



National Agromet Advisory Service Bulletin

Friday 15th November 2019
(For the period 15th to 19th November 2019)



Issued by
India Meteorological Department

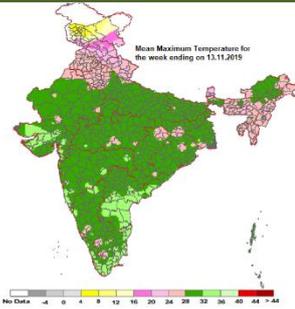
Weblink For

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

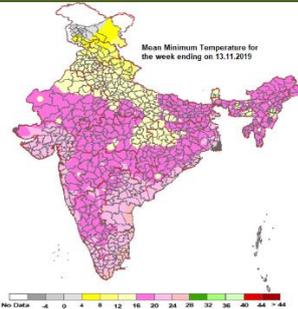
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

spatial distribution of weather parameters for the week ending on 13.11.2019

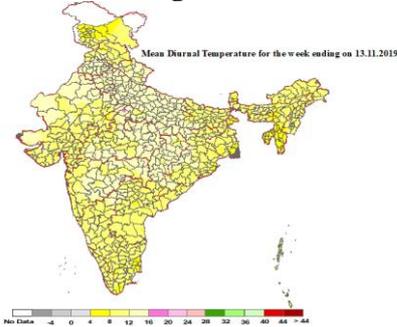
Mean Maximum Temperature (oC) for the week ending on 13.11.2019



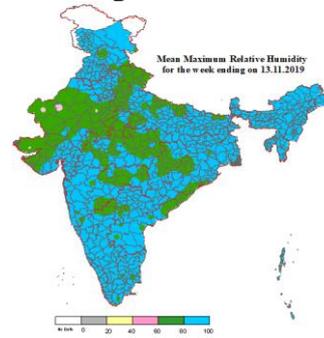
Mean Minimum Temperature (°C) for the week ending on 13.11.2019



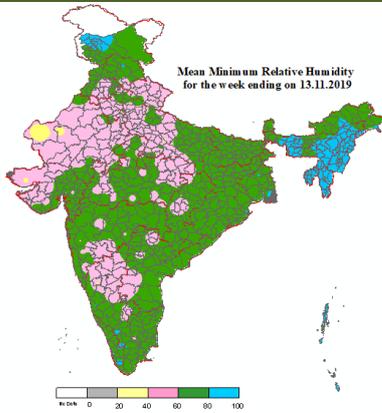
Mean Diurnal Temperature Variation (°C) for the week ending on 13.11.2019



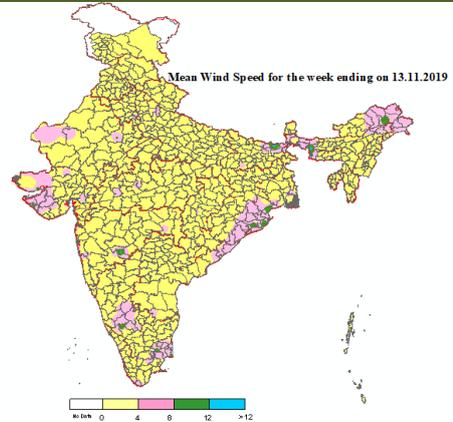
Mean Maximum Relative Humidity (%) for the week ending on 13.11.2019



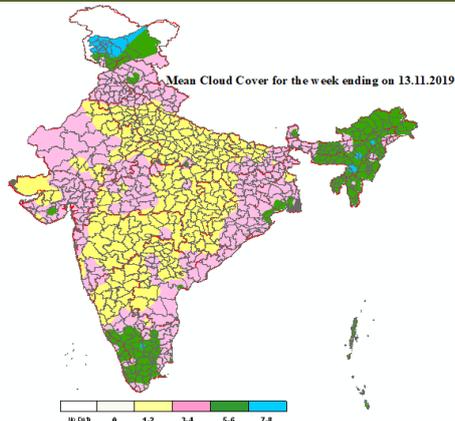
Mean Minimum Relative Humidity (%) for the week ending on 13.11.2019



Mean Wind Speed (km/hr) for the week ending on 13.11.2019

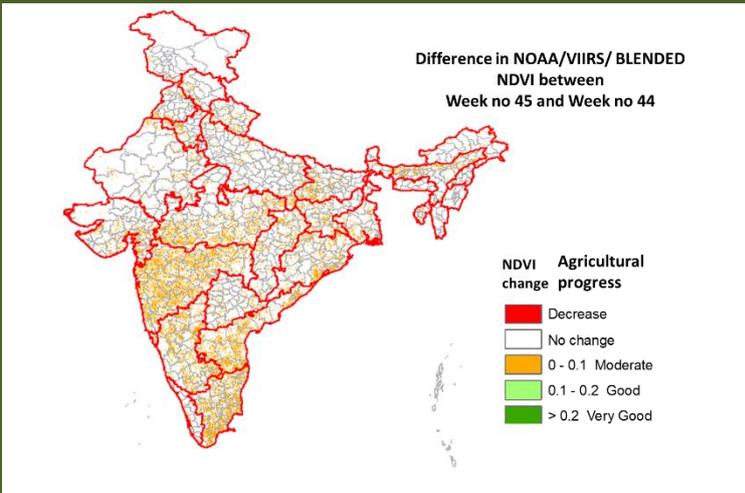
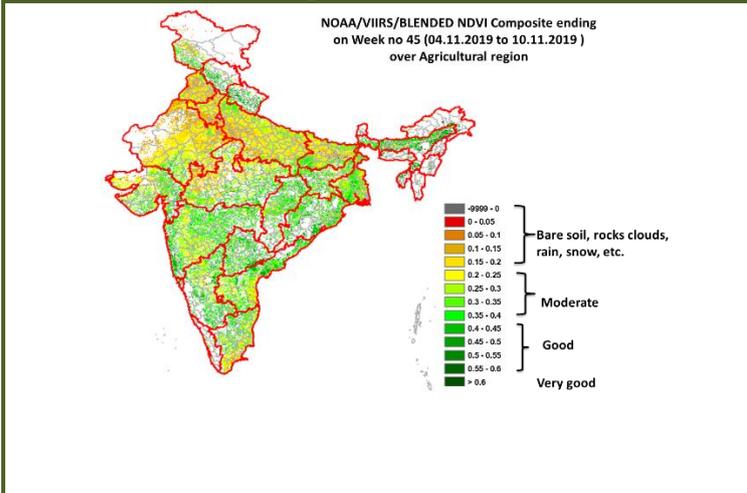


