



National Agromet Advisory Service Bulletin

Friday 11th January 2019
(For the period 11th to 16th January 2019)



Issued by
India Meteorological Department

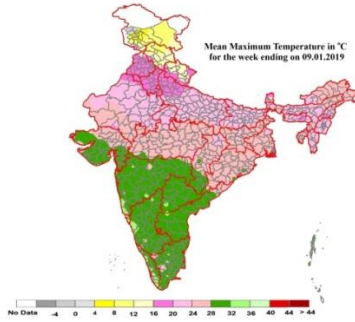
Weblink For

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

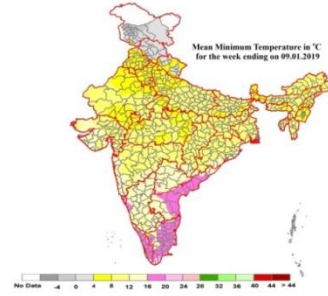
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Spatial distribution of weather parameters for the week ending on 09.01.2019

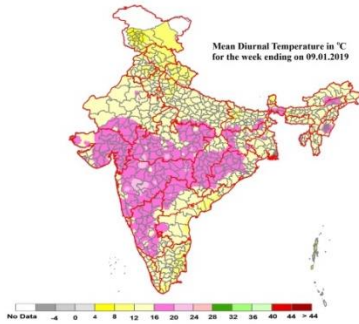
Mean Maximum Temperature (°C) for the week ending on 09.01.2019



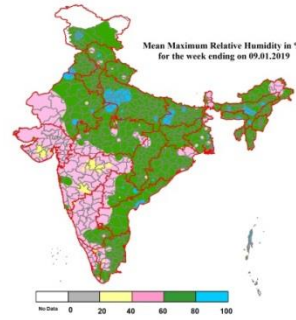
Mean Minimum Temperature (°C) for the week ending on 09.01.2019



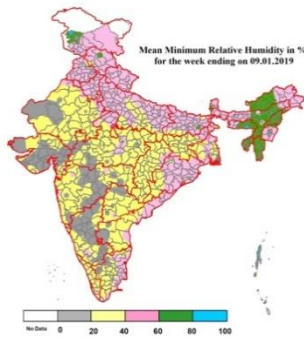
Mean Diurnal Temperature Variation (°C) for the week ending on 09.01.2019



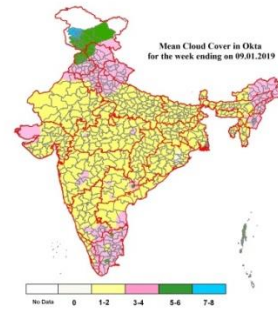
Mean Maximum Relative Humidity (%) for the week ending on 09.01.2019



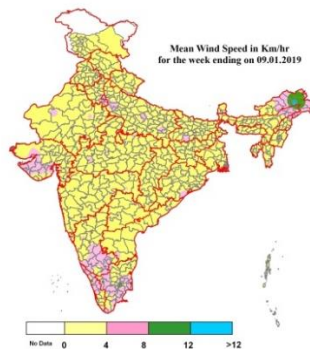
Mean Minimum Relative Humidity (%) for the week ending on 09.01.2019



Mean Cloud Cover (okta) for the week ending on 09.01.2019



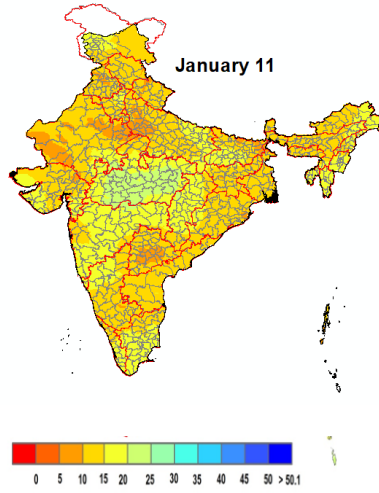
Mean Wind Speed (km/hr) for the week ending on 09.01.2019



