



National Agromet Advisory Service Bulletin



Thursday 30th November 2017

(For the period 30th November to 5th December 2017)



Issued by

India Meteorological Department

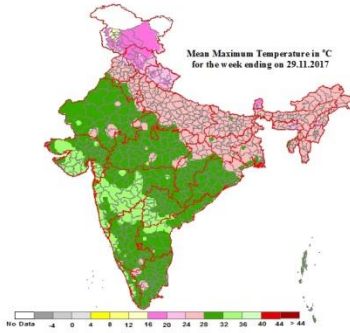
Weblink For

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

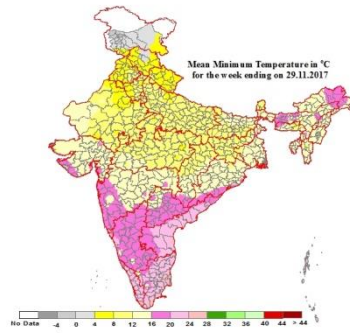
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Spatial distribution of weather parameters for the week ending 29.11.2017

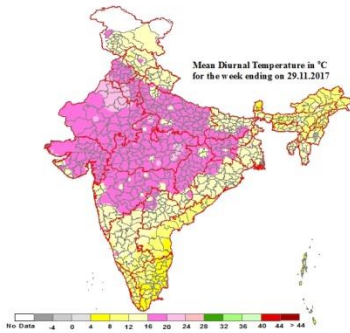
Mean Maximum Temperature (°C) for the week ending 29.11.2017



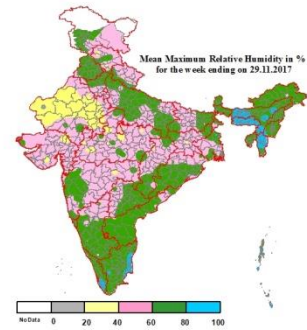
Mean Minimum Temperature (°C) for the week ending 29.11.2017



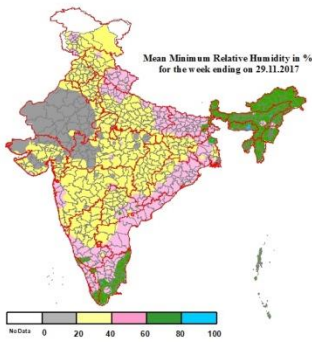
Mean Diurnal Temperature Variation (°C) for the week ending 29.11.2017



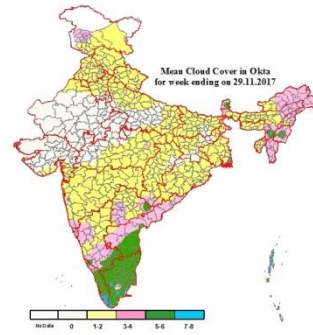
Mean Maximum Relative Humidity (%) for the week ending 29.11.2017



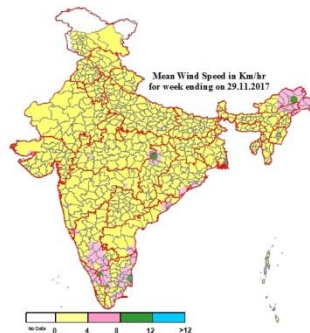
Mean Minimum Relative Humidity (%) for the week ending 29.11.2017



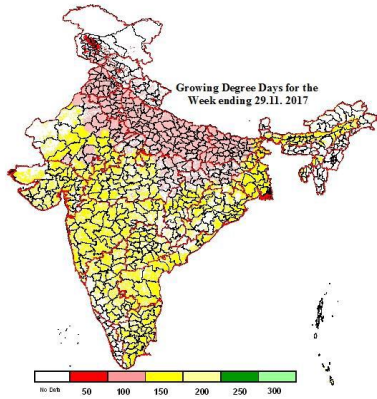
Mean Cloud Cover (okta) for the week ending 29.11.2017



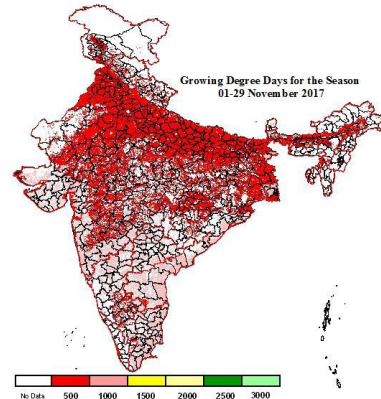
Mean Wind Speed (km/hr) for the week ending 29.11.2017



Growing Degree Days for the week ending 29.11.2017

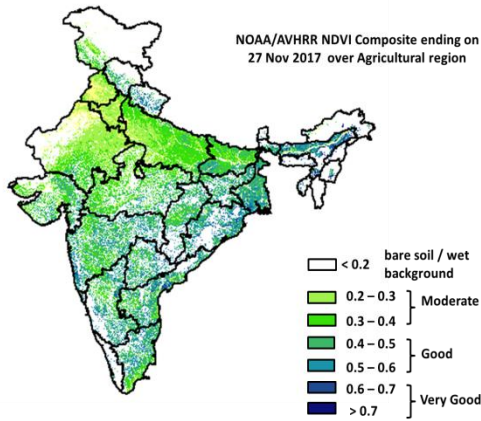


Growing Degree Days for the season ending 29.11.2017

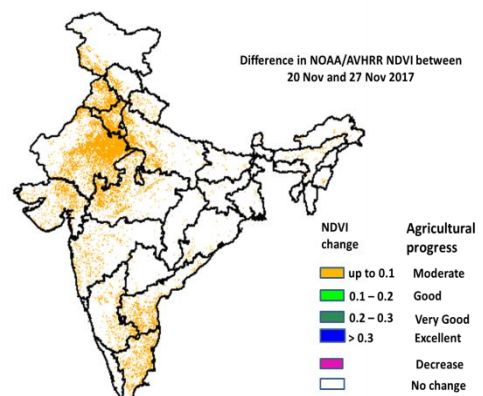


* Base temperature for *Rabi* Season is taken as 05⁰ C

NOAA/AVHRR NDVI composite ending on 27th November 2017 over Agricultural regions of India

