



National Agromet Advisory Service Bulletin

Friday 15th February 2019
(For the period 15th to 20th February 2019)



Issued by
India Meteorological Department

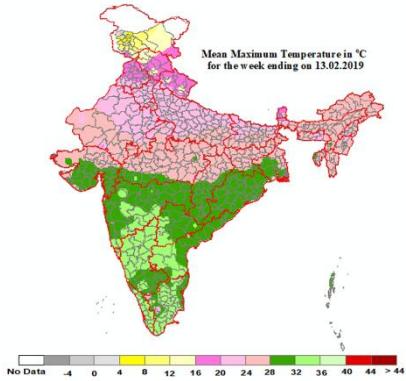
Weblink For

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

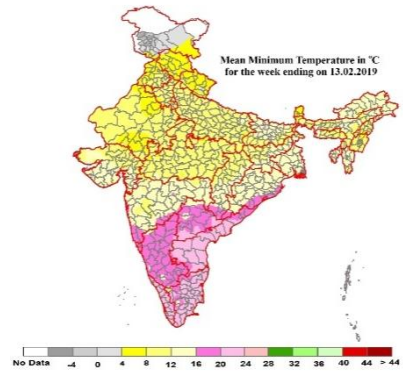
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Spatial distribution of weather parameters for the week ending on 13.02.2019

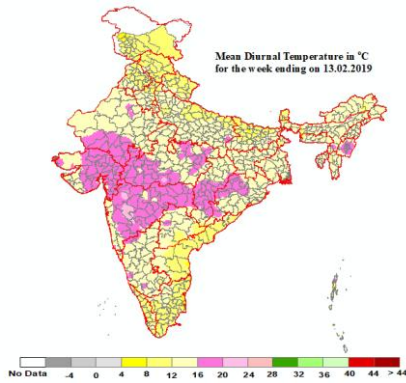
Mean Maximum Temperature (°C) for the week ending on 13.02.2019



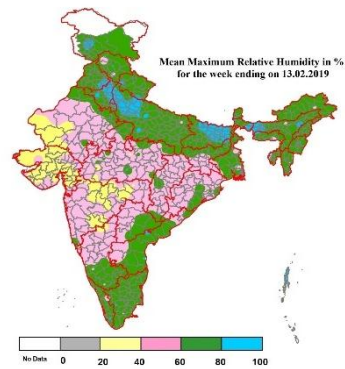
Mean Minimum Temperature (°C) for the week ending on 13.02.2019



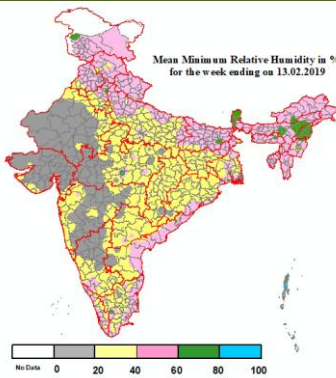
Mean Diurnal Temperature Variation (°C) for the week ending on 13.02.2019



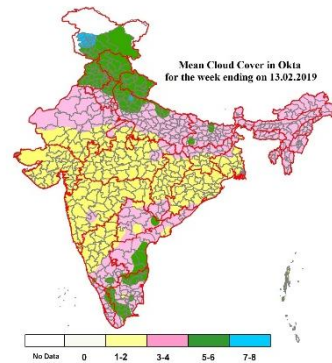
Mean Maximum Relative Humidity (%) for the week ending on 13.02.2019



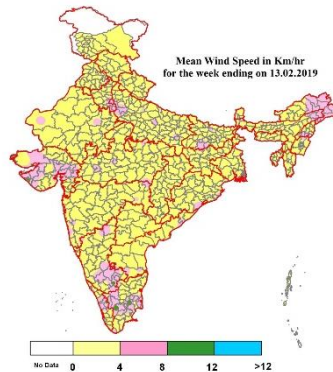
Mean Minimum Relative Humidity (%) for the week ending on 13.02.2019



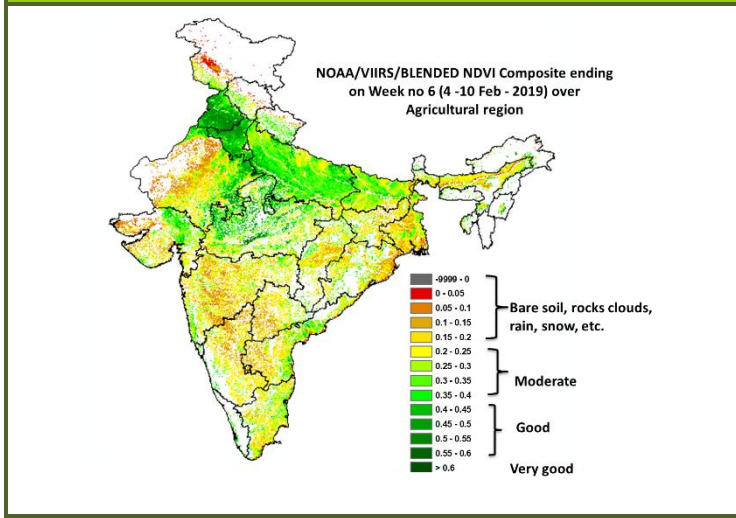
Mean Cloud Cover (okta) for the week ending on 13.02.2019



Mean Wind Speed (km/hr) for the week ending on 13.02.2019

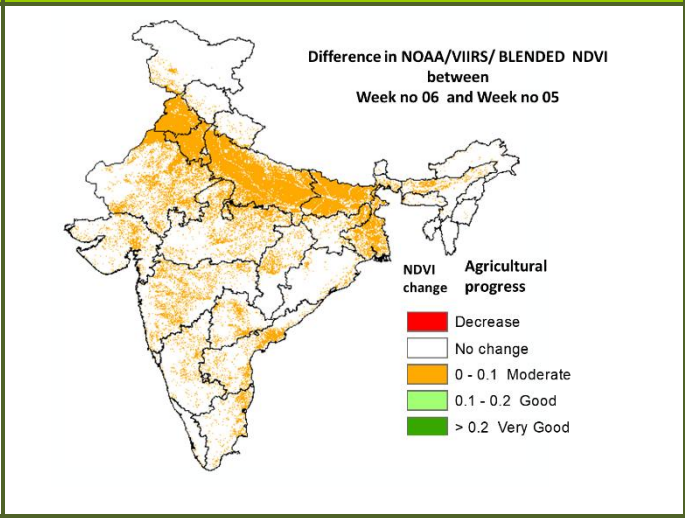


NOAA/VIIRS BLENDED NDVI composite for the week number 06 (4-10 February) over Agricultural regions of India



