



National Agromet Advisory Service Bulletin

Friday 4th January 2019
(For the period 4th to 9th January 2019)



Issued by
India Meteorological Department

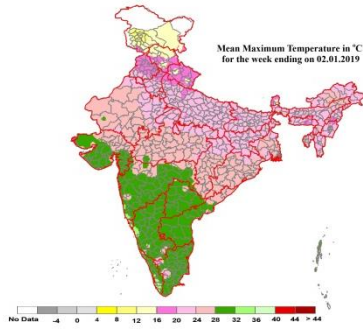
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District AAS Bulletin: <http://www.imdagrimet.gov.in/node/3545>

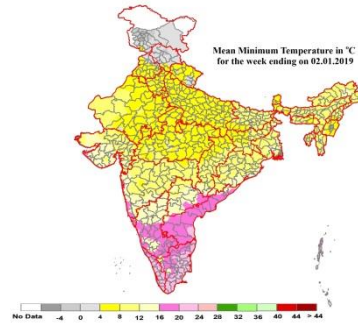
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Spatial distribution of weather parameters for the week ending on 02.01.2019

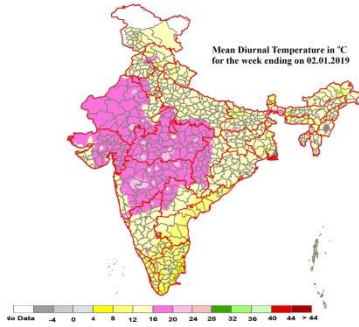
Mean Maximum Temperature (°C) for the week ending on 02.01.2019



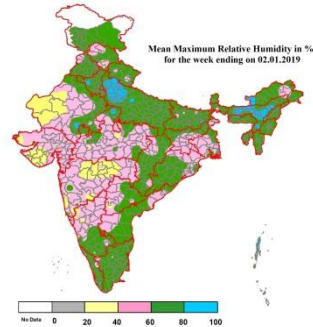
Mean Minimum Temperature (°C) for the week ending on 02.01.2019



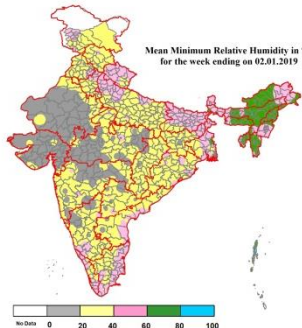
Mean Diurnal Temperature Variation (°C) for the week ending on 02.01.2019



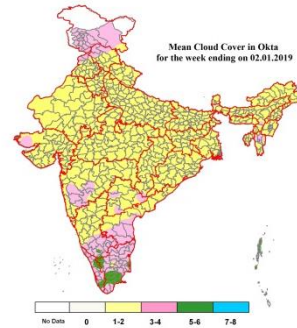
Mean Maximum Relative Humidity (%) for the week ending on 02.01.2019



