



# *National Agromet Advisory Service Bulletin*



*Friday 21<sup>st</sup> December 2018*  
*(For the period 21<sup>st</sup> to 26<sup>th</sup> December 2018)*



*Issued by*  
*India Meteorological Department*

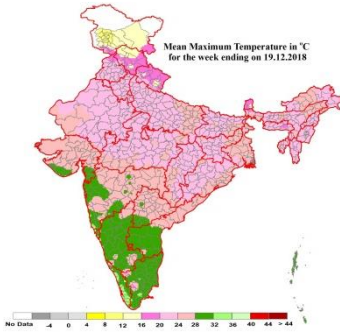
**Weblink For**

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

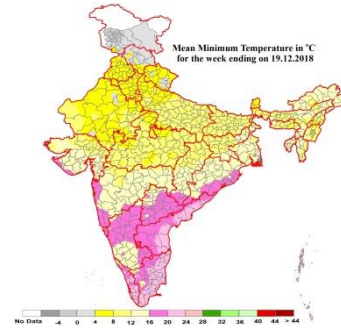
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

**Spatial distribution of weather parameters for the week ending on 19.12.2018**

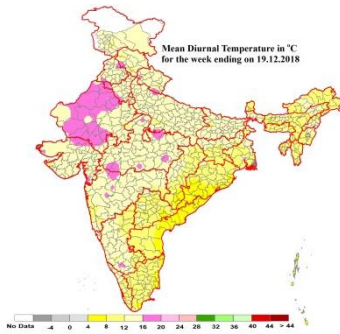
**Mean Maximum Temperature (°C) for the week ending on 19.12.2018**



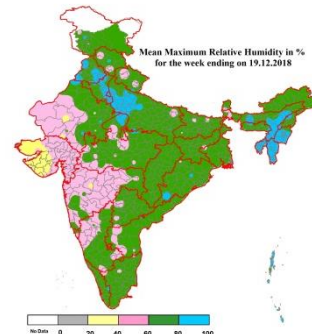
**Mean Minimum Temperature (°C) for the week ending on 19.12.2018**



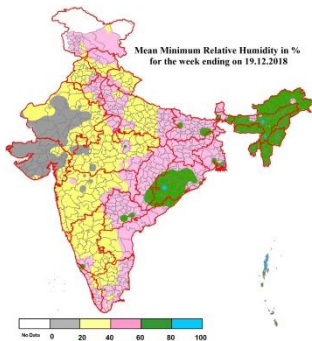
**Mean Diurnal Temperature Variation (°C) for the week ending on 19.12.2018**



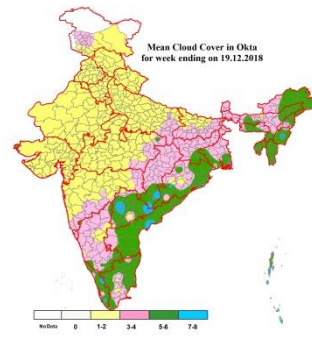
**Mean Maximum Relative Humidity (%) for the week ending on 19.12.2018**



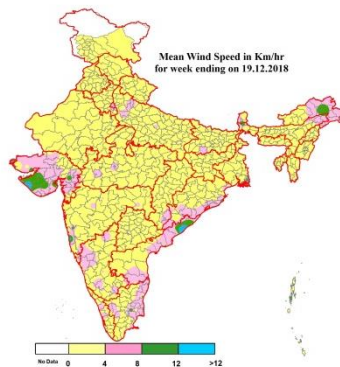
**Mean Minimum Relative Humidity (%) for the week ending on 19.12.2018**



