



# *National Agromet Advisory Service Bulletin*



*Friday 22<sup>nd</sup> November 2019*  
*(For the period 22<sup>nd</sup> to 26<sup>th</sup> November 2019)*



*Issued by*  
*India Meteorological Department*

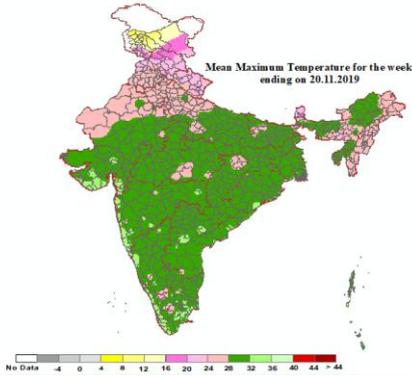
**Weblink For**

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

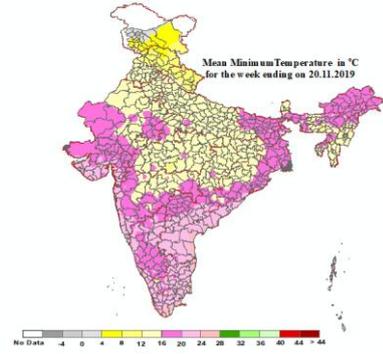
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

# spatial distribution of weather parameters for the week ending on 20.11.2019

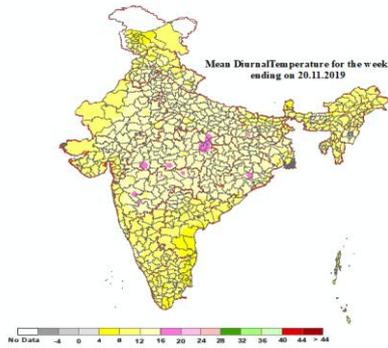
**Mean Maximum Temperature (oC) for the week ending on 20.11.2019**



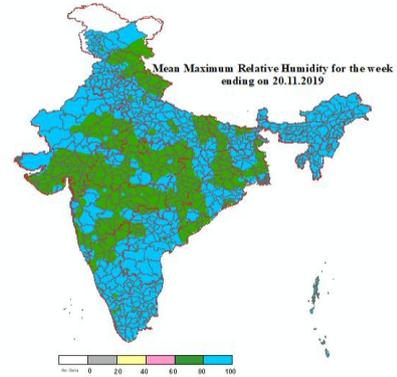
**Mean Minimum Temperature (°C) for the week ending on 20.11.2019**



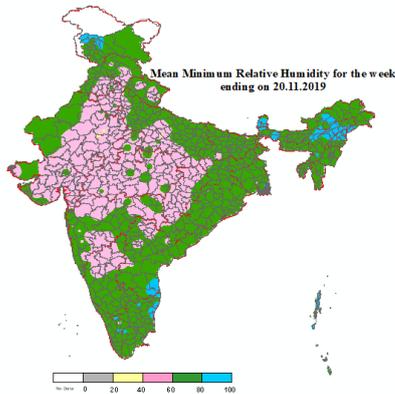
**Mean Diurnal Temperature Variation (°C) for the week ending on 20.11.2019**



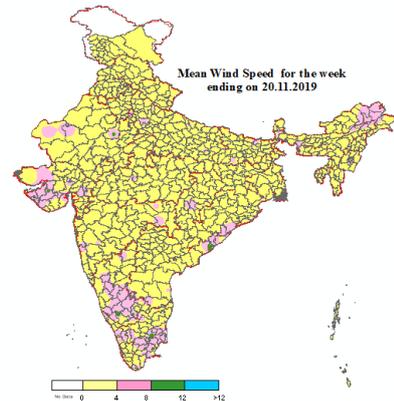
**Mean Maximum Relative Humidity (%) for the week ending on 20.11.2019**



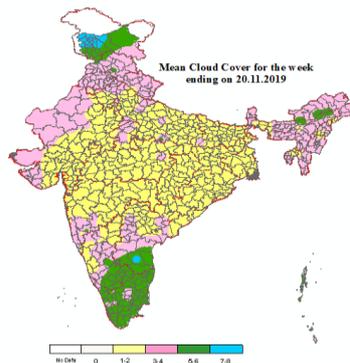
**Mean Minimum Relative Humidity (%) for the week ending on 20.11.2019**



**Mean Wind Speed (km/hr) for the week ending on 20.11.2019**

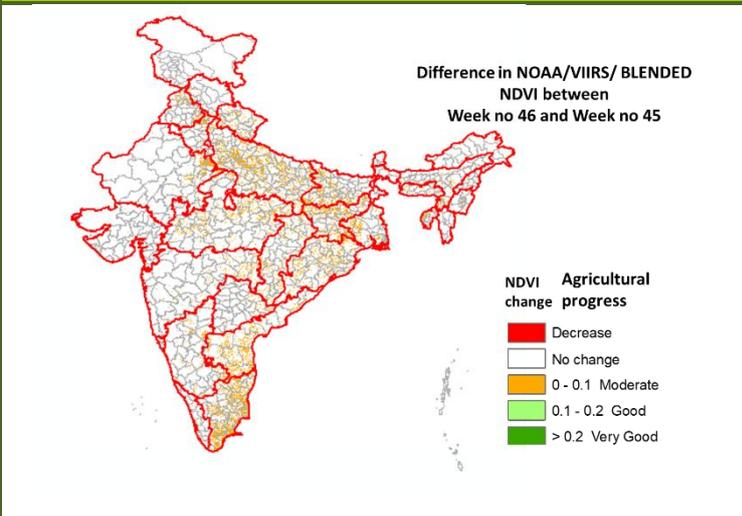
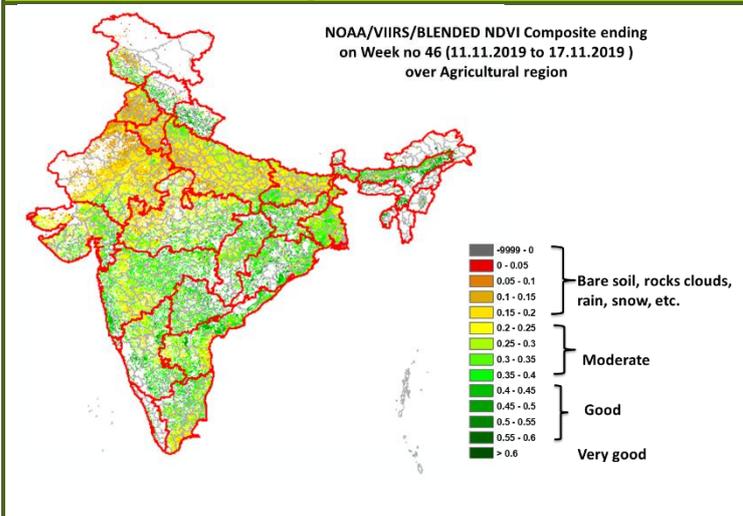