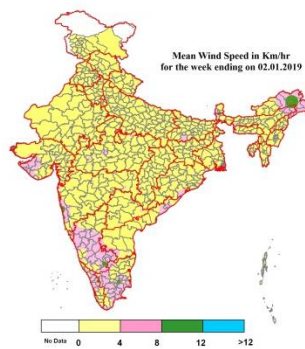
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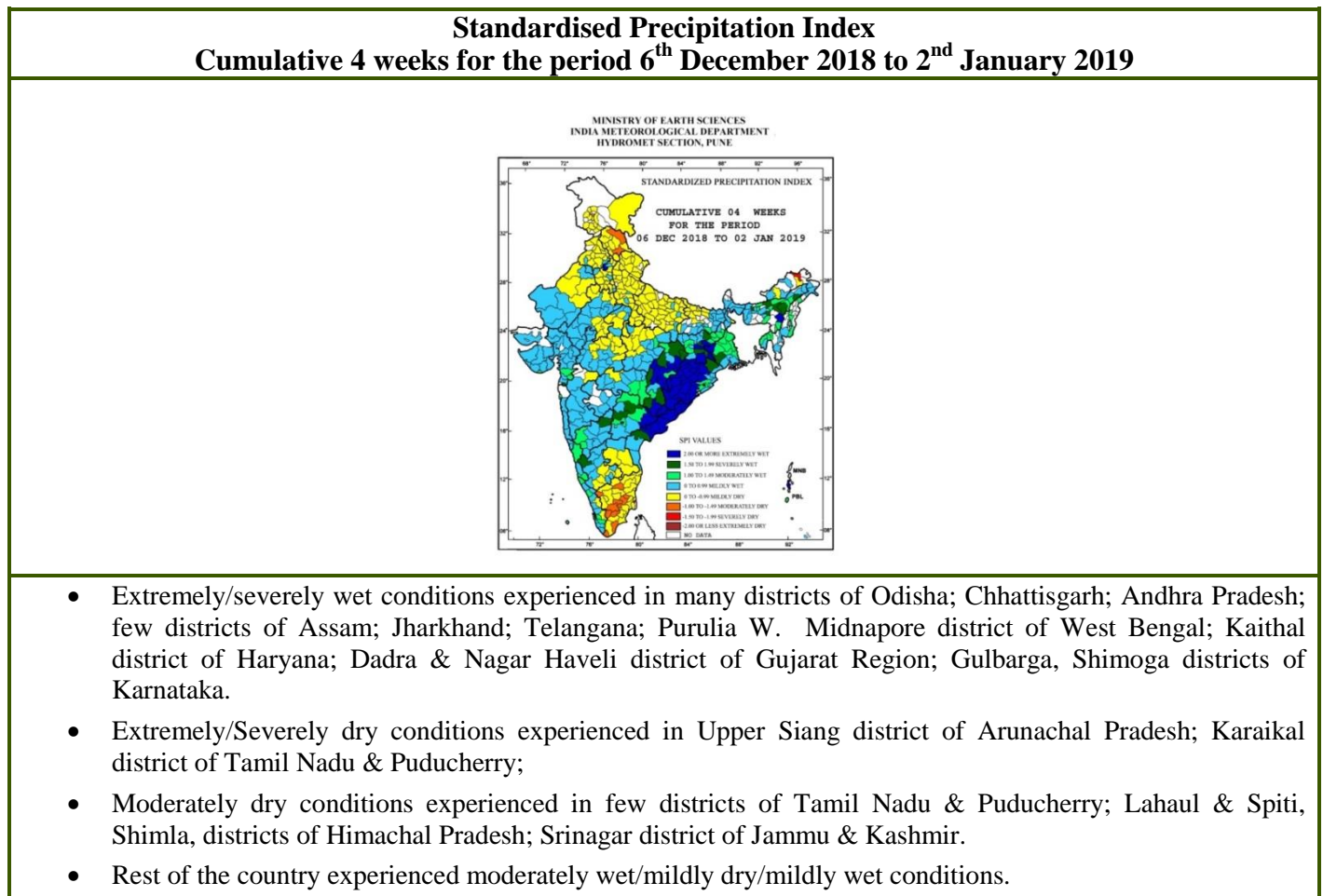
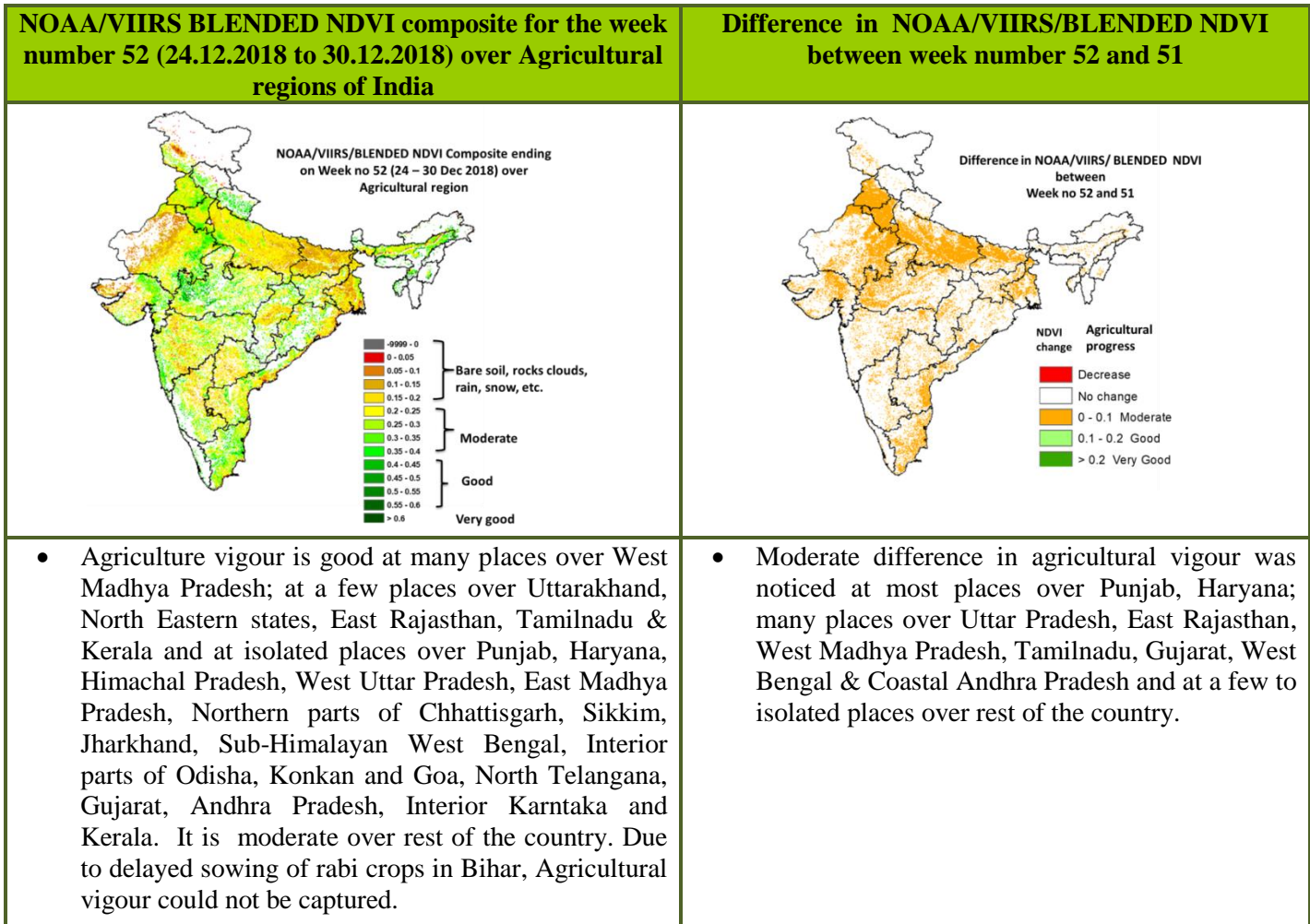