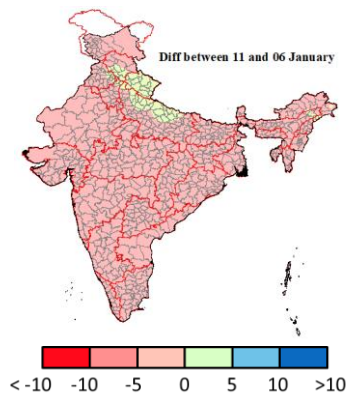
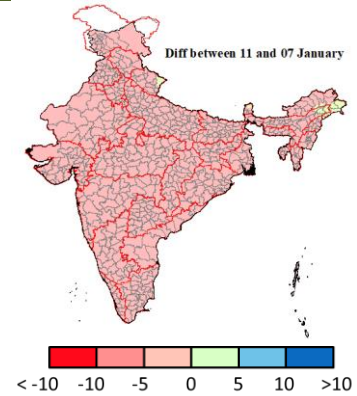
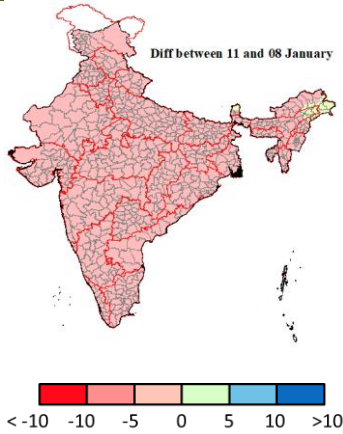
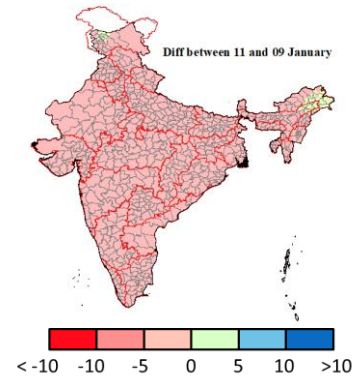
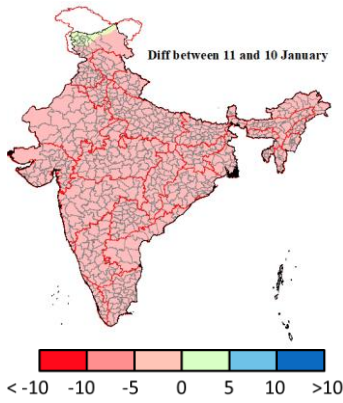
NOAA/VIIRS BLENDED NDVI composite for the week number 01 (31.12.2018 to 06.01.2019) over Agricultural regions of India	Difference in NOAA/VIIRS/BLENDED NDVI between week number 01 of 2019 and 52 of 2018
<p>NOAA/VIIRS/BLENDED NDVI Composite ending on Week no 01 (31 Dec 2018- 06 Jan 2019) over Agricultural region</p> <p>Legend:</p> <ul style="list-style-type: none"> 0999 - 0 0 - 0.05 0.05 - 0.1 0.1 - 0.15 0.15 - 0.2 0.2 - 0.25 0.25 - 0.3 0.3 - 0.35 0.35 - 0.4 0.4 - 0.45 0.45 - 0.5 0.5 - 0.55 0.55 - 0.6 > 0.6 <p>Bare soil, rocks clouds, rain, snow, etc.</p> <p>Moderate</p> <p>Good</p> <p>Very good</p>	<p>Difference in NOAA/VIIRS/BLENDED NDVI between Week no 01 of 2019 and 52 of 2018</p> <p>Legend:</p> <ul style="list-style-type: none"> Decrease No change 0 - 0.1 Moderate 0.1 - 0.2 Good > 0.2 Very Good
<ul style="list-style-type: none"> Agriculture vigour is good at a few places over West Madhya Pradesh, East Rajasthan & Tamilnadu and at isolated places over Coastal Andhra Pradesh, North Chhattisgarh, North Gujarat, Coastal and North Interior Karnataka and Southern part of Kerala. It is moderate over rest of the country. 	<ul style="list-style-type: none"> Moderate difference in agricultural vigour was noticed at most places over Maharashtra, Interior Karnataka; many places over Telangana, Tamilnadu, East Rajasthan, Andhra Pradesh and Chhattisgarh and few to isolated over remaining parts of the country.

<p align="center">Standardised Precipitation Index Cumulative 4 weeks for the period 13th December 2018 to 9th January 2019</p>	
<p>MINISTRY OF EARTH SCIENCES INDIA METEOROLOGICAL DEPARTMENT HYDROMET SECTION, PUNE</p> <p>STANDARDIZED PRECIPITATION INDEX CUMULATIVE 04 WEEKS FOR THE PERIOD 13 DEC 2018 TO 09 JAN 2019</p> <p>SPI VALUES</p> <ul style="list-style-type: none"> 1.60 OR MORE EXTREMELY WET 1.50 TO 1.59 SEVERELY WET 1.40 TO 1.49 MODERATELY WET 1.30 TO 1.39 MILDLY WET 1.20 TO 1.29 MILDLY DRY 1.10 TO 1.19 MODERATELY DRY 1.00 TO 1.09 SEVERELY DRY 0.90 OR LESS EXTREMELY DRY NO DATA 	
<ul style="list-style-type: none"> Extremely/severely wet conditions experienced in many districts of Odisha; Chhattisgarh; Andhra Pradesh; few districts of Jharkhand; Telangana; South Andaman, North & Middle Andaman districts of Andaman & Nicobar Islands; N. C. Hills, Sibsagar, Karbi Anglong districts of Assam; Dhalai district of Tripura; Purulia district of West Bengal; Kaithal district of Haryana; Mumbai Suburban district of Konkan & Goa; Dakshin Kannada, Gulbarga districts of Karnataka; Kozhikode, Malappuram districts of Kerala. Extremely/Severely dry conditions experienced in East Kameng district of Arunachal Pradesh; Rajouri district of Jammu & Kashmir. Moderately dry conditions experienced in many districts of Uttarakhand; few districts of Himachal Pradesh; Bijnor, Bulandshahar, Muzaffarnagar, Saharanpur districts of Uttar Pradesh; Yamuna Nagar district of Haryana; Hoshiarpur, Ropar districts of Punjab; Dindigul, Kanyakumari, Trichy, Toothukudi, Vellore districts of Tamil Nadu & Puducherry. Rest of the country experienced moderately wet/mildly dry/mildly wet conditions. 	

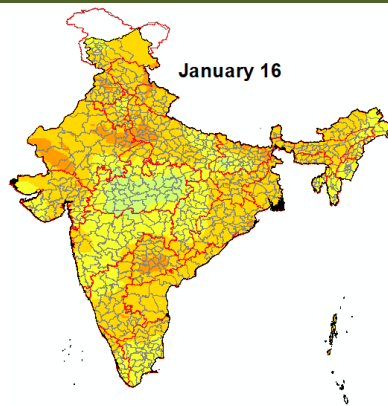
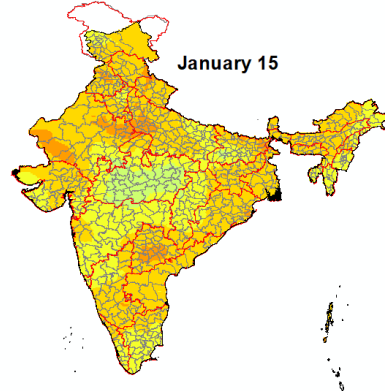
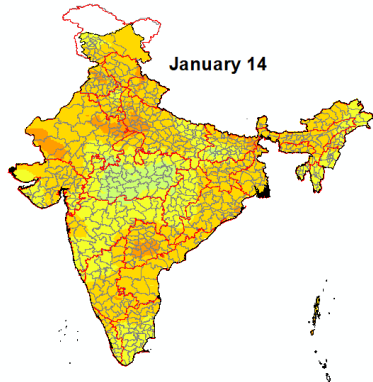
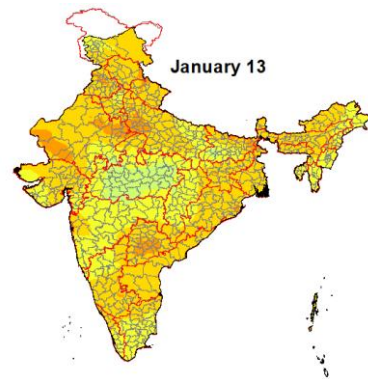
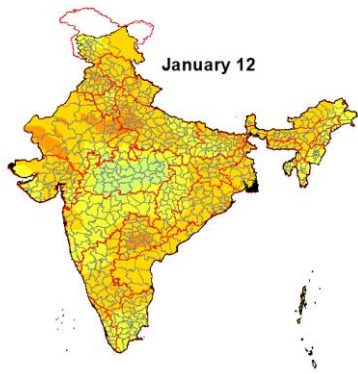
Daily Soil Moisture (mm) for 11th January 2019 (ending at 0830 IST) for 60 cm depth