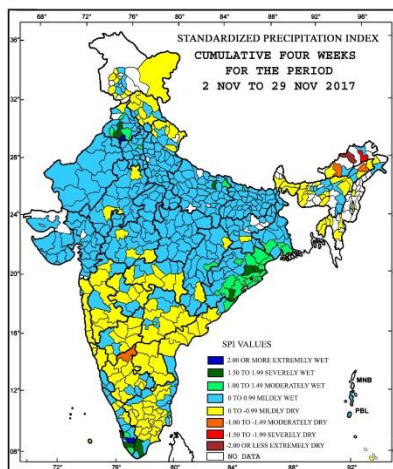


Difference in NOAA/AVHRR NDVI between 20th and 27th November 2017

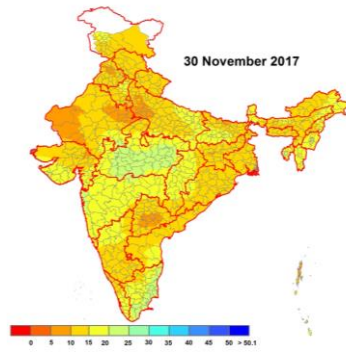


**Standardised Precipitation Index
Cumulative 4 weeks for the period 2nd to 29th November 2017**

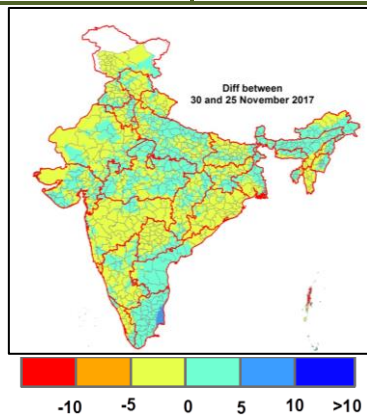
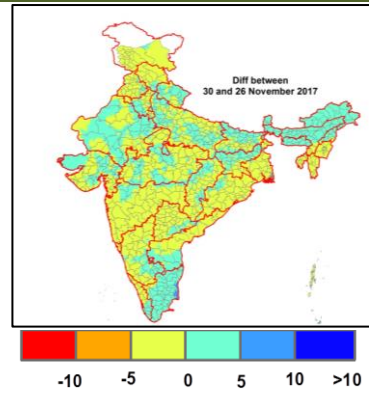
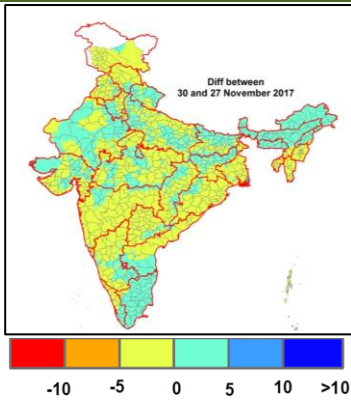
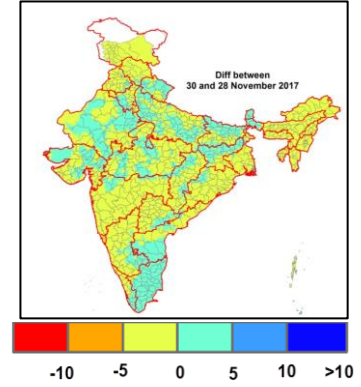
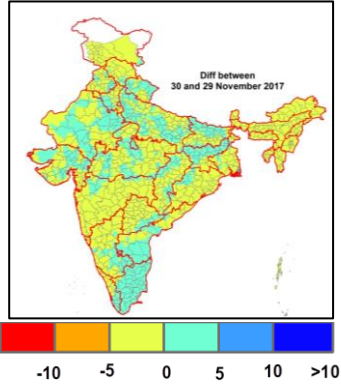
MINISTRY OF EARTH SCIENCES
INDIA METEOROLOGICAL DEPARTMENT
HYDROMET SECTION, PUNE



Daily Soil Moisture (mm) for 30th November 2017 (ending at 0830 IST) for 60 cm depth



Difference of Soil Moisture (mm) for 60 cm depth



Cyclonic Storm (Ockhi)

- The Deep Depression over Comorin area and neighbourhood moved westnorthwestwards with a speed of 38 kmph during past 06 hours and intensified into a **Cyclonic Storm (Ockhi)** and lay centered at 0830 hrs IST of today, the 30th November, 2017 over Comorin area & neighbourhood near latitude 7.5°N and Longitude 77.5°E, about 340 km westnorthwest of Galle (Sri Lanka), 60 Km south of Kanyakumari (Tamilnadu), 120 km southwest of Thiruvananthapuram and 480 km eastsoutheast of Minicoy. The system is very likely to move westnorthwestwards towards Lakshadweep Islands and intensify further into a **Severe Cyclonic Storm** during next 24 hours.
- The low pressure area over Malay Peninsula and adjoining south Andaman Sea with associated upper air cyclonic circulation extending upto 5.8 km above mean sea level persists. It is very likely to become a well marked low pressure area over south Andaman Sea & neighborhood during next 24 hours. Subsequently, it is likely to move westnorthwestwards and concentrate into a Depression.

Weather Forecast for next 5 days valid upto 0830 hours of 5th December 2017

- Meteorological subdivision wise detailed of 5 days rainfall forecast is given in Table below.
- No significant change in minimum temperatures are very likely over most parts of the country during next 2 days.
- Shallow to moderate fog at isolated places in the morning hours likely over northern parts of Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Rajasthan, Bihar and Sub-Himalayan West Bengal and Arunachal Pradesh during next 2 days.

5 Day Rainfall Forecast (Mid day) 30th November 2017

Met-Sub-Division	30-Nov Today	01Dec Fri	02Dec Sat	03Dec Sun	04Dec Mon
1. Andaman & Nicobar Islands	FWS	WS	WS	FWS	FWS
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	ISOL	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	ISOL	ISOL	ISOL
17. West Rajasthan	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	ISOL
22. Saurashtra & Kutch	DRY	DRY	DRY	DRY	ISOL
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 Andhra Pradesh	ISOL	DRY	DRY	DRY	ISOL
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	ISOL	DRY	DRY	DRY	ISOL
31. Tamilnadu & Puducherry	WS	WS	SCT	SCT	SCT
32. Coastal Karnataka	ISOL	ISOL	ISOL	DRY	DRY
33. North Interior Karnataka	DRY	DRY	DRY	DRY	DRY
34. South Interior Karnataka	ISOL	ISOL	ISOL	DRY	DRY
35. Kerala	FWS	FWS	SCT	SCT	ISOL
36. Lakshadweep	WS	WS	FWS	SCT	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

- **30 November (Day 1):** Heavy to very heavy rain very likely at a few places with extremely heavy falls at isolated places over Lakshadweep; heavy to very heavy rain very likely at isolated places over south Tamilnadu and south Kerala. Heavy rain very likely at isolated places over Nicobar Islands. Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely along & off south Kerala during next 48 hours and along & off south Tamilnadu. Squally winds speed reaching 55-65 kmph gusting to 75 kmph very likely along & around Lakshadweep Islands during next 12 hours and increase thereafter with speeds becoming 80-90 kmph gusting to 100 kmph from tonight. Fishermen are advised not to venture into Sea along and off south Tamilnadu & south Kerala coasts and Lakshadweep Islands. Sea conditions very likely to be high along & off south Kerala and south Tamilnadu coasts and around Lakshadweep Islands. Thunderstorms accompanied with squall and lightning very likely at isolated places over Tamilnadu and Kerala. Dense to very dense fog at isolated places very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura .
- **01 December (Day 2):** Heavy to very heavy rain very likely at a few places with extremely heavy falls at isolated places over Lakshadweep; heavy to very heavy rain very likely at isolated places over Andaman & Nicobar Islands and heavy rain at isolated places over interior Tamilnadu and Kerala. Gale wind speed reaching 80-90 kmph gusting to 100 kmph very likely over & around Lakshadweep Islands. Squally winds speed reaching 55-65 kmph gusting to 75 kmph very likely along and off Kerala coast and speed reaching 30-40 kmph gusting to 50 kmph very likely around Andaman & Nicobar Islands and adjoining Seas. Sea conditions very likely to be very rough to high along and off south Kerala and high around Lakshadweep Islands. Fishermen are advised not to venture into Sea along and off Kerala coast and around Lakshadweep Islands and are advised to be cautious while venturing into Sea around Andaman & Nicobar Islands. Dense to very dense fog at isolated places very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- **02 December (Day 3):** Heavy rain very likely at isolated places over Tamilnadu & Puducherry, Lakshadweep and Andaman & Nicobar Islands. Squally winds speed reaching 35-45 kmph gusting to 55 kmph very likely around Andaman & Nicobar Islands and adjoining seas. Fishermen are advised to be cautious while venturing into Sea around Andaman & Nicobar Islands.
- **03 December (Day 4):** No weather warning.
- **04 December (Day 5):** Heavy rain likely at isolated places over Tamilnadu & Puducherry.