**Mean Cloud Cover (okta) for the week ending on 19.12.2018**

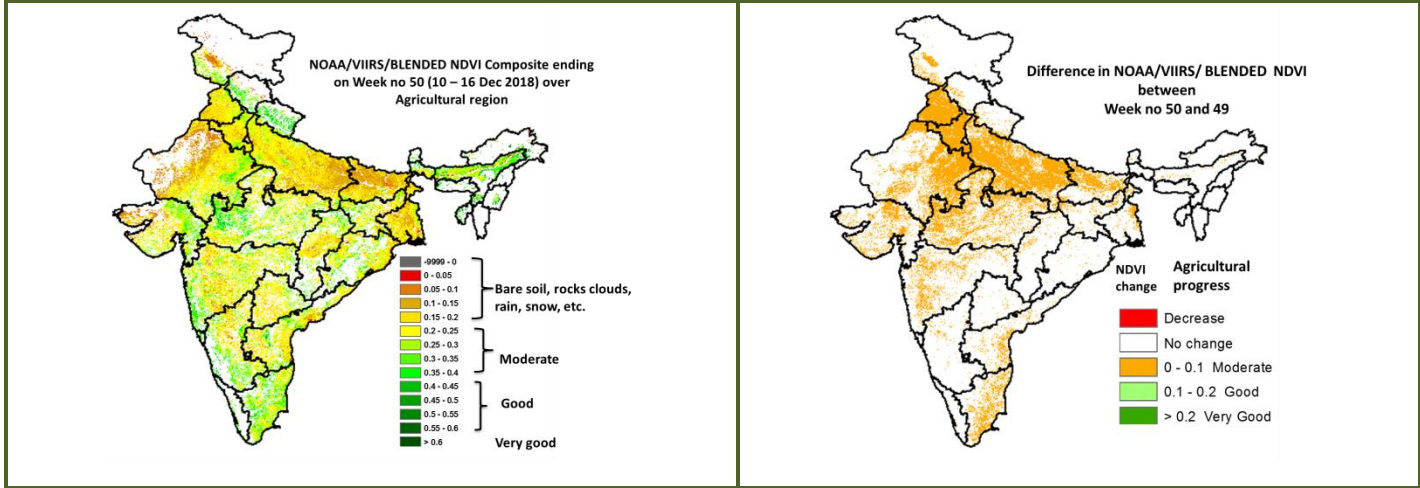


**Mean Wind Speed (km/hr) for the week ending on 19.12.2018**



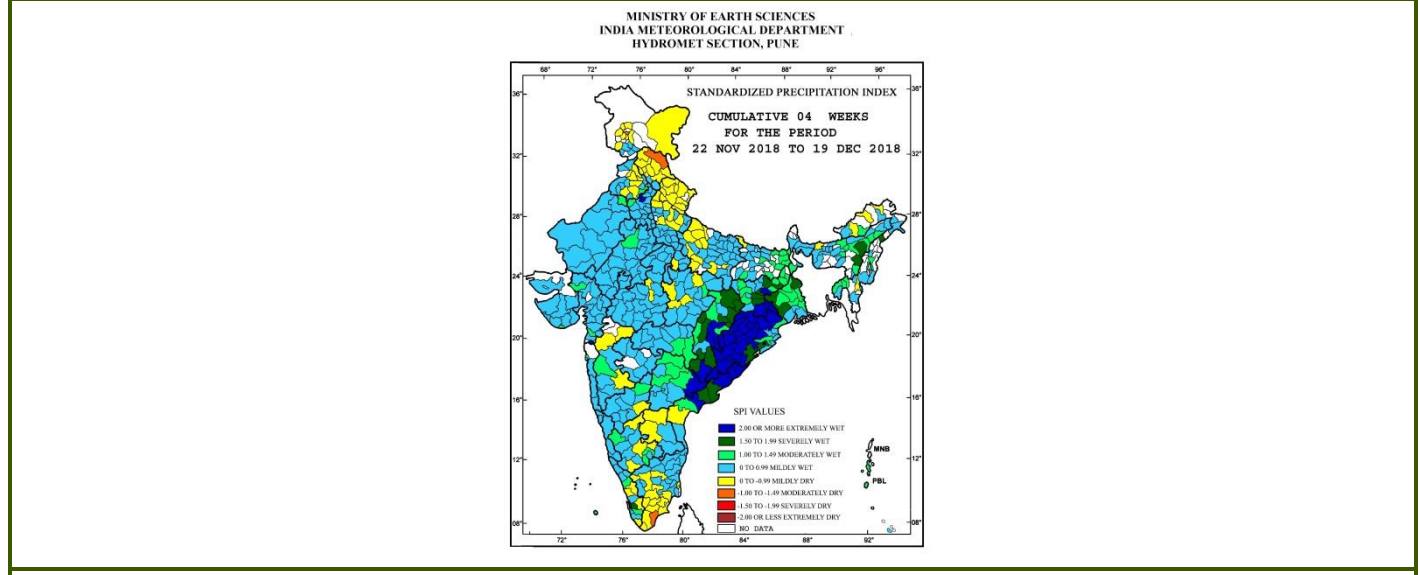


<b>NOAA/VIIRS BLENDED NDVI composite for the week number 50 (10.12.2018 to 16.12.2018) over Agricultural regions of India</b>	<b>Difference in NOAA/VIIRS/BLENDED NDVI between week number 50 and 49</b>
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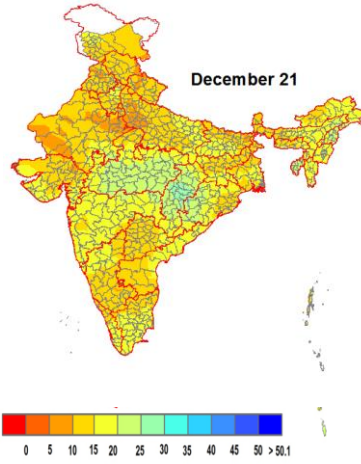
- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>• Agriculture vigour is good at a few places over Uttarakhand, North Eastern states, Sikkim, Odisha, Konkan &amp; Goa, Himachal Pradesh, Jharkhand and adjoining Chhattisgarh, East Rajasthan, Interior Karnataka, North Telangana and Andhra Pradesh. It is moderate over rest of the country.</li> </ul> | <ul style="list-style-type: none"> <li>• Moderate difference in agricultural vigour at most places was noticed over Punjab; at many places over Tamilnadu, Haryana, West Madhya Pradesh, interior Maharashtra &amp; Karnataka, Rayalaseema and South Coastal Andhra Pradesh; at a few places over Rajasthan, Gujarat, Jammu &amp; Kashmir, Himachal Pradesh, West Uttar Pradesh &amp; Kerala and at isolated places over rest of the country.</li> </ul> |
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<b>Standardised Precipitation Index</b> <b>Cumulative 4 weeks for the period 22<sup>nd</sup> November to 19<sup>th</sup> December 2018</b>
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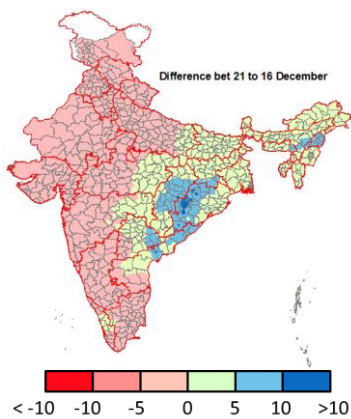
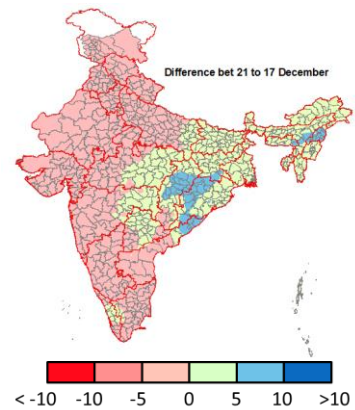
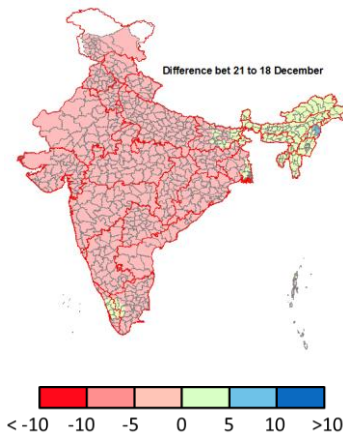
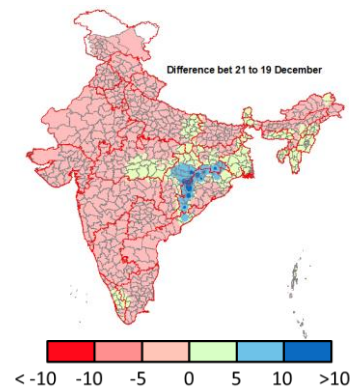
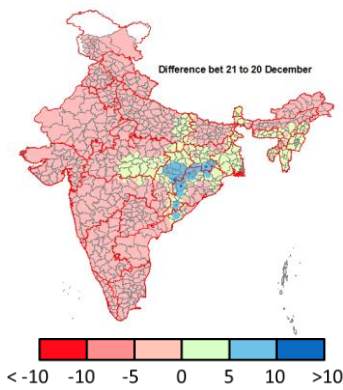