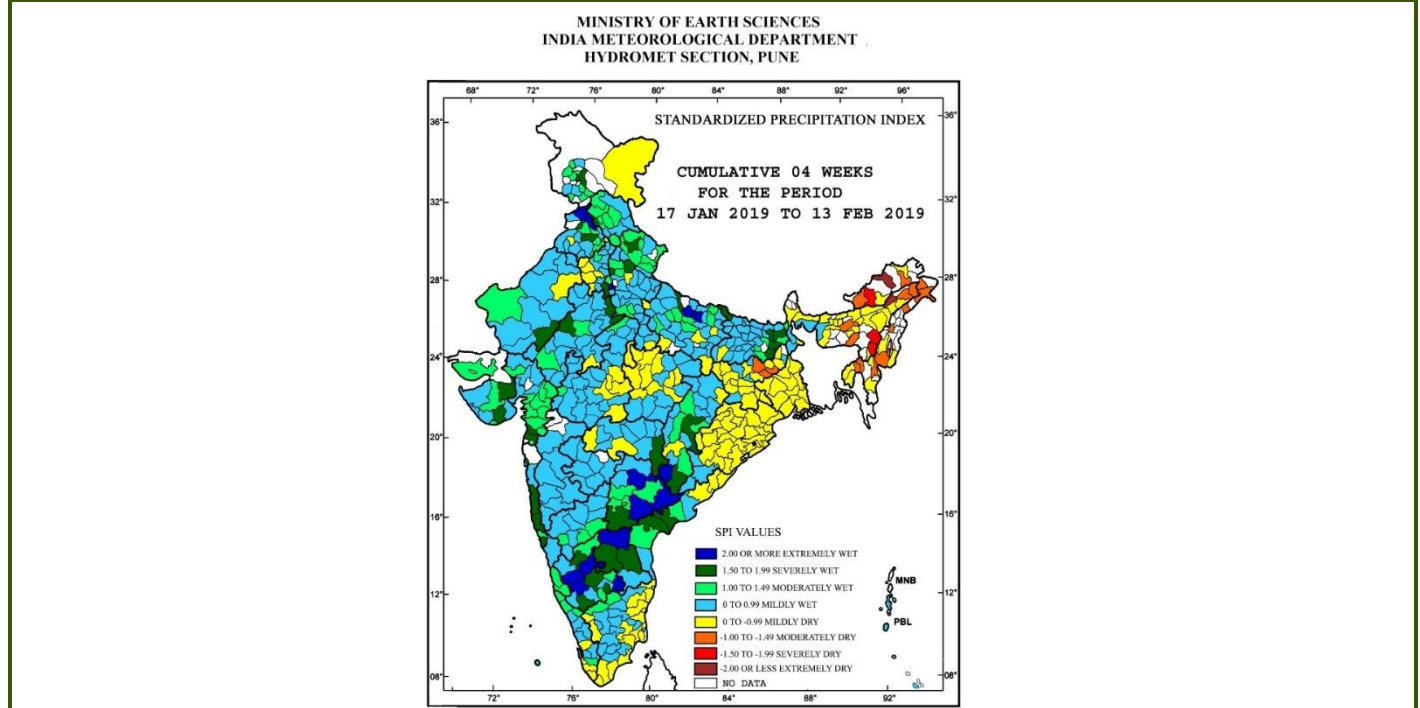
Agriculture vigour is good at most places over Punjab & Haryana; many places over West Madhya Pradesh & East Rajasthan; at a few places over North Gujarat & East Madhya Pradesh and isolated over Coastal Andhra Pradesh, Southern Kerala, Saurashtra, Coastal Karnataka, Bihar, Konkan & southern part of Uttarakhand. It was moderate over rest of the country.

Difference in NOAA/VIIRS/BLENDED NDVI between week number 06 and week number 05



Moderate difference in agricultural vigour was noticed at most places over Punjab, Haryana, Uttar Pradesh, West Bengal & Bihar; at many places over Rajasthan and at a few to isolated places over rest of the country.

Standardised Precipitation Index Cumulative 4 weeks for the period 17th January to 13th February 2019

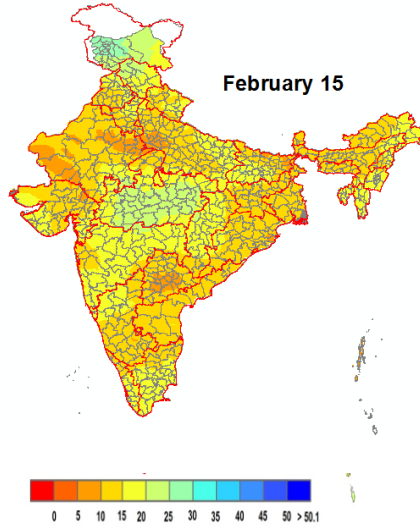


- Extremely/severely wet conditions experienced at a few districts of Punjab, Saurashtra, Kutch & Diu, Andhra Pradesh, Telangana and Karnataka; Banka, Bhagalpur, West Champaran, Madhepura, Purnea, districts of Bihar; Bahraich, Basti, Gonda, Baghpat, Bijnor, districts of Uttar Pradesh; Garhwal Tehri, districts of Uttarakhand; Mewat, Faridabad, districts of Haryana; Una, districts of Himachal Pradesh; Anantnag, Pulwama, districts of Jammu & Kashmir; Pali, Ajmer, Bharatpur, Dholpur, districts of Rajasthan; Valsad, Navsari, districts of Gujarat Region; Gadchiroli, districts of Maharashtra; Dantewada, Raipur, Bijapur,