Weather Outlook for subsequent 2 days from 5th to 7th December 2017

- The present low pressure area over Malay Peninsula and adjoining Andaman Sea, after the forecast intensification is likely to be over westcentral Bay of Bengal off north Tamilnadu south Andhra Pradesh coasts around 5th December.
- Rain at many places likely over Andaman & Nicobar islands and at isolated to few places over Lakshadweep, south peninsula and adjoining central & eastern India.
- Weather is likely to be dry over the remaining parts of the country.

Salient Advisories

- The Deep Depression over Comorin area and neighbourhood moved westnorthwestwards with a speed of 38 kmph during past 06 hours and intensified into a **Cyclonic Storm (Ockhi)** and lay centered at 0830 hrs IST of today, the 30th November, 2017 over Comorin area & neighbourhood near latitude 7.5°N and Longitude 77.5°E, about 340 km westnorthwest of Galle (Sri Lanka), 60 Km south of Kanyakumari (Tamilnadu), 120 km southwest of Thiruvananthapuram and 480 km eastsoutheast of Minicoy. The system is very likely to move westnorthwestwards towards Lakshadweep Islands and intensify further into a **Severe Cyclonic Storm** during next 24 hours.
- In association with the System, rain/thundershowers would occur at most places over **Tamil Nadu** and at many places over **Kerala** on 30th November and 1st December, along with heavy to very heavy/heavy rain at isolated places very likely over South Tamilnadu and Kerala on 30th November, over interior Tamil Nadu and Kerala on 1st and over **Tamil Nadu** and **Puducherry** on 2nd and 4th December, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation.

- As thunderstorms accompanied with squall and lightning very likely at isolated places over **Tamilnadu** and **Kerala** on 30th November, Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely along & off south Kerala during next 48 hours and along & off south Tamilnadu and Squally winds speed reaching 55-65 kmph gusting to 75 kmph very likely along and off Kerala coast on 1st December, provide support to young fruit plants, banana, propping up in sugarcane and staking in vegetables to protect them from lodging.
- As gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely along & off **south Kerala** during next 48 hours and along & off **south Tamilnadu**, squally winds speed reaching 55-65 kmph gusting to 75 kmph very likely along & around Lakshadweep Islands during next 12 hours and increase thereafter with speeds becoming 80-90 kmph gusting to 100 kmph from tonight, squally winds speed reaching 30-40 kmph gusting to 50 kmph very likely around Andaman & Nicobar Islands and adjoining Seas on 1st and 35-45 kmph gusting to 55 kmph on 2nd December and sea conditions very likely to be high along & off south Kerala and south Tamilnadu coasts and around Lakshadweep Islands on 30th November, Sea conditions very likely to be very rough to high along and off south Kerala and high around Lakshadweep Islands on 1st December; fishermen are advised not to venture into Sea along and off south Tamilnadu & south Kerala coasts, Lakshadweep Islands and into sea around Andaman & Nicobar Islands.
- In **Tamil Nadu**, in the Cauvery Delta Zone, provide adequate drainage facilities to drain the excess rainwater from the paddy fields to improve better aeration in the root zone. In the High Rainfall Zone, provide proper drainage to pineapple and banana fields.
- As dense to very dense fog at isolated places in the morning hours very likely over **Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura** and shallow to moderate fog over **Arunachal Pradesh** on 30th November and 1st December, monitor the standing crops for incidence and spread of pest diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake plant protection measures.
- Under the prevailing weather conditions, sowing of following *rabi* crops are advised in different States/Agroclimatic Zones as given below:
 - **Wheat:** Continue sowing in Bhal and Coastal Zone of Gujarat, in Irrigated North Western Plain Zone, in Southern Plain Zone and in Sub Humid Southern Plain and Aravali Hill Zone of Rajasthan, in Jammu & Kashmir and in Madhya Pradesh under sufficient soil moisture condition.
 - **Bengal gram:** Continue sowing of gram in Jharkhand, Madhya Pradesh, Chhattisgarh, Rayalseema, Telangana, Rajasthan (Western Plain Zone) and Punjab.
 - **Mustard/rapeseed:** Continue sowing in Assam, Manipur, Mizoram, Tripura and Odisha.
- As dry/mainly dry weather would prevail, continue harvesting of matured rice in Uttar Pradesh, Bihar, Odisha, Jharkhand, in North Telangana Zone and Sali rice in Assam. Continue picking of cotton in Gujarat, Maharashtra, Punjab and Haryana.

Detailed Zonewise Agromet Advisories

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

- **Realised Rainfall:** Rainfall occurred in Alappuzha, Ernakula, Kollam, Kottayam, Pathanamthitta and Thiruvananthapuram districts of Kerala, Ariyalur, Chennai, Caddalore, Dindigul, Kanchipuram, Kanniyakumari, Karaikal, Nagapattinam, Puducherry, Pudukottai, Ramanathapuram, Shivaganga, Tanjavur, Tirunelveli, Thiruvallur, Thiruvarur, Toothukudi and Virudhnagar districts of Tamil Nadu during the week. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - As rain/thundershowers would occur at most places over Tamil Nadu and at many places over Kerala on 30th

November and 1st December, along with heavy to very heavy/heavy rain at isolated places very likely over South Tamilnadu and Kerala on 30th November, over interior Tamil Nadu and Kerala on 1st, over Tamil Nadu and Puducherry on 2nd and 4th December, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation.

- As thunderstorms accompanied with squall and lightning very likely at isolated places over Tamilnadu and Kerala on 30th November, Gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely along & off south Kerala during next 48 hours and along & off south Tamilnadu and Squally winds speed reaching 55-65 kmph gusting to 75 kmph very likely along and off Kerala coast on 1st December, provide support to young fruit plants, banana, propping up in sugarcane and staking in vegetables to protect them from lodging.
- As gale wind speed reaching 65-75 kmph gusting to 85 kmph very likely along & off south Kerala during next 48 hours and along & off south Tamilnadu. Squally winds speed reaching 55-65 kmph gusting to 75 kmph very likely along & around Lakshadweep Islands during next 12 hours and increase thereafter with speeds becoming 80-90 kmph gusting to 100 kmph from tonight and sea conditions very likely to be high along & off south Kerala and south Tamilnadu coasts and around Lakshadweep Islands on 30th November. Sea conditions very likely to be very rough to high along and off south Kerala and high around Lakshadweep Islands on 1st December; Fishermen are advised not to venture into Sea along and off south Tamilnadu & south Kerala coasts and Lakshadweep Islands.