Mean Cloud Cover (okta) for the week ending on 13.11.2019



NOAA/VIIRS/BLENDED NDVI composite for the week number 45 (04.11.2019 to 10.11.2019) over Agricultural regions of India

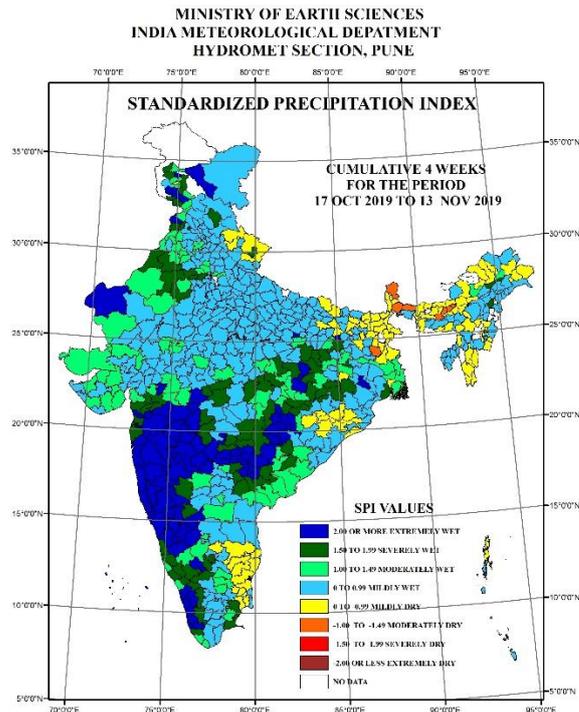
Difference in NOAA/VIIRS/BLENDED NDVI between week number 45 and week number 44



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

Good difference in agricultural vigour has been observed at many places over Coastal Karnataka; at few places over Interior Karnataka, Konkan, Madhya Pradesh, Tamilnadu and at isolated places of Odisha & adjoining Jharkhand, Coastal Andhra Pradesh, Madhya Maharashtra, Vidarbha & Kerala.

Standardised Precipitation Index Cumulative 4 weeks for the period 17th October to 13th November 2019



- Extremely/Severely wet conditions exist in Dhemaji district of Assam; Gaya, Jahanabad districts of Bihar; Valsad, Dangs, Surat, Narmada, Navsari, Tapi districts of Gujarat; Bhiwani, Jhajjar districts of Haryana; Kullu district of Himachal Pradesh; Anantnag, Baramula, Jammu, Reasi, Udhampur, Kupwara, Srinagar, Kargil, Ramban, Samba, Rajouri districts of Jammu; Uttara Kannada, Dakshin Kannada, Udupi, Bagalkote, Belgaum, Bidar, Bijapur, Dharwad, Gadag, Haveri, Koppal, Bangalore Urban, Bellary, Chamarajanagar, Chikmagalur, Chitradurga, Davangere, Kodagu, Mandya, Mysore, Shimoga, Ramanagara districts of Karnataka; Alapuzha, Cannur, Ernakulam, Kottayam, Malappuram, Palakkad, Kollam, Thrissur, Idukki, Pathanamthitta, Wayanad districts of Kerala; Betul, Harda, Hoshangabad, Khandwa, Burhanpur, Alirajpur, Dindori, Mandla, Seoni, Shahdol districts of West Madhya Pradesh; Mumbai City, Raigad, Ratnagiri, Thane, Sindhudurg, Mumbai Suburban, Palghar, Ahmednagar, Dhule, Jalgaon, Kolhapur, Nashik, Pune, Sangli, Satara, Solapur, Nandurbar, Aurangabad, Beed, Nanded, Osmanabad, Parbhani, Latur, Jalna, Hingoli, Akola, Buldhana, Chandrapur, Gadchiroli, Washim districts of Maharashtra; Mokokchung district of Nagaland; Jharsuguda, Malkangiri, Sundargarh districts of Orissa; Amritsar, Kapurthala, Tarn Taran districts of Punjab; Churu, Sri Ganganagar, Jaisalmer, Hanumangarh, Sikar districts of Rajasthan; Coimbatore, Nilgiris, Pudukkottai, Ramanathapuram districts of Tamilnadu; Dadara & Nagar Haveli, Diu district of U.T; Sonbhadra, Sant Ravidas Nagar districts of Uttar Pradesh; East Midnapore district of West Bengal; Lakshadweep; Garhwa, Palamu, East Singhbhum, West Singhbhum, Simdega, Ramgarh districts of Jharkhand; Bageshwar district of Uttarakhand; Bastar, Dhamtari, Durg, Kanker, Korba, Koriya, Mahasamund, Raigarh, Raipur, Rajnandgaon, Surguja, Bijapur, Narayanpur, Balod, Baloda Bazaar, Balrampur, Gariabund, Surajpur, Kondagaon districts of Chhattisgarh; North Goa, South Goa districts of Goa; Adilabad, Karimnagar, Khammam, Nalgonda, Nizamabad, Warangal, B.Kothagudem, Jagtial, Jangaon, J. Bhupalpally, Kamareddy, Kumaram Bheem, Mahabubabad, Mancherial, Nirmal, Peddapalle, Rajanna Sircilla, Siddipet, Suryapet, Warangal Urban, Y.Bhuvanagiri districts of Telangana.
- Moderately dry conditions exist in Darrang, Kamrup districts of Assam; Jalpaiguri districts of West Bengal; North Sikkim, East Sikkim district of Sikkim; Dumka district of Jharkhand.
- Moderately wet to midly dry conditions were experienced in remaining districts in the country.