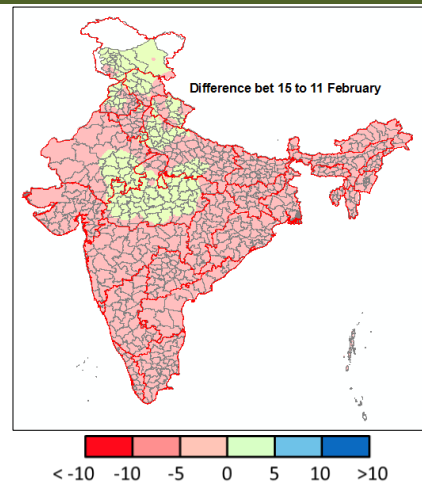
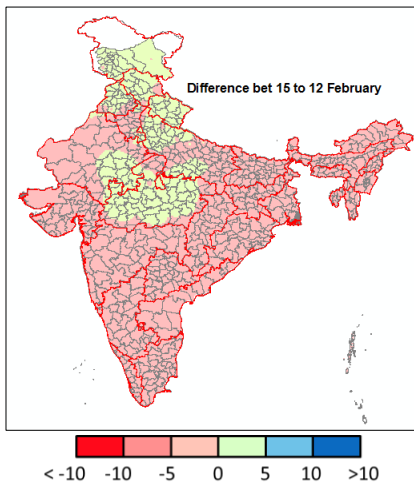
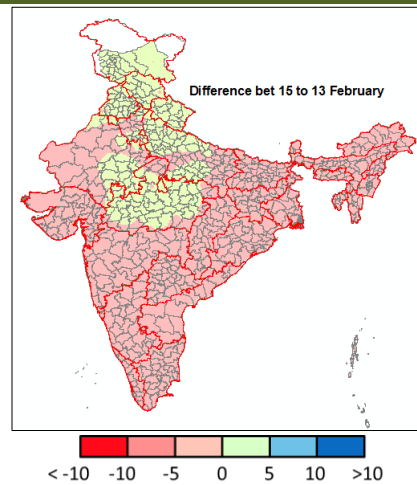
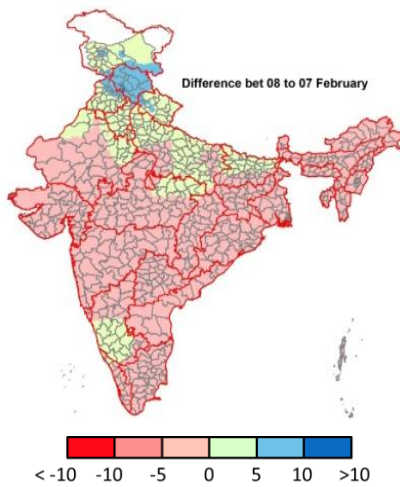
districts of Chhattisgarh;

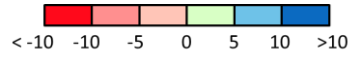
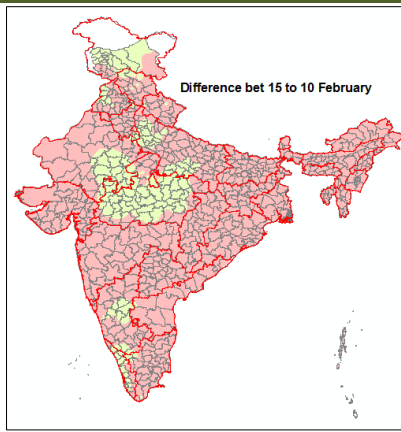
- Extremely/Severely dry conditions experienced at a few districts of Arunachal Pradesh; Cachar, Lakhimpur, N. C. Hills, districts of Assam.
- Moderately dry conditions experienced in many districts of Arunachal Pradesh; Tripura; Kamrup, Dibrugarh, Tinsukia, districts of Assam; East Khasi Hills, districts of Meghalaya; Aizwal, districts of Mizoram; Dhanbad, Giridih, Jamtara, districts of Jharkhand.
- Rest of the country experienced moderately wet/mildly dry/mildly wet conditions.

Daily Soil Moisture (mm) for 15th February 2019 (ending at 0830 IST) for 60 cm depth

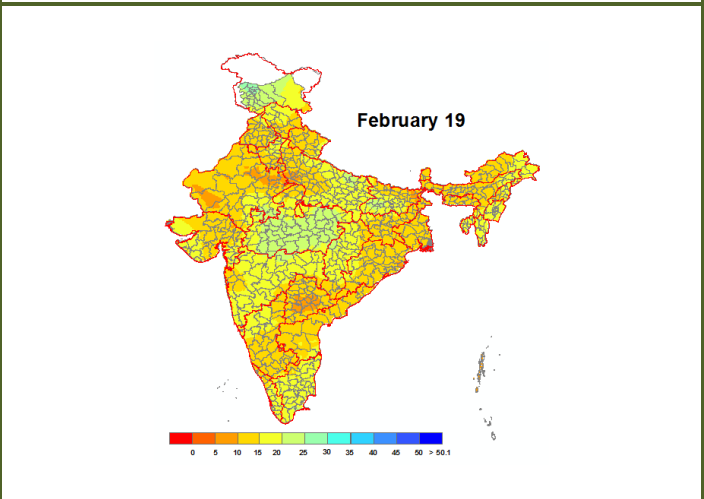
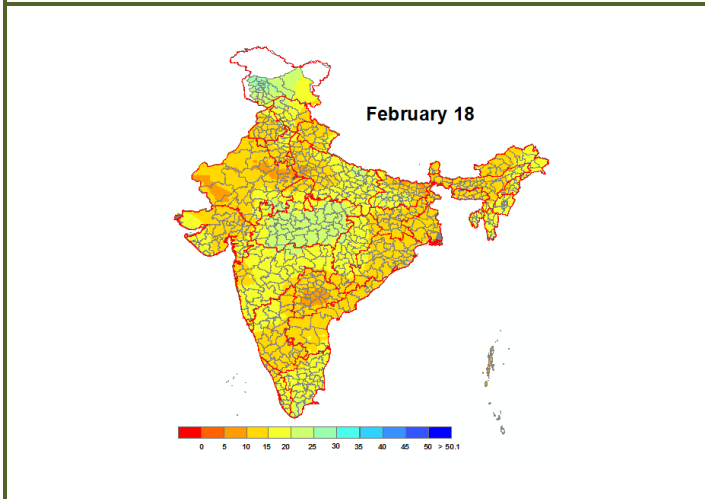
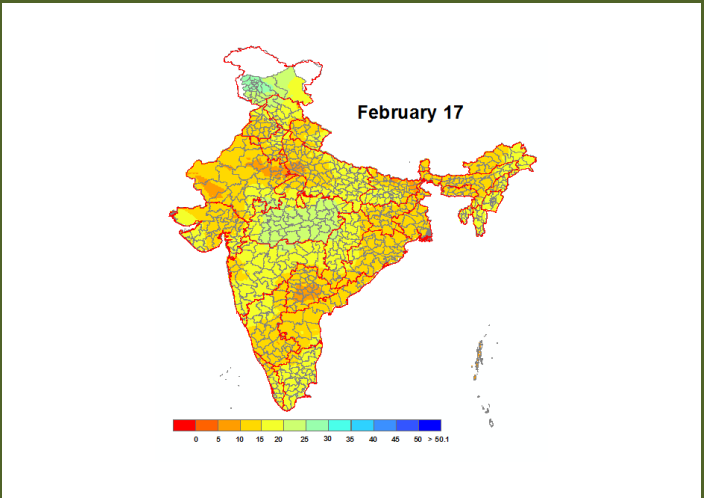
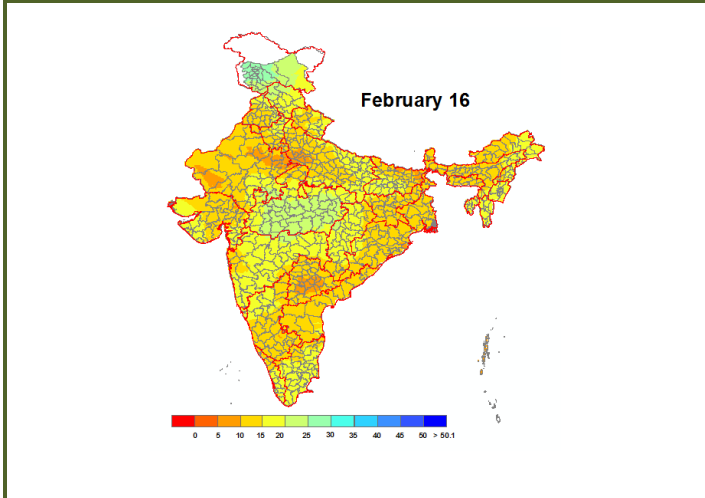