Mean Cloud Cover (okta) for the week ending on 02.01.2019

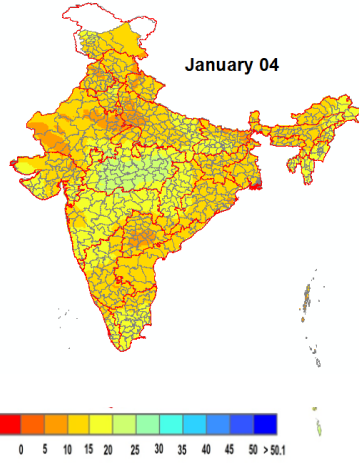


Mean Wind Speed (km/hr) for the week ending on 02.01.2019

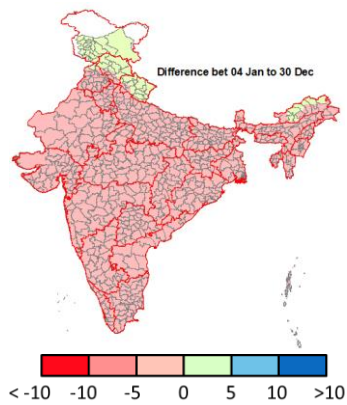
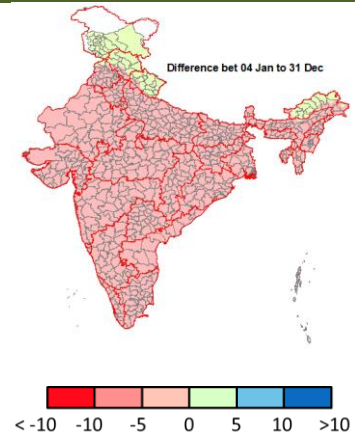
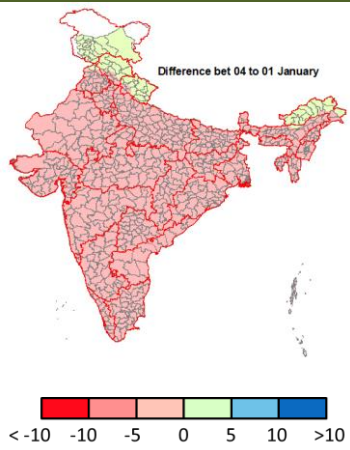
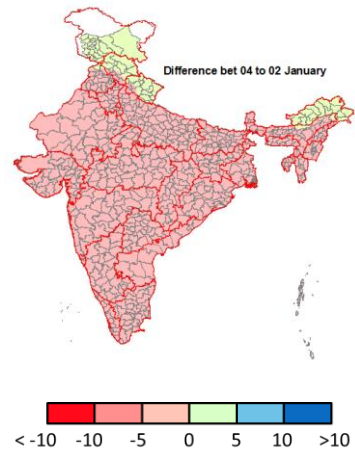
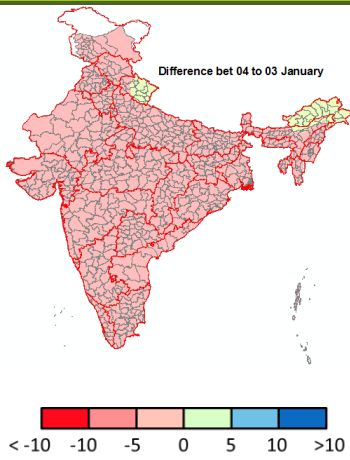




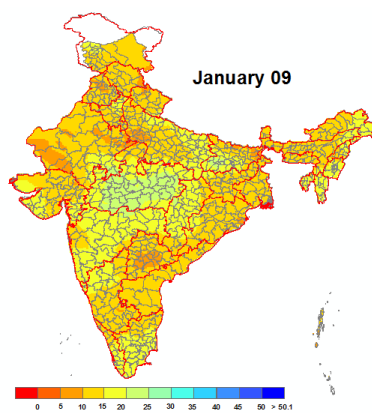
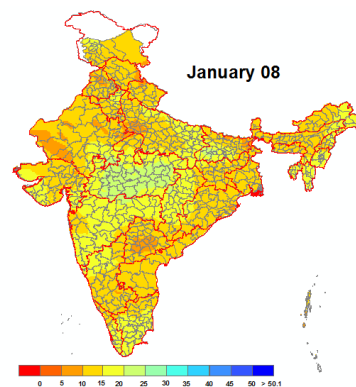
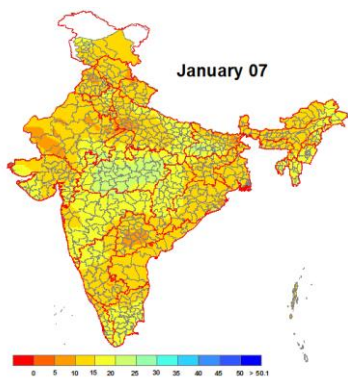
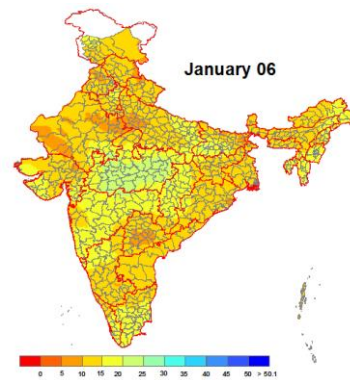
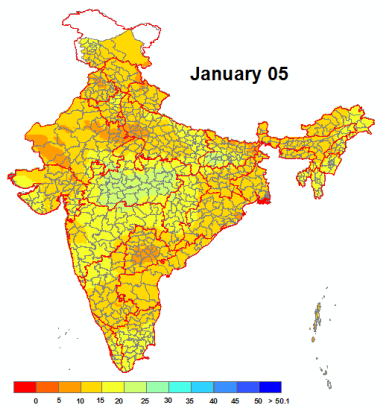
Daily Soil Moisture (mm) for 4th January 2019 (ending at 0830 IST) for 60 cm depth



Difference of Soil Moisture (mm) for 60 cm depth



**Forecasted Soil Moisture (mm) from 5th to 9th January 2019 (ending at 0830 IST)
for 60 cm depth**



Weather Forecast for next 5 days valid upto 0830 hours of 9th 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 northern plains and northeast India during next 4-5 days.