Weather Forecast for next 5 days valid upto 0830 hours of 20th November 2019

- ◆ Meteorological sub-division wise detailed 5 days rainfall forecast is given in Table-below.
- ◆ Minimum temperatures very likely to rise by 2-3°C during next 2 days over northwest India. No significant change in minimum temperature over west & central India during next 48 hours and fall by 2-3°C during subsequent 2-3 days. No significant change in minimum temperature over rest of the country during next 2-3 days.
- ◆ Shallow to moderate fog very likely over Assam & Meghalaya during next 3 days.

5 Day Rainfall Forecast (MID-DAY)

15th November 2019

Met-Sub-Division	15-Nov Today	16Nov Sat	17Nov Sun	18Nov Mon	19Nov Tue
1. Andaman & Nicobar Islands	SCT	ISOL	ISOL	ISOL	ISOL
2. Arunachal Pradesh	DRY	DRY	ISOL	ISOL	ISOL
3. Assam & Meghalaya	DRY	DRY	ISOL	ISOL	DRY
4. N. M. M. & T.	DRY	DRY	DRY	DRY	DRY
5. S.H. West Bengal & Sikkim	DRY	DRY	ISOL	ISOL	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	ISOL	ISOL	DRY	DRY	DRY
13. Haryana, Chd & Delhi	DRY	DRY	DRY	DRY	DRY
14. Punjab	ISOL	DRY	DRY	DRY	DRY
15. Himachal Pradesh	FWS	ISOL	DRY	DRY	DRY
16. Jammu & Kashmir	WS	SCT	DRY	DRY	DRY
17. West Rajsthan	SCT	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	ISOL	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	SCT	ISOL	DRY	ISOL	ISOL
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	ISOL	ISOL	DRY	DRY	DRY
31. T.N., Puducherry & Karaikal	SCT	ISOL	ISOL	ISOL	ISOL
32. Coastal Karnataka	ISOL	ISOL	DRY	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	SCT	ISOL	DRY	ISOL	ISOL
35. Kerala & Mahe	SCT	SCT	ISOL	ISOL	ISOL
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

15 November (Day 1):

- ◆ **Heavy rain/snow** very likely at isolated places over Jammu & Kashmir and Himachal Pradesh. **Heavy rainfall** at isolated places very likely over Tamilnadu, Puducherry & Karaikal.
- ◆ **Thunderstorm** accompanied with **lightning** very likely at isolated places over Jammu & Kashmir, Himachal Pradesh, Coastal Andhra Pradesh, South Interior Karnataka, Rayalaseema, Kerala & Mahe and Tamilnadu, Puducherry & Karaikal.
- ◆ **Moderate to dense fog** very likely in isolated pockets over Nagaland, Manipur, Mizoram & Tripura.

16 November (Day 2):

- ◆ **Thunderstorm** accompanied with **lightning** very likely at isolated places over Kerala & Mahe and Tamilnadu, Puducherry & Karaikal.
- ◆ **Moderate to dense fog** very likely in isolated pockets over Nagaland, Manipur, Mizoram & Tripura.

17 November (Day 3):

- ◆ **Moderate to dense fog** very likely in isolated pockets over Nagaland, Manipur, Mizoram & Tripura.

18 November (Day 4): ◆ No weather warning.

19 November (Day 5): ◆ No weather warning.

Weather Outlook for subsequent 2 days from 20th November to 22nd November, 2019

- ◆ Isolated to scattered rainfall likely over southern peninsula, Islands and northeast India. Isolated to scattered rain/snow likely over Western Himalayan Region.
- ◆ Weather is likely to be dry over the remaining parts of the country.