**Mean Cloud Cover (okta) for the week ending on 20.11.2019**



**NOAA/VIIRS/BLENDED NDVI composite for the week number 46 (11.11.2019 to 17.11.2019) over Agricultural regions of India**

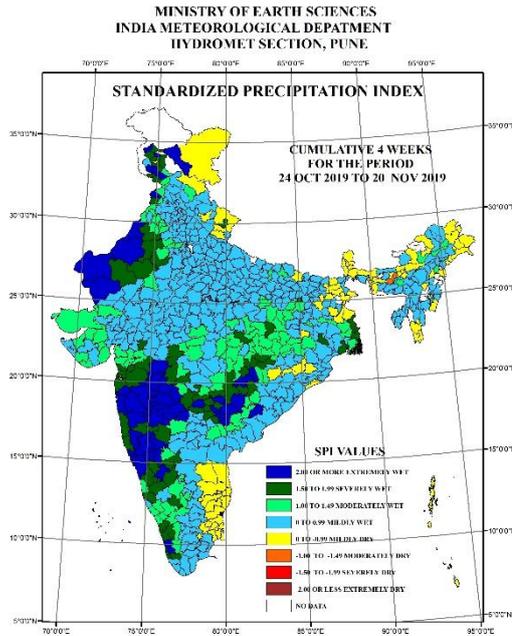
**Difference in NOAA/VIIRS/BLENDED NDVI between week number 46 and week number 45**



Agriculture vigour was good at most parts of Uttarakhand, Konkan; many parts of Himachal Pradesh, North Coastal Andhra Pradesh, Konkan, North Eastern states; at a few places over Telangana, Sikkim, Jharkhand, Odisha, Chhattisgarh, Karnataka, Sub-Himalayan West Bengal, Tamilnadu, East Madhya Pradesh and at isolated places of Jammu Division, South Coastal Andhra Pradesh, Kerala, Vidarbha, Gujarat and East Rajasthan

Good difference in agricultural vigour has been observed at isolated places in Tamilnadu, Coastal Andhra Pradesh, Uttarakhand and Uttar Pradesh. It was moderate over rest of the country.

## Standardised Precipitation Index Cumulative 4 weeks for the period 24<sup>th</sup> October to 20<sup>th</sup> November 2019



- Extremely/Severely wet conditions exist in Jahanabad districts of Bihar; Valsad, Dangs, Navsari districts of Gujarat; Anantnag, Baramula, Jammu, Reasi, Udhampur, Badgam, Kupwara, Pulwama, Srinagar, Kargil, Ramban, Samba, Bandipore, Kulgam, Rajouri districts of Jammu; Uttara Kannada, Dakshin Kannada, Bagalkote, Belgaum, Bidar, Bijapur, Dharwad, Gadag, Haveri, Bellary, Chikmagalur, Chitradurga, Davangere, Mandya, Shimoga districts of Karnataka; Alapuzha, Ernakulam, Kottayam, Malappuram, Palakkad, Thrissur, Pathanamthitta districts of Kerala; Khandwa, Burhanpur, Alirajpur, Dindori districts of West Madhya Pradesh; Mumbai City, Raigad, Ratnagiri, Thane, Sindhudurg, Mumbai Suburban, Palghar, Ahmednagar, Dhule, Jalgaon, Kolhapur, Nashik, Pune, Sangli, Satara, Sholapur, Aurangabad, Beed, Nanded, Osmanabad, Parbhani, Latur, Jalna, Buldhana, Gadchiroli, Washim districts of Maharashtra; Malkangiri district of Orissa; Amritsar, Tarn Taran districts of Punjab; Barmer, Bikaner, Churu, Sri Ganganagar, Jaisalmer, Jodhpur, Nagaur, Hanumangarh, Sikar districts of Rajasthan; Diu districts of U.T; East Midnapore, Nadia, North 24 Paraganas, Kolkata districts of West Bengal; East Singhbhum district of Jharkhand; Bageshwar district of Uttarakhand; Dhamtari, Durg, Kanker, Mahasamund, Raipur, Bijapur, Narayanpur, Balod, Baloda Bazaar, Surajpur, Kondagaon districts of Chhattisgarh; North Goa, South Goa districts of Goa; Karimnagar, Nizamabad, Warangal, Jagtial, Jangaon, J. Bhupalpally, Kamareddy, Kumaram Bheem, Mahabubabad, Mancherla, Nirmal, Peddapalle, Rajanna Sircilla, Siddipet, Warangal\_Urban districts of Telangana.
- Moderately dry conditions exist in Kamrup district of Assam and Puducherry.
- Moderately wet to mildly dry conditions were experienced in remaining districts in the country.

## Weather Forecast for next 5 days valid upto 0830 hours of 27<sup>th</sup> November 2019

- ◆ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-below.
- ◆ No significant change in minimum temperatures over the country during next 3-4 days.
- ◆ Shallow to Moderate fog at isolated pockets very likely over Assam & Meghalaya during next 3 days; shallow to moderate fog for subsequent 48 hours. Shallow to moderate fog at isolated pockets likely over Bihar, Odisha, Sub-Himalayan West Bengal & Sikkim during next 24 hours.