5 Day Rainfall Forecast (Mid-day) 4th January 2019

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

% Station Reporting Rainfall

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

Weather Warning during next 5 days

- **04 January (Day 1):** Heavy snowfall very likely at isolated places over Jammu & Kashmir and Himachal Pradesh. Hailstorm very likely at isolated places over Jammu Division, Himachal Pradesh and Uttarakhand. Dense Fog very likely at isolated places over Assam & Meghalaya. Squally winds speed reaching 40-50 Kmph gusting to 60 Kmph very likely over Andaman Sea along & off south Myanmar & Thailand coast. Sea condition is likely to be rough to very rough over these areas. Total suspension of fishing operation over Andaman Sea and adjoining southeast & eastcentral Bay of Bengal.
- **05 January (Day 2):** Heavy snowfall very likely at isolated places over Jammu & Kashmir and Himachal Pradesh. Heavy rainfall very likely at isolated places over Punjab and Haryana, Chandigarh & Delhi. Hailstorm very likely at isolated places over Jammu Division, Punjab, Haryana, Chandigarh & Delhi, Himachal Pradesh,

Uttarakhand and West Uttar Pradesh. Squally winds speed reaching 55-65 Kmph gusting to 75 Kmph very likely over Andaman Sea. Sea condition is likely to be very rough to high over this area. Total suspension of fishing operation over Andaman Sea and adjoining southeast & eastcentral Bay of Bengal.

- **06 January (Day 3):** Hailstorm very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi and West Uttar Pradesh. Dense fog likely at isolated places over Punjab, Haryana, Chandigarh & Delhi and north Rajasthan. Cold wave conditions likely at isolated parts over Gujarat and north Madhya Maharashtra. Strong gusty winds are likely to prevail in some parts of Punjab, north Rajasthan, Haryana and northwest Uttar Pradesh. Squally winds speed reaching 55-65 Kmph gusting to 75 Kmph very likely over Andaman Islands, Andaman Sea and adjoining areas of eastcentral and southeast Bay of Bengal. Sea condition is likely to be very rough to high over these areas. Total suspension of fishing operation over Andaman Sea and adjoining southeast & eastcentral Bay of Bengal.
- **07 January (Day 4):** Dense to very dense fog at few places likely over Punjab, Haryana, Chandigarh & Delhi, north Rajasthan and Uttar Pradesh. Cold wave conditions likely at isolated parts over Gujarat and north Madhya Maharashtra. Squally winds speed reaching 55-65 Kmph gusting to 75 Kmph very likely over Andaman Islands, Andaman Sea and adjoining areas of eastcentral and southeast Bay of Bengal. Sea condition is likely to be very rough to high over these areas. Total suspension of fishing operation over Andaman Sea and adjoining southeast & eastcentral Bay of Bengal.
- **08 January (Day 5):** Dense to very dense fog at few places likely over Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh. Dense fog likely at isolated places over north Rajasthan and Bihar. Cold wave conditions likely at isolated pockets over Gujarat, Rajasthan and north Madhya Maharashtra.

Weather Outlook for subsequent 2 days from 9th to 11th January 2019

- Isolated to scattered rain/snow likely over western Himalayan region, northeast India and Andaman & Nicobar Islands.
- Dry weather likely over the rest of the country.

Salient Advisories

- The cyclonic storm 'PABUK' over south China Sea moved west-northwestwards during past 24 hours with a speed of 21 kmph and lay centred at 0830 hour IST of 04th January 2019 over Gulf of Thailand and adjoining Thailand near latitude 8.3°N and Longitude 101.0°E, about 990 km eastsoutheast of Port Blair. It is very likely to move west-northwestwards and emerge into Andaman Sea by tomorrow forenoon. Thereafter, it is very likely to move northwestwards and cross Andaman Islands around evening/night of 06th January. Subsequently, it is very likely to move north-northwestwards and then recurve northeastwards towards Myanmar coast and weaken further during 7th - 8th January 2019.
- Squally winds speed reaching 40-50 Kmph gusting to 60 Kmph very likely over **Andaman Sea along & off south Myanmar & Thailand coast** on 4th, squally wind speed reaching 55-65 Kmph gusting to 75 Kmph very likely over Andaman Sea on 5th, over **Andaman Islands, Andaman Sea** and adjoining areas of **eastcentral and southeast Bay of Bengal** on 6th and 7th January, sea condition is likely to be very rough to high over these areas. Total suspension of fishing operation over Andaman Sea and adjoining southeast & eastcentral Bay of Bengal.
- As rain/snow likely at most places over **Jammu & Kashmir** on 4th and 5th, at most/many places over **Himachal Pradesh** from 4th to 6th, over **Uttarakhand** on 5th and 6th, rainfall/thundershowers at most places likely over **Punjab** on 5th, at many places over **Haryana, Chandigarh & Delhi** on 5th and 6th, along with heavy snowfall very likely at isolated places over Jammu & Kashmir and Himachal Pradesh on 4th and 5th, heavy rainfall very likely at isolated places over Punjab and Haryana, Chandigarh & Delhi on 5th January, rainfall/thundershowers at most/many places likely over **Andaman & Nicobar Islands** on 5th and 6th 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.