Salient advisories

- In **Coastal districts of Odisha**, drain out excess water in standing rice crop by making alleys (Pahi). To control grain discolouration, spray 1.5 g Streptocycline with 25 g Copper Oxychloride per 10 litres of water. In case of partial lodging, keep paddy plants upright by tying together in bunches. Open drainage channels in vegetable and already sown *rabi* crops to facilitate drainage of excess water. Seedling rot is likely to appear in vegetable nursery. To control, spray Metalaxyl+Mancozeb / Carboxin+Thiram @ 2g/litre or Copper Oxychloride @ 2.5g/litre of water.
- In **Coastal districts of West Bengal**, if early transplanted *Aman* paddy field is in waterlogged condition and plants are lodged, arrange for draining out of excess water. If possible, cut the matured panicles from plants. In betel garden, drain out excess water as early as possible. Replace the damaged boundary with a new one. Pluck the muddy and affected betel vine leaves. Drain out excess water from waterlogged vegetable fields and, to prevent wilting, apply any copper fungicide on sunny days.
- As Thunderstorm accompanied with lightning very likely at isolated places over **Jammu & Kashmir, Himachal Pradesh, Coastal Andhra Pradesh, South Interior Karnataka, Rayalaseema** on 15th and over Kerala & Mahe and Tamilnadu, Puducherry & Karaikal on 15th and 16th 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 heavy rainfall is likely at isolated places over **Tamilnadu, Puducherry & Karaikal** on 15th, avoid

irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation. Drain out excess water from the fields of pulses, maize and vegetables. Keep harvested produce at safer places. Keep the cattle under shed during heavy rainfall.

- As heavy rain/snow very likely at isolated places over **Jammu & Kashmir** and **Himachal Pradesh** on 15th, care may be taken for decision in sowing (lentil, chickpea, potato, onion, cauliflower, peas, turnip, raddish).
- As shallow to moderate fog very likely over Assam & Meghalaya with moderate to dense fog very likely in isolated pockets over Nagaland, Manipur, Mizoram & Tripura during next 3 days, 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.
- Undertake sowing/ transplanting of following *rabi* crops:
 - In North Zone of Kerala, undertake transplanting seedlings of cool season vegetables like cauliflower and cabbage.
 - In South Zone of Tamil Nadu, undertake sowing of sunflower, minor millet, coriander.
 - In South Interior Karnataka, take up planting of sugarcane and nursery sowing/sowing of tomato, brinjal, chilli, cabbage, cauliflower, radish, peas, water melon and carrot.
 - In Lower Brahmaputra Valley and Barak Valley Zones of Assam, continue sowing of lentil, rapeseed/mustard; planting of potato and transplanting of cole crops.
 - In Odisha, carry out nursery raising/transplanting of tomato, cabbage, cauliflower and onion; sowing of Rabi groundnut, sesame, sunflower, toria, mustard, etc as well as green gram, black gram and sweet corn.
 - In Bihar and Jharkhand, take up sowing of wheat, barley, chick pea, lentil, gram, rajma, pea mustard, linseed, maize and planting of potato.
 - In Gujarat, undertake sowing of wheat, sorghum, gram, mustard, cumin, garlic, fenugreek, fennel, potato, carrot, cabbage, brinjal and tomato crops.
 - In Madhya Pradesh, take up 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 sowing of wheat, moong, urad, sunflower, lathyrus, gram, safflower, lentil, potato, etc. and winter vegetables like cauliflower, cabbage, chilli, tomato and brinjal.
 - In Punjab, undertake sowing of wheat, broccoli, Chinese cabbage, radish, spinach, etc. and transplanting of mid-season cauliflower.
 - In Uttar Pradesh, undertake sowing wheat, gram, chickpea, vegetable pea, lentil, oat, barseem and vegetables like radish, carrot, fenugreek, coriander, spinach, turnip, sugarbeet, etc.
 - Undertake sowing of gram, mustard, wheat, barley, fenugreek, pea and garlic.

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

Realised Rainfall : Significant rainfall occurred in Madurai, Namakkal, Pudukottai, Salem and Virudhunagar districts of Tamil Nadu and in all districts except Kasaragod, Kozhikode and Mahe districts of Kerala; Dakshina Kannada district of Coastal Karnataka; in Bagalkote and Gadag districts in North Interior Karnataka and in Bangalore Urban, Chamarajanagar, Davengere, Kodagu, Mandya, Mysuru and Ramanagara districts in South Interior Karnataka. Weather remained mainly dry over rest of the region.

Advisories:

- **Thunderstorm accompanied with lightning** very likely at isolated places over **Coastal Andhra Pradesh, South Interior Karnataka, Rayalaseema on 15th and over Kerala & Mahe and Tamilnadu, Puducherry & Karaikal on 15th and 16th 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 **heavy rainfall** is likely at isolated places over **Tamilnadu, Puducherry & Karaikal on 15th**, avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation. Drain out excess water from the fields of pulses, maize and vegetables. 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.
- In Problem Area Zone, stem bleeding is observed in coconut gardens. Chisel out completely affected tissues and paint the wound with Bordeaux paste (1:1:10). Apply coal tar after 1-2 days.
- In Central Zone, weather is congenial for rice case worm in paddy. To control, spread 25 kg sawdust or rice husk ash mixed with one litre kerosene (for 1 acre) after draining the field.
- In High Altitude Zone, leaf rust disease may become severe in coffee 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, undertake sowing of rabi groundnut after seed treatment with Imidachloprid 600 F.S @ 2 ml. + 4 ml. water per kg of seeds to control bud necrosis and stem necrosis.
- In North Coastal Andhra Pradesh, undertake cultivation of yellow mosaic virus tolerant pulses as rabi crop in upland areas. In light soils, horse gram and green gram are suitable to cultivate, whereas in heavy soils black gram is suitable.
- In Scarce rainfall Zone of Rayalaseema, undertake harvesting of early sown groundnut. Present weather conditions are favourable for incidence of spotted pod borer and rust in green gram. To control spray Thiodicarb @1 g or Novaluran 1 ml Chlorantriliniprole @ 0.3ml per litre of water. To control rust, spray Chlorothalonil 2 g./L or Hexaconazole 1 g per litre of water.
- In South Coastal Andhra Pradesh, undertake nursery sowings of rabi rice from the second fortnight of the November

Telangana

- Continue sowing of safflower and chickpea crops under residual soil moisture conditions.
- Prevailing weather conditions are congenial for the incidence of Spodoptera in Cotton. If noticed, spray Thiodicarb @ 1.5 g per litre of water.
- Prevailing weather conditions are congenial for cercospora & Alternaria leaf spot in cotton. To control, spray Propiconazole@1ml per litre of water.