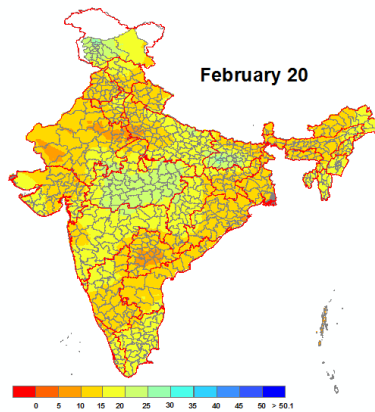
Difference of Soil Moisture (mm) for 60 cm depth





Forecasted Soil Moisture (mm) from 16th to 20th February 2019 (ending at 0830 IST) for 60 cm depth





Weather Forecast for next 5 days valid upto 0830 hours of 19th February 2019

Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table below.

- Shallow to moderate fog in the morning hours likely in isolated pockets of northwest India during next 2days.
- No significant change in minimum temperatures likely over East India during next 2 to 3 days. They are likely to fall by 2-3°C over parts of northwest and adjoining central India and Maharashtra and Gujarat during next 48hours.
- Maximum temperatures are likely to become above normal by 3-4°C over northern parts of Coastal Tamilnadu on 18th- 19thFebruary.

**5 Day Rainfall
15 February 2019**

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

Forecast (Mid-day)

% Station Reporting Rainfall

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

Weather Warning during next 5 days

15 February (Day 1): Thunderstorm accompanied with hailstorm, lightning and gusty winds at isolated places very likely over Uttarakhand, Uttar Pradesh, East Madhya Pradesh, Jharkhand, Vidarbha and Chhattisgarh.

◆ **Thunderstorm accompanied with lightning and gusty winds** at isolated places very likely over Bihar, West Bengal & Sikkim and Interior Odisha.

◆ **Dense fog** at isolated places in the morning hours very likely over Coastal Odisha, North Rajasthan and Punjab.

16 February (Day 2): Thunderstorm accompanied with hailstorm, lightning and gusty winds at isolated places very likely over Odisha and Chhattisgarh.

◆ **Thunderstorm accompanied with lightning and gusty winds** at isolated places very likely over Bihar, Jharkhand, south Kerala, Interior Tamilnadu, Arunachal Pradesh, Assam & Meghalaya and West Bengal & Sikkim.

17 February (Day 3): Thunderstorm accompanied with gusty winds and lightning at isolated places very likely over south Tamilnadu, south Kerala, Nagaland, Manipur, Mizoram & Tripura, Arunachal Pradesh and Assam & Meghalaya.

18 February (Day 4): Thunderstorm accompanied with hailstorm and gusty winds at isolated places likely over Jammu & Kashmir and Himachal Pradesh.

19 February (Day 5): Heavy rain/snow at isolated places likely over Jammu & Kashmir and Himachal Pradesh.

Thunderstorm accompanied with hailstorm and gusty winds at isolated places likely over Jammu & Kashmir, Himachal Pradesh, Uttarakhand.

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

- Widespread rain/snow with isolated heavy to very heavy falls likely over western Himalayan region.
- Isolated to Scattered rain/thundershowers likely over plains of northwest and central India and isolated rain/thundershowers over northeast India and south peninsular India and Andaman & Nicobar Islands.
- Dry weather likely over the rest of the country.

Salient Advisories

- As thunderstorm accompanied with hail storm, lightning and gusty winds at isolated places very likely over **Jammu & Kashmir** and **Himachal Pradesh** on 18th & 19th and over **Uttarakhand** on 19th February, over **East Madhya Pradesh, Jharkhand** and **Vidarbha** on 15th, over **Chhattisgarh** on 15th & 16th and over **Odisha** on 16th & 17th February, use hail net for orchard crops to protect from mechanical damage and provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places. Keep cattle indoors during thunderstorm/hailstorm period.
- As thunderstorm accompanied with gusty winds and lightning at isolated places very likely over **Assam & Meghalaya** and **Arunachal Pradesh** on 16th & 17th and over **Nagaland, Manipur, Mizoram & Tripura** on 17th, over **Bihar, Jharkhand** and **West Bengal & Sikkim** on 17th, over **Interior Tamilnadu** on 16th, over **south Tamilnadu** on 17th and over **south Kerala** on 16th & 17th February, provide mechanical support to young fruit plants, staking in vegetables and propping in sugarcane to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places. Keep the cattle in sheds during thunderstorm period.
- As rain/snow likely at most places over **Jammu & Kashmir** on 18th & 19th, at many places over

Himachal Pradesh and over **Uttarakhand** on 15th, 18th & 19th, along with heavy rain/snow over Jammu & Kashmir and Himachal Pradesh on 19th February, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crops in Jammu & Kashmir and Himachal Pradesh.

