheat crop. Undertake transplanting of Rabi onion. Undertake weeding in Maize after 40-45 days of sowing. In Tomato crop sown last month, apply 40kg Nitrogen/ha per hectare (88kg urea/ha); in hybrid varieties apply first top dressing of Nitrogen @ 55-60kg/ha (120-130kg/ha Urea) after 20-25 days of sowing. Give second & last dose of urea to garlic crop @ 74kg/ha after 60 days or sowing.

- In West Uttar Pradesh, keeping in view of the weather conditions, postpone irrigation /top dressing of urea to wheat crop. Provide proper drainage in fields of Mustard, Bengal Gram, Field Pea, Chick Pea, and Potato crops. Transplant onion seedlings and irrigate immediately after transplanting in case of no rain.

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. When lower leaves of pea turn yellow and plants tend to dry, irrigate roots of pea crop with solution of Carbendazim @ 1 g/ litre of water. Apply mulch after weeding and hoeing operations in the seed crop of cabbage and cauliflower. To control the leaf spot disease in mustard, spray solution of Mancozeb @ 2.5 g/litre of water on clear day.

Rajasthan

- In Semi Arid Eastern Plain Zone, this is the suitable time for raising nursery for summer tomato. Gram and late pea under irrigated conditions are prone to attack of pod borer; after pod initiation, spray Malathion 50 EC @ 1.25ml 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, install Pheromone traps @ 3-4 traps per acre for monitoring of pod borer in gram crop; install “T” shaped bird perches in and around crop field for controlling insect population.
- In Arid Western Plain Zone, weather is congenial for termite in wheat crop; spray Chlorpyrifos 20 EC @ 4 litres per hectare with irrigation.

Animal Husbandry

- Keep animal yard dry & warm. Keep animals warm by providing dry sack or hay. Provide sufficient light to keep chicks warm.

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