Tamil Nadu

- In South Zone, undertake sowing of sunflower, minor millet, coriander. As weather is congenial for leaf

hopper incidence, spray Imidacloprid 200 SL@ 100 ml/ha on non-rainy days.

- In High Rainfall Zone, provide proper drainage in coconut field to avoid fungus root damage.
- In Western Zone, undertake land preparation for sowing Bengal gram and coriander. Weather is conducive for the occurrence of Panama wilt disease in banana plantation. To avoid and control, inject gelatin capsule containing 60 mg of Carbendazim or 50 mg of Pseudomonas fluorescence into the corm with the help of corm injector. Apply pressmud at 5kg per hill to reduce wilt incidence.
- In Pondicherry and Karaikal, animals may be vaccinated for Foot and Mouth Diseases and Haemorrhagic Septicaemia. De-worm the animals that graze in the open and drink pond water.

Karnataka

- In South Interior Karnataka, undertake harvesting of matured groundnut, maize and onion crops. Continue sowing of cowpea, field bean, jowar, chickpea and soybean crops. Take up planting of sugarcane and nursery sowing/sowing of tomato, brinjal, chilli, cabbage, cauliflower, radish, peas, water melon and carrot.
- In North Interior Karnataka, continue sowing of wheat, chickpea, sorghum, sunflower crops. Undertake harvesting of early sown matured maize crop.
- In Coastal Karnataka, continue harvesting of matured rice and sundry it.
- In North Interior Karnataka, pod borer eggs are noticed in the pigeon pea (flowering stage) crop; spray Profenophos @ 2 ml or Methomyl @ 0.6 g in one litre of water. Spray Chloropyrifos 20 EC @ 1 ml/litre of water for controlling stem borer in rice.
- In South Interior Karnataka, there is a possibility of occurrence of collar rot and Botrytis in castor crop in severe form. To control, spray Carbendazim @ 1g/litre.

Animal Husbandry:

- In Karnataka, vaccinate the livestock for Black Quarter and foot and mouth diseases. To control UJI fly in sericulture unit, use nylon mesh. Maintain the optimum room temperature in Sericulture, Poultry and Dairy units by arranging electric bulbs.

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

Realised Rainfall: Rainfall occurred in all districts of Mizoram and Tripura; in Cachar and N. C. Hills districts of Assam; in East Garo Hills, East Khasi Hills and West Khasi Hills districts of Meghalaya; in Bishnupur, Churachandpur, Imphal East, Senapati and Ukhrul districts of Manipur and in Dimapur, Kephire, Kohima and Mokokchung districts of Nagaland. Weather remained mainly dry over rest of the region.

Advisories:

- **Shallow to moderate fog** very likely over **Assam & Meghalaya** with **moderate to dense fog** very likely in isolated pockets over **Nagaland, Manipur, Mizoram & Tripura during 15th to 17th November**, 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 transplanting of cole crops and sowing of mustard. Continue planting of potato and sowing of pea.

Assam & Meghalaya

- In Lower Bramhaputra Valley Zone, continue sowing of lentil, rapeseed/mustard and transplanting of cole crops. Undertake land preparation/ sowing of wheat. Apply Malathion 5% dust @ 3Kg per bigha against rice bug at milking to dough stage of Sali rice. To control Cercospora leaf spot disease in green and black gram crop, spray Carbendazim @ 0.5gm/litre of water on a non rainy day and repeat at an interval of 12-15 days.
- In Central Bramhaputra Valley, continue land preparation/ sowing of wheat, *rabi* maize, rapeseed-mustard, *rabi* pulses, oilseeds and cole crops. Undertake nursery bed preparation and sowing of *boro* rice and harvesting of *Sali* rice.

- In Upper Brahmaputra Valley Zone, undertake nursery bed preparation/ sowing of *Boro* rice. Farmers are advised to go for bagging of the banana bunches with muslin cloth or blue polyethylene before fruit set in order to protect fruits from the attack of banana fruit and leaf scarring beetle. Remove the bags after 60 days of fruit setting or spray Malathion 50 EC (1 ml in 1 litre of water) on the bunches immediately after emergence as preventive measure against the pest.
- In Barak Valley Zone, continue sowing of rapeseed/mustard and planting of potato. Spray Malathion 50 EC @ 1.5ml/litre to protect the cole crops from leaf eating caterpillars.
- In North Bank Plain Zone of Assam, undertake nursery bed preparation/ sowing of *Boro* rice and continue sowing of rapeseed-mustard and cole crops and planting of potato.
- In Hill Zone of Assam, continue harvesting of matured Sali rice in clear weather. Areas where paddy crop is about to mature, stop irrigation two weeks before harvesting. Continue nursery sowing of chilli and tomato.
- In Meghalaya, continue nursery raising/ transplanting for cole crops (cabbage, cauliflower, broccoli) and undertake sowing of pea. Maintain 5 cm water level till the flowering stage of *Sali/kharif* rice (lowland).