- As hailstorm very likely at isolated places over **Jammu Division, Himachal Pradesh and Uttarakhand** on 4th and 5th, over **Punjab, Haryana, Chandigarh & Delhi** and **West Uttar Pradesh** on 5th and 6th January, use hail net for orchard crops to protect from mechanical damage. Strong gusty winds are likely to prevail in some parts of Punjab, north Rajasthan, Haryana and northwest Uttar Pradesh on 6th January Provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep cattle indoor.
- As cold wave conditions likely at isolated places over **Gujarat** and **north Madhya Maharashtra** from 6th to 8th January and over **Rajasthan** on 8th January, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from cold injury. To protect young fruit plants from cold winds, cover young fruit plants with straw/polythene sheets/gunny bags. Cover banana bunches with porous polythene bags in Gujarat and north Madhya Maharashtra.
- As dense to very dense fog at a few places likely over **Punjab, Haryana, Chandigarh & Delhi** and **Uttar Pradesh** on 8th, dense fog very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi on 6th, over Bihar on 8th January and over north Rajasthan on 6th and 8th 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.
- In **Gujarat and north Madhya Maharashtra**, keep animals inside the sheds during night and provide dry bedding to protect them from cold. Increase protein level and minerals in the feed concentrate to keep the animals healthy to cope up with the cold condition. Animals should be given mineral mixture along with salt regularly and wheat grains, jaggery etc. may be provided @ 10%-20% in the daily ration during winter season. To meet the energy requirement of the animals, 10% extra dry matter should be provided over and above the total requirement to fulfill the extra energy requirement in winter. 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.

Detailed Agromet Advisories

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

- **Realised Rainfall:** Rainfall occurred in Kottayam and Kozhikode districts of Kerala during the week. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - **Kerala:**
 - In Central Zone, coconut palms are seen affected by red palm weevil, after cleaning of the crown region, apply 1 ml Imidacloprid per one litre of water at spindle leaf area.
 - 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 Problem Areas Zone, is expected dry weather may favour the incidence of rice bug in paddy during early grain bearing stage, keep the field bunds free of weeds and grasses. If the bug is seen in large number, apply Malathion @ 2 ml/ litre of water.
 - **Andhra Pradesh:**
 - In Andhra Pradesh, weather is congenial for incidence of Fall army worm on maize. For control, use Poison baiting with Rice bran @ 10 kg + Jaggery @ 2 kg + Thiomethaxom @ 100 g per acre or spray Emamectin benzoate 5 s.d @80 g per 200 liters of water. Whorl directed sprayings are recommended for effective management of the pest.
 - **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 Fall armyworm on maize. For control use Poison baiting with Rice bran @ 10 kg + Jaggery @ 2 kg + Thiomethaxom @ 100 g per acre.
- **Tamil Nadu:**
- In North Eastern Zone, in water stagnation areas, farmers are advised to apply foliar spray of urea 1% + Zinc sulphate 0.5 % (200 liters of water + 2 kg urea +1 kg zinc sulphate/acre) may be hand sprayed in the morning and evening hours for the tillering and flowering stage crops.
- In High Rainfall Zone, the flower buds of clove should be harvested when the buds change in colour from green to slightly pinkish tinge in clear weather. Also, due to the prevailing weather conditions, there are chances for increase in the severity of infection of rice stem borer and leaf folder, spray Chlorantriliprole 0.3 ml/l or Flubendiamide 0.1ml / litre.
- In South Zone, due to prevailing weather, there are chances of incidence of boll worm on cotton, spray Phosalone 35% EC@ 2.5 l/ ha or Quinalphos 25 EC@ 2.0 l/ha (or) Emamectin benzoate 5% SG @190-220 g/ha.
- **Karnataka:**
- In Southern Dry Zone, as dry weather will be prevailing in the next three to four days, farmers are advised to take up harvesting of matured rice and ragi crops and threshing of already harvested crops.
- In North Interior Karnataka, provide irrigation to groundnut crop. Carry out repeated intercultural operations in chick pea, safflower and sorghum crops to conserve soil moisture. Continue picking of matured cotton bolls.
- In South Interior Karnataka, continue sowing of pulses like black gram, green gram and also the green manure crop sun hemp to utilize residue moisture after harvest of the rice. Continue harvesting of matured sugarcane, pepper, ginger and turmeric crops.
- In North Interior Karnataka, for the management of pod fly in tur, spray the crop with Thiamethoxam @0.5 gm or Imidacloprid @0.5 ml / litre of water. For control of sucking pests (aphids) in safflower, spray Dimethote (Rogor) @1.75 ml / liter of water or Monocrotophos @1 ml or Acephate @1 gm / liter of water.
- In Coastal Karnataka, spray with lambda Cyhakoثرin @0.6ml/liter against Tea mosquito bug in cashew crop.
- **Animal Husbandry**
- In Karnataka, maintain the optimum room temperature in sericulture, poultry and dairy unit by providing electric bulb. maintain optimum room temperature in poultry, Dairy and sericulture unit
- In Tamilnadu, due to the prevailing weather conditions, cattle may get affected by Foot and mouth disease (FMD), to prevent your Cattle from FMD by vaccinating your cattle in the nearby veterinary dispensary during this (January) month.

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 very likely over Assam & Meghalaya on 4th 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 Metalaxyl + Dithane M-45 @ 2.5g/litre. In present weather condition there is high probability of attack of late blight in potato. Spray Mancozeb @ 2 g/4 litres of water on a non rainy day.
 - **Assam:**
 - Complete sowing of wheat. 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. Undertake 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 Chloropyriphos 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 six spraying with Mancozeb 75% (Indofil M 45/ Dithane M 45) @ 2.5g/litre at canopy closure at an interval of 7-10 days.
 - In Lower Bramhaputra Valley Zone, since temperature falls below 15⁰C in past few days it is advised to install low cost portable poly tunnel of 75cm height and 125cm width and length as per the convenience should be

used for raising *Boro* rice seedling during cold period to ensure favourable temperature for the growing of seedlings.