▪ **Kerala:**

- In the Problem Area Zone, provide support to bananas. Provide adequate drainage in banana, pepper and vegetable fields.
- In the Central Zone, prevailing weather condition is congenial for occurrence of leaf folder in Mundakan rice (second crop). To control, spray 2ml fame/10 litres of water after current spells of rain.
- In the Southern Zone, to control blast disease in rice spray Tebuconazole 250 EC 750 ml/ ha. Spray 2% neem oil-garlic-soap emulsion or Dimethoate 30 EC @ 1.5 ml per one litre of water to prevent stunted growth and leaf curling in chilli. Spray Copper Oxy Chloride @ 4g/litre of water as a prophylactic measure against anthracnose in cow pea crop. To control the spread of foot rot disease in banana crop, spray 10 litre of 1% Bordeaux mixture after current spells of rain.
- In the Northern Zone, apply Bavistin @ 2g/litre of water if blast disease is seen in paddy. Spray the bunches with Calyxin (@1ml per litre of water mixed with a sticking agent Agrowet @ 1ml/litre for nut fall/button shedding in coconut. Spray Flubendiamide @ 1.5 ml in 10 litres of water 2-3 times at weekly interval for shoot and fruit borer in brinjal. Spray the solution of Llamda Cyhalothrin insecticide 3ml + Copper Oxy chloride fungicide 5g dissolved in 5 litres of water for mosquito bug-blight disease in cashew plantation after current spells of rain.

▪ **Andhra Pradesh:**

- In the North Coastal Zone, continue sowing of groundnut after seed treatment. Continue sowing of rice fallow pulses like black gram (varieties PU- 31, LBG 752 , LBG 787 , TBG 104) and green gram (varieties LGG -460, LGG - 410, WGG 37, GGG – 1).
- In the Krishna Godavari Zone, apply light irrigation to chickpea crop.
- In the Scarce Rainfall Zone, continue sowing of groundnut under assured irrigated conditions.
- In the Southern Zone, undertake sowing of groundnut during this month under irrigation with suitable varieties like Dharani, Narayani, K6, K7 and K8 Bold, Kadiri Amaravathi, Bheema, etc.
- In the High Altitude Tribal Zone, continue harvesting of paddy. Carry out sowing of mustard. Use yellow sticky traps for aphids and hoppers in niger crop.
- In the North Coastal Zone, spray Chlorpyrifos @ 2.5 ml/litre or Acephate @ 1.5 g/litre for aphids and maruca pod borer in red gram. Spray Acephate @ 1.5 g/litre + Carbendazim @ 1 g/litre for pink ball worm in cotton crop.
- In the Krishna Godavari Zone, spray Monocrotophos 1.6 ml or Quinolphos 2.0 / litre of water for leaf webber and spray Acephate 1.0 g or Novaluron 1.0 ml or Spinosad 0.3 ml or Lambda Cyhalothrin 1 ml per litre of water along with Dichlorovos @ 1 ml or Rynoxypyr @ 0.3 ml/lit or Flubendamide @ 0.2 ml/lit for the control of Maruca pod borer in red gram. Spray Chlorpyrifos 2.5 ml or Monocrotophos 1.6 ml/ litre of water for flea beetles in black/green gram. After 120 days of sowings, spray two times of synthetic pyrethroid products like Cypermethrin 1.0 ml or Lamda – Cyhalothrin 1.0 ml per litre of water for prevention of pink ballworm in cotton.
- In the Southern Zone, spray Chlorpyrifos @ 2.5 ml. (or) Cartaphydrochloride @ 2 g. (or) acephate @ 1.5 g./L of water for leaf folder in Rabi rice.

▪ **Telangana:**

- In North Telangana Zone, undertake sowing of Rabi rice in nursery beds. Continue sowing of rabi groundnut, Bengal gram and sorghum.
- In South Telangana Zone, undertake nursery sowing of Rabi rice till 15th December.
- In North Telangana Zone, spray methyl-o-dematon or dimethoate or malathion 5% @ 2 ml per litre of water for aphids in soghum crop. Spray NSKE 0.5 % solution or neem oil @ 5 ml/litre at bud initiation stage and at flowering stage for Maruca pod borer in red gram; Monocrotophos @ 1.6 ml/ litre of water for leaf folder and Dimethoate @ 2.0 ml or Monocrotophos @ 1.6 ml/ litre for Aphids/Jassids in red gram.
- In South Telangana Zone, prevailing weather conditions are congenial for increase in blast (leaf, neck and spikelet)

disease in rice. To control, spray Isoprothiolane @ 1.5 ml or Kasugamycin @ 2.5 ml or Tricyclozole @ 0.5 g per litre of water twice at 7-10 days interval. Spray Chlorpyrifos @ 2.0 ml or Acephate @ 1.5 g per litre of water at 10-15 days after sowing of maize crop. If maize crop is at 25-30 days stage apply Carbofuran 3G granules @ 3-4 kgs per acre in leaf whorls.

▪ **Tamil Nadu:**

- In the Cauvery Delta Zone, provide adequate drainage facilities to drain the excess rainwater from the paddy fields to improve better aeration in the root zone.
- In the High Rainfall Zone, Provide proper drainage to pineapple and banana fields.
- In the Cauvery Delta Zone, spray Propiconazole @ 1 ml/litre of water for sheath blight and Profenophos 50 E.C. 400 ml/ acre on a non-rainy day for leaf folder incidence in the samba rice due to prevailing weather conditions.
- In the South Zone, to control the sucking pest and shoot fly in cotton and sorghum crops, spray Dimethoate 30 EC 500 ml/ha or Neem Seed Kernel extract 5%. and in pulses crops, spray Chlorpyrifos 20 EC @ 1.25 litre / ha or Quinolphos 25 EC @ 1.5 litre /ha for control of horned caterpillar after current spells of rain.
- In the High Altitude Hilly Zone, drainage facilities should be created in the paddy field to drain off excess water.
- In the North Western Zone, undertake cultivation for mealy bug attack in tapioca, release *Acerophagus papayae* @100 Nos/acre after current spells of rain.
- In the High Rainfall Zone, drench pepper vines with 0.2% Copper Oxychloride @ 5 to 10 litres per vine after current spells of rain.