### 5 Day Rainfall Forecast (MID-DAY)

22<sup>nd</sup> November 2019

Met-Sub-Division	22-Nov Today	23Nov Sat	24Nov Sun	25Nov Mon	26Nov Tue
1. Andaman & Nicobar Islands	ISOL	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	ISOL	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	ISOL
12. Uttarakhand	SCT	ISOL	DRY	DRY	SCT
13. Haryana, Chd & Delhi	DRY	DRY	DRY	ISOL	SCT
14. Punjab	DRY	DRY	DRY	ISOL	SCT
15. Himachal Pradesh	FWS	SCT	DRY	ISOL	SCT
16. Jammu & Kashmir	WS	SCT	DRY	ISOL	SCT
17. West Rajsthan	DRY	DRY	DRY	DRY	ISOL
18. East Rajasthan	DRY	DRY	DRY	ISOL	ISOL
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. Marathawada	DRY	DRY	DRY	DRY	DRY
26. Vidharbha	DRY	DRY	DRY	DRY	DRY
27. Chhattisgarh	DRY	DRY	DRY	DRY	DRY
28. Coastal A. P. & Yanam	DRY	DRY	DRY	DRY	DRY
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	DRY	DRY	DRY
31. T.N.,Puducherry & Karaikal	FWS	SCT	SCT	FWS	FWS
32. Coastal Karnataka	ISOL	DRY	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	ISOL	DRY	DRY	ISOL	ISOL
35. Kerala & Mahe	SCT	ISOL	ISOL	SCT	FWS
36. Lakshadweep	SCT	ISOL	DRY	ISOL	SCT

#### % 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

### 22 November (Day 1):

- ◆ **Thunderstorm/hailstorm** accompanied with **lightning** very likely at isolated places over Jammu & Kashmir and Himachal Pradesh and **Thunderstorm** accompanied with **lightning** very likely at isolated places over Kerala & Mahe and Tamilnadu, Puducherry & Karaikal.
- ◆ **Heavy Rain/Snow** very likely at isolated places over Jammu & Kashmir and Himachal Pradesh and
- ◆ **Heavy Rainfall** very likely at isolated places over Tamilnadu, Puducherry & Karaikal.

### 23 November (Day 2):

- ◆ **Thunderstorm** accompanied with **lightning** very likely at isolated places over Tamilnadu, Puducherry & Karaikal.

### 24 November (Day 3):

- ◆ **Thunderstorm** accompanied with **lightning** very likely at isolated places over Tamilnadu, Puducherry & Karaikal.
- ◆ **Heavy Rainfall** very likely at isolated places over Tamilnadu, Puducherry & Karaikal.

### 25 November (Day 4):

- ◆ **Heavy Rainfall** likely at isolated places over Tamilnadu, Puducherry & Karaikal.

### 26 November (Day 5):

- ◆ **Thunderstorm/hailstorm** accompanied with **lightning** very likely at isolated places over Jammu & Kashmir and Himachal Pradesh.
- ◆ **Heavy Rainfall** likely at isolated places over Tamilnadu, Puducherry & Karaikal.

## Weather Outlook for subsequent 2 days from 27<sup>th</sup> November to 29<sup>th</sup> November, 2019

- ◆ Isolated to Scattered rain/snow likely over Western Himalayan Region and isolated rain over adjoining plains. Scattered to fairly widespread with isolated heavy falls likely over southern peninsula and Lakshadweep Islands.
- ◆ Weather likely to be dry over remaining parts of the country.

## Salient advisories

- As thunderstorm/hailstorm accompanied with lightning very likely at isolated places over **Jammu & Kashmir and Himachal Pradesh** on 22<sup>nd</sup> and 26<sup>th</sup> November, use hail net for orchard crops to protect from mechanical damage. Keep cattle/goats indoors during thunderstorm/hailstorm.
- As thunderstorm accompanied with lightning very likely at isolated places over **Kerala & Mahe** on 22<sup>nd</sup> November, over **Tamilnadu, Puducherry & Karaikal** on 22 to 24 November, provide mechanical support to young fruit plants, banana and carry out staking of vegetables as well as propping up in sugarcane to prevent crops from lodging due to strong winds. Keep harvested produce at safer places.
- As rain/thundershowers likely at most/many places over **Jammu & Kashmir and Himachal Pradesh** on 22<sup>nd</sup> November, over **Tamilnadu, Puducherry & Karaikal** on 22<sup>nd</sup>, 25<sup>th</sup> and 26<sup>th</sup> November, with heavy rain/snow very likely at isolated places over **Jammu & Kashmir and Himachal Pradesh** on 22<sup>nd</sup> November, over **Tamilnadu, Puducherry & Karaikal** on 22<sup>nd</sup>, 24<sup>th</sup> to 26<sup>th</sup> November, postpone irrigation,

intercultural operation, application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation. Keep harvested produce at safer places. Keep the cattle under shed during heavy rainfall. Care may be taken for decision in sowing in JK and HP (lentil, chickpea, potato, onion, cauliflower, peas, turnip, raddish).

- As shallow to moderate fog at isolated pockets very likely over **Assam & Meghalaya** during next 3 days and likely to continue for subsequent 48 hours and shallow to moderate fog at isolated pockets likely over **Bihar, Odisha, Sub-Himalayan West Bengal & Sikkim** during next 24 hours, monitor the standing crops for incidence and spread of pest & diseases. If symptoms are noticed, undertake plant protection measures.
- Undertake sowing/ transplanting of following *rabi* crops:
  - In North Zone of Kerala, undertake transplanting seedlings of cool season vegetables like cauliflower and cabbage.
  - In Southern Zone of Coastal Andhra Pradesh and Scarce Rainfall Zone of Rayalaseema, continue sowing of rabi groundnut with assured irrigation.
  - In Telangana, undertake Nursery sowing of rabi rice.
  - In North Interior Karnataka, complete the sowing of chickpea crop. Continue sowing of wheat, sorghum, sunflower; new planting of sugarcane
  - In Central Brahmaputra Valley, continue land preparation/sowing of wheat, *rabi* maize, rapeseed-mustard, *rabi* pulses and oilseeds crops; take up nursery bed preparation/ sowing of *boro* rice and sowing/planting of tomato.
  - In Odisha, carry out nursery raising/transplanting of tomato, cabbage, cauliflower and onion; sowing of brinjal, chilli and capsicum; sowing of Rabi groundnut, sesame, sunflower, toria, mustard, etc as well as green gram, black gram and sweet corn.
  - Undertake nursery preparation of late cole crop and tomato in Jharkhand; land preparation for sowing of onion in Bihar and field preparation for sowing Mustard in West Bengal.
  - In South Gujarat, continue sowing of corn, pulses crops; planting of sugarcane, sweet potato and nursery preparation for chilli, brinjal.
  - In Madhya Pradesh, continue sowing of wheat, gram, mustard, pea, chickpea and lentil. Prepare nursery for tomato, brinjal, chilli, cauliflower, cabbage, spinach, fenugreek, garlic, radish, pea, carrot, etc.
  - In Chhattisgarh, undertake land preparation/sowing of chickpea and mustard; nursery raising of onion seedlings; direct sowing the seed of radish, turnip, spinach, carrot, etc. and transplanting of cauliflower, cabbage, chilli, tomato, brinjal, etc.
  - In Jammu & Kashmir, undertake sowing of wheat ; prepare field for transplanting of onion and planting of garlic and continue sowing of mustard, peas and gram after current spell of rain.
  - In Punjab, undertake sowing of wheat, broccoli, Chinese cabbage, radish, spinach, etc. and transplanting of mid-season cauliflower.
  - In Uttar Pradesh, undertake sowing wheat, barley, gram, mustard, chickpea, vegetable pea and lentil.
  - In Arid Western Plain Zone of Rajasthan, undertake sowing of gram, mustard, wheat and barley.