- In Hill Zone of Assam, due to humid and cloudy weather there is chance of attack of late blight disease in tomato. Apply Ridomil MZ-72 (2g/ litre) and Indofil M-45 2.5g/litre at 15 days interval.
- In Lower Brahmaputra Valley Zone, farmers are advised for keeping regular watch of wheat field for infestation of cutworm. If infestation noticed spray Quinolphos/ Chloropyriphos @ 2 ml/litre water in the evening hours.
- **Meghalaya:**
 - Complete harvesting of *Sali* rice. Undertake nursery raising of tomato and capsicum. Maintain proper soil moisture in the field of cole crops (cabbage, cauliflower, broccoli) by irrigation.
- **Manipur:**
 - Continue 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.
- **Mizoram:**
 - Continue harvesting of low land rice and pulses.
- **Tripura:**
 - Continue nursery sowing of *Boro* rice. Provide light irrigation during afternoon to protect young seedlings of *Boro* rice from cold injury.
- **Nagaland:**
 - Daily monitoring should be done for pest and disease infestation in toria/mustard at flowering stage.
- **Animal Husbandry**
 - In Central Brahmaputra 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 North & Middle Andaman district of Andaman & Nicobar Islands during the week. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - **Odisha:**
 - Irrigate wheat crop at crown root initiation (CRI) stage. Paddy crop is at sowing to two week stage in nursery. Provide frequent light irrigation in nursery to avoid low temperature injury to seedlings. 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. Late planted kharif groundnut is at maturity stage. Go for harvesting the groundnut crop. Castor crop is at maturity stage. Harvest the matured spikes. Go for sowing of winter vegetables. Use low cost polythene cover above the vegetables nursery to avoid poor germination due to low temperature. Complete the sowing of potato.
 - Leaf eating caterpillar and fruit borer may infest gram, cabbage, cauliflower and tomato crops. Spray fipronil 5% SL 400 ml or Emamectin Benzoate 5% SG 80gm or Indoxacarb 14.5% SC 200ml mixing in 200 litres of water per acre crop. Spray Rogor (@ 2 ml/lit water or Thiomethoxam @ 5g/15 lit water or Imidacloprid @ 6 ml/10 litre water to control aphids in mustard crop.
 - **Bihar:**
 - As dense fog at isolated places very likely over Bihar on 8th 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.
 - 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. Apply irrigation to lentil crop. Provide light irrigation in 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 cutworm in wheat crop, apply Carbaryl 50% WP @ 800g in 800 liters of water/acre or Dichlorovos 76% EC @ 112-150ml in 200-400 liters of water/acre. Monitor powdery mildew disease in early sown pea crop. Spray Karathane @ 1 ml or Sulfex @ 3gm per litre of water, if disease infestation is found.

- **Jharkhand:**
 - Raise nursery of summer rice and cultivate summer maize. Continue sowing of improved varieties of table pea. 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. Carry out intercultural operations in pulses and oil seed crops. Harvest the timely sown rapeseed crop when siliqua turns into bright yellow colour. Sun-dry the harvested crop for 2-3 days before threshing.
 - Table pea crop may suffer from attack of powdery mildew disease. Spray Karathen @ 1 ml or Sulfex @ 3 gm per litre of water to control the disease. To prevent pod borer in pigeon pea, spray Indoxacarb @ 0.5 ml/ liter of water.
- **West Bengal:**
 - In Sub-Himalayan West Bengal, continue planting of potato tuber. Continue harvesting Mandarin orange fruits as per the elevation. Carry out careful rouging and destruction of infected ginger and turmeric plants. 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-oxychloride @ 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, to protect rice seedlings from cold, cover Boro paddy nursery bed with polythene. Keep stagnant water in the nursery bed especially in the night time. Start preparation of the main field for transplanting. 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. To control leaf blight in mustard crop, spray Copper Oxychloride @ 3-4g / 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. For Aphids, hoppers, white fly and thrips in chilli crop, apply Imidacloprid 17.8 SL@1ml/5litres of water or Thiomethoxam @1g/3litres of water. If rotting of cruciferous seedlings is observed, apply fungicide Copper-oxychloride @ 3g/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:**
 - As rainfall/thundershowers at most/many places likley over Andaman & Nicobar Islands on 5th and 6th January, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - As squally winds speed reaching 40-50 Kmph gusting to 60 Kmph very likely over Andaman Sea along & off south Myanmar & Thailand coast on 4th, squally wind speed reaching 55-65 Kmph gusting to 75 Kmph very likely over Andaman Sea on 5th, over Andaman Islands, Andaman Sea and adjoining areas of eastcentral and southeast Bay of Bengal on 6th and 7th January, sea condition is likely to be very rough to high over these areas. Total suspension of fishing operation over Andaman Sea and adjoining southeast & eastcentral Bay of Bengal.
 - In Andaman Islands, prepare raised nursery beds of 20 to 25 cm height with water channels for sowing of brinjal seed @ 400 to 500 g/ha. In Nicobar Islands, apply neem oil @ 30 ml/litre of water along with teepol @ 0.5 ml/litre after onset of fruit to control pod borer in beans after current spells of rain.
- **Animal Husbandry**
 - In Odisha, clean the shed and de-worm the animals. Give mineral mixture along with salt regularly and wheat grains, jaggery etc. may be provided @ 10%-20% in the daily ration during winter season to meet the energy requirement of the animals. 10% extra dry matter should be provided over and above the total requirement to fulfil the extra energy requirement in winter. Vaccinate animals against FMD, Haemorrhagic Septicaemia, Black Quarter, Enterotoxemia etc.
 - 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. Give Oxytetracycline @ 1 gm per litre of water to poultry birds for treating fowl cholera and pullorum diseases. To prevent calves and kids from pneumonia, Tetracycline or Sulphadimidine should be given in consultation with the Veterinary Doctor.
 - In West Bengal, take special care for newly delivered mother cow. Cover the young one by jute bag. Keep the cowshed clean and dry. Cover the openings of shed with jute bags. Feed the cattle dry food. For the new born chicks in poultry sheds, arrange electric bulb for the whole day.
- **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 500 ml per acre meter of water.