Difference of Soil Moisture (mm) for 60 cm depth



**Forecasted Soil Moisture (mm) from 12th to 16th January 2019 (ending at 0830 IST)
for 60 cm depth**



Weather Forecast for next 5 days valid upto 0830 hours of 16th January 2019

- Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table below.
- Shallow to moderate fog very likely at isolated places in morning hours over plains of northwest India during next 2 days and over northeast India during next 3-4 days.
- Night minimum temperatures are likely to rise by 2-3°C during next 2 days over northwest & central India. Subsequent to the passage of western disturbance they are likely to fall by 2-3°C over Northwest and western India from 14th morning.

5 Day Rainfall Forecast (Mid-day) 11th January 2019

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

% Station Reporting Rainfall

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

Weather Warning during next 5 days

- **11 January (Day 1):** Dense fog at isolated places in the morning hours very likely over West Uttar Pradesh and Assam & Meghalaya.
- **12 January (Day 2):** Heavy Rain/Snow at isolated places very likely over Jammu & Kashmir and Himachal Pradesh. Dense fog at isolated places in the morning hours very likely over Punjab, Haryana, Chandigarh and

north Rajasthan.

- **13 January (Day 3):** Dense fog at isolated places in the morning hours very likely over Punjab, Haryana, Chandigarh & Delhi, north Rajasthan and West Uttar Pradesh.
- **14 January (Day 4):** No Weather Warning.
- **15 January (Day 5):** No Weather Warning.

Weather Outlook for subsequent 2 days from 16th to 18th January 2019

- Isolated to scattered rain/snow likely over Western Himalayan region.
- Isolated rainfall is likely over Northeast India, Andaman & Nicobar Islands and southern most parts of peninsular India.
- Dry weather likely over the rest of the country.

Salient Advisories

- As dense fog at isolated places in the morning hours very likely over **Assam & Meghalaya** on 11th, over **West Uttar Pradesh** on 11th and 13th, over **Punjab, Haryana, Chandigarh** and **north Rajasthan** on 12th and 13th January, monitor the standing crops for incidence and spread of pest and diseases, potato, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.
- As rain/snow likely at most places over **Jammu & Kashmir** on 11th and 12th, over **Uttarakhand** on 12th, at most/many places over **Himachal Pradesh** on 11th and 12th, along with heavy rain/snow at isolated places very likely over Jammu & Kashmir and Himachal Pradesh on 12th January, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in crop fields in Jammu & Kashmir and Himachal Pradesh.
- In **West Madhya Pradesh**, in view of the prevailing low temperature, apply light irrigation in vegetables, garlic, gram and mustard.
- The foggy weather condition is congenial for occurrence of the blight disease in potato and tomato in **Assam & Meghalaya**. To control the disease spraying with Mancozeb 75% (Indofil M 45/ Dithane M 45) @ 2.5g/litre of water close to the crop canopy at an interval of 7-10 days is advised.
- In **Haryana**, due to high humidity and foggy weather, there may be increase in the infestation of white rust and Alternaria blight in the mustard crop, spray Mancozeb (Dithane or Indophil M-45) @ 600 gram mixed in 250 to 350 litre water per acre on a non rainy day.

Detailed Agromet Advisories

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

- **Realised Rainfall:** Weather remained dry over the region during the week.
- **Advisories:**
 - **Kerala:**
 - In pepper gardens, inter cultural operations can be done without causing injury to the plants. Manuring of pepper vines may be done in basins taken around the plant, 10-15 cm deep and 30-40 cm radius, depending upon the growth of the plants. Provide enough sunlight on the vines by pruning shade trees. Spray pseudomonas 10-15 g/litre of water.
 - Adopt phyto-sanitary measures in the banana fields. Remove all the diseased and rotten leaves. Suckers removed after harvesting should be stored after cleaning. To improve the disease resistance, drench the basin with Pseudomonas @ 20g per litre of water. Apply lime 0.5 kg/pit 10-15days before planting Spray Sampoorana KAU multi mix @ 10g/L in areas where micronutrient availability is low (banana at 2 month stage). Apply fertilizers @ 250g Urea, 285g Rock phosphate, 350g Potash, 500 g MgSO₄ and 2 kg lime per plant.