## Detailed Agromet Advisories

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

**Realised Rainfall** : Significant rainfall occurred in Nellore district of Andhra Pradesh; in Alappuzha, Kottayam Pathanamthitta, Thiruvananthapuram districts of Kerala and in Cuddalore, Karaikal, Nagapattinam, Puducherry, Tirunelveli and Toothukudi districts of Tamilnadu. Weather remained mainly dry in rest of the region.

#### Advisories:

- As thunderstorm accompanied with lightning very likely at isolated places over **Kerala & Mahe** on 22<sup>nd</sup> November, over **Tamilnadu, Puducherry & Karaikal** on 22<sup>nd</sup> to 24<sup>th</sup> November, provide mechanical support to young fruit plants, banana and carry out staking of vegetables as well as propping up in sugarcane to prevent crops from lodging due to strong winds. Keep harvested produce at safer places.
- As rain/thundershowers likely at most/many places over **Tamilnadu, Puducherry & Karaikal** on 22<sup>nd</sup>, 25<sup>th</sup> and 26<sup>th</sup> November, with heavy rain very likely at isolated places over **Tamilnadu, Puducherry & Karaikal** on 22<sup>nd</sup>, 24<sup>th</sup>, 25<sup>th</sup> and 26<sup>th</sup> November, avoid irrigation, intercultural operation, application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation. Keep harvested produce at safer places. Keep the cattle under shed during heavy rainfall.

#### Kerala

- In Northern Zone, undertake transplanting seedlings of cool season vegetables like cauliflower and cabbage. Also, weather is congenial for leaf roller in rice. Spray Coragen @ 3ml/10 litres of water.
- In Problem Area Zone, weather is congenial for bud rot in coconut, apply 10% Bordeaux paste followed by 1% Bordeaux mixture.
- In Central Zone, due to cloudy weather, there is a chance of leaf folder attack in Mundakan Paddy. To control, use trichogramma cards (2CC per one acre). Cut the cards into small pieces and fix in different regions of the field. If the attack is severe, spray Quinalphos @ 2ml per one liter of water.
- In High Altitude Zone, leaf rust disease may become severe in coffee plantation due to increased relative humidity. Apply 0.5% Bordeaux mixture or plant wax 20 EC @ 1-2 ml per litre to control the disease.

#### Andhra Pradesh

- In Southern Zone of Andhra Pradesh, continue sowing of rabi groundnut with assured irrigation after seed treatment with Imidacloprid 600 F.S @ 2 ml per kg of seeds to control bud necrosis and stem necrosis.
- In North Coastal Andhra Pradesh, undertake broadcasting of pulses like green gram, black gram or sunhemp in rice field two days before harvesting of rice crop. The seed rate required is: for green gram 12-14 kg/acre, for blackgram 16-18 kg/acre and for Sunhemp 10 kg/acre. Go for seed treatment with Imidacloprid @ 5 ml or Thiamethoxam @ 3g per kg of seed. Soak the seeds for 12 hours before sowing.
- In Scarce Rainfall Zone of Rayalaseema, undertake sowing of rabi groundnut from November 15 to December 15, with assured irrigation. Select high yielding varieties and sow them at a distance of 22.5 X 10 cm after seed treatment with Thiamethoxam @ 2 ml. + 4 ml. water per kg of seeds.
- In South Coastal Andhra Pradesh, continue nursery sowings of rabi rice from the second fortnight of the November and sowing of rabi maize after seed treatment with Fortenza-Duo @ 6 ml./kg of seed.

#### Telangana

- Undertake Nursery sowing of rabi rice. Apply 500 g of Zinc Sulphate for 5 cent of nursery bed as basal dose.
- Prevailing weather conditions are congenial for maruca and helicoverpa in red gram. Spray Chlorpyrifos @ 2.5 ml or Novaluron @ 0.75 ml along with Dichlorvos @ 2ml per litre of water.
- Prevailing weather conditions are congenial for incidence of sucking pests in vegetables. To control, spray Dimethoate @ 2 ml or Acephate @ 1.5 g per litre of water.

## **Tamil Nadu**

- In High Rainfall Zone, basins can be formed for all tree crops and coir compost should be applied to conserve moisture in banana, pepper, clove, nutmeg, cinnamon and coconut.
- In Western Zone, to prevent flower shedding in cotton due to wet weather, spray Naphthalene Acetic Acid (NAA) @ 40 ppm (40 mg / liter of water).
- In Southern Zone, carry out pruning of jasmine plants to 50 cm height from the ground level. Remove the diseased twigs and unwanted branches to expose plants to the sunlight.