- Extremely/severely wet conditions experienced in most districts of Odisha; many districts of Chhattisgarh; few districts of Jharkhand; Andhra Pradesh; N. C. Hills, Karbi Anglong districts of Assam; Mon district of Nagaland; Purulia, Murshidabad, West Midnapore districts of West Bengal; Kaithal district of Haryana; Dadara & Nagar Haveli districts of Gujarat Region; Khammam district of Telangana; Kottayam district of Kerala.
- Moderately dry conditions experienced in Lahaul & Spiti district of Himachal Pradesh; Srinagar district of Jammu & Kashmir; Toothukudi district of Tamil Nadu & Puducherry.
- Rest of the country experienced moderately wet/mildly dry/mildly wet conditions.

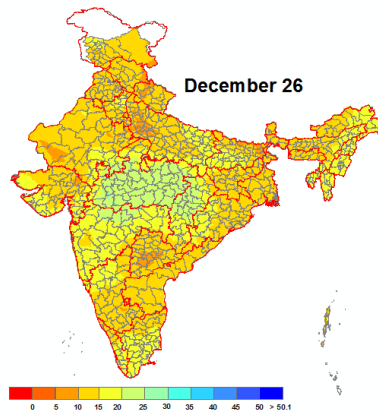
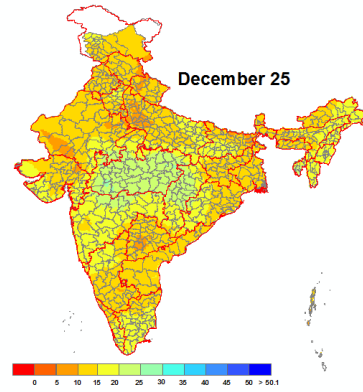
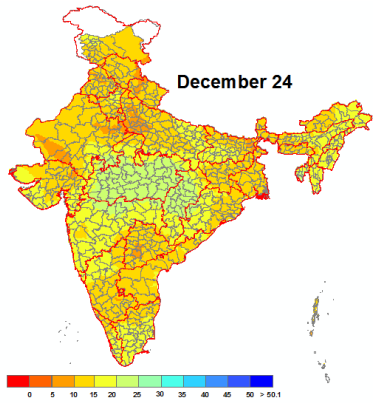
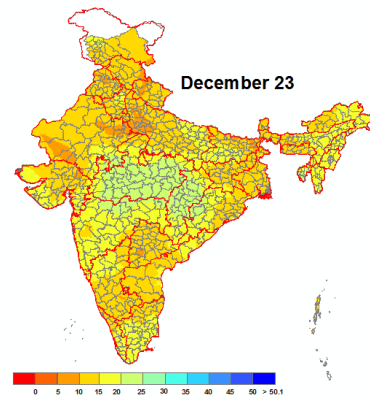
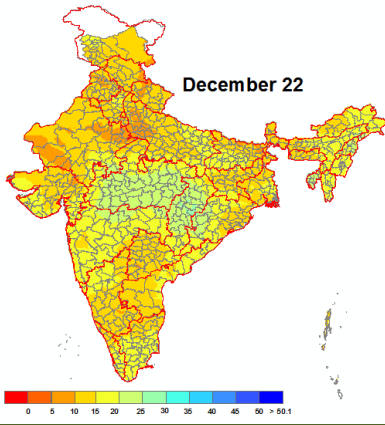
Daily Soil Moisture (mm) for 21<sup>st</sup> December 2018 (ending at 0830 IST) for 60 cm depth



Difference of Soil Moisture (mm) for 60 cm depth



**Forecasted Soil Moisture (mm) from 22<sup>nd</sup> to 26<sup>th</sup> December 2018 (ending at 0830 IST)  
for 60 cm depth**



## Weather Forecast for next 5 days valid upto 0830 hours of 26<sup>th</sup> December 2018

- 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 Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar, Chhattisgarh, Jharkhand, West Bengal and Odisha during next 3-4 days.
- Minimum temperatures very likely to prevail below normal by 2-3°C over parts of northwest, west, central and east India during next 2-3 days. No significant change in minimum temperatures likely over rest parts of the country during next 3-4 days.

### 5 Day Rainfall Forecast (Mid-day) 21<sup>st</sup> December 2018

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

#### % Station Reporting Rainfall

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

#### Weather Warning during next 5 days

- **21 December (Day 1):** Heavy rainfall likely at isolated places over Tamilnadu & Puducherry. Dense fog at isolated places very likely over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram &

Tripura. Cold wave conditions at a few places with severe cold wave at isolated places very likely over Punjab and Rajasthan. Cold wave condition at isolated places very likely over Haryana, West Uttar Pradesh and Saurashtra & Kutch.

- **22 December (Day 2):** Heavy rainfall likely at isolated places over Tamilnadu & Puducherry. Dense fog at isolated places very likely over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura. Cold wave conditions at isolated places very likely over Punjab and Rajasthan.
- **23 December (Day 3):** Dense fog at isolated places very likely over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- **24 December (Day 4):** Dense fog at isolated places very likely over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- **25 December (Day 5):** Dense fog at isolated places very likely over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

#### **Weather Outlook for subsequent 2 days from 26<sup>th</sup> to 28<sup>th</sup> December 2018**

- Scattered rainfall activity likely over Andaman & Nicobar Islands and Lakshadweep area.
- Isolated rainfall activity over central and peninsular India.
- Dry weather likely over the rest of the country.