- In Northern Zone, there are chances of attack of brown plant hopper in rice, apply Thiomethoxam @ 2g per 10 L or Spraying Buprofezin @ 1.75 ml per 1 L to reduce the infestation. Also chances of Pseudostem weevil in banana, remove the affected parts and burn it using kerosene. Apply Quinalphos @ 0.05% or Chlorpyrifos 0.03% on the affected plants
- In Southern Zone, weather conditions expected may lead to white pipe in banana, apply Lime and Borax 20-50 g per pit.
 - **Andhra Pradesh:**
 - In Coastal Andhra Pradesh, weather is congenial for incidence of Powdery mildew on Pulses (blackgram and greengram). Spray wettable sulphur @ 3 g / Hexaconazole @ 2 ml per litre of water or Carbendazim @ 200 gm or Thiophanate Methyl @ 200 gm per acre twice at 10 days interval.
 - In Rayalaseema, weather is congenial for incidence of sucking pest in groundnut. Spray Monochrotophos @ 1.6 ml or Imidacloprid @ 0.3ml or Dimethoate @ 2 ml per litre of water
 - **Telangana:**
 - Prevailing low temperatures may cause cold injury in rice nurseries in the state. To overcome cold injury and for better nursery growth, cover the nursery beds with polythene sheet during night and remove in the morning, irrigate the nursery bed every day in the evening and let out the water in the morning, apply 2 kg urea for 200 m² of nursery area at 10-15 days after sowing and apply Carbofuran 3G @ 1 kg/200 sq.m (5 cents) to rice nurseries one week before pulling nursery
 - In Telangana weather is congenial for incidence of Maruca and Helicoverpa on Redgram. To control, Maruca - Spray Chlorpyrifos @ 2.5 ml or Novaluron @ 0.75 ml along with Dichlorvos @ 1.0 ml per litre of water. If Helicoverpa is noticed, arrange 10-15 bird perches per acre to facilitate picking up of larvae or arrange 4 pheromone traps per acre to monitor the pest or spray 5 % NSKE to kill the eggs and early instar larvae.
 - **Tamil Nadu:**
 - In Cauvery Delta Zone, in *Samba* paddy fields, this is the right time to sow the rice fallow pulses under waxy condition. For minimizing the incidence of sucking pests, treat the seeds with Imidachloprid 70 WS @ 2 ml/kg of seeds.
 - In Western Zone, both maximum and minimum temperatures are favorable for spread of blast and bacterial leaf diseases in rice, spray *Pseudomonas fluorescens* (P 11) formulation @ 0.2 % (1 kg dissolved in 500 lit of water for 1 ha.) or spray Carbendazim WP 0.5 g/litre of water. Avoid application of Nitrogen.
 - In High Rainfall Zone, weather conditions are favourable for increase in the severity of incidence of rice stem borer and leaf folder in rice, spray Chlorantriliprole 0.3 ml/litre or Flubendiamide 0.1ml/litre.
 - In South Zone, weather is conducive for the incidence of thrips in chilly, the affected plants show symptoms of crinkling and upward curling of leaves and elongation of petiole, spray Imidachloprid 17.8 % SL @ 3 ml/10 l of water (or) Dimethoate 30 % EC @ 1.0 ml/litre.
 - **Karnataka:**
 - In South Interior Karnataka, undertake nursery preparation for summer rice crop and planting of sugarcane. Undertake harvesting of matured red gram crop. Clear the weeds in mango, guava and sapota orchards and put it under the basin as mulch. Continue harvesting of matured ragi, arecanut, pepper, ginger and turmeric crops.
 - In North Interior Karnataka, provide protective irrigation to wheat, sugarcane, pigeon pea, groundnut Bengal gram crops and apply irrigation in mango at fruit setting stage. Continue picking of matured cotton bolls and harvesting of rice crop.
 - In North Interior Karnataka, spray Emamectin Benzoate 5 SG @ 0.2 g and Spinosad 45 SL @ 0.3 ml/1 litre of water wherever fall armyworm in sorghum and maize crops is noticed.
 - **Animal Husbandry**
 - In Karnataka, maintain the optimum room temperature in sericulture, poultry and dairy unit by providing electric bulb. Ensure proper cross ventilation to avoid Ammonia accumulation in poultry.

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

- **Realised Rainfall:** Weather remained mainly dry/dry over the region during the week.
- **Advisories:**
 - As dense fog at isolated places in the morning hours very likely over Assam & Meghalaya on 11th January, monitor the standing crops for incidence and spread of pest and diseases, potato, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.
 - **Arunachal Pradesh:**
 - There is chance of attack of white rust/downy mildew disease in mustard at flowering/pod formation stage. Spray Bavistin @ 1 gm per litre of water. In present weather condition there is high probability of attack of late blight in potato. Spray Mancozeb @ 2 g/4 litres of water.
 - **Assam:**
 - Continue transplanting of the *Boro* rice seedlings in the main field, which have attained 5-6 leaf stage. Gap

filling may be done within 7 to 10 days after transplanting. Farmers are advised to keep 5 cm standing water in the rice field and regular inspection the bunds to minimize the loss of irrigated water through seepage. Continue sowing of okra.

- Due to low temperature, there is chance of attack of saw fly and aphid in the field of rapeseed–mustard at vegetative stage. Spray Chloropyrifos 20 EC or Dimethoate 30 EC or Ragor @ 2 ml per litre of water. The weather is found congenial for occurrence of the blight disease in potato and tomato. To control this disease spray Mancozeb 75% (Indofil M 45/ Dithane M 45) @ 2.5g/litre at canopy closure at an interval of 7-10 days.
- In Hill Zone of Assam, in view of falling both maximum and minimum temperature, farmers are advised for light irrigation at evening time to protect the crop from probable frost.
- **Meghalaya:**
- Continue nursery raising of tomato and capsicum. Maintain proper soil moisture in the field of cole crops (cabbage, cauliflower, broccoli) by irrigation.
- **Manipur:**
- Complete sowing of *rabi* maize.
- Spray Mencozeb at 7-10 days interval against early blight in potato. Also apply Dichlorovos @ 0.5ml/litre of water or Imidachlorpid @ 2ml/5 litres of water or Dithane M 45 @ 2g/litre of water against early blight in tomato. Spray Pyrethrum @ 2ml/litre of water against aphids attack in rapseed/mustard at vegetative to early flowering stage on the infected patches. For organic control against aphid, sprays that consist of Azadirachtin, neem oil or Pyrethrin may be used.
- **Mizoram:**
- Continue harvesting of pulses.
- **Tripura:**
- Continue nursery sowing of *Boro* rice. Undertake main field preparation & transplanting of *Boro* rice.
- **Nagaland:**
- Daily monitoring should be done for pest and disease infestation in toria/mustard at flowering stage. Undertake timely harvesting of *rabi* maize. Constant monitoring of leaf feeders in cole crop is advised.
- **Animal Husbandry**
- In Central Bramhaputra Valley Zone of Assam, in winter protect poultry birds from cold by using electric bulb (300Watt for 100 sq.feet) to prevent Coryza disease. In case of lacrimation and swelling of the head, treat the fowl with Sulphur drugs.
- In North Eastern States, to protect poultry birds from cold winds, gunny bags or plastic sheath curtains should be installed on the side walls of shed house and bedding material (litter) should be increased by six inches. Care should be taken not to restrict ventilation. Undertake vaccination against ranikhet disease in poultry during this period.