## **Karnataka**

- In Coastal Karnataka, complete the harvesting/threshing of rice.
- In North Interior Karnataka, complete the sowing of chickpea crop. Continue sowing of wheat, sorghum, sunflower; new planting of sugarcane and harvesting of matured cobs of maize.
- In South Interior Karnataka, continue harvesting of matured groundnut, maize, sugarcane and onion crops. Undertake sowing of short duration pulses like horse gram, green gram and black gram. Continue sowing of cowpea, field bean, jowar, chickpea, soybean, short duration ragi crop; new planting of sugarcane; sowing of water melon and carrot and nursery sowing of tomato, brinjal, chilli, cabbage, cauliflower, radish, peas, etc.
- In South Interior Karnataka, due to high humidity, wilt disease was noticed in banana orchards. To manage this, spray fungicide Bavistin @ 2mg / litre of water. Wherever stem bleeding is noticed in coconut gardens, go for root feeding with Calaxin @5ml/100 ml of water.
- In Coastal Karnataka, there is chance of attack of stem borer in ginger, turmeric and cardamom. For control, spray Monocrotophos @1.2 ml or Chloropyriphos @ 2 ml /litre of water.
- In North Interior Karnataka, incidence of leaf eating caterpillars has been noticed in niger crop. Spray Dimethoate @ 1.7ml in one litre of water.

## **Animal Husbandry:**

- In Karnataka, maintain optimum room temperature in Sericulture, Poultry and Dairy units by arranging electric bulbs. Keep the cattle shed warm.
- In Pondicherry and Karaikal, vaccinate animals against Foot and Mouth disease and Haemorrhagic Septicaemia. As a preventive measure for Babesiasis disease, apply Butox @ 2 ml/litre of water on cattle and also spray it on the nearby areas of the cattle shed to control ectoparasites.

## **Fishery**

- In Karnataka, use of organic manure in fish pond is recommended to maintain fertility of bottom soil and it can be used in the main field as a rich source of nutrients.

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

**Realised Rainfall:** Rainfall occurred in Kurung Kumey, Papumpare, Upper Siang, and West Siang districts of Arunachal Pradesh.

### **Advisories:**

- As shallow to moderate fog at isolated pockets very likely over **Assam & Meghalaya** during next 3 days shallow to moderate fog for subsequent 48 hours, monitor the standing crops for incidence and spread of pest & diseases and monitor tomato and potato crops for early blight disease. If symptoms are noticed, undertake plant protection measures.

### **Arunachal Pradesh**

- In Arunachal Pradesh, continue sowing of mustard, maize and pea. Continue planting of potato and transplanting of cole crops.

### **Assam & Meghalaya**

- In Lower Brahmaputra Valley Zone, continue sowing of rapeseed/mustard, lentil and wheat. Continue harvesting of Sali rice. To protect the matured grains of Sali rice from the attack of rodents, prepare dry poison baits by mixing atta/wheat bran/maize crush 80g, gur 10g, dry fish 5g & Zinc Pohosphide 5g; &

apply alongside the bunds for controlling field rat.

- In Central Brahmaputra Valley, continue land preparation/ sowing of wheat, *rabi* maize, rapeseed-mustard, *rabi* pulses and oilseeds crops. Continue harvesting of *Sali* rice and nursery bed preparation/ sowing of *boro* rice. Take up sowing/planting of tomato.
- In Upper Brahmaputra Valley Zone, take up harvesting of *Sali* rice. Continue nursery bed preparation/ sowing of *Boro* rice. Farmers who have not completed planting of potatoes, should preferably select late grown potato varieties for planting within mid of December. Provide mechanical support to sugarcane crop to prevent lodging at maturity stage. Apply Imidachloropid (1ml/5 litres of water) or Thiomethoxam (1g/3 litres water) to control aphid, hoppers and white fly infestation in chilli crop.
- In Barak Valley Zone, continue sowing of rapeseed/mustard and planting of potato. Undertake sowing of tomato and rajmah. Spray Malathion 50 EC @ 1.5ml/litre to protect the cole crops from leaf eating caterpillars.
- In North Bank Plain Zone of Assam, carry out harvesting of *Sali* paddy. Go for land preparation and sowing of *Rabi* pulses like lentil, rajmah, pea and lathyrus. Take up sowing of winter vegetables like cabbage, cauliflower, knolkhol, brinjal, radish and carrot. Continue nursery bed preparation/sowing of *Boro* rice. Continue sowing of rapeseed-mustard and planting of potato.
- In Hill Zone of Assam, continue harvesting of matured *Sali* rice in clear weather. Infestation of field rats in the matured *sali* rice crops may be controlled by applying 2-3 tablets of Celphos/Phostoxin/ Quickphos per burrow. Block the burrows after application of the tablets. Farmers are advised to go for bagging of the banana bunches with muslin cloth or polyethylene before fruit set in order to protect the fruits from the attack of banana fruit and leaf scarring beetle.
- In Meghalaya, carry out transplanting for cole crops (cabbage, cauliflower, broccoli) and undertake sowing of pea, coriander, palak, radish and carrot. Carry out harvesting of *Sali/kharif* rice (lowland) and make the field ready for *Rabi* crops. Go for regular harvest of Khasi Mandarin and guava fruits.

#### **Manipur, Mizoram, Tripura and Nagaland**

- In Nagaland, to manage rodents in the main field of rice, fill the burrow with smoke to suffocate and kill them. Provide support to the French bean crop with cane frames.
- In Manipur, continue harvesting and sun-drying of matured *kharif* rice and sowing of rapeseed, lentil and field pea. Continue planting of potato and transplanting of cole crops and onion. Carry out harvesting of 9 months old ginger and turmeric crops. Carry out land preparation for sowing of broad bean, French bean and pea crops.
- In Mizoram, to manage northern leaf blight disease in maize, spray approach (Methoxy-acrylates) @ 2g/litre of water in clear/ dry day. To manage rhizome rot disease in ginger and turmeric, provide adequate drainage and apply *Trichoderma harzianum* @ 50 g/bed along with FYM/ neem cake or apply Ridomil @ 2 g/litre of water.
- In Tripura, prepare field for *Rabi* crops after harvesting of rice. Farmers having at least 4 irrigation may cultivate potato and those who have at least 2 - 3 irrigation facility, may proceed for the cultivation of Gram, Lentil, Pea, etc. Seeds of pulse crops must be treated with *Rhizobium* culture before sowing.

#### **Animal Husbandry**

- In Assam, to protect poultry from cold, put gunny bags or plastic sheath curtains on the side walls of shed and increase bedding material by six inches. Care should be taken not to restrict ventilation.
- In Arunachal Pradesh, vaccinate poultry against Ranikhet disease and infectious bronchitis.
- In Nagaland, as the temperature is dropping, provide vitamin complex to poultry. Use incandescent bulbs, plastic sheets, jute sacks and plastic sacks to protect birds from cold winds.