#### **Salient Advisories**

- As cold wave conditions at a few places with severe cold wave at isolated places very likely over Punjab and **Rajasthan** on 21<sup>st</sup>, cold wave condition at isolated places very likely over **Haryana** and **West Uttar Pradesh** on 21<sup>st</sup>, over **Punjab** and **Rajasthan** on 22<sup>nd</sup>, 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 fog at isolated places very likely over **Arunachal Pradesh, Assam & Meghalaya** and **Nagaland, Manipur, Mizoram & Tripura** during the period, shallow to moderate fog very likely at isolated places in morning hours over **Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Bihar, Chhattisgarh, Jharkhand, West Bengal** and **Odisha** during next 3-4 days, monitor the standing crops for incidence and spread of pest and diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.
- As heavy rainfall likely at isolated places over **Tamilnadu & Puducherry** on 21<sup>st</sup> and 22<sup>nd</sup> December, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- In **Delhi**, due to high relative humidity, infection of blight may occur in potato and tomato, spray Carbendiazim @ 1g/litre of water or Dithane-M-45 @ 2.0 g/litre of water.
- In **Punjab**, keep the animals in shed at night time and in the sun during the day. Fix pallis/tat/plastic cover in the shed to prevent animals from direct cold winds. In poultry use curtain at the windows and keep temperature inside the shed above 60°F.

#### **Detailed Agromet Advisories**

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

- **Realised Rainfall:** Rainfall occurred in all districts of Coastal Andhra Pradesh except Nellore and Prakasham, in B. Kothagudem, J.Bhupalpally, Jagtial, Jangaon, Karimnagar, Khammam, Kumaram Bheem, M. Malkajgiri, Mahabubabad, Mancherla, Warangal-Rural and Warangal-Urban districts of Telangana during the week. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
  - **Kerala:**
    - In problem Areas Zone, undertake intercultural operations and mulching in coconut. Drench pseudomonas culture 10g/litre of water at basal region against fungal and bacterial diseases in pepper.
    - In High Altitude Zone, short duration vegetable crops like Amaranthus, cow pea etc. can be cultivated in the



inter spaces of newly planted banana crop. Apply first dose of fertilizers (50:65:65g NPK per plant). Spray 1% Bordeaux mixture as a prophylactic measure to control leaf spot.

- In Central Zone, to prevent Fusarium wilt in cowpea, mix 20 g of cow dung in one litre of water and soil should be drenched with the supernatant liquid by mixing with 20 g of pseudomonas.
- In Northern Zone, to control shoot and fruit borer disease in okra, spray Chlorantraniliprole (3 ml in 10 litres of water) 2-3 times at weekly interval on a non rainy day. To control brown plant hopper in rice, apply Thiomethoxam @ 2g per 10 litres of water or Spray Buprofezin @ 1.75 ml per litre on a non rainy day.

▪ **Andhra Pradesh:**

- In North Coastal Zone, drain out excess water if any from red gram and rice fields and undertake lifting of lodged plants and staking of 2-3 plants to keep the plants upright.
- In Krishna Godavari Zone, drain out excess water from standing crop fields. Undertake land preparation for planting of sugarcane.
- In Southern Zone, drain out excess water from rice fields. Undertake sowing of groundnut.
- In Southern Zone, to control blast disease in rice spray Tricyclozole 75% @ 0.6 g or Isoprothoulane 40% @ 1.5 ml or Kasugamicine 3 L @ 2.5 ml/litre of water and to control blight disease spray Hexaconazole @ 2 ml or Validamicine @ 2 ml/litre of water.
- In Rayalaseema, spray Monochrotophos @ 1.6 ml/litre or Imidacloprid 0.3ml/litre or Dimethoate @ 2 ml/litre for control of sucking pests in groundnut.

▪ **Telangana:**

- In Northern Telangana Zone, cover entire nursery bed with polythene sheets at night and remove in the morning to avoid the effect of low temperatures on germination. Apply nitrogenous fertilizers in maize.
- In South Telangana Zone, prevailing weather conditions are congenial for the incidence of shoot & fruit borer in brinjal. To control, spray Flubendiamide @ 0.4 g or Chlorantraniliprole @ 0.2ml per liter of water two times at weekly interval.
- In Northern Telangana Zone, if stem borer is noticed in sorghum crop at 30-35 days after emergence, apply Carbofuran 3 G @ 3 kg/acre.

▪ **Tamil Nadu:**

- As heavy rainfall likely at isolated places over Tamilnadu & Puducherry on 21<sup>st</sup> and 22<sup>nd</sup> December, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- 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 clear weather.
- In Western Zone, complete harvesting of millets and early samba rice in clear weather.
- 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.
- In Cauvery Delta Zone, gall midge incidence is being noticed in the thaladi paddy crop due to prevailing weather condition, spray Chlorpyrifos 20 EC 500 ml/acre on a non rainy day.

▪ **Karnataka:**

- In North Interior Karnataka, continue nipping in Bengal gram crop. Carry out intercultural operations in chick pea, safflower, sugarcane and sorghum crops. Continue picking of matured cotton bolls. Avoid picking of kapas during early morning hours. For improving crop vigour and yield in Bengal gram, spray NAA at 20 ppm (0.2 ml in 10 litre of water). Provide protective irrigation to wheat, sugarcane, Bengal gram, pigeon pea and vegetable crops.
- In South Interior Karnataka, spray Mango Special @ 5g/litre for initiation and fruit development in mango. Continue harvesting of ginger and turmeric crops.
- In North Interior Karnataka, spray Chlorantraniliprole 18.5 SC @ 0.15 ml or Flubendiamide 20 WG @ 0.075 ml or Emamectin Benzoate 05 S.G @ 0.2 g or Indoxacarb 14.5 S. @ 0.3 ml/litre of water, wherever Helicoverpa armigera is noticed in pigeon pea crop.
- In South Interior Karnataka, keep Phorate granules 10 g in polythene bag and make small hole and place near spindle or spray Quinolphos 2 ml/litre of water against spindle bug in arecanut.
- In Coastal Karnataka, for control of panama disease in banana drench with Carbendazim @ 1 g/litre of water.