Manipur, Mizoram, Tripura and Nagaland

- In Nagaland, continue harvesting of ginger/turmeric and rice. To manage rodents in the main field of rice, fill the burrow with smoke to suffocate and kill them.
- In Manipur, continue harvesting of matured *kharif* rice and land preparation/sowing of rapeseed, lentil and field pea. Continue planting of potato; nursery sowing of cole crops, onion and sowing of broad bean/pea/French bean. Spray Carbendazim @2.5 g/litre of water for rhizome rot disease in ginger.
- In Mizoram, continue nursery raising of brinjal, chilli and early crucifer crops. Before transplanting of broccoli and cabbage seedlings, go for root dipping in Bavistin solution @ 1 gram per litre of water for ½ hour. Harvest all mature crops and keep in safe place. Crops like tomato, brinjal and chilli are in vegetative stage. Provide support with bamboo stick.
- In Tripura, continue planting of potato. Complete the sowing of sesame, toria and lentil. Continue harvesting of *Aman* rice. Downey Mildew may occur in pointed gourd, cucumber and other cucurbits. Apply combination of Cymoxanil and Mancozeb @ 2gm per litre of water. Repeat the application at least twice at 5 days interval.

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 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 Barak Valley Zone of Assam, add 2-5% vitamin mineral mixture in fish feed for better growth and to strengthen immunity for disease resistance in fish.

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

Realised Rainfall: Rainfall occurred in South Andaman and Nicobar districts of Andaman & Nicobar Islands; in Balasore, Bhadrak, Jagatsingpur, Jajpur and Kendrapada districts of Odisha and in East Midnapore, Hooghly, Kolkata, Nadia, North 24 Paraganas, South 24 Paraganas and West Midnapore districts of Gangetic West Bengal. Weather remained dry/mainly dry over the rest of the region.

Advisories:

Odisha

- In areas affected by recent heavy rains, drain out excess water in standing rice crop by making alleys (Pahi). To control grain discoloration, spray 1.5 g Streptocycline with 25 g Copper Oxchloride per 10

litre water. In case of partial lodging, plants can be kept upright by tying together in bunches. Open drainage channels in vegetable and already sown rabi crops to facilitate drainage of excess water. Seedling rot is likely to appear in vegetable nursery. To control, spray Metalyxyl+Mancozeb / Carboxin+Thiram @ 2g/litre or Copper Oxychloride @ 2.5g/litre of water.

- In other areas, carry out harvesting of matured direct seeded rice crop. Transplanted paddy is at soft dough to maturity (eleven to fourteen week) stage in main field. Keep water in the field up to hard dough stage and drain it out at maturity stage. Cotton crop is at boll formation to boll bursting (seventeen to nineteen week) stage. Carry out picking of bolls as weather is clear. Prepare field to transplant 3-4 weeks old tomato seedlings. Carry out nursery raising/transplanting of cabbage, cauliflower and onion crops. Take up sowing of oilseeds like Rabi groundnut, sesame, sunflower, toria, mustard, etc as well as crops like green gram, black gram and sweet corn.
- Spray Profenofos 50% EC 400ml/acre mixing with 200 litres of water for pod borer attack in arhar crop.

Bihar

- Continue harvesting of the matured rice crop and store it in safe place after threshing. Undertake sowing of wheat, chick pea, lentil, gram, rajma, pea, maize and planting of potato. Complete nursery sowing of onion. Carry out transplanting of brinjal, tomato, chilli, late sown cauliflower and cabbage, where seedlings are ready.

Jharkhand

- Undertake sowing of wheat, potato, Bengal gram, lentil, field pea, mustard, linseed, barley etc. In medium land, continue harvesting of matured rice. Continue nursery sowing of onion and transplanting of 3-4 week old seedlings of cabbage and cauliflower in the main field.
- Under present weather condition, there is a chance of attack of powdery mildew disease in vegetable pea; to control, spray Kairathen @ 1 ml / liter of water or Sulfex @ 3 g / liter of water.

West Bengal

- In Sub-Himalayan West Bengal, complete the harvesting of mature large cardamom. Paddy crop will be ready for harvesting in next few days. 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. Take up sowing of garden pea in the main field after necessary seed treatment. Continue field preparation for potato, garden pea 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.
- For aphids, hoppers, white fly and thrips in chilli crop, apply Imidacloprid 17.8 SL@1ml / 5litres of water or Thiomethoxam @1g / 3 liters of water and for yellow mite apply Propergite 2.5 ml/litre of water.
- In Gangetic West Bengal, if early transplanted Aman paddy field is in waterlogged condition and plants are lodged, wait for draining out of excess water. If possible, cut the matured panicles from plants. In betel garden affected by heavy rains, drain out excess water as early as possible. Replace the damaged boundary with a new one. Pluck the muddy and affected betel vine leaves. Drain out excess water from waterlogged vegetable fields and, to prevent wilting, apply any copper fungicide on sunny days.
- For sowing of mustard, prepare a fine seed-bed with 2-3 ploughings followed by 2 harrowings.

Andaman & Nicobar Islands

- Dry the harvested rice as weather is conducive and maintain safe moisture level of 8 % after threshing. Carry out weeding in vegetables. Prepare raised bed in home garden and sow 3-4 seed of cucurbit and 2-3 seeds of beans per pit.
- Monitor for powdery mildew in bhendi and cowpea crops.

Animal Husbandry

- In Jharkhand, forbid dampness and to prevent ammonia gas formation in the shed, sprinkle limestone.
- In Odisha, keep the shed clean. Vaccinate and de-worm farm animals at regular intervals.