▪ **Karnataka:**

- In Southern Dry Zone, complete harvesting of ragi and rice.
- In Southern Transition Zone, complete harvesting of matured maize cobs, matured sugarcane and ragi. Undertake sowing of short duration pulses like horse gram, chickpea, green gram and block gram (after harvest of maize crop), wherever soil moisture is there or availability of one irrigation facility is there.
- In North East Dry Zone, carry out the nipping operation (35 - 40 days after sowing) in Bengal gram. Undertake sowing of maize with irrigation. Continue planting of sugarcane by taking 9 months old sugarcane setts. Complete harvesting of rice and continue second picking of early sown cotton and first picking in late sown cotton.
- In North Transition Zone, undertake intercultural operations in sorghum, wheat, Bengal gram. Undertake nipping may be attended in 35-40 days old Bengal gram crop. Grow one line of radish between two lines of tomato to reduce the infestation of fruit rot in tomato.
- In Eastern Dry Zone, complete harvesting of maize, ragi and groundnut.
- In Coastal Zone and Hill Zone, complete harvesting /threshing of matured rice in clear weather.
- In North Dry Zone, continue sowing of diccicum wheat crop under sufficient moisture condition. Undertake intercultural operations in already sown *rabi* crops.
- In North East Transition Zone, continue plantation of sugarcane (variety Co-86032) crop.
- In Hill Zone, incidence of button dropping, inflorescence dieback is likely to occur in arecanut; for control, spray of Carbendazim @ 1 g/litre or Mancozeb @ 2 g/litre of water.
- In North East Dry Zone, due to low temperature during night followed by morning dew, the pod borer incidence was noticed in the red gram crop; if the pod borer is in big size then go for spraying of NPV @ 0.75 ml / liter of water.
- In North Transition Zone, if fruit borer is noticed in tomato, spray Thiodicarb 75WP @ 1gm / litre of water.

• **Animal Husbandry**

- In the Problem Area Zone of Kerala, avoid moist conditions in cattle shed to prevent incidence of foot rot.
- In North and South Telangana Zones, treat /vaccinate animals against FMD and HS; vaccinate sheep/goat against sheep pox disease and vaccinate poultry birds against Ranikhet disease.
- In the Cauvery Delta Zone of Tamil Nadu, to protect the animals from cold weather, hang gunny bags from sunset to sunrise at spots from where frosty air enters shed.
- In the Southern Zone of Tamil Nadu, de-worm goats in November to prevent mortality and weight loss.
- In southern Dry Zone of Karnataka, foot and mouth disease was noticed in animals in different taluks of Mysore District; to manage this disease, provide medicine and vaccination under the guidance of veterinary doctors. In North East Transition Zone, for effective management of livestock ectoparasites, application of Flumethrin 1% is recommended.

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

- **Realised Rainfall:** Rainfall occurred in Upper Siang district of Arunachal Pradesh and Chirrang district of Assam during the week and weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - As dense to very dense fog at isolated places in the morning hours very likely over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and shallow to moderate fog over Arunachal Pradesh on 30th November and 1st December, monitor the standing crops for incidence and spread of pest diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake plant protection measures.

▪ **Assam & Meghalaya, Arunachal Pradesh:**

- In Arunachal Pradesh, harvest mature maize cobs and rice.
- In Meghalaya, drain out water from the field at least 7 days prior to harvesting. Continue sowing of pea in high altitudes with recommended varieties like Arkel (for vegetables), TRC P8, TRC P9, Prakash and Rachna. Undertake land preparation and sowing of Mustard & Rapeseed using recommended varieties Mustard- Varuna, Krishna, TM 4; Rapeseed- M 27, TS 38, TR 48, TR 67. Continue sowing of broccoli (Pushpa, Aiswarya, Fiesta, Lucky), cabbage (H-139) & cauliflower (local) in the nursery and carry out transplanting after 3-5 weeks. Continue harvesting of soybean if 95% of pods become yellow. Carry out harvesting of tender pods of French beans.
- In the North Bank Plain Zone of Assam, continue harvesting of Sali rice. Undertake nursery bed preparation and sowing of Boro paddy varieties like Mahsuri, IR-50, Dinanath, Bishnuprasad, Jyotiprasad and Kanaklata. Carry out thinning and weeding of rapeseed and mustard after 15-20 days from sowing. Undertake earthing up of potatoes at stolon formation stage, i.e., 25 days after planting just before first irrigation. Undertake sowing of Rabi pulses.
- In Barak Valley Zone of Assam, continue land preparation for sowing of rajmah and planting of potato. Provide irrigation to transplanted seedlings of Cabbage, cauliflower, Knolkhol. Cover the seedlings of Boro rice with polythene sheet to help seedling growth and development. Carry out ploughing of main field 15 days before transplanting the seedlings.
- In Lower Brahmaputra Valley Zone of Assam, continue harvesting of Sali rice. Continue sowing of Boro rice till 15th of December. Apply irrigation to seed beds and surrounding furrows. Continue sowing of rapeseed. Carry out transplanting of 30-35 days old Cauliflower, Cabbage, Broccoli and Knolkho crops. Undertake land preparation for wheat varieties like Sonalika, UP-262, K-7410 and HDR-77. Complete planting of potato by the end of this week with late grown varieties such as Kufri Megha and Kufri Sindhuri.
- In Upper Brahmaputra Valley Zone of Assam, undertake harvesting of Sali rice and mature pods of black/green gram. Undertake seed bed preparation and sowing of Swarnabh, Dinanath, Kanaklata, Jyotiprasad, Bishnuprasad, etc. varieties of Boro rice. Complete planting of potato tubers in the main field in this week. Undertake thinning operation in early sown rapeseed field at 20-25 days after seedling emergence. Apply light irrigation in the early sown rabi vegetable field.
- In the Hill Zone of Assam, undertake sowing of Boro paddy varieties like Mahsuri, IR-50, Dinanath, Bishnuprasad, Jyotiprasad, Kanaklata and Dinanath in nursery bed during this month. Undertake land preparation and sowing of lentil varieties like B-77, L-9, L-12, etc. Undertake field preparation and planting of high yielding potato varieties like Kufri Chandramukhi, Kufri Jyoti, Kufri Megha, Kufri Badshah, Kufri Sindhuri, Kufri Pukhraj, etc. Undertake sowing of onion varieties like Pusa Red, Pusa Ratnar, Pusa White, N-53, Agri-found light red, Pusa Madhuri, Punjab Red Round, Arka Niketan and Arka Kalyan.
- In the Central Brahmaputra Valley Zone, continue harvesting of mature Sali paddy. Continue nursery bed preparation and sowing of Boro rice. As light rainfall is forecast, land preparation/sowing of wheat, rabi pulses (lentil, rajmah, pea, lathyrus), oil seeds (linseed and niger), rape seed & mustard and also, thinning and weeding of already sown oilseed and pulse crops may be postponed till 30th November.
- In Arunachal Pradesh, apply need based foliar spray of Sulfex @ 2g/litre water to control powdery mildew in black/green gram/pea. install pheromone traps for collection and destruction of the adult fruit fly insects in guava plantation.
- In the Lower Brahmaputra Valley Zone, apply Chloropyriphos 20EC or Dimethoate 30EC, 0.5 lit per 500-700 lit of water per ha for aphid and saw-fly infestation in rapeseed crop. Apply Dimethoate 500 ml/ha (67 ml/bigha) OR Chloropyriphos 500 ml/ha (67 ml/bigha) OR Phosphamidon 200 ml/ha (27 ml/bigha) for aphid attack in buckwheat. Apply Fenitrothion 50 EC 0.5% (1 ml/lit of water) or Endosulfan 35 EC 0.07% (2 ml/lit of water) or Monocrotophos 40 EC 0.06% (1.5 ml/lit of water) at 15 days interval from first appearance of Jute hairy caterpillar, Semi looper, Yellow mite, etc.
- In the Hill zone of Assam, apply Furadon granule @ 205g/ plant at 20 days after transplanting to avoid fruit and shoot borer infestation in brinjal crop.