• **Animal Husbandry**

- In Karnataka, low temperature during morning and night hours is prevailing; maintain the optimum room temperature in sericulture, poultry and dairy unit by providing electric bulb for creating warm room temperature. Vaccinate (ET vaccine) sheep and goats against Enterotoxemia. Vaccinate the dairy cow against the mastitis diseases.

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

- **Realised Rainfall:** Rainfall occurred in Changlang, Kurung, Kumei, Lohit, Papumpare, Tawang, Tirap and West Siang districts of Arunachal Pradesh, Cachar, Dibrugarh, Golaghat, Haikandi, Jorhat, Kamrup Metro, Karbi



Anglong, Karimganj, Lakhimpur, Morigaon, N.C. Hills, Nagaon, Sibsagar, Sonitpur and Tinsukia districts of Assam, Dimapur, Mokokchung and Mon districts of Nagaland, Senapati district of Manipur, all districts of Tripura except South Tripura during the week. Weather remained mainly dry over rest of the region.

• **Advisories:**

- As dense fog at isolated places very likely over Arunachal Pradesh, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during the period, monitor the standing crops for incidence and spread of pest and diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.
- **Arunachal Pradesh:**
- Complete harvesting of *kharif* rice at the earliest. Complete sowing of mustard, pea/gram in rice fallow and transplanting of *rabi* vegetables.
- **Assam:**
- Continue sowing of wheat, continue harvesting of Sali rice and nursery bed preparation/sowing of *Boro* rice in Assam. Undertake transplanting of the *Boro* rice seedlings in the main field, which have attained 5-6 leaf stage. Complete sowing of pea, and *rabi* pulses.
- Due to low temperature, there is chance of attack of saw fly and aphid in the field of rapeseed–mustard at vegetative stage. Spray Dimethoate 30 EC or Ragor @ 2 ml per litre of water. Also to control the late blight disease in potato field apply Redomil @ 2ml/litre of water at the first appearance of late blight. 10-15 days after application of Redomil spray Indofil M-45 @ 2.5 ml/litre of water as alternative way until full control of late blight.
- 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.
- **Meghalaya:**
- Avoid irrigation in ginger and turmeric fields at rhizome maturity stage. Continue harvesting of *kharif* rice.
- **Manipur:**
- Continue sowing of *rabi* maize.
- For organic control against aphid infestation in rapeseed/mustard/field pea/lentil, spray that consist of Azadirachtin, Neem oil or Pyrethrin may be used.
- **Mizoram:**
- Continue harvesting of upland rice, sowing of radish and leafy mustard and nursery preparation of tomato, crucifer, onion, brinjal and chilli.
- Due to high humidity the problem of citrus canker get aggravated in acid lime leading to excessive fruit drop. Spray Copper Oxychloride 180 gms with Spreptocycline 6 gms in 60 liter of water to control canker.
- **Tripura:**
- Continue nursery sowing of *Boro* rice. Complete sowing of *rabi* legumes like toria, sesame, lentil and planting of potato.
- Weather may conducive for blight disease attack in potato. Apply combination of Metalaxyl and Mancozeb @ 1-2 g per litre of water as prophylactic measure or Cymoxanil @ 2 g per litre of water as curative measure.
- **Nagaland:**
- Continue harvesting of TRC/WRC rice.
- **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, Bokaro, Khunti, Latehar, Ramgarh, Ranchi, Saraikela and West Singhbhum districts of Jharkhand, all districts of Odisha except Balasore, Bhadrak, Cuttack, Jagatsingpur, Jajpur, Kendrapada, Malakangiri and Puri, in North Sikkim district of Sub-Himalayan West Bengal and in all districts of Gangetic West Bengal except East Midnapore, Howrah, Kolkata, North 24 Paraganas and South 24 Paraganas during the week. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
- As shallow to moderate fog very likely at isolated places in morning hours over Bihar, Jharkhand, West Bengal and Odisha during next 3-4 days, monitor the standing crops for incidence and spread of pest and

diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.

▪ **Odisha:**

- Carry out intercultural operations in wheat crop at 21 DAS. Complete the nursery sowing of summer paddy by the end of December and transplant rice seedlings in January to maximize yield. Complete the sowing of pulses (lentil, field pea and chick pea) and planting of potato. Carry out harvesting of arhar crop. It is optimum time to sow toria, mustard, linseed, groundnut and sunflower. Go for sowing of green pea, garlic, onion, tomato, cauliflower, cabbage, KnolKhol, broccoli, radish, etc. Cotton crop is at boll maturity to boll bursting stage. Pick out cotton from matured bursted bolls. Castor crop is at maturity stage. Harvest the matured spikes.
- Spray 5 ml Imidachloprid or 20 ml Metacystox per 10 litre water to control aphid in pulses and spray 50 g Sulfex per 10 litre water to control powdery mildew in cole crops. For caterpillar found in groundnut field, spray Quinalphos 20% EC @ 2 ml/litre of water.

▪ **Bihar:**

- Complete the sowing of late sown wheat crop by 25<sup>th</sup> December. Transplant 50-55 days old onion seedlings in small beds. Apply light irrigation to onion crop. Carry out weeding in potato and garlic crops followed by light irrigation. Carry out thinning and weeding in mustard/rai.
- For fruit borer in vegetable crops, install bird perches and if insect/pest population exceeds Economic Threshold Level (ETL), spray Spinosad 48EC @ 1 ml/4 litres of water or Quinalfos 25 EC @ 1.5-2 ml/litre of water. For cutworm in wheat crop, apply Carbaryl 50% WP @ 800g in 800 liters of water/acre or Dichlorvos 76% EC @ 112-150ml in 200-400 liters of water/acre. Wrap plastic sheets around mango trunk and apply grease to seal any cracks to prevent young mealy bugs from climbing up the trees.