- As rain/ thundershowers likely to occur at most places over **Arunachal Pradesh** on 16th and 17th, at many places over **Assam & Meghalaya** on 17th February, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- As dense fog in isolated pockets very likely over **Punjab** and **north Rajasthan** on 15th February, monitor the standing crops for incidence and spread of pest and diseases, potato, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.

Detailed Agromet Advisories

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

- **Realised Rainfall:** Rainfall occurred in Pathanamthitta district of Kerala. Weather remained mainly dry. J. Bhupalpally in Telangana; Cuddepah in Rayalaseema and West Godavari in Coastal Andhra Pradesh. Weather remained mainly dry/dry over the region during the week. Rainfall occurred over Bangalore urban and Kolar districts of South Interior Karnataka during the week and weather remained mainly dry over rest of the State.
- **Advisories:**
 - As thunderstorm accompanied with gusty winds and lightning at isolated places very likely over Interior Tamilnadu on 16th, over south Tamilnadu on 17th and over south Kerala on 16th & 17th February, provide support to banana, young fruit plants, staking in vegetables and propping in sugarcane to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
 - **Kerala:**
 - Crops like ginger turmeric vegetables etc. can be cultivated as an intercrop in irrigated coconut gardens. Ideal time for planting material preparation. Apply mulch and protect the plants from the scorching sun. Keep the field ready for dry ginger cultivation.
 - Providing adequate supply of water is essential for proper growth in coconut. Moisture stress leads to stunted growth drooping of leaves, immature nut fall and decreased yield. Give irrigation to palms once in a week.
 - In Central Zone, to control brown plant hopper in paddy, spray Thiamethoxam @ 2g per ten litre of water or Imidacloprid @ 3ml per ten litre of water.
 - For controlling aphids in cowpea, apply 2% neem oil emulsion or apply 20 g *Verticillium lecanii* per litre of water in 10 days intervals. If aphid attack is severe, apply Imidacloprid @ 3 ml or Thiamethoxam @ 2 g per 10 litres of water.
 - In Problem Area Zone, weather conditions may favour the incidence of rice bug in paddy, when the bug is seen in large number, spray Malathion @ 2 ml/ litre. In Kuttanad region take measures to protect all fresh water bodies. There is chance of salt-water intrusion during later stage.
 - **Andhra Pradesh:**
 - In Coastal Andhra Pradesh, due to high relative humidity incidence of brown spot may spread on rice. Spray Mancozeb @ 2.5 g per litre. twice in one week interval.
 - In North Coastal Andhra Pradesh, weather is congenial for incidence of sucking pest on pulses (Blackgram and green gram). Spray Fipronil 2.0 ml or Asiphate 1.5 gm or Spinosad @ 0.3 ml per litre
 - In South Coastal Andhra Pradesh protect the maize crop from moisture stress during Tasseling and silking stage. Spray Mancozeb @ of 500 grams per acre for control of rotting on maize.
 - In Rayalaseema, The present weather conditions are favourable for Leaf folder and stem borer in rice. Spray chlorpyrifos @ 2.5 ml. or acephate @ 1.5 g. or cartaphydrochloride @ 2 g. or flubendiamide @ 2 ml per litre of water.
 - **Telangana:**
 - In Telangana prevailing warm day and cool nights is congenial for the incidence of Powdery Mildew in Mango. If noticed, spray Wettable Sulphur @ 3 g or Hexaconazole @ 2ml per liter of water.

- In Telangana, prevailing weather conditions are favorable for incidence of leaf webber and tikka leaf spot in groundnut. To control spray quinolphos 2ml/l. or chlorpyrifos @2ml per litre of water for leaf webber and hexaconazol @2ml. or carbendazim @1 g. per litre of water for leaf spot.
 - **Tamil Nadu:**
 - Treat the pulse seeds with talc formulation of biocontrol agent *Trichoderma viride* @ 4g/ kg of seeds (or) *Pseudomonas fluorescens* @ 10g/ kg seed to control seed borne diseases.
 - In Western Zone, dry weather prevails early shoot borer incidence in sugarcane may be increasing hence farmers are requested go for frequent irrigation to keep the field in wet condition & mulching also advised.
 - In Southern Zone, due to the prevailing weather condition, the incense of Serpentine leaf miner in Tomato. The symptoms are tomato leaves with serpentine mines, drying and dropping of leaves, Minute orange yellowish apodous maggots and yellowish brown pupates within mines. Collect and destroy mined leaves, spray 30 ml Chlorantraniliprole with 10 litre of water.
 - In North Western Zone, for five month old banana crop, apply azospirillum, phosphobacteria and pseudomonas each @ 20 gram / plant to.
 - In South Zone, expected weather is conducive for the incidence of thrips in chilli. The affected plants show symptoms of crinkling and upward curling of leaves and elongation of petiole. For control, spray Imidachlopid 17.8 % SL @ 3 ml/ 10 l of water (or) Dimethoate 30 % EC @ 1ml/litre of water.
 - In High Rainfall Zone, due to the prevailing weather conditions, there are chances for increase in the severity of infection of rice stem borer. Spray Chlorantraniliprole 0.3 ml/l or Flubendiamide 0.1ml / litre.
 - **Karnataka:**
 - In South Interior Karnataka, continue transplanting of rice and sowing of summer ragi and continue planting of sugarcane. Continue harvesting of matured red gram.
 - In North Interior Karnataka, continue transplanting of rice and new plantation of sugarcane. Apply irrigation in wheat, sorghum, chickpea, sugarcane crops and mango (fruit setting stage) orchards. Continue harvesting of chick pea, early sown safflower crops. Carry out intercultural operations in safflower crop.
 - In Coastal Karnataka, apply irrigation in the arecanut gardens to avoid the cold injury.
 - In North Interior Karnataka, Brown plant hopper is noticed in rice crop; to control, spray the crop with Chloropyrifos @2.0 ml or Monocrotophos @ 1.5 ml dissolved in one liter of water.
 - In Coastal Karnataka, spray Melathion @ 2ml / lit of water or Monocrotophos @ 1.25ml / litre of water, as a precautionary measure against hoppers in mango orchards.
 - In South Interior Karnataka, to manage leaf and fruit spot disease in pomogranate, spray the crop with Chlorothalonin @ 2 ml dissolved in one liter of water.
 - **Animal Husbandry**
 - In Karnataka, maintain the optimum room temperature in sericulture, poultry and dairy unit by providing electric bulb.