#### **Fishery**

- In Central Brahmaputra Valley, to protect the fish population against various bacterial diseases prevalent in winter season, apply Potash @ 4-5 mg/litre of water or Sukrena WS @ 1 litre per bigha of water.
- In Nagaland, during winter months, fish are under stress and may show symptoms like erratic swimming

behaviour, not eating, gasping at the surface and others including mortalities. If such symptoms are observed, immediately stop feeding, liming and manuring. Consult an expert for remedial measures.

- In Manipur, maintain water level at a depth of 1.0m to 1.5m. Fish stocking may be done in small scale. Feeds should be provided @ 3 % body weight per day. Harvesting of fishes may be done. Select disease free fishes to be stocked as brooder. Harvest rain water to maintain fish pond water.

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

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

### **Advisories:**

- As shallow to moderate fog at isolated pockets very likely over **Bihar, Odisha, Sub-Himalayan West Bengal & Sikkim** during next 24 hours, monitor the standing crops for incidence and spread of pest & diseases and monitor tomato and potato crops for early blight disease. If symptoms are noticed, undertake plant protection measures.

### **Odisha**

- Carry out harvesting of medium duration paddy after draining water. Sundry the harvested paddy and carry out threshing. Cotton crop is at boll formation to boll bursting (seventeen to nineteen week) stage. Continue picking of bolls. Continue sowing of oilseeds like Rabi groundnut, sesame, sunflower, toria, mustard, etc as well as crops like green gram, black gram, pea and sweet corn. Continue nursery raising/transplanting of cabbage, cauliflower and onion crops. Take up sowing of solanaceous vegetables like brinjal, tomato, chilli and capsicum. Go for planting of vegetables like carrot, radish, garlic, legumes, etc.
- For fall army worm infestation in maize field, spray Spinosad 45% SC @ 0.3 ml/litre of water or Chlorantraniliprole 18.5% SC @ 0.4 ml/litre of water.

### **Bihar**

- Continue harvesting of the matured rice crop and store it in safe place after threshing. Complete the sowing of wheat (by 30<sup>th</sup> November), gram and potato. Continue sowing of maize, mustard, chick pea, lentil, gram, rajma, and pea. Undertake land preparation for sowing of onion. Continue transplanting of brinjal, tomato, chilli, late sown cauliflower and cabbage.

### **Jharkhand**

- Complete the sowing of wheat, potato, Bengal gram, lentil, field pea, mustard, linseed, barley etc. Undertake sowing of mustard crop as late sowing may increase the chances of attack of lahi and aphids. In medium land, complete the harvesting of matured rice. Complete nursery sowing of onion and transplanting of cabbage and cauliflower in the main field. Undertake nursery preparation of late cole crop and tomato.
- Spray Bio-insecticide Halt or Delphin @ 1 gm/litre of water to control white fly in cauliflower and cabbage and stem & fruit borer in brinjal.

### **West Bengal**

- In Sub-Himalayan West Bengal, complete the harvesting of mature large cardamom. Go for harvesting Mandarin orange as per elevation. Take up sowing of garden pea in the main field after necessary seed treatment. Continue field preparation for potato and cole crops like cabbage and cauliflower. Continue preparing raised bed for sowing crucifers. Carry out careful rouging and destruction of infected ginger and large cardamom plants. If lentil is to be sown after rice, care should be taken to leave the rice stalk in the field up to 6 inch or more.
- In Gangetic West Bengal, cut the matured panicles from Aman paddy plants. For sowing of mustard, prepare field with 2-3 ploughings followed by 2 harrowings. Prepare field to a fine tilth for planting of healthy potato tubers.
- For control of aphids and jassids in cabbage and cauliflower, install 2-3 yellow sticky cards per bigha.

Alternately, paint a cardboard with yellow colour, smear grease over it and install in the field. Spray Neem oil at the rate of 5 ml per litre of water along with liquid detergent at a dose of 0.5-1.0 ml.

### **Andaman & Nicobar Islands**

- Prepare plot for growing snake gourd by ploughing 3-4 times in backyard condition and make pits of size 30X30X30 cm at a distance of 3 m between the rows and 2.5 m between the plants. Do and earthing up weeding in sweet potato on 25th and 50th day after planting. Harvest the fully ripe nuts of Arecanut and keep sundry them for 30 to 40 days, preferably on bamboo or wooden structure.
- Reduce pest attack in okra by deploying pheromone trap @ 1/100 sq. m. area.

### **Animal Husbandry**

- In Odisha, keep the animal shed clean. Vaccinate and de-worm farm animals at regular intervals.
- In West Bengal, make arrangements to protect animal shed and poultry cage from cold winds. Make use of bulbs to maintain proper temperature in the poultry cage.
- In Andaman & Nicobar Islands, chicks reared under backyard condition are moving in free range at 2-3 months age and it is advised to de-worming the chicks to avoid parasitic infestation.

### **Fishery**

- In Odisha, keep pisciculture farm ponds clean. During winter, reduce the amount of food for fishes and provide feed between 2-3PM.