- In West Bengal, make arrangements to protect poultry cage from wind and rain. Make use of bulbs to maintain proper temperature in the cage.
- In Andaman & Nicobar Islands, provide Haematinic syrup to piglets to improve health and avoid anaemia.

Fishery

- In Odisha, keep pisciculture farm ponds clean.
- In Andaman & Nicobar Islands, feed fish fingerlings of IMC carps with the mixture of rice bran and ground nut oil cake at 1:1 ratio at the rate of 2 % of body weight.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

Realised Rainfall: Rainfall occurred in Mumbai Suburban district of Konkan & Goa. Weather remained dry/mainly dry over the rest of the region.

Advisories:

Maharashtra

- In Konkan, Undertake land preparation for nursery sowing of summer rice (Varieties viz., Karjat- 184, ratna, Ratnagiri -1, Ratnagiri-74, Ratnagiri- 24, Ratnagiri- 711, Karjat-1 or Karjat- 3) and sowing of groundnut (varieties, viz., S.B. 11, T.A.G.-24, Phule pragati, Konkan gaurav, T.G. 26, Konkan Trombe Tapora). Continue harvesting of matured varieties of rice and groundnut. Continue sowing of horse gram, cowpea and *wal* in fallow lands. To control tea mosquito bug in new flush and flower of cashew, spray Monocrotophos 36% EC @ 15 ml per 10 liter of water. To control midge fly and shoot borer in vegetative flush of mango, spray Lambda cyhalothrin 5% EC @ 6ml or Quinalphos 25%EC @ 25 ml per 10 liters of water.
- In Madhya Maharashtra, Continue harvesting of matured rice, groundnut and picking of cotton. For timely sowing of irrigated wheat use NIAW-301 (Tryambak), NIAW (917), MACS-6222 Sarbati varieties and for irrigated late sowing use NIAW-34 and AKAW-4627 varieties. Complete sowing of irrigated wheat and safflower. To control thrips and blight in onion, spray Fipronil 5 SC @ 15 ml or Profenophos 50 EC @ 10 ml or Teuconazol @ 10 ml or Carbendazim @ 10 g + Sticker @ 10 ml with 10 liters of water using knapsack spray pump. To control sucking pest in cotton, spray 5% Neemark. For control of sigatoka blight disease in banana plantation remove and destroy the infested leaves and spray Carbendazim @ 10 g or Diathen M-45 @ 25 g or Copper oxychloride @ 25 g along with sticker per 10 litres of water. To control thrips in onion, spray Dimethoate 30% E.C. @ 15 ml per 10 liters of water.
- In Marathawada, Continue picking of cotton. Continue sowing of *rabi* crops like safflower, chick pea and wheat. To control thrips in chilli, spray Fipronil 5 % @ 20 ml per 10 liter of water. .
- In Vidharbha, Continue sowing of irrigated wheat, gram, linseed and chickpea. Continue harvesting matured varieties of rice and picking of cotton Dry the harvested produce under the sun. For late sowing of safflower undertake intercropping of safflower with safflower+chickpea (6:3), safflower+linseed (3:3). Undertake foliar spray of 2% DAP (DAP @ 200 g +10 litre water) mixed with Planofix @ 4 ml in cotton (boll development stage) to reduce boll shedding and improve boll growth.

Gujarat

- In Middle Gujarat, carry out intercultural operation in tobacco crop. Complete land preparation and undertake sowing of wheat crop. Procure seeds for *rabi* crops.
- In North Gujarat, undertake sowing of mustard, gram, wheat, cumin, fenugreek, fennel, potato, carrot, cabbage, brinjal and tomato crops. Carry out regular picking of cotton bolls.
- In South Gujarat, continue sowing of corn and pulses crops. Continue nursery preparation for chilli, brinjal and transplanting of bell pepper.
- In Saurashtra & Kutch, undertake sowing of chickpea mustard, garlic, coriander, wheat and sorghum at optimum soil moisture condition.
- In Saurashtra, for the control of purple blotch disease in onion, three alternate sprays of Mencozeb @ 27 gm and Thiophanate Methyl @15 gm / 10 litres of water at 10 days interval are recommended. Monitor

the cluster bean, lady's finger, brinjal, tomato crops for infestation of jassid and white fly; if noticed, spray 500 ml of 5 % neem seed extract or neem seed oil 50 ml with Diafenthiuron 50 % WP @ 16 gm / 10 litres of water.

- In South Gujarat, spray Monocrotophos 36 SL @ 20 ml/10 litres of water against spotted bollworm infestation in cotton crop.

Animal Husbandry:

- In Gujarat, keep cattle indoors at night time as protection from cold wind. Provide dry fodder twice a day.

CENTRAL INDIA [M.P., CHHATTISGARH]

Realised Rainfall: Rainfall occurred in Alirajpur and Burhanpur districts of Madhya Pradesh. Mainly dry/dry weather prevailed in rest of the region.

Advisories:

Madhya Pradesh

- In Malwa Plateau Zone, carry out land preparation for sowing 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 cross 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, take up sowing of improved wheat varieties after necessary seed treatment. Prepare nursery bed for rabi crops like onion, tomato, brinjal, chilli, cabbage and cauliflower. Go for planting of potato and garlic.
- In Nimar Valley Zone, start sowing of wheat and gram.
- In Central Narmada Valley Zone, harvest kharif rice. Start land preparation for sowing of wheat, gram and mustard. Take up raising of tomato, brinjal, chilli, potato and cucurbit vegetables.
- In Bundelkhand, take up sowing of wheat, pea, chickpea and lentil. Raise onion nursery and complete the sowing of coriander and garlic.
- In Jhabua Hill Zone, take up 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.