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

- **Realised Rainfall:** Rainfall occurred in Upper Siang district of Arunachal Pradesh; Weather remained mainly dry over the rest region during the week.
- **Advisories:**
 - As rain/snow likely to occur at most places over Arunachal Pradesh on 16th and 17th, rain/thundershowers at many places over Assam & Meghalaya on 17th February, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - As thunderstorm accompanied with gusty winds and lightning at isolated places very likely over Assam & Meghalaya and Arunachal Pradesh on 16th & 17th and over Nagaland, Manipur, Mizoram & Tripura on 17th February, provide support to young fruit plants, banana and staking in vegetables to prevent the crops from lodging due to strong winds. Keep cattle indoor.
 - **Arunachal Pradesh**
 - Continue sowing early/local maize, early *kharif* vegetables and cowpea. Continue harvesting of pea and potato.
 - **Assam:**
 - In Assam, continue sowing of okra, ridge gourd and sponge gourd.
 - In North Bank Plain Zone of Assam, undertake land preparation for sowing of direct seeded *ahu* rice and summer green and black gram.
 - In Upper Bramhaputra Valley of Assam, undertake harvesting of matured rapeseed and mustard on non rainy days.
 - In Central Bramhaputra Valley of Assam, complete transplanting of *Boro* rice in the main field at the earliest. Replant the dead hills within 7-10 days of transplanting.
 - In Lower and Central Bramhaputra Valley of Assam, continue land preparation for sowing summer green and

black gram and planting of banana.

- In Upper Brahmaputra Valley and Barak Valley Zone of Assam, spray Chlorpyrifos 20 EC or Quinalphos 25 EC (70-80 ml per 70-80 litre of water per bigha against stem borer attack on rice after current spells of rain.
- In Central Brahmaputra Valley of Assam, in wheat crop, there is chance of attack of blight and loose smut disease. Farmers are advised to apply Carbendazim @ 1g/litre of water after current spells of rain for blight. For loose smut, uprooting and burn the affected plants. Apply Dimethoate 30EC or Chlorpyrifos @ 2ml/l with a spray volume of 500-700 l/ha for hand sprayer & 200-250 l/ha for power sprayer against aphids infestation in mustard crops.
- In Lower Brahmaputra Valley of Assam, apply Chlorpyrifos 20EC at the concentration of 0.02% solution against this pest and stem borer infestation in *boro* rice. Also spray wettable Sulphur @ 0.5 per cent against powdery mildew in the pea crop field. Drench the soil in localized patches with Carbendazim or benomyl @ 0.1 per cent.
- In Hill Zone of Assam, spray Dithane M 45 @ 2.5 grams per litre of water against rust disease in wheat crop when sky remains clear. For monitoring of the pod borer pest in the gram crop, farmers are advised to install Pheromone trap @ 3-4 traps per acre, if flowering has reached 35-40%. "T" shaped bird perches in and around crop field to be installed for controlling insect population.
- In North Bank Plain Zone of Assam, spray Mencozeb 0.2% @ 2gm/litre or Carbendazim 0.1% @ 1gm/litre of water against blast in *boro* rice.
- **Meghalaya:**
 - Continue nursery raising/ transplanting of tomato and capsicum and harvesting of cole crops (cabbage, cauliflower, broccoli), root crop (radish, carrot), ginger and turmeric.
- **Manipur:**
 - Continue nursery raising of pre- *kharif* rice. Undertake harvesting of matured rapeseed/mustard/field pea/lentil.
 - Spray Imidachloprid @ 0.25 ml/ litre of water to the infected patches in rapeseed/ mustard against pod borer. Spray Cypermethrin 20 EC @ 1ml/litre of water against aphid attack in potato at tuber initiation stage if attack is above ETL on a non rainy day.
- **Mizoram:**
 - Apply Carbaryl 0.2 per cent or Malathion 0.15 per cent suspension containing sugar or jaggery @ 10 g/litre at fortnightly intervals on citrus fruits at flowering and fruit initiation stage. Spray 2% any Sulphur based fungicide to save vegetable plant (tomato, crucifer, onion, brinjal and chill) to save from powdery mildew and white rust disease attack.
- **Tripura:**
 - Continue harvesting of *rabi* legumes (mustard, lentil etc.), potato, cole crops and tomato. Undertake transplanting of seedlings of summer brinjal and tomato. Maintain 2 to 3 cm standing water in the field of *boro* rice.
 - Maintain optimum moisture in the field of *rabi* maize through irrigation at tasseling stage as this stage is sensitive to the moisture. Mulching is essential to hold the moisture in the field.
- **Nagaland:**
 - Continue harvesting of cabbage/ winter vegetables timely as it may split if not harvested in time. Continue preparation of seedlings of cucurbitaceous vegetable.
- **Animal Husbandry**
 - In Central Brahmaputra Valley Zone of Assam, vaccinate cattle and buffalo against FMD, Black Quarter and Haemorrhagic Septicemia. Sheep and goat should be vaccinated with PPR and Enterotoxemia. Deworming according to body weight prior to vaccination gives better immune response. All pigs should be vaccinated against swine fever at the age of 2-4 weeks.
- **Fishery**
 - In Barak Valley Zone of Assam, during this period fishes may be infected by fungal and bacterial disease. To overcome this, treated the infectious fishes with Potassium Permanganate (2 mg/100ml of water) or common salt (3 gm/ 100 ml of water).

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

- **Realised Rainfall:** Rainfall occurred in Banka, Bhagalpur, Jamui, Khagadia, Kishanganj, Madhepura, Monghyar, Purnea and West Champaran districts of Bihar and in Chatra and Koderma districts in Jharkhand. Weather remained mainly dry/dry over the rest of the region during the week.
- **Advisories:**
 - As thunderstorm accompanied with hail storm, lightning and gusty winds at isolated places very likely over Jharkhand on 15th, over Odisha on 16th & 17th and thunderstorm accompanied with gusty winds and lightning at isolated places very likely over Bihar, Jharkhand and West Bengal & Sikkim on 17th

February, use hail net for orchard crops to protect from mechanical damage. Provide support to young fruit plants, banana and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.