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

- **Realised Rainfall:** Rainfall occurred in all districts of Andaman & Nicobar Islands during the week. Weather remained dry over rest of the region.
- **Advisories:**
 - **Odisha:**
 - Paddy crop is at sowing to two week stage in nursery. Provide frequent light irrigation in nursery to avoid low temperature injury to seedlings. Complete the transplanting of summer paddy in January for better yield. Cotton crop is at boll maturity to boll bursting (twenty six to twenty eight week) stage. Pick out cotton from matured bursted bolls and dry the produce under sun properly. Arhar crop is at seed maturity to harvesting (twenty four to twenty five week) stage. Carry on harvesting the matured pods. Dry the harvested seeds under sun for 3-4 days. Complete the transplanting of 8-10 week old onion seedlings. Carry out thinning of mustard crop.
 - Leaf eating caterpillar and fruit borer may infest gram, cabbage, cauliflower and tomato crops. Spray Fipronil 5% SL 400 ml in 200 litres of water per acre crop. Spray Sulfex @ 4g/litre of water to control powdery mildew in blackgram. In present weather condition, fruit borer, leaf eating caterpillar and leaf miner are major pest observed in the tomato field. To control these pests, spray Spinosad 45SC @ 80ml/acre with 200 litres of water.
 - **Bihar:**
 - For better yield in gram crop, carry out pruning of upper parts of the plant @ 30 to 40 days (before flowering). Give first irrigation to lentil crop. Remove weeds from field of wheat crop which is in 30-35 days stage. Give 2nd irrigation to wheat crop at 40-45 days stage and apply 30kg nitrogen per hectare after irrigation. Provide light irrigation to vegetable crops such as cauliflower, cabbage, tomato, pea, chilli, brinjal etc as per status of soil moisture. Transplant 50-55 days old onion seedlings in small beds.
 - For control of hairy caterpillar in mustard crop, use 5% Mailathon dust 20-25kg/ha at morning and for

controlling of aphids apply Imidacloprid @ 0.5 ml/litre of water. Monitor onion crop against infection of purple blotch and apply need based spraying of Diethane M -45 @ 3 g per litre of water with sticky material (Tipol 1.0 g/litre). Wrap plastic sheets around mango trunk for preventing climbing of young mealy bugs. Apply grease to seal any cracks in the polythene sheets.

▪ **Jharkhand:**

- Raise nursery of summer rice and cultivate summer maize. Carry out transplanting of onion. After weeding, apply irrigation in 40 - 45 (timely sown) and 22 - 25 (late sown) days old wheat crops and broadcast urea @ 22 kg per acre. Sow the seeds of cucurbitaceous plants in polythene filled with soil and FYM and keep it at warmer place. Before sowing, seeds may be soaked in water for 24 hours. Irrigate potato field at an interval of 7-10 days. For better yield in gram crop, carry out pruning of upper parts of the plant @ 30 to 40 days (before flowering). Harvest the timely sown rapeseed crop when siliqua turns into bright yellow colour. Sun-dry the harvested crop for 2-3 days before threshing.
- Spray Dematon (Rogor) @ 1 ml per litre of water to control the aphid in rapeseed and mustard crops. It is the time of bearing flowers in Mango and Litchi plants. To keep the plants healthy, spray insecticide Monocrotophos 36 EC @ 2 ml. per litre of water alongwith fungicide Bavistin @ 1 gm per litre of water. For vigorous flowering & fruiting, PGR Miraculan may be mixed in the solution @ 1 ml per litre of solution.

▪ **West Bengal:**

- In Sub-Himalayan West Bengal, provide irrigation to mustard, garden pea, cole crops and potato. Complete the harvesting of Mandarin orange fruits and carry out pruning of dry and overcrowded branches. Carry out harvesting of ginger and turmeric. Continue sowing of cruciferous vegetables after seed treatment with Captan 50 WP @ 3g per kilo seeds. If rotting of seedlings is observed, apply fungicide Copper-oxchloride @ 3g/litre of water. As night temperature is low, apply water to the paddy nursery at evening and drain it out in the morning.
- In Gangetic West Bengal, apply compound fertilizer for quick growth of boro paddy seedlings. Stir the fog over the Boro paddy seed bed to disperse it. Prepare main field for transplanting 35 days old paddy seedlings. Apply splash irrigation to potato crop at 3-4 days interval up to 2-3 days before 1st earthing up. Carry out thinning in mustard crop and maintain plant spacing at 12-15 cm. Give light irrigation to wheat and potato crops. Irrigate mustard crop at the time of flowering. Irrigate mango orchards.
- In Sub-Himalayan West Bengal, for management of winter vegetable pest at early vegetative stage, spray Chlorpyrifos 50% + Cypermethin 5% @ 1.5 ml/liter of water. For management of potato insect/pests, spray Neem oil 1% @ 3ml + Sandovit @ 0.5ml per litre of water at evening hours at 7 days interval. As temperature is low, spray Carbendazim 50% @ 2g/litre of water as protective measure in lentil crop. For management of mustard aphids, spray Dinoteforun 20% S G @ 0.5g/litre of water.
- In Gangetic West Bengal, spray Acephate-75% Wettable Powder @ 0.75g/litre of water for mites and thrips in potato. Low temperature favours yellow rust disease in wheat crop. To control, spray Mancozeb 75 Wettable Powder @ 2ml/litre of water.