▪ **Nagaland, Mizoram, Manipur and Tripura:**

- In Manipur, continue sowing of rapeseed/mustard, field pea, black gram and lentil when the field is slightly wet. Continue land preparation/sowing of coriander. Continue transplanting of 25-30 days old seedlings of tomato, cabbage and cauliflower. Carry out transplanting of 45-60 days old seedlings of onion. Continue sowing of potato tubers. Undertake planting of garlic bulbets in prepared beds. Undertake land preparation for sowing of Rabi maize.
- In Mizoram, provide staking to coffee and rubber seedlings. Carry out harvesting of mature kharif rice. Carry out thinning, weeding and earthing up in maize, toria, black gram and green gram crops and provide irrigation. Carry out field preparation for cole crops and continue sowing of mustard/rapeseed.
- In Nagaland, continue sowing of toria with varieties like M-27, TS-36 and TS-38. Provide mulching to Rabi maize. Undertake transplanting of mature seedlings of vegetables like cabbage, cauliflower, broccoli and tomato.
- In Tripura, complete planting of potato. Carry out transplanting of Rabi legumes like toria, sesame, lentil etc. Apply light irrigation every alternate day to cole crops and tomato. Provide mulching after irrigation to cole crops, tomato, bitter gourd and pointed gourd.

- **Animal Husbandry**

- In Hill Zone of Assam, immunize cattle against FMD, BQ, Enterotoxaemia and Hemorrhagic Septicemia.
- In the Barak Valley Zone of Assam, use lime powder as calcium source up to 2 kg per 100 kg of feed for Layer birds and provide them light during the night time to have more egg production.
- In the Central Brahmaputra Valley Zone, vaccinate cattle, goat and pigs against BQ, HS and FMD. Vaccinate poultry birds against Ranikhet disease.
- In Meghalaya, provide vitamin B complex @ 7ml/litre in drinking water daily to broilers for healthy growth. Vaccinate poultry birds with F1/ Lasota vaccine (1 drop) at the age of 4-7 days old and 35 days old through eye and nostril. Vaccinate all newly born piglets against swine fever at the age of 3 months followed by annual booster dose. Undertake regular immunization of cattle & buffaloes against Foot & Mouth disease, Hemorrhagic septicemia & Black Quarter.
- In Manipur, vaccinate and de-worm cattle, sheep, goat and pigs. Carry out shearing of sheep during this month. Protect animals/ birds from sudden drop in temperature by covering the walls with hessian cloth/ polythene sheet during night time.

- **Fishery**

- In the Lower Brahmaputra Valley and In Barak Valley Zones, pond fishes may be affected by EUS disease Apply CIFAX @ 1 litter per hectare for 1 meter water depth to prevent the disease. In the Central Brahmaputra Zone, Apply Potash @ 4-5 mg/lit of water, Sukrena WS @ 1 lit per bigha of water and lime in required doses to protect the fish population against various bacterial diseases prevalent in winter season.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Rainfall occurred in Osmanabad district of Marathwada during the week and weather remained mainly dry/dry over rest of the region.

- **Advisories:**

- **Maharashtra:**

- In South Konkan, undertake nursery preparation and sowing of rabi rice. Use 50 kg seeds per ha for coarse variety and 40 kg seeds/ha for fine variety. Undertake sowing of short duration crops like Cowpea, Wal and Kulthi on residual moisture in the harvested rice field. Undertake land preparation for sowing of rabi groundnut. Select any one variety for sowing from TG-26, TAG-24, TPG-41, Konkan Gaurav, Konkan Tapora. In North Konkan, for cultivation of watermelon, undertake ploughing and clod crushing of land. Prepare nursery of tomato, brinjal and chilli for rabi season.
- In Madhya Maharashtra, late sowing of wheat should be completed before 15 December. Undertake late sowing (Niphad-34 variety) where 2 to 3 irrigations are possible. For irrigated late sowing use varieties like NIAW-34 and AKAW-4627. Use varieties like NIDW-15 and AKDW-2997-16 under limited irrigation availability. Considering dry weather and day temperature, give irrigation to *rabi* crops and vegetables. Complete sowing of wheat (Varieties: Triambak, Tapovan, M.A.C.S- 6122 (Sarwati variety) & Godavari (bakshi varieties).
- In Marathwada, undertake late sowing of wheat crop, use 125 kg / ha seed. (Varieties : NIAW-34, LOK-1, HI-8663, AKAW-381, AKAW-1071). Undertake nipping one month after sowing of chickpea crop. Apply light irrigation to control flower and fruit drop in vegetable crops due to low temperature. Undertake sowing of oat fodder crop as early as possible.
- In Vidarbha, complete sowing of irrigated wheat (varieties: AKW-1071 (Purna), AKAW 3722(Vimal), HD-2189 and HD-2360) and linseed (Varieties : PKV NL-260 and NL-97). Complete sowing of gram (varieties: Chaffa and Vijay, Jaki 9218 and Kabuli). Undertake sowing of fodder crops like berseem, oat & lucerne (lasun ghas)
- In South Konkan, there may be attack of leaf eating caterpillars, shoot borer, midge fly and leaf cutting beetle in new mango flush. If attack noticed, spray Dimethoate 25 EC @ 12 ml or Monocrotophos 36 WSC @ 11 ml per 10 litres of water.

- **Gujarat:**

- In Bhal and Coastal Zone, complete sowing of chickpea, cumin, mustard and wheat. Apply irrigation in cotton and castor. Apply irrigation in cotton. Undertake weeding and intercultural operations in vegetable crops.
- In South Saurashtra Zone, apply irrigation in cotton and pigeon pea.
- In North Saurashtra Zone, apply irrigation in pigeon pea through drip irrigation system. Also apply irrigation in lemon crop at regular intervals without stress to prevent fruit cracking and fast development of fruits.
- In South Gujarat Zone, undertake mulching in sugarcane crop with its leaves for control of stem borer and for conservation of moisture in the field. Continue sowing of corn varieties/hybrids like G.Makai-3, HQPM-1, GAYMH-1, GAWMH-2, vin orange, amber.
- In North Gujarat Zone, complete sowing of gram, wheat, cumin, fenugreek, dil seeds crops. Undertake harvesting of matured fruits of custard apple, pomegranate and aonla and complete harvesting of matured sorghum. Undertake intercultural operations in vegetables like brinjal, chilli, tomato, cabbage and cauliflower.
- In South Gujarat Heavy Rainfall Zone, undertake intercultural operations in pulse crops. Apply light irrigation in

okra.

- In Middle Gujarat Zone, complete sowing of wheat (GW-496, GW-503, GW-273, GW-322), coriander and planting of potato. Undertake intercultural operations in pigeon pea before flowering. Undertake harvesting of matured fruits of custard apple, aonla and continue picking of matured bolls of cotton.
- In North West Zone of Gujarat, continue picking of matured bolls of cotton, sowing of wheat, cumin and nursery preparation of cabbage. Carry out intercultural operations in castor.
- In North Saurashtra Zone, there is chance of pink bollworm infestation in cotton; install 5 pheromone traps/acre for monitoring and for control, spray Acephate 75 % SP @ 15 g and Abamectin @ 10 ml /10 litres of water.
- In South Gujarat Zone, atmospheric condition is favorable for sucking pest in cotton; spray Acetamiprid 20 Sp @ 0.004% (2 g/10 litres water) and spray Fenvalerate 20% SC (5ml/10 litres of water) against spotted boll worm.
- **Animal Husbandry**
- In Gujarat, provide adlib warm water to lactating animals. Keep young calves indoors during night time to avoid cold stress. Provide dry fodder to animals twice a day.