- **Odisha:**

- Summer paddy crop is at seedling establishment to tillering stage (one to four week) in main field. Provide irrigation as and when required especially at the critical stages like tillering, panicle initiation, flowering and milking stage. Sugarcane crop is at harvesting stage. Harvest and crush the cane as quickly as possible for better sugar recovery. Onion crop is at five to nine week stage. Go for hoeing, weeding and 2nd top dressing with 23kg urea at 7-8 week stage followed by irrigation. Complete the sowing of maize crop. Continue sowing sunflower HYVs. Treat the seeds with Carbendazim @ 2 g per Kg of seeds. Raise broccoli in nursery bed and transplant the seedlings at 4-5 leaves or 25-30 days stage at a spacing of 40-45cm. Provide mulching in carrot field to protect plants direct exposure of sunlight and conserve moisture. Go for good quality mung and biri seeds. Continue sowing of sesamum varieties like Uma, Kanak, Vinayak, Kalika, Nirmala, Prachi, etc.
- Green gram and black gram are at flowering to pod formation stage (six to nine week) stage. For aphids and whitefly, spray 60ml Imidacloprid 17.8%SL or 50ml Thiomethaxome 25% WG mixing with 200 litres of water per acre crop area and for powdery mildew, spray wettable sulphur 600g/acre @ 3g/litre water. To control Bacterial wilt in brinjal and tomato, spray 1 g Streptocyclin in 10 litres water. Current moderate temperature favours Thrips infestation in groundnut crop. Spray 400 ml Dimethoate or 50 ml Imidachloprid in 200 litre water per acre.

- **Bihar:**

- As there is forecast of rainfall during this week, farmers are advised to skip 2nd irrigation in the late sown wheat crop which is in 40-45 days stage and 3rd irrigation to timely sown wheat crops at 60-65 days stage. Immediately harvest the early/timely sown potato crop as there is possibility of rainfall. Considering the forecast of rainfall, do not irrigate maize crop. Harvest the early/timely sown potato crop by digging out the tuber. Carry out intercultural operations in vegetable crops. Do not provide any irrigation to mustard/rai and gram crop at flowering stage as it may cause flower drop. It is time for flowering initiation in mango and litchi. Under this condition, farmers are advised to stop intercultural operations in the orchard.
- For the management of aphids in onion crop, spray Imidacloprid @ 0.5 ml per litre of water with sticky material (Tipol 1.0 gram /litre). Spray Sulphar 80WP @ 2g/liter of water on the foliage of the mango and litchi trees to protect them from the infestation of Powdery mildew. Check for the infestation of cut worm in potato crop. Spray Chlorpyriphos 20EC @ 2.5-3 ml per liter of water if required. For monitoring of pod borer in gram crop, install Pheromone trap @ 3-4 traps per acre, if flowering has reached 10-15%. Install "T" shaped bird perches in and around crop field for controlling insect population.

- **Jharkhand:**

- Transplant 21 days old summer rice seedlingstaking advantage of the forecasted rainfall on 16th and 17th February. Maintain water level in the field. Broadcast Blue Green algae @ 4 kg per acre after 15 days of transplanting to curtail urea consumption. Wheat crop is at maximum tillering to stem elongation stage. At this stage, irrigate the crop after intercultural operations. Harvest the potato crop and keep the tubers in shed at a height of 1.2 to 2 ft for hardening of tuber skin. Take up sowing of improved mung variety SML-688. Prepare field for vegetables like long gourd, round gourd, bitter guard, sponge gourd, cucumber, water melon and musk melon. Continue cultivating high yielding summer maize varieties like Birsa Makka-1, Birsa Vikash Makka-2, Suwan-1 (Hybrid), HQPM (Hybrid) with recommended dose of fertilizer
- Control the attack of pumpkeen beetle immediately in cucurbitaceous plant. The development stage of these insects takes place in the soil of the field and thereafter adult insects climbs on plant and sucks the sap of the leaves. Hence, wet the soil near the root zone of the plant with the insecticide Chlorpyriphos (4 ml. per litre of water) and also spray the same insecticide on plant @ 2 ml per litre of water. Lentil crop sown in the mid of November is at flowering to fruiting stages and present weather is very conducive for the occurrence of wilt disease. To control, spray Carbendazim @ 1 g per litre of water twice at weekly interval.

- **West Bengal:**

- In Sub-Himalayan West Bengal, carry out mulching in large cardamom. Harvest mature cabbage, cauliflower and other cole crops. Apply irrigation to mustard crop as no rainfall is forecast. Carry out weeding in potato and garden pea crops. Carry out operations like earthing up, weeding and draining out of excess water in ginger and turmeric fields.
- In Gangetic West Bengal, complete transplanting of Boro paddy in the main field within 2-3 days. Follow a spacing of 20cm X 20cm and transplant the seedlings at 2cm depth @ four to five seedlings transplant per hill. Keep the bunds clean and maintain the water level upto 2 cm in the field. Complete the sowing of sunflower. Carry out intercultural operations in mustard Rabi onion, garlic, gram and pea. Give irrigation to wheat crop at flowering stage and potato crop at tuber bulking stage. Provide irrigation to mustard crop as no rainfall is forecast.
- In Sub-Himalayan West Bengal, for the management of winter vegetable pest at early vegetative stage, spray

Chlorpyrifos 50% + Cypermethrin 5% @ 1.5 ml/liter of water. To control mustard aphid sprays Dinoteforun 20% S G @ 0.5gram/liter of water and for alternaria blight of mustard, spray Mancozeb @ 2.5g/liter of water or Iprodione @ 1g/liter of water. Undertake plant protection measures after current spells of rain.