▪ **Andaman & Nicobar Islands:**

- In Andaman Islands, harvest the lodged/fallen paddy C 14-8 immediately to avoid losses. Do earthing up and provide support to the fruiting tomato and chilli, to minimize the losses occurred due to the cyclone "PABUK". Do strengthen the loosen roots zone of fruit bearing brinjal plants otherwise it may cause damage to the plants.
- In Nicobar Islands, provide support to dumsticks tree those affected by cyclone "PABUK".

• **Animal Husbandry**

- In Bihar, falling trend of temperatures may adversely affect the milk production of milch animals. Farmers are advised to give protein enriched diets to the animals. Keep Animals in warm places at night.
- In Odisha, cover the animal shed to protect from cold. Provide sufficient clean drinking water to animals. Provide vaccination at regular interval.
- In Jharkhand, take preventive measures to control FMD and vaccinate animals twice in a year. Protect cattle against cold waves and keep their place warm. Provide light bulbs or hot air blowers in the poultry shed to maintain temperature during winter.
- In West Bengal, It is very important to protect livestock from chilling cold. Cover animals with gunny bags and provide lukewarm water for drinking. Apply only dry food for feeding poultry birds. Provide electric bulb for new born chicks. Keep the cage dry and warm. In Andaman & Nicobar Islands, vaccinate the poultry birds in consultation with veterinary doctors.

• **Fisheries**

- In Odisha, provide feed @ 2-3 % of body mass of fish. Go for false netting to get good growth of fish. To correct acidity, apply 100 kg lime and Cifax 400 ml per acre meter of water. Pisciculture farm ponds should be regularly cleaned. Reduce the amount of food for fishes and provide it between 2-3PM.
- In West Bengal, apply less amount of floating food. Clear the surroundings for direct sunlight. Stir the fishes with net once a week. Apply 8-10 kg lime mixed with water per bigha pond area.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Weather remained dry over the region during the week.
- **Advisories:**
 - **Maharashtra:**
 - In South Konkan, maintain water level 5 cm in *rabi* rice. In North Konkan, apply irrigation to rice nursery and groundnut.
 - In Madhya Maharashtra, complete picking of cotton. Apply irrigation to standing crops like gram and wheat, orchards and vegetables during evening hours. Apply irrigation in wheat and orchards. Apply irrigation to 90 to 95 days old sorghum. To minimize water stress in gram, spray 2 % Urea or Potassium nitrate. Undertake land preparation for planting of *suru* sugarcane. Set treatment should be done before planting. Undertake sowing of *summer* groundnut between 15th Jan to 15th Feb.
 - In Marathwada, undertake land preparation for planting of sugarcane. Continue harvesting and threshing of matured pigeon pea. Apply irrigation to safflower as per availability of water through sprinkler irrigation system.
 - In West Vidarbha, undertake sowing of groundnut with assured irrigation facilities. Continue picking of cotton. Continue harvesting of matured pigeon pea. In East Vidarbha, continue transplanting of 22-25 days old *summer* rice seedlings. Apply irrigation to standing crops like mustard and wheat.
 - In Konkan, to control leaf folder in rice crop, spray Monocrotophos @ 12 ml per 10 litres of water.
 - In Vidarbha, to control sap sucking pests in mustard, spray Diamethoate 30EC @ 10 ml or Malathion 50 EC @ 10 ml per 10 litres of water.
 - **Gujarat:**
 - In Middle and South Gujarat, carry out the hand weeding in onion and garlic crops.
 - In South Gujarat, undertake nursery sowing of summer rice, planting of sugarcane crop and sowing of cucumber crop.
 - In South Saurashtra, apply irrigation to the wheat (booting stage), garlic and in chick pea (pod formation stage) crops. Undertake harvesting of pigeon pea and picking of matured clusters of castor.
 - In North Gujarat, under cold and dry weather condition, apply light irrigation in wheat (at CRI stage), castor and fennel crops. Carry out the intercultural operations in cumin, potato, castor, mustard, amaranth and fennel crops. Continue picking of matured cotton bolls.
 - In Middle and North Gujarat, there are chances of blight disease in the potato crop. To control this disease spray Mencozeb 0.2% @ 30 g + 25 ml of concentrated desi soap solution in 10 litre of water. Spray next three doses at an interval of 10 days.
 - In Saurashtra & Kutch, under present weather condition, spray Hexaconazole @ 15 ml/10 liters of water to prevent blight and powdery mildew infestation in cumin and coriander crops.
- **Animal Husbandry**
 - In Gujarat, protect the animals from cold wind; keep them inside the shed at night time. Provide adlib warm water to lactating animals. In poultry, keep the chicks warm by providing artificial light in the poultry sheds and use curtain at the windows. Give balanced feed to the poultry birds. Make clean poultry sheds for better health of poultry birds.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Weather remained dry over the region during the week.
- **Advisories:**
 - **Madhya Pradesh:**
 - In East Madhya Pradesh, apply irrigation in gram and mustard. Apply 2nd irrigation in wheat and undertake application of remaining dose of nitrogenous fertilizer. Continue transplanting of onion. Continue earthing up and application of nitrogenous fertilizer followed by irrigation in potato. In view of low temperature, apply light irrigation in vegetables and undertake mulching in orchards. Continue harvesting of matured pods of green pea.
 - In West Madhya Pradesh, in view of low temperature, apply light irrigation in vegetables, garlic, gram and mustard. Apply 1st irrigation at CRI stage in late sown wheat and 2nd irrigation in normal sown wheat. Continue harvesting of matured pods of green pea. In Jhabua Hill Zone, undertake harvesting of green chilli, okra, beans, cucurbits and fenugreek.
 - In Satpura Plateau Zone, to control late and early blight in potato, spray Mencozeb @ 2.5g/litre of water.
 - In Jhabua Hill Zone, to control attack of sucking pest in mustard, spray Thiamethoxam or Acetamiprid @ 0.35-0.45 g/litre of water.
 - **Chhattisgarh:**
 - Continue transplanting of onion. Continue intercultural operations in transplanted vegetables and apply nitrogenous fertilizers. Continue seedling preparation of cucurbits in polythene bags. Apply 2nd irrigation in