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

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

### **Advisories:**

#### **Maharashtra**

- In Konkan, undertake nursery bed preparation for summer rice and land preparation for groundnut. Complete harvesting of matured varieties of rice and groundnut. Continue sowing of horse gram, cowpea and *wal* in fallow lands. Undertake nursery bed preparation for sowing of summer rice (Varieties viz., Karjat- 184, Ratna, Ratnagiri -1, Ratnagiri-74, Ratnagiri- 24, Ratnagiri- 711, Karjat-1 or Karjat- 3) and land preparation for sowing of groundnut (varieties, viz., S.B. 11, T.A.G.-24, Phule pragati, Konkan gaurav, Konkan Trombe Tapora). To control tea mosquito bug in inflorescence of cashewnut, spray Profenofos 50% EC @ 10 ml per 10 liters of water.
- In Madhya Maharashtra, continue harvesting of matured rice, groundnut and picking of cotton. Continue sowing of irrigated wheat, gram and safflower. To control pod borer in pigeon pea, spray Chlorpyrifos 20% EC @ 2 ml or Quinalphos 25% EC @ 2 ml per liter of water. To control downy mildew in grapes, spray Dimethomorph @ 0.75 g + Mancozeb @ 2 g per litre of water. For control of thrips in onion, spray Dimethoate 30 % EC @ 15 ml per 10 liters of water. Undertake intercultural operation like hoeing in chickpea (20 DAS).
- In Marathawada, continue picking of cotton. Continue sowing of *rabi* crops like safflower, chick pea and wheat. Undertake intercultural operation like hoeing in chickpea (20 to 25 DAS). To control shoot borer and fruit borer in brinjal, spray Chlorantraniliprole 18.5 SC @ 4 ml or Chlorpyrifos 20 EC @ 20 ml or Cypermethrin 10 EC @ 11 ml per 10 liter of water.
- In Vidharbha, continue harvesting matured varieties of rice and picking of cotton. Dry the harvested produce under the sun. Continue sowing of irrigated wheat, gram, linseed and chickpea. For late sowing of safflower undertake intercropping of safflower with safflower+chickpea (6:3), safflower+linseed (3:3). To control leaf reddening in cotton (boll development stage), undertake foliar spray of Urea @ 100g + Magnesium sulphate @ 100g in 10 liters of water.

#### **Gujarat**

- In Saurashtra & Kutch, continue sowing of chickpea, wheat, sorghum, mustard, garlic, coriander, cumin, fenugreek, carrot and potato crops. Apply irrigation in pigeon pea through drip irrigation system. Undertake sowing of fodder sorghum and chickpea.
- In North Gujarat, continue sowing of mustard, gram, wheat, cumin, fenugreek, fennel, potato, carrot,

cabbage, brinjal and tomato crops.

- In Middle Gujarat, undertake sowing of wheat crop. Apply irrigation in castor at capsule formation stage.
- In South Gujarat, continue sowing of corn, pulses crops and planting of sugarcane, sweet potato. Continue nursery preparation for chilli, brinjal and transplanting of bell pepper.
- In South Gujarat, weather is favourable for incidence of mealy bug in cotton. Spray Profenophos 50 EC @ 20 ml/10 litres of water. For effective control of Heliothis and pod fly in pigeon pea crop at initiation of flowering stage, spray Fenvalerate 20% SC @ 5ml/10 litres of water.

#### **Animal Husbandry:**

- In Gujarat, to protect animals from cold winds. Keep cattle indoors at night time.

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

**Realised Rainfall:** Dry weather prevailed over the region.

#### **Advisories:**

#### **Madhya Pradesh**

- In Malwa Plateau Zone, continue land preparation/sowing of wheat, chick pea and mustard. Go for transplanting of mango, guava and citrus fruits in new orchards. In cotton crop areas where jassid and white fly infestation has crossed ETL, apply Imidachloprid 17.8 SL @ 3 ml/10 litre or Thiamethoxam 25 WG @ 2g/ 10 litre or Acetamiprid 20 SP @ 3g/10 litres of water. Also, install pheromone traps @ 5/ha for monitoring pink bollworm.
- In Vindhya Plateau Zone, continue sowing of improved wheat varieties after necessary seed treatment. Take up sowing of gram and lentil. Prepare nursery bed for rabi crops like onion, tomato, brinjal, chilli, cabbage and cauliflower. Continue planting of potato and garlic.
- In Central Narmada Valley Zone, start land preparation for sowing of wheat, gram and mustard. Take up raising of tomato, brinjal, chilli, potato and cucurbit vegetables.
- In Bundelkhand, continue sowing of wheat. Continue raising onion nursery. Monitor the timely-sown mustard, pea, chickpea and lentil crops for pest and disease infestation.
- In Jhabua Hill Zone, continue sowing of wheat, gram and mustard. Prepare nursery for winter vegetables like tomato, brinjal, chilli, cauliflower, cabbage, spinach, fenugreek, garlic, radish, pea, carrot etc. Continue picking of early sown tomato, brinjal, chilli and cauliflower. To control leaf eating caterpillar in guava, ber, custard apple, citrus fruits, etc., spray Trizophos @ 2 ml/litre of water.

#### **Chhattisgarh**

- In Chhattisgarh Plain Zone, continue harvesting of matured rice crop. Continue nursery sowing of early varieties of winter vegetables like cabbage, cauliflower and knolkhol. Continue nursery sowing of tomato, brinjal, chilli and capsicum after seed treatment by Thiram @ 2 gram/ kg seeds. Prepare the fields for sowing of rabi crops and go for sowing of chickpea, safflower, linseed and lentil in time.
- Monitor the late sown rice crop.
- In Northern Hill Zone, complete the harvesting of matured mung, urd, maize, rice, groundnut, finger millet etc. Plough the land immediately after harvesting and sow rabi crops like toria, green pea and potato. Undertake land preparation/sowing of chickpea and mustard. Take up sowing garlic. Go for nursery raising of onion seedlings. Start transplanting of winter vegetables like cauliflower, cabbage, chilli, tomato, brinjal, etc. and directly sowing the seed of radish, turnip, spinach, carrot, etc. after treatment with fungicide.
- In Bastar Plateau Zone, carry out harvesting of matured rice crop. Undertake sowing of wheat, moong, urad, sunflower, lathyrus, gram, safflower, lentil, potato, pea, etc.

#### **Animal Husbandry**

- Provide concentrate feed to milch animals mixed with dry & green fodder and ensure enriched diet having proteins, carbohydrates, fat, vitamins, minerals, etc.

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

**Realised Rainfall :** Rainfall occurred in Anantnag, Badgam, Baramulla, Kulgam, Kupwara, Ramban and Srinagar districts of Jammu & Kashmir. Dry weather prevailed over rest of the region.

### Advisories:

- As thunderstorm/hailstorm accompanied with lightning very likely at isolated places over **Jammu & Kashmir and Himachal Pradesh** on 22nd and 26<sup>th</sup> November, use hail net for orchard crops to protect from mechanical damage. Keep cattle/goats indoors during thunderstorm/hailstorm.
- As rain/thundershowers likely at most/many places over **Jammu & Kashmir and Himachal Pradesh** on 22<sup>nd</sup> November with heavy rain/snow very likely at isolated places over **Jammu & Kashmir and Himachal Pradesh** on 22<sup>nd</sup> November, avoid irrigation, intercultural operation, application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation. Keep harvested produce at safer places. Care may be taken for decision in sowing in JK and HP (lentil, chickpea, potato, onion, cauliflower, peas, turnip, raddish).