- In Jharkhand and, apply CIFAX @ 1litre/ha-m for three months or as required to control ulcer disease of fish.
- 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:**
 - As cold wave conditions at isolated places very likely over Gujarat and north Madhya Maharashtra from 6th to 8th January, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from cold injury. To protect young fruit plants from cold winds, cover young fruit plants with straw/polythene sheets/gunny bags. Cover banana bunches with porous polythene bags in north Madhya Maharashtra.
 - **Maharashtra:**
 - In South Konkan, maintain water level 5 cm in *rabi* rice. Apply irrigation to *Kulith*, *Chavli* and *Kadva Wal* as per availability of irrigation facilities. In North Konkan, apply 1 kg urea per guntha to 15 days old rice nursery. Apply irrigation to orchards and vegetables. Undertake intercultural operations like weeding in orchards, onion, cole crops (20-25 days old).
 - In Madhya Maharashtra, continue picking of cotton. Apply irrigation to standing crops like wheat and gram, vegetables and orchards as per requirement of the crop. In North Madhya Maharashtra, as cold wave condition is likely to prevail on 6th, 7th and 8th January, apply irrigation to orchards during evening hours.
 - In Marathwada, apply irrigation to standing crops like wheat and orchards. Undertake top dressing with Nitrogen @ 40 kg per hectare in sugarcane planted in the month of October. Continue picking of cotton. Continue harvesting and threshing of matured pigeon pea crop.
 - In West Vidarbha, continue picking of cotton. Continue harvesting of matured pigeon pea. Apply protective irrigation in late sown pigeon pea crop. Apply irrigation to safflower, gram, *rabi* sorghum and maize. In East Vidarbha, undertake transplanting of 22-25 days old *summer* rice. Undertake intercultural operation like weeding in linseed, (15-20 days old) mustard, (30-40 days old) wheat crop.
 - In Konkan, to control aphids, leaf hoppers, leaf eating caterpillars, leaf miner in vegetables like tomato, brinjal, chilli, spray Malathion @ 20 ml or Dimethoate @ 15 ml per 10 liters.
 - **Gujarat:**
 - In South Gujarat, apply irrigation in wheat crop at flowering stage. In mango crop, Phozelon 35EC @ 420 liter + wettable Sulphur 80% 600 gm in 200 liter of water should be sprayed for effective control of mango mites, aphid and powdery mildew. For control of thrips in onion, spray with neem oil @ 30 ml in 10 liter at initial stage of incidence.
 - In South Saurashtra, apply irrigation to the wheat crop at tillering stage and in Bengal gram crop at flowering to pod formation stage.
 - In North Gujarat, under cold and dry weather condition, apply irrigation in potato, wheat (at CRI stage), mustard, lemon and vegetable crops as per need. Carry out the intercultural operations in cumin, potato, castor, mustard, amaranth and fennel crops. Continue picking of matured cotton bolls.
 - In Middle Gujarat, apply irrigation in potato, pigeon pea and wheat (at CRI stage) crops as per need. Continue picking of matured cotton bolls. Carry out the intercultural operations in chick pea crop.
 - In North Gujarat, there are chances of blight disease in the potato crop; to control, spray Mencozeb 0.2% @ 30 g 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, under present weather condition heliothes infestation is observed in chickpea; monitor the crop regularly for heliothes and prodenia infestation. Install "T" shaped bird perches in and around crop field; spray neem seed extract 5 % or neem seed oil 50 ml in 10 litres of water. If infestation crosses ETL spray Spinosad @ 3 ml in 10 liters of water.
- **Animal Husbandry**
 - In Gujarat, protect the animals from cold wind, keep them inside the shed at night time. Give dry fodder twice a day. FMD vaccination should be done. 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. Continue intercultural operations in transplanted vegetables. In view of low temperature, apply light irrigation in vegetables.