wheat and undertake weeding. Under condition of current low temperature, apply light irrigation in vegetable crops such as cauliflower, cabbage, tomato, pea, chilli, brinjal etc. as per soil moisture condition. Apply irrigation in potato at an interval of 7-10 days. Undertake field preparation for planting of sugarcane.

- In Bastar Plateau Zone, continue field preparation for planting of *rabi* colocasia and bunda. Apply irrigation in wheat.
- In North Hill Zone, there are chances of fungi borne blight disease in potato. Spray Mencozeb @ 2g/litre of water.
- In Bastar Plateau Zone, apply NSKE @ 50 ml/litre of water to control *Spodoptera* larva in cauliflower and cabbage.
- **Animal Husbandry**
- In Madhya Pradesh, newly borne calves should be protected from cold. For this floor should be covered with paddy straw litter which provides a thermal mulch. All milk animals should be kept in specially protected and safe cattle sheds during night. Provide 4-5 hours light in poultry houses during night.
- In Chhattisgarh, due to decrease in temperature and its possible adverse effects, dairy farmers are advised to keep the animals in the cattle shed with concrete/brick roof. Give protein enriched diet to the animals. In poultry house hang gunny bags to protect the birds from cold.

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

- **Realised Rainfall:** Rainfall/snow occurred in Kinnaur, Kullu and Lahaul & Spiti districts of Himachal Pradesh, Badgaon, Bandipore, Baramulla, Doda, Ganderbal, Kulgam, Kupwara, Ramban and Srinagar districts of Jammu & Kashmir during the week. Weather remained mainly dry/dry over the region.
- **Advisories:**
 - As rain/snow likely at most places over Jammu & Kashmir on 11th and 12th, over Uttarakhand on 12th, at most/many places over Himachal Pradesh on 11th and 12th, along with heavy rain/snow at isolated places very likely over Jammu & Kashmir and Himachal Pradesh on 12th January, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - As dense fog at isolated places in the morning hours very likely over West Uttar Pradesh on 11th and 13th, over Punjab, Haryana, Chandigarh and north Rajasthan on 12th and 13th January, monitor the standing crops for incidence and spread of pest and diseases, potato, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.
 - **Jammu & Kashmir:**
 - In Sub Tropical Zone, as there is chance rain/snow, postpone irrigation in early and normal sown wheat crop and rabi pulses.
 - Carry out hoeing, weeding and thinning operations after current spells of rain/snow in very late sown mustard crop in order to keep the crop free from weeds.
 - In Intermediate Zone, as rainfall is expected postpone irrigation, intercultural operations like hoeing and weeding in wheat, rabi pulses, mustard and vegetables.
 - In Valley Temperate Zone, provide drainage channels in the fields wherever there is possibility of water accumulation during winter months. Onion seedlings and peas may be protected from bird damage by installing bird scaring ribbons in the field.
 - In Intermediate Zone, as weather conditions are favourable for the attack of alternaria blight in mustard crop, apply Mancozeb @ 2.5 g/litre of water and Ridomil MZ @ 2.5 g/litre of water alternately as curative measure, if the pest is observed after current spells of rain.
 - **Uttarakhand:**
 - In Bhabar and Tarai Zone, continue weeding and hoeing in sugarcane crop and in pulses after current spells of rain. Continue sowing of fruit crops like-apple, pear, plum, wall nut etc. Undertake sowing of tomato, brinjal and capsicum in the nursery. To save the nursery from frost, it should be covered with the plastic sheet with proper circulation of wind and light.
 - In Hill Zone, undertake sowing of pea, coriander, fenugreek, cumin during the week. Harvest mature crops like toria, leafy vegetable, citrus fruits after current spells of rain and keep in safe place. Carry out thinning and weeding operations in mustard crop after current spells of rain. Carry out mulching in cole crops to conserve soil moisture. Keeping in view the optimum weather conditions, undertake transplanting of onion seedling in this week. Deep transplanting should be avoided.
 - In Sub-Humid Sub-Tropic Zone, continue weeding in timely sown wheat. Carry out earthing-up in potato if crop has attained a height of 15-22 cm. Undertake harvesting of leafy vegetables after current spells of rain.
 - **Himachal Pradesh:**
 - In High Hill Temperate Dry Zone, polyhouse should be kept closed to prevent the crops from cold injury.
 - In Sub-Montane and Low Hills Sub-Tropical Zone, carry out weeding and hoeing operations in vegetable crops after current spells of rain. Carry out earthing-up in potato if the crop has attained a height of 15-22 cm.

If required, the practice may be repeated after 15 days.