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. Take up sowing of Rabi pulses and oilseed crops around 15 November so as to reduce the outbreak of insect pest.
- Spray Dichlorvos 76 EC @ 600 ml dissolved in 500 litres of water per ha for management of cut worm in late maturing 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, mustard, green pea and potato. Undertake land preparation for sowing of chickpea and mustard. Start transplanting of winter vegetables like cauliflower, cabbage, chilli, tomato, brinjal. Take up sowing garlic. Go for nursery raising of onion seedlings.
- In Bastar Plateau Zone, carry out harvesting of matured rice crop. Undertake sowing of wheat, moong, urad, sunflower, lathyrus, gram, safflower, lentil, potato, etc.

Animal Husbandry

- Keep cattle sheds dry, clean and ventilated. Vaccinate cows and buffaloes for FMD. Vaccinate goats with ETV vaccine. Vaccinate chicks against Ranikhet disease with F1 at 7 days and with R2B at 6 weeks.

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

Realised Rainfall : Significant rainfall occurred in Kupuwara district of Jammu & Kashmir. Dry weather prevailed over the districts of the region.

Advisories:

- As **Thunderstorm accompanied with lightning** very likely at isolated places **over Jammu & Kashmir and Himachal Pradesh on 15th 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 **heavy rain/snow** very likely at isolated places **over Jammu & Kashmir and Himachal Pradesh on 15th November**, avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation. Drain out excess water from the fields of pulses, maize and vegetables. Keep harvested produce at safer places. Keep the cattle under shed during heavy rainfall. **Care may be taken for decision in sowing (lentil, chickpea, potato, onion, cauliflower, peas, turnip, raddish). --- only on 15th, so no need to give**

Jammu & Kashmir

- In Sub Tropical Zone, undertake harvesting of matured semi-fine rice cultivars in clear weather. Continue sowing of mustard. Undertake sowing of pea, chickpea and lentil. Undertake sowing of winter potato.
- In Intermediate Zone, undertake land preparation for sowing of wheat. Carry out weeding and hoeing operations in 3-weeks old toria crop. Complete the sowing of peas and gram. Carry out earthing up in cole crops. Undertake nursery sowing of late cauliflower and onion crops. Complete the sowing of mustard crop under lower/plain areas. Arrange safe storage facility for the harvested rice and maize produce to avoid losses due to rainfall.

Himachal Pradesh

- In Sub-Montane and Low Hills Sub Tropical Zone, complete the sowing of rabi crops. Continue transplanting of onion, carry out weeding and hoeing operations in vegetable crops like tomato, chilli, capsicum and brinjal. Undertake sowing of turnip and radish. Undertake sowing of potato.
- In High Hill Temperate Dry Zone, keep the polyhouse closed to maintain the temperature. 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, spray 5 % urea in temperate fruit especially in apple, continue preparation of beds in the existing orchards. Continue sowing of onion, pea and cauliflower. Carry out hoeing and weeding operations in winter crops like garlic, radish, carrot, spinach.

Punjab, Haryana and New Delhi

- In Punjab, undertake sowing of wheat, broccoli, Chinese cabbage, radish, spinach, etc. and transplanting of mid-season cauliflower. Undertake harvesting of the paddy crop and picking of cotton.
- In Undulating Plain Zone, undertake sowing of timely sown wheat varieties.
- In Haryana, undertake land preparation for sowing mustard and chickpea crops and prepare field for wheat/barley crops. Undertake harvesting of paddy 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.
- In Western Zone, due to chances of light rain/thundershowers during next 3-4 days, 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.

Uttar Pradesh

- **In East Uttar Pradesh**, continue harvesting of rice crop. Continue timely sowing of wheat and mustard. Carry out sowing of chickpea, Bengal gram, lentil and vegetable pea after seed treatment with Rhizobium, PSB and Trichoderma @ 6.0 gm/ Kg seeds.
- **In West Uttar Pradesh**, continue harvesting and threshing of mature crops of urad, moong, maize and paddy. Undertake sowing of crops like wheat, gram, lentil, oat and barseem. Go for sowing of vegetables like radish, carrot, fenugreek, coriander, spinach, turnip, sugarbeet, etc. Prepare field for nursery raising of onion. Undertake transplanting of chilli, papayas, capsicum.

Uttarakhand

- In Bhabar and Tarai Zone, continue sowing of wheat. Complete the sowing of lentil. Undertake transplanting of cabbage and cauliflower seedlings.
- In Sub-Humid Sub-Tropic Zone, maintain optimum soil moisture in the long duration rice crop during grain formation period. Complete the sowing of autumnal sugarcane crop. Complete the sowing of mustard crop. Undertake field preparation for transplanting of tomato, brinjal, chilli and capsicum.
- In Hill Zone, continue sowing of wheat, harvesting of matured vegetable pea. Avoid excess moisture in onion nursery. Continue sowing of mustard, radish, carrot, fenugreek, coriander and garlic. Carry out weeding and hoeing in vegetable crops. Use bio-mulch to conserve soil moisture.

Rajasthan

- In Flood Prone Eastern Plain Zone, carry out field preparation for sowing of wheat. Undertake sowing of barley and lentil.
- In Semi Arid Eastern Plain Zone, undertake field preparation for sowing wheat and barley.
- 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 Uttar Pradesh**, Vaccinate cattle to prevent Foot and Mouth disease. Provide balance feed to them. Vaccinate goats against PPR disease. Increase light duration for about 14-16 hrs in poultry house.

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