### Jammu & Kashmir

- In Sub Tropical Zone, continue harvesting of late transplanted Basmati rice in clear weather. Continue sowing of late sown wheat, oil seeds, cole crops and *rabi* pulses like pea, chickpea and lentil.
- In Cold Arid Zone, stop irrigating orchards or nurseries in open. Drain out excess moisture or water logging to avoid chances of frost damage. However, protected nurseries must be irrigated few times during the winters (once or twice a month).
- In Intermediate Zone, undertake sowing of wheat after the current spell of rain. Continue sowing of mustard, peas and gram after current spell of rain. Farmers are advised to prepare field for transplanting of onion and planting of garlic after current spell of rain.

### Himachal Pradesh

- In Sub-Montane and Low Hills Sub Tropical Zone, complete the sowing of *rabi* crops. Continue sowing/transplanting of onion, tomato, cole crops, potato, chilli, turnip, radish capsicum and brinjal.
- In High Hill Temperate Dry Zone, carry out harvesting of matured fruits. After the harvest in apple orchard, spray Copper Oxychloride 600gms/200 liters of water for canker.
- In Mid Hills Sub Humid Zone, continue sowing of onion, pea and cauliflower and transplanting of onion. To control the collar rot disease in apple, expose the diseased part to the Sun after removing the soil around it. Apply Chaubatia paint on the diseased part after scraping it with knife.

### Punjab, Haryana and New Delhi

- In Punjab, undertake sowing of wheat, broccoli, Chinese cabbage, radish, spinach, etc. and transplanting of mid-season cauliflower. Complete the harvesting of paddy and picking of cotton. Provide irrigation to sugarcane, vegetables and fruit crops.
- In Undulating Plain Zone, undertake sowing of timely sown wheat varieties. Continue sowing of oil seeds.
- In Haryana, considering the dry weather and favourable temperature, farmers are advised to complete the harvesting of mature crops soon as possible and go for sowing wheat, barley and *rabi* crops. Complete the picking of cotton. Complete the harvesting and threshing of paddy crop. Do not burn the residue of the crop after harvesting. Undertake thinning and weeding in timely sown mustard crop.
- In Delhi, undertake sowing of mustard, gram, pea and lentil; transplanting of onion seedling in the prepared fields and planting of early potato. Undertake transplanting of mature seedlings of cauliflower, cabbage, broccoli and tomato. Undertake field preparation for sowing of wheat, transplanting of marigold in raised bed and sowing of gladiolus in prepared fields. Irrigate wheat at CRI stage.
- In Western Zone, there is possibility of shoot and fruit borer in brinjal crop. To control, spray 80 ml Coragen 18.5 SC (Chlorantraniliprole) using 100-125 litres of water/acre 3-4 times at 14-days interval.
- In Haryana, possibility of fall in night temperature, keep the animal under sheds and clean the surroundings to control fly and mosquito in cattle shade. Provide the cattle /animals 50 grams iodized salt

and 50 to 100 grams mineral mixture daily along with animal feed/fodder, green fodder to keep them healthy.

### **Uttar Pradesh**

- **In East Uttar Pradesh**, undertake harvesting and threshing of mature **paddy** crop. In unirrigated condition, prepare field and carry out sowing of recommended and advance varieties of **wheat** in sufficient moisture. Take up sowing of recommended & advance varieties of **Barley and potato**. In irrigated condition, complete the sowing of **gram**. Undertake transplanting of prepared plant of the **marigold** on the ridges. Continue sowing of **lentil and pea**. Give light irrigation before flowering in **mustard, rai and yellow mustard crops**. Carry out weeding, hoeing and apply irrigation in garlic crop. Go for timely picking of mature **chilli and brinjal fruits**. Irrigate early and medium early **cauliflower crop**.
- **In West Uttar Pradesh**, complete the harvesting and threshing of mature crops of urad, **moong, maize and paddy**. Undertake sowing of crops like **wheat, gram, lentil, chickpea, field pea, potato, oat and barseem**. Take up sowing of **mustard** after seed treatment with Thiram or Captan @ 2-2.5 g/ kg of seeds. Apply light irrigation in late sown of rapeseed crop.

### **Uttarakhand**

- In Bhabar and Tarai Zone, continue sowing of wheat and carry out harvesting of pigeon pea.
- In Sub-Humid Sub-Tropic Zone, continue sowing of wheat and irrigate sugarcane crop as per requirement.
- In Hill Zone, start sowing of vegetable pea and transplanting of onion. Also undertake sowing of berseem and oats for green fodder production in valley areas.

### **Rajasthan**

- In Southern Humid Plain Zone, undertake sowing of improved varieties of chickpea.
- In Flood Prone Eastern Plain Zone, carry out field preparation for sowing of wheat. Continue sowing of barley and lentil.
- In Semi Arid Eastern Plain Zone, undertake field preparation for sowing wheat, barley, fenugreek and cumin.
- In Arid Western Plain Zone, harvest groundnut and cotton crops at physiological maturity stage for getting better pods and greater lint yield. Undertake sowing of gram, mustard, wheat and barley.
- In Sub Humid Southern Plain and Aravali Hill Zone, undertake sowing of barley, fenugreek, pea and garlic. Carry out field preparation for wheat.

### **Animal Husbandry**

- In High Hill Temperate Dry Zone of Himachal Pradesh, carry out deworming in cattle and sheep against round worms by giving Piperazine 220 mg/kg b.wt. Repeat dose after 14-21 days. Provide 40-50g minerals mixture daily to cows.
- In Mid Hills Sub Humid Zone of Himachal Pradesh, undertake vaccination against FMD diseases in livestock.
- In Sub-Montane and Low Hills Sub Tropical Zone, protect the newly born calves and animals from falling temperature and cold wave conditions.
- In **Uttar Pradesh**, farmers are advised to give proper & balanced diet to animals. Carry out de-worming of calves of dairy animals. Vaccinate cattle against H.S. and B.Q. diseases. Vaccinate goat against PPR disease. Increase light duration in poultry farms.

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