- In Sub-Montane and Low Hills Sub-Tropical Zone, weather is congenial for infection of white rust on mustard. If infection is high than spray Dithane-M-45 @ 2 g/litre of water. Due to high relative humidity, infection of blight may occur in potato and tomato. Monitor the crops constantly. If symptoms appear then spray Carbendazim @ 1.0 gm/litre of water or Dithane-M-45 @ 2.0 g/litre of water. Undertake plant protection measures after current spells of rain.
- **Punjab, Haryana & Delhi:**
- In Punjab, to protect young fruit plants from cold, cover young fruit plants/vegetables with Sarkanda/rice straw/polythene sheets/gunny bags. Continue harvesting of matured sugarcane. Continue thinning and weeding in late sown mustard. Continue sowing of sunflower. To save the mustard from frost damage, apply irrigation.
- In Haryana, continue transplanting of matured seedlings of tomato, cauliflower, & cabbage in prepared field. Due to possibility of rain withhold the application of chemical and irrigation up to 12th January in wheat, mustard and vegetables.
- In Delhi, continue planting of winter sugarcane at optimum soil moisture for better seed germination. Continue transplanting of onion. Continue transplanting of cauliflower, cabbage, broccoli and tomato. Continue sowing of spinach, coriander, fenugreek. Continue preparation of seedling of early cucurbitaceous crops in small polythene bags in poly houses. Spray 2 % urea for proper growth of pods in the pea crop on a non rainy day.
- In Punjab, check aphid damage and if aphid population is above ETL, spray 40 g Actara 25 WG or 400 ml of Rogor 30 EC or 600 ml Dursban/Coroban 20 EC in 80-125 litres of water per acre. For control of late blight of potato, spray Indofil M-45/Markzeb/Kavach @ 500-700 g in 250-350 litres of water per acre on a non rainy day.
- In Haryana, due to high humidity and foggy weather there may be increase in the infestation of aphid and there is also increase in the chances of infestation of early blight/burning effect of leaves in the potato and tomato, monitor the mustard, potato and tomato. Also there may be increase in the infestation of white rust and Alternaria blight in the mustard crop, spray 600 gram Mancozeb (Dithane or Indophil M-45) mixed in @ 250 to 350 liter water per acre, on a non rainy day.
- **Uttar Pradesh:**
- In East Uttar Pradesh, continue weeding and light irrigation in standing crop like Bengal gram, lentil, pea, matar, mustard. Continue harvesting of mature sugarcane crop. Apply 1st irrigation after 15-20 days of sowing at CRI stage in wheat and before flowering stage in gram. Undertake weeding in maize 40-45 days after second thinning and pruning schedule. Continue harvesting of toria and gram.
- In West Uttar Pradesh, continue thinning and weeding in late sown mustard crop. Continue transplanting of onion. Before transplanting, apply 20 ton well decomposed FYM with 20 kg nitrogen, 60-70 kg phosphorus and 80-100 kg potash at the time of last ploughing . Apply first irrigation after weeding to wheat and second irrigation to Mustard. Apply light irrigation to gram before flowering stage. Continue transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli crop. Continue sowing of spinach, coriander, fenugreek. Continue sowing of garlic in raised bed.
- In East Uttar Pradesh, to protect sugarcane from stem borer attack, apply Furadan @ 30kg/ha. Due to prevailing foggy weather condition, there is chances of attack of late blight in potato crop, for control, spray Indofil-M-45/Kavach /Antracol @ 500-700 g per acre or Blitox @ 750-1000 g per acre in 250-350 litres of water per acre at weekly interval 2-3 times.
- In West Uttar Pradesh, in wheat crop if termites are noticed, apply mixture of 20 kg sand with Chlorpyrifos 20 EC @ 2 litre of water in evening hours.
- **Rajasthan:**
- In Arid Western Plain Zone, prepare the nursery for summer tomato and brinjal crop. Treat the seed with Captan @ 3gm per kg seed before the sowing. Give irrigation in isabgol crop 65 days after sowing. Spray Mancozeb @ 2 gm per liter water to protect crop from downy mildew disease.
- In Semi Arid Eastern Plain Zone, to protect sensitive crops like mustard, gram from frost attack, spray wettable Sulphur @ 2ml per litre water or thiourea @ 500 ppm (500 gm thiourea in 1000 litre water) at flowering stage. Repeat spray after 15 days. Apply Light irrigation in sensitive crops.
- In Sub Humid Southern Plain and Aravali Hill Zone, due to cold waves and fall in temperature frost may occur. So, smoke should be produced during night at northwest direction of the field and apply irrigation in field crops. In cash crops spray of 0.1 percent H₂SO₄ should be done. In citrus crops (Lemon and orange) and Ber, Application of 15 kg FYM, 250 g super phosphate and 125 g MOP per plant.
- In Flood Prone Eastern Plain Zone, weather conditions are conducive for sclerotinia stem rot in mustard. Keep watch the crop and destroy infested plants. Farmers are advised to notice the leaves for white rust appearance (yellowish on upper side while white circular or irregular blisters on lower side of the leaves) in mustard crop, spray mancozeb or ridomil MZ 72 WP @ 2.0 Kg in 800 litre water/ha.

- **Animal Husbandary**

- In Himachal Pradesh, replace the poultry houses with fresh litter to avoid wetting and keep the houses clean and ensure clean drinking water to the birds. Increase the poultry feed by 10%. Protect the birds from cold. In case of poultry, save them from cold winds by providing curtains so that temperature of shed does not fall below 16⁰C.
- In Jammu & Kashmir, use dry gunny bags as bedding material for protection against low night temperatures for animals. 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. Cover the poultry shed with gunny bags in order to protect the birds from cold weather. There should be a good source of light and heat in poultry houses.
- In Uttar Pradesh, maintain the optimum room temperature in Poultry and Dairy unit by providing electric bulb for creating warm room temperature.

- **Apiculture**

- In Sub Tropical Zone of Jammu & Kashmir, keep bee colonies at a place where proper sunlight is received. Protect the colonies from rainfall. In Intermediate Zone, move the honey bee colonies from hilly regions to plains to avoid mortality due to decline in temperature.

- **Poultry**

- In Jammu & Kashmir, cover the poultry shed with gunny bags in order to protect the birds from cold weather. Proper ventilation should be maintained in poultry rooms. There should be a good source of light and heat in poultry houses. Proper hygiene should be maintained. Well-insulated windows can act as a sun trap during winters. Adequate clean drinking water should be available all the time.

The Agromet Products in this Bulletin are generated by Agrimet Division, weather forecast issued by NWFC, New Delhi and Agromet Advisories are prepared based on the DAAS Bulletins issued by different Agrometeorological Field Units.