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 during the week and weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - As rain/thundershowers would occur at most/many places over Andaman & Nicobar Islands during the period, along with heavy to very heavy/heavy rain at isolated places very likely over Nicobar Islands on 30th November, over Andaman & Nicobar Islands on 1st and 2nd December, avoid intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields to avoid water stagnation.
 - As squally winds speed reaching 30-40 kmph gusting to 50 kmph very likely around Andaman & Nicobar Islands and adjoining Seas on 1st and 35-45 kmph gusting to 55 kmph on 2nd December, provide support to young fruit plants, banana and staking in vegetables to protect them from lodging. Fishermen are advised to be cautious while venturing into Sea around Andaman & Nicobar Islands.
 - As shallow to moderate fog at isolated places in the morning hours likely over Bihar and Sub-Himalayan West Bengal during next 2 days, monitor the standing crops for incidence and spread of pest diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake plant protection measures.
 - **Odisha:**
 - In North Eastern Ghat Zone, the weather is optimum time for Pyra cropping of green gram, black gram, lentil and mustard etc. Grow HYV of green gram- Tarm-1, Samrat, Kamdev, black gram- Pant-U-19, Pant-U-30, B-3-8-8, LBG-17, Lentil- Asha, Pant-L-206, Pant-L-209 and mustard- M-27, Parvati, Anuradha, and TS-27. Use 25% more seeds of the recommended seed rate. Sow the seeds 15 days before harvest of standing crops. Undertake harvesting of matured medium duration rice. Now it is optimum time for sowing of groundnut and sunflower. Go for land preparation and sowing of high yielding groundnut varieties like Smruti, TAG- 27, TAG – 24 and JL-24 and sunflower varieties like Morden, Sunrise, Surya and Hybrid varieties like KBSH-1, KBSH-3 and MSFH after seed treatment.
 - In North Central Plateau Zone, as dry weather would prevail, continue harvesting of rice. Undertake land preparation and sowing of mustard and Wheat. Collect good varieties of wheat like Kalyansona, Sonalika and UP 262 @ 40kg/acre. Present weather conditions are favorable for sowing of Linseed, Gram and Pea. Hence, farmers are advised to sow as Paira or sole depending upon moisture status of the soil. Before sowing, seeds should be treated with fungicide followed by Rhizobium culture @ 20g/kg seed to enhance nodulation.
 - In West Central Table Land Zone, continue sowing of groundnut and sunflower. Go for land preparation. Grow high yielding varieties of groundnut like Smruti, TAG-27, TAG – 24 and JL-24. Drain the water from the rice fields 7 to 10 days before the expected harvest date as draining hastens maturity and improves harvesting conditions. Undertake harvesting when 80% of the panicles turn straw colour.
 - **Jharkhand:**
 - In South Eastern Plateau Zone, undertake land preparation and sowing of mustard. Improved varieties of like – Pusa bold, Shivani, Varuna, Kranti, JD 6 and Sedge 2 etc.can be undertaken by treating the seed with Bavistin @ 2g per kg seed.
 - In Western Plateau Zone, farmers wishing to cultivate wheat after harvesting of rice are advised to sow the seed immediately. They have to select one of the late Irrigated varieties like N.W.-1014, Raj-3765 or H.W.-2045.
 - In Western Plateau Zone, in one month old potato crops, apply urea @ 40 kg per acre after earthing up and irrigate the crop at an interval of 10-15 days. Attack of Blight disease (in which, small shining brown spots appear on leaves) in crop is expected in the prevailing weather. Spray immediately the fungicide Saaf (2 gm per litre of water) or Redomyl (1.5 gm per litre of water) to control the disease as and when symptoms appear.

▪ **West Bengal:**

- In Coastal Saline Zone, complete harvesting Aman paddy crop. Carry out land preparation in harvested paddy field for early variety of potato like Kufri Jyoti, Kufri Lalima, Kufri Anand, Kufri Chipsona, Ashoka etc. Undertake re-sowing of paira crop where it got damaged by rainfall of previous week.
- In the New Alluvial Zone, undertake re-sowing of paira crop where it got damaged by rainfall of previous week.
- In the Hill Zone, continue transplanting of cabbage and cauliflower crops and apply irrigation as per requirement. Carry out harvesting of Mandarin orange. Undertake sowing of mustard. Undertake harvesting of rice crop.
- In New Alluvial Zone, apply Hexaconazole 5% WP + Captan 70% WP@ 1.5 gm per litre of water to prevent rotting due to disease infestation in winter vegetable seedlings.
- In Old Alluvial Zone, undertake sowing of wheat after main field preparation.
- In Laterite and Red Soil Zone, Give light irrigation in wheat, potato and mustard fields to maintain the optimum moisture in the soil.
- In Old Alluvial Zone, spray Nemastra (Nemastra = 5 kg Neem leaf + 5 liter cow Urine + 2 kg row cow dung) @10ml/liter of water in the evening hours to control different insects & pests transplanted cabbage, cauliflower, brinjal, etc.
- In Laterite and Red Soil Zone, collect and destroy the infected tomato fruits and spray Quinolphos 25 EC @ 1ml/litre of water at clear weather condition for fruit borer infestation.

▪ **Andaman & Nicobar Islands**

- In North and Middle Andaman, keep harvested paddy in a shelter as heavy rainfall is likely. Provide drainage facility in the vegetable field and harvest matured vegetables. Provide support to banana.
- In the Nicobar Islands, improve drainage facility in the vegetable field to avoid stagnation of water.

• **Animal Husbandry**

- In Mid Central Table Land Zone of Odisha, vaccinate calves above three months and sheep and goat above two months against Foot and Mouth disease. Go for deworming in animals. For the control of tick, spray Deltamathrin or Amitaz 20 ml/10 litres of water.
- In Old Alluvial Zone of West Bengal, keep the animals in covered shed/area during the night. Feed clean and hygienic water to dairy animals.
- In Andaman and Nicobar Islands, keep the poultry birds in a well ventilated dry room, provide them clean drinking water and 16 hrs light during cloudy weather to avoid mortality.

• **Fisheries**

- In Old Alluvial Zone of West Bengal, apply lime @ 20kg/bigha of pond area and after 4days KMNO₄ @ 250gram/bigha pond to prevent the Ulcer disease in fish.
- In North Central Plateau Zone of Odisha, as the winter is in the starting phase, there is a possibility of “EUS” disease in fish. Farmers are advised to apply ‘Cifax’ @ 400 ml mixed with 40 litre of water in one acre pond area as a preventive measure. The fishes should be fed daily with oil cake bran mixture at the rate of 2-3 % of their total biomass.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Weather remained dry over the region during the week.