▪ **Jharkhand:**

- Continue harvesting of matured late rice varieties. After threshing, dry the grains and store them at moisture level 8-10%. Raise nursery of summer rice with improved rice varieties like IR-36, IR-64, Naveen, Lalat, Parijat(80-85 days), etc. Continue sowing of improved varieties of table pea. Carry out transplanting of onion. Carry out weeding and intercultural operations in gram and lentil. Timely sown rapeseed crop is approaching maturity stage. Harvest the crop when siliqua turns into bright yellow colour. Sun-dry the harvested crop for 2-3 days before threshing.
- Spray Indofil M-45 or Diathen Z-78 @ 2 g per litre of water for Alternaria blight in wheat crop. For aphids in mustard/rai crop, spray Methyl Dematone @ 1.5 to 2 ml/litre of water at 15 days interval. To prevent pod borer in pigeon pea, apply three alternate sprays of Endoxacarb or Spinosad or Dhawan gold @ 1.5 to 2 ml/liter of water @ 50% flowering and after 15 days, apply Monocrotophos @ 2 ml/litre of water.

▪ **West Bengal:**

- In Sub-Himalayan West Bengal, undertake planting of potato tuber. Continue land preparation/sowing for mustard. Start preparing Boro rice nursery. Continue sowing of lentil after harvesting paddy crop. Continue harvesting Mandarin orange fruits as per the elevation. Carry out careful rouging and destruction of infected ginger and turmeric plants. Continue sowing of winter vegetable seeds in the nursery bed. Before sowing treat the seed bed with fungicide Copper-oxychloride @ 4g/litre of water.
- In Gangetic West Bengal, continue nursery sowing of boro paddy after seed treatment. Maintain a thin layer of water over the seed bed. Carry out inter cultural operations in mustard, gram, pea, onion, garlic and cole crops. Apply irrigation in fruit orchards. Wrap plastic sheets around mango trunk and apply grease to seal any cracks to prevent young mealy bugs from climbing up the trees. Carry out weeding followed by light irrigation in mustard crop. Apply light irrigation to potato crop.
- 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.
- In Gangetic West Bengal, spray Neem seed kernal extract solution @ 30ml/litre of water at clear weather condition for aphids and diamond black moth in cole crops. Spray Imidacloprid @ 1ml/1.5 litres of water for aphids in mustard crop.

▪ **Andaman & Nicobar Islands:**

- In the Andaman Islands, take the harvested paddy to nearby shelter to avoid losses due to rain. Provide drainage in low lying area to avoid water logging leading to damage of the vegetable crops.
- In the Nicobar Islands, raise vegetable nursery separately and treat the seeds of brinjal, tomato and chilli with trichoderma/Pseudomonas @ 2 g/kg of seed.

• **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 fulfill the extra energy requirement in winter.
- In Bihar, low temperature condition may result in reduction of milk production. Farmers are advised to provide protein rich diet to animals. Keep newborn chicks in warm places using electric bulbs.

- In Jharkhand, weather is favourable for attack of F.M.D. in milch animals. Take preventive measures to control the disease and vaccinate animals twice in a year. Protect cattle against cold waves and keep their place warm. Do not allow cattle to remain in open sky after sunset and before sunrise. Provide light bulbs or hot air blowers in the poultry shed to maintain temperature during winter.
- In West Bengal, sheep and goat are susceptible to Pneumonia and FMD in winter months. Take protective measure in winter months. Give vaccination against FMD. Don't allow sheep and goat to graze at early morning. Arrange electric bulb in the cages of new born chicks. For avoiding moist condition, apply lime and old news paper in the litter.
- In Andaman & Nicobar Islands, protect goat and chicken from rain by providing water proof shelter.
- **Fisheries**
- In Odisha, there is a possibility of “EUS” disease in fish. Apply ‘Cifax’ @ 400 ml mixed with 40 litre of water in one acre pond area as a preventive measure. Feed the fishes daily with oil cake bran mixture at the rate of 2-3 % of their total biomass.
- In West Bengal, apply CIFAX @ 1litre/ha-m for three months or as required to control ulcer disease of fish.

### WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Rainfall occurred in Gadchiroli district of Vidarbha during the week. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
  - **Maharashtra:**
    - In South Konkan, for transplanting of *rabi* rice, undertake main field preparation such as ploughing of the land. Continue preparatory tillage operations for *rabi* groundnut. In North Konkan, as dry weather is likely to prevail for next 3-5 days, apply protective irrigation to *rabi* rice nursery, orchards and vegetables. Also apply straw mulch in newly planted mango orchards.
    - In Madhya Maharashtra, as dry weather prevailed and is likely to prevail for next 3-5 days, apply irrigation to 18 to 21 days old wheat crop. Also apply mulch in mango orchards to conserve soil moisture. In Western Ghat Zone, apply protective irrigation to standing crops and orchards.
    - In Marathwada, continue picking of cotton. Remaining plant parts should be collected and destroyed properly after final picking. Continue harvesting and threshing of mature pigeonpea crop. Undertake top dressing in wheat crop (sown in the month of November) with Nitrogen @ 50 kg per hectare.
    - In West Vidarbha, continue picking of cotton. Undertake harvesting of matured pigeon pea. Apply protective irrigation to standing crops like gram and maize. In East Vidarbha, undertake nursery sowing of *summer* rice. Apply nitrogenous fertilizer @ 60 kg per hectare to 21-25 days old wheat crop. Undertake intercultural operation like weeding in gram, linseed and mustard.
    - In Madhya Maharashtra, to control pod borer in gram, spray Emamectin benzoate 5% S.G. @ 5 g per 10 litres of water.
  - **Gujarat:**
    - In Middle Gujarat, apply irrigation in potato, pigeon pea and wheat (at CRI stage) crops. Continue picking of matured cotton bolls. Carry out the intercultural operations in chick pea crop.
    - In North Gujarat, carry out the intercultural operations in cumin, potato, castor, mustard, amaranth and fennel crops. Undertake sowing of water melon. Continue picking of matured cotton bolls. Apply irrigation in potato, wheat (at CRI stage), mustard, lemon and vegetable crops.
    - In South Gujarat, undertake picking of matured cotton bolls. Apply irrigation in wheat crop at CRI stage. Continue land preparation for planting of sugarcane crop. Undertake mulching in sugarcane crop with its leaves for control of stem borer and to conserve moisture in the field.
    - In Saurashtra & Kutch, carry out intercultural operations in mustard crop. Apply irrigation in wheat (CRI stage), castor, coriander, garlic, chick pea and vegetable crops at regular interval. Continue picking of matured cotton bolls. Continue harvesting of custard apple, pomegranate and aonla fruits.
    - In Saurashtra & Kutch, to prevent blight disease infestation in cumin and garlic, spray Mencozeb @ 27 g in 10 liters of water at 10 days interval as precautionary measure.
- **Animal Husbandry**
- In Gujarat, keep cattle indoor at night time. Protect from cold wind.

### CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Rainfall occurred in all districts of Chhattisgarh except Balrampur, Baoloda Bazar, Kanker, Korba, Korea, Mahasmund, Mungeli, Narayanpur, Sukma during the week. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**



▪ **Madhya Pradesh:**

- In East Madhya Pradesh, continue transplanting of *rabi* vegetables. Apply irrigation in gram and wheat (at CRI stage). Continue transplanting of onion. Undertake earthing up in potato followed by application of nitrogenous fertilizer. Undertake intercultural operations in transplanted vegetables.
- In West Madhya Pradesh, continue sowing of late varieties of wheat. Continue thinning and weeding in mustard. Apply irrigation in vegetables, gram, mustard and in wheat at CRI stage. In wheat apply 1/3 dose of recommended nitrogenous fertilizer in the form of urea as top dressing. Continue harvesting of matured pods of green pea.
- In Satpura Plateau Zone, there are chances of viral disease in potato. For its control, spray Methyl Dematon @ 1 ml per litre of water.
- In Bundelkhand Zone, to control attack of alternaria disease in tomato, spray Mencozeb @ 2.5 g/litre of water.

▪ **Chhattisgarh:**

- As shallow to moderate fog very likely at isolated places in morning hours over Chhattisgarh during next 3-4 days, monitor the standing crops for incidence and spread of pest and diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.
- Continue transplanting of onion. Continue intercultural operations in oilseed crops and pulses. Continue intercultural operations in transplanted vegetables and apply nitrogenous fertilizers. Continue earthing up in potato. Continue seedling preparation of cucurbits in polythene bags. Apply irrigation in wheat at CRI stage and broadcast urea @ 22 kg per acre in 22-25 days old crops after weeding.
- In Bastar Plateau Zone, continue field preparation for planting of *rabi* colocasia and bunda. Apply irrigation in wheat at CRI stage.
- In North Hill Zone, there are chances of attack of pod borer in pigeon pea, spray Polytrin C @ 1 litre/ha or Endoxacarb @ 300 ml/ha.

• **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.

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

- **Realised Rainfall:** Rain/snow occurred in Doda, Kulgam, Ramban, Samba and Udhampur districts of Jammu & Kashmir, rainfall occurred in Kaithal district of Haryana, Patiala district of Punjab during the week. Weather remained mainly dry/dry over rest of the region.

• **Advisories:**

- As cold wave conditions at a few places with severe cold wave at isolated places very likely over Punjab and Rajasthan on 21<sup>st</sup>, cold wave condition at isolated places very likely over Haryana, West Uttar Pradesh on 21<sup>st</sup> and over Punjab and Rajasthan on 22<sup>nd</sup>, 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 shallow to moderate fog very likely at isolated places in morning hours over Punjab, Haryana, Chandigarh & Delhi and Uttar Pradesh during next 3-4 days, monitor the standing crops for incidence and spread of pest and diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.

▪ **Jammu & Kashmir:**

- In Sub Tropical Zone, continue sowing of late sown wheat crop in clear weather condition. Carry out hoeing and weeding operations in chickpea and 20 days old lentil.
- In Intermediate Zone, in view of clear weather forecast during next 5 days, carry out intercultural operations like hoeing and weeding in one month old wheat crop. Good rainfall is received in many parts of the district during last week, hence undertake sowing of wheat (var. Raj 3077 and Raj 3765) in optimum soil moisture conditions. Carry out hand weeding and hoeing in one month old Rabi pulses and mustard crop.
- 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.
- Apply Cypermethrin 10EC @ 1ml/litre or Chloropyrifos 3EC @ 2ml/litre to control mustard sawfly.

• **Uttarakhand:**

- In Hill Zone, undertake transplanting of onion seedling after root treatment by fungicides, pesticides and bio agents. Carry out mulching in Cole crops in valley region to conserve soil moisture. Apply urea as foliar spray on leafy vegetables.