- In West Madhya Pradesh, continue thinning and weeding in mustard. Apply 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 Satpura Plateau Zone, to control late and early blight in potato, spray Mencozeb @ 2.5g/litre of water.
- In Bundelkhand Zone, to control attack of aphids in mustard crop, spray Methyl Dematon 25 E.C. or Dimethoate 30 E.C. @ 2ml per litre of water.
- In Vindhya Plateau Zone, in the wheat crop there is the possibility of the outbreak of aphids, spray Chloropyrifos 1.5% dust or Methyl Parathia 2% @ 25 kg per hectare.
- **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.
 - 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.
- **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:** Weather remained mainly dry/dry over the region during the week.
- **Advisories:**
 - As rain/snow likely at most places over Jammu & Kashmir on 4th and 5th, at most/many places over Himachal Pradesh from 4th to 6th, over Uttarakhand on 5th and 6th, rainfall/thundershowers at most places likely over Punjab on 5th, at many places over Haryana, Chandigarh & Delhi on 5th and 6th, along with heavy snowfall very likely at isolated places over Jammu & Kashmir and Himachal Pradesh on 4th and 5th, heavy rainfall very likely at isolated places over Punjab and Haryana, Chandigarh & Delhi on 5th January, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - As hailstorm very likely at isolated places over Jammu Division, Himachal Pradesh and Uttarakhand on 4th and 5th, over Punjab, Haryana, Chandigarh & Delhi and West Uttar Pradesh on 5th and 6th January, use hail net for orchard crops to protect from mechanical damage. Provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds and keep cattle indoor.
 - As strong gusty winds are likely to prevail in some parts of Punjab, north Rajasthan, Haryana and northwest Uttar Pradesh on 6th January, provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds.
 - As cold wave conditions likely at isolated places over Rajasthan on 8th January, apply light and frequent irrigation/sprinkler irrigation in the evening to protect the crops from cold injury. To protect young fruit plants from cold winds, cover young fruit plants with straw/polythene sheets/gunny bags.
 - As dense to very dense fog at a few places likely over Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh on 8th, dense fog very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi on 6th and over north Rajasthan on 6th and 8th 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, apply 2nd dose of urea (25%) as top dressing in wheat crop after current spells of rain. Provide thatching prepared from sarkanda or any other material to young fruit plants to protect from frost.
 - 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. Land under poly houses may be ploughed for future use.
 - 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 apply remaining dose of nitrogen and intercultural operations in vegetables after current spells of rain. On occurrence of frost/fog, timely apply irrigation in standing crop fields. Undertake sowing of fruit crops like-apple, pear, plum, wall nut etc.
- In Hill Zone, as rainfall is expected avoid irrigation and any spray of chemicals on crops. Continue transplanting of onion. Undertake thinning in mustard.
- In Sub-Humid Sub-Tropic Zone, Undertake 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.
- In Bhabar and Tarai Zone, to control the late blight disease in potato and tomato, spray Mancozeb @ 2.5g/litre or Copper Oxichloride @ 3g/litre of water 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 Mid Hills Sub-Humid Zone as snowfall in higher areas and rainfall in lower areas is expected, withhold application of irrigation and chemicals in all the crops during this period.
- Monitor mustard crop against attack of white rust. If infection is high, spray Dithane-M-45 @ 2 g/litre of water 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 on a non rainy day. Undertake sowing of sunflower.
- In Haryana, continue transplanting of matured seedlings of tomato, cauliflower, & cabbage in prepared field. Withhold application of irrigation in wheat, mustard and vegetables in view of possibility of rainfall.
- 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 after current spells of rain.
- In Punjab, existing low temperatures continuously in past two weeks may start white rust infection in mustard, spray Dithane-M-45 @ 2 gr/litre of water or Chlorothalonil 75 WP @1 g/litre of water. For control of late blight of potato, spray Indofil M-45/Markzeb/Kavach @ 500-700 g in 250-350 litres of water per acre after current spells of rain.

▪ **Uttar Pradesh:**

- In East Uttar Pradesh, undertake weeding and light irrigation in standing crop like Bengal gram, lentil, pea, matar, mustard. Continue harvesting of mature sugarcane crop. Apply 1st irrigation after 20-35 days of sowing at CRI stage in wheat and in gram. Continue harvesting of toria and gram. Apply 87-108 kg urea as top dressing at time of earthing after 25 days of sowing in potato. Spray Pendimethalin 3.3 litre/1000 litre solution for control of weeds after 2-3 days of plantation of Onion. Continue weeding in peas, mustard, lentil and gram. Continue intercultural operation in vegetables as and where necessary. Continue harvesting of standing sugarcane crop.
- In West Uttar Pradesh, continue thinning and weeding in late sown mustard cro. Continue transplanting of onion. Continue transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli crop. Continue sowing of spinach, coriander, fenugreek may be done in present weather conditions. Continue sowing of garlic in raised bed.
- In East Uttar Pradesh, due to prevailing foggy weather condition, there is chances of attack of late blight in potato crop, for control, spray IndofilM-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 symptoms of termite appear apply mixture of 20 kg sand with Chlorpyrifos 20 EC @ 2.0 litre should be done in evening hours on a non rainy day.

▪ **Rajasthan:**

- In Semi Arid Eastern Plain Zone, this is the right time for transplanting of rabi onion. Maintain 15 cm row to row and 10 cm plant to plant distance.
- 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 Arid Western Plain Zone, in timely sown wheat crop, irrigation should be given at jointing stage (55 DAS). Farmers are advised to carry out regular weeding in wheat crop, spray a solution of Metasulfuron methyl @4g ai/ha in 500 litre water to control broad leaved weed and Sulfosulfuron @25g ai/ha in 250-300 litre water/ha

for both grassy and broad leaved weed.

- In Flood Prone Eastern Plain Zone, irrigate the wheat crop at booting stage (45-50 days). Also, farmers are advised to carry out regular weeding in wheat crop, spray a solution of Metasulfuron methyl @ 4g ai/ha in 500 litre water to control broad leaved weed and Sulfosulfuron @ 25g ai/ha in 250-300 litre water/ha for both grassy and broad leaved weed.
- **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 Uttarakhand, dew appearing grasses/herbs should not be given to goat/sheep as fodder. Protect from cold by covering gunny bags during night and give some sunbath during day time. Install electric bulb in poultry farm to maintain temperature during night. Whitewash the walls by calcium oxide (dry lime) to protect the animals from harmful bacteria.
- 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 Jammu & Kashmir, Keep colonies at a place where sunlight is properly received. Maintain bee strength by giving sealed brood to weak colonies, or unite them. Protect colonies from rainfall.

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