• **Advisories:**

▪ **Madhya Pradesh:**

- In Central Narmada Valley Zone, continue sowing of chickpea, wheat, barley, mustard and alsin, planting of potato and garlic and harvesting/threshing of matured rice crop.
- In Bundelkhand Zone, continue sowing of wheat. Continue planting of potato and nursery preparation for onion. Undertake inter-culture operation in chickpea, pea, lentil, mustard crops for weed control. Apply irrigation in wheat at CRI stage.
- In Nimar Valley Zone, continue nursery preparation for onion and sowing of wheat (varieties GW-322, GW-366, HI-1544).
- In Malwa Plateau Zone, apply first irrigation in early sown wheat at CRI stage. Continue earthing up in potato. Continue nursery sowing of onion. Undertake intercultural operations in vegetables.
- In Jhabua Hill Zone, continue sowing of wheat, apply irrigation at CRI stage. Complete sowing of gram. Continue transplanting of winter vegetables. Undertake picking up of cotton bolls.
- In Gird Zone, continue sowing wheat and apply irrigation in potato and vegetables.
- In Kymore Plateau and Satpura Hill Zone, continue transplanting of vegetables and sowing of mustard, lentil and garden pea. Continue sowing of wheat. Continue harvesting of matured rice.

▪ **Chhattisgarh:**

- In Chhattisgarh Plain Zone, continue sowing of chickpea, safflower, sunflower, groundnut, linseed and lentil crops etc.

- In Bastar Plateau Zone, continue sowing of wheat, gram, pea, linseed and lentil crops and nursery preparation for *rabi* vegetables (cabbage, cauliflower, brinjal, tomato and chilly). Continue field preparation for planting of *rabi* colocasia and bunda.
- In North Hill Zone, continue sowing of wheat. Continue harvesting/threshing of matured rice. Continue sowing of mustard, green pea, gram. Continue transplanting of winter vegetables like cauliflower, cabbage, chilli, tomato, brinjal etc. Continue planting of potato and garlic and nursery sowing of onion.
- **Animal Husbandry**
- In Madhya Pradesh, vaccinate the poultry birds to prevent Ranikhet disease. Vaccinate the goat against PPR disease. Provide green fodder, fresh and clean water three times a day to cattle.
- In Chhattisgarh, low temperature condition may adversely affect the milk production and performance of domestic animals; give protein enriched diet to the animals. Keep animal indoor. Provide supplementary wormicide medicine in feed of poultry birds.

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

- **Realised Rainfall:** Weather remained dry over the region.
- **Advisories:**
 - As shallow to moderate fog at isolated places in the morning hours likely over northern parts of Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Rajasthan during next 2 days, monitor the standing crops for incidence and spread of pest diseases, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake plant protection measures.
 - **Jammu & Kashmir:**
 - In Sub Tropical Zone, continue sowing of wheat (varieties : PBW-550, HD-2967) under irrigated conditions and (varieties: PBW-644, PBW-396 and WH-1080) in rainfed areas. Complete the sowing of Barley. Continue nursery sowing for onion crop (Pusa Red, Pb. Selection). Undertake weeding and hoeing in mustard, chickpea and lentil crops.
 - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, continue sowing of wheat (var. VL 907, HS 507 and HPW 349) under irrigated/rainfed conditions up to 800 -1000 m amsl, variety PBW-175 up to 1000 m amsl under rainfed condition only and VL 804, HS 507 and HPW 349 under irrigated/rainfed conditions up to 1000 -1350 m amsl in Intermediate (mid to high altitude) areas of the district. Undertake intercultural operations in mustard, gram and pea. Undertake transplanting of onion and late sown cauliflower.
 - In Intermediate Zone, if aphid attack is observed in Toria crop. Install yellow sticky traps @ 40/hectare. In case of severe attack, apply Dimethoate 30 EC/Rogor @ 1 ml/liter of water.
 - **Uttarakhand:**
 - In Sub Humid Sub Tropic Zone, continue harvesting of maize. Continue nursery sowing of tomato.
 - In Bhabar and Tarai Zone, continue sowing of wheat, pea. Undertake transplanting of onion, cabbage, radish, carrot, turnip.
 - **Punjab, Haryana and Delhi:**
 - In Western Zone of Punjab, in view of the dry weather forecast in next 3-4 days, farmers may irrigate vegetable crops during this week as per requirement. Farmer are advised to irrigate the fruit plants because the newly planted young fruit plants. The young as well as the newly planted fruit plants should be covered with thatches or kullies made of sarkanda or farm waste materials to protect them from cold damage.
 - In Haryana, in Western Zone, as dry weather would prevail, continue picking of cotton. Continue sowing of mustard with varieties RH-30, RH-0749, RH-0406, Varuna, Laxmi etc under sufficient soil moisture conditions.
 - **Himachal Pradesh:**
 - In High Hill Temperate Dry Zone, make beds in apple orchard. Undertake sowing of seeds of Chinese cabbage, spinach and coriander in poly house.
 - In Solan Shimla, Bilaspur and Sirmour districts of Mid Hills Sub Humid Zone, undertake weeding and hoeing in radish, spinach, garlic, carrot and turnip. Undertake transplanting of onion. Undertake cultivation of mushroom (Mix the seed of button mushroom in bags @ 1 kg/10kg FYM and slightly press the bags and make 15-20 holes surrounding the bags and put in growing chambers).
 - **Uttar Pradesh:**
 - In Eastern Plain Zone, continue sowing of wheat, nursery sowing of onion. Undertake intercultural operations in vegetables.
 - In Varanasi district of Central Plain Zone, continue sowing of wheat, barley, mustard, planting of potato, sugarcane and transplanting of vegetables. Continue harvesting of matured rice.
 - In Kanpur district of Central Plain Zone, continue sowing of wheat. Continue harvesting of matured rice. Complete sowing of winter vegetable like spinach, fenugreek, coriander, carrot, radish etc. Continue sowing of mustard, gram, pea.

- In Bundelkhand Zone and Western Plain Zone, continue sowing of rabi maize, lentil, mustard, pea, gram and wheat and planting of potato.
- **Rajasthan:**
 - In Flood Prone Eastern Plain Zone, apply irrigation in wheat at CRI stage. Undertake earthing up in potato.
 - In Semiarid Eastern Plain Zone, continue sowing of wheat and cumin.
 - In Sub Humid Southern Plain and Aravali Hill Zone, in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts, continue sowing of barley, pea and coriander. Apply irrigation in wheat at CRI stage. Undertake weeding hoeing in vegetables.
 - In Arid Western Plain Zone, apply irrigation in wheat and mustard 21-25 days after sowing. Undertake intercultural operations in vegetables.
 - In Semiarid Eastern Plain Zone,, to control Aphid insects attack in Mustard spray of insecticide Dimethoate 30 EC or Methyl Demeton 25 EC @ 1 litre per hectare.
- **Animal Husbandry:**
 - In Arid Western Plain Zone of Rajasthan, vaccinate the livestock against foot and mouth disease and adopt protection measures against mastitis. Also make arrangements for protection of animals from winter.
 - In Bhabar and Tarai Zone of Uttarakhand, with the changing weather, there is a high chance of Niomoniasis in new born animals. Shed should be protected from cold and hot food should be given to the animals.

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