- In Sub-Humid Sub-Tropic Zone, give light irrigation to wheat crop at CRI stage (20-25 DAS). Apply first dose of nitrogen as top dressing in timely sown crop. Complete sowing of wheat after harvesting of ratoon crop of sugarcane at the earliest. Apply requirement based irrigation. Carry out mulching in cole crops.
- The downy mildew is expected in cruciferous vegetables. To control it, spray redomil M-Z @ 25 g per litres of water at 15 days interval.
- Due to high relative humidity, infection of blight may occur in potato and tomato crops. If symptoms appears than spray Carbandizam @ 1.0 g/litre of water or Dithane-M-45 @ 2.0 gm / litre of water. Carry out earthing-up in potato if crop has attained a height of 15-22 cm.
- **Himachal Pradesh:**
  - In Sub-Montane & Low Hills Sub-Tropical Zone, carry out thinning and weeding in timely sown mustard crop. Add mulch material in space between two rows of vegetables crops for conservation of soil moisture and maintaining the soil temperature. Undertake earthing up in potato. Apply irrigation to wheat crop. After 3-4 days of irrigation, broadcast second dose of nitrogen.
  - In Mid Hills Sub-Humid Zone, protect the crops and vegetables from frost by applying light irrigation in the evening and cover the young plants with gunny bags, straw etc., keeping a small entrance in the south west directions.
  - Monitor mustard crop against attack of white rust. If infection is high, spray Dithane-M-45 @ 2 g/litre of water.
  - For pod borer in the gram crop, installation of Pheromone trap @ 3-4 traps per acre is advised if flowering has reached 10-15%. "T" shaped bird perches in and around crop field to be installed for controlling insect population.
- **Punjab, Haryana & Delhi:**
  - In Punjab, complete the sowing of raya and wheat. Continue harvesting of matured maize, green gram. Continue planting of early varieties of potato and pea. Complete sowing of spinach, radish, turnip and carrot. Continue planting of early varieties of sugarcane. Continue planting of seedlings of onion. Complete transplanting of pea, tomato and provide polythene sheet/Sarkanda/Kahi/rice straw to save the plants from frost. Continue late sown short duration varieties of wheat. Due to chances of cold wave/ground frost at a few places with severe cold wave, farmers are advised to provide light irrigation to wheat. Apply light irrigation in fruit plants to avoid adverse effect of low temperature and possible ground frost.
  - In Haryana, continue intercultural operations in vegetables and mustard. Continue field preparation for sowing of mustard. Continue harvesting of timely sown bajra, guar, green gram, black gram and picking up of matured cotton bolls. Continue sowing of mustard, barley, gram, wheat and oats. Complete the sowing of berseem. Undertake transplanting of mature seedlings of tomato, cauliflower, & cabbage in prepared field.
  - 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 carrot on raised bed. Apply irrigation in wheat at CRI stage. Continue sowing of oat and barseem. Continue late sowing of wheat crop with recommended varieties PBW 373, WH 1021, WH 1124, Raj 3765. Apply irrigation in timely sown potato crop.
  - In Delhi, due to high relative humidity, infection of blight may occur in potato and tomato, spray Carbandizam @ 1g/litre of water or Dithane-M-45 @ 2.0 g/litre of water.
- **Uttar Pradesh:**
  - In East Uttar Pradesh, apply 1<sup>st</sup> irrigation after 20-35 days of sowing at CRI stage in wheat and in gram. Apply irrigation in pea after 35-40 days of sowing. Undertake 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. Undertake thinning and weeding in late sown peas and gram crop. Continue sowing of coriander, spinach, radish, carrot, fenugreek, fennel etc. Continue planting of sugarcane, ginger and turmeric. Continue transplanting of tomato, cauliflower, cabbage, knolkhol and broccoli crop. Continue intercultural operation in vegetables as and where necessary.
  - In West Uttar Pradesh, undertake thinning and weeding in late sown mustard crop. Apply 1<sup>st</sup> irrigation after 20-35 days of sowing at CRI stage in wheat. Undertake transplanting of onion. Undertake cutting of toria and gram. Undertake mulching and weeding in pea after 25-30 days of sowing. Apply irrigation in timely sown potato crop. Application of fertilizer should be done after irrigation. Continue transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli crop. Continue sowing of garlic in raised bed. Continue weeding in vegetables.
  - In East Uttar Pradesh, spray Mancozeb 0.2% (2gm/litre of water) for the control of mosaic in Tomato and Chilly.
  - In West Uttar Pradesh, due to high relative humidity, infection of blight may occur in potato and tomato. Farmers are advised to do constant monitoring in both the crops.
- **Rajasthan:**
  - In Semi Arid Eastern Plain Zone, Irrigated North Western Plain Zone and Sub Humid Southern Plain and

Aravali Hill Zone, continue sowing of late sown wheat. Treat the seeds with fipronil 5 SC @ 6 ml per kg of seed before sowing.

- In Sub Humid Southern Plain and Aravali Hill Zone, there are chances of frost, apply irrigation in field crops. In cash crops spray 0.1 percent H<sub>2</sub>SO<sub>4</sub> should be done. Apply irrigation in barley. Undertake weeding, hoeing and apply irrigation in vegetables and fruits orchards.
- In Arid Western Plain Zone, apply irrigation in standing rabi crops as and when required and as per critical growth stages. Also apply remaining dose of nitrogen through urea along with irrigation water.
- In Flood Prone Eastern Plain Zone, there are chances of sawfly incidence in mustard, keep watch in field. Spray Malathion 50 EC @ 1 ml/litre of water.
- In Semi Arid Eastern Plain Zone, pod borer attack may be seen in pea crop at pod formation stage. To control, spray Acephate 75 SP @ 1.5 g per litre of water.

- **Animal Husbandary**

- 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 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. Attack of Diarrhia and cocksedia expected so, consult the nearby veterinarian. In case of poultry, save them from cold winds by providing curtains so that temperature of shed does not fall below 160°C.
- In Haryana, due to fall in night temperature, keep the animals under shed. Provide 50 grams iodized salt and 50 to 100 grams mineral mixture daily with animal feed/fodder to keep them healthy.
- In Punjab, keep the animals under shed at night time and in the sun during the day. Fix pallis/tat/plastic cover in the shed to prevent animals from direct cold winds. In poultry use curtain at the windows and keep temperature inside the shed above 60°F.

- **Apiculture**

- In Jammu & Kashmir, provide winter packing to bee colonies to protect them from cold. Sulphur dusting/oxalic acid spray @ 3.5% in one litre of water is recommended at fortnight intervals to control ectoparasitic mites. Migrate colonies to areas having floral resources (near toria/vegetable crops). Spray Chloropyriphos around boxes of apiary for protection from termites or put the leg of these beehives stand in water pot.

- **Floriculture**

- In Jammu & Kashmir, continue planting of spring flowering bulbs (tulip, iris, daffodils etc.). Continue transplanting of winter flowering annuals. Prune the trees and shrubs to avoid damage by heavy snow during winter. Make preparations for protection of house plants during winter season.

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