- In Gangetic West Bengal, spray Acephate@1g/liter of water for mustard pod borer at siliqua formation stage. Spray fresh water to mango trees and apply a mixture of Diethane M-45@2.5g/liter of water and Carbaryl@2g/liter of water to safeguard them from fungal attack due to fog. Apply Ridomil@2g/litre of water at late afternoon to prevent powdery mildew in pointed gourd.
- **Andaman & Nicobar Islands:**
- In Andaman Islands, spray Imidacloprid @ 2 ml /litre and Acephate 2 g/litre alternatively once in two weeks to control thrips, leaf hopper and other sucking pests in vegetables.
- In Nicobar Islands, do line sowing of vegetable seeds in raised bed with proper drainage facility.
- **Animal Husbandry**
- In Bihar, vaccinate animals against FMD, PPR, Haemorrhagic Septicaemia, Enterotoxaemia, Black Quarter etc. Milch animal should be fed with oilcakes and jaggery to maintain body temperature.
- In Odisha, as the minimum temperature is low, protect the poultry birds from cold injury using electric bulb (300watt for 10 sq.ft.) to prevent coryza disease and CRD (Chronic Respiratory Diseases). Keep the cattle sheds clean and deworm the animals. Give them mineral mixture along with salt regularly and provide wheat grains, jaggery etc. @ 10%-20% in the daily ration during winter season to meet the energy requirement.
- In Jharkhand, if symptoms of pneumonia or C.C.P.P. disease (secretion from nose, high body temperature, not showing interest in feeding or even drinking water etc.) appear, vaccinate goats immediately with Enroflxacyl. (1 c.c. for kids and 2 c.c. for adult animals) at least 3 times.
- In West Bengal, Increase the number of bulb per cage for controlling temperature. Provide warm water for drinking purpose. Keep the litter dry and clean.
- In Andaman & Nicobar Islands, provide cool drinking water with electrolyte to the poultry birds to reduce mortality as the weather is likely to be dry.
- **Fisheries**
- In Odisha, maintain 5 ft. depth of water in the fish pond OR harvest the fish from the pond where it is not possible to maintain 5 ft. depth of water. To prevent the EUS disease during winter, apply Cifax or Aquaneem @ 400 ml per pond of 1 acre and 1 meter depth of water.
- In West Bengal, pond preparation should be done through cultivation of Dhaincha @ 1-1.5kh/bigha for 30-45 days for seasonal & new pond.
- In Andaman Islands, perform repair work of fish pond and with the trail netting harvest the matured fishes and remove wild fishes.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Weather remained dry over Gujarat state during the week.
- **Advisories:**
- **Maharashtra:**
- In South Konkan, in mango orchards, apply water @ 150-200 litres per tree at 15 days interval. To control blast in rice, spray Tricyclazole @ 10 g or Isoprothiolion @ 10 ml per 10 liters of water. To control attack of tea mosquito bug on cashew, spray Monocrotophos 36% EC @ 15 ml or Lambda Cyhalothrin 5% EC @ 6 ml in 10 liters of water. Provide irrigation to newly planted cashewnut orchard and use straw mulch to reduce evaporation. There is possibility of pre-mature fruit drops of mango, therefore it is advise to spray 2% urea (200 gm per 10 liter of water) by mixing into insecticide solution of 4th to 6th spray blossom protection schedule of mango or spray 1% Potassium nitrate three time when fruits are at pea marble and egg stage.
- In Madhya Maharashtra, complete sowing of summer groundnut. For control of sap sucking pests in vegetables, spray 5 % Neem ark or Imidachloprid 17.8 SL @ 2 ml per 10 liters of water. For control of rust in wheat, spray Mancozeb 75 WP @ 1500 g per 500 liters of water for one hectare. Continue harvesting of matured sorghum. Dry harvested produce in sunlight and keep it in safer place. For control of thrips in onion, spray Dimethoate 30 % E.C. @ 15 ml or Lambda Cyhalothrin 5 % E.C. 6 ml in 10 liters of water.
- In Marathwada, continue harvesting of matured chickpea, Undertake harvesting of wheat and safflower. Apply irrigation to pomegranate orchard. Undertake sowing of okra.
- In Vidarbha, As thunderstorm accompanied with hailstorm, lightning and gusty winds at isolated places very likely over Vidarbha on 15th February, use hail net in orchard crops to protect from mechanical damage. Provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep cattle indoor during thunderstorm/ hailstorm period. Complete sowing of summer groundnut and sesame. To control aphids in wheat, spray Thiamethoxam 25 WG @ 50 g or Diamethoate 30 EC @ 750 ml per 500 litres of water per hectare.
- **Gujarat:**

- In Saurashtra & Kutch, continue land preparation and sowing of summer vegetable (okra, cluster bean and bottle gourd) crops. Continue land preparation for sowing of summer groundnut and undertake sowing as temperature rises to 22-25°C. Procure good quality seeds of sesame and carry out sowing as minimum and maximum temperature rises up to 19°C and 30°C respectively. Undertake sowing of water melon. Apply irrigation in mustard, vegetable and fruit crops.
- In North Gujarat, continue land preparation and sowing of summer vegetables (okra, cluster bean and bottle gourd) crops. Apply light irrigation in vegetable crops, fruit crops, gram and mustard crops at evening time. Continue picking of matured clusters of castor during early morning hours.
- In South Gujarat, apply light irrigation to mango (initiation of flowering) orchard. Undertake transplanting of rice where seedlings are ready.
- In Middle Gujarat, apply irrigation in chick pea (pod formation stage), wheat (milking stage) crop.
- In North Saurashtra, heavy attack of thrips observed in garlic crop due to migration from harvested cotton field; for control, spray neem seed extract 5% and make alternative sprays of Profenofos @20 ml and Lambda-Cyhalothrin @14 ml/10 liters of water at 10 days interval.
- In North Gujarat, there are chances of aphid infestation in the cumin, mustard and fennel crops; for effective control spray Dimethoate @10 ml or Phosphamidon @ 3ml /10 liters of water.

CENTRAL INDIA [M.P., CHHATTISGARH]

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

- **Advisories:**

- As thunderstorm accompanied with hail storm, lightning and gusty winds at isolated places very likely over East Madhya Pradesh on 15th and over Chhattisgarh on 15th & 16th February, use hail net for orchard crops to protect from mechanical damage and provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.

- **Madhya Pradesh:**

- In East Madhya Pradesh, apply irrigation in wheat, gram and vegetables. Continue harvesting of matured pods of green pea. Undertake direct sowing for vegetables like pumpkin, bitter gourd, etc. Apply irrigation in mango at 50% flowering at an interval of 15 days.
- In Kymore Plateau and Satpura Hill Zone, undertake field preparation for sowing of summer vegetables.
- In West Madhya Pradesh, apply irrigation in wheat, gram, mustard, garlic and vegetables. Continue harvesting of matured pods of green pea. Undertake nursery preparation for summer vegetables.
- In Jhabua Hill Zone, continue harvesting of green chilli, okra, beans, cucurbits and fenugreek. Continue nursery preparation for tomato, chilli, brinjal, etc. in low tunnel method. Continue sowing of cucurbitaceous crops, musk melon and water melon.
- In Satpura Plateau Zone, gram is in pod formation/development stage and at this stage there are chances of incidence of gram pod borer, adopt integrated pest management practices like light trap, pheromone trap, bird prech etc. for initial control. If necessary spray insecticides like Spinoshed @ 300 ml/ha or Aciphate WP @ 250 g/ha (250 ml/ha).
- In Jhabua Hill Zone, for control of termite attack in wheat field, apply Chloropyrifos 20 EC @ 3.5 litre/ha with irrigation water.

- **Chhattisgarh:**

- Continue harvesting of timely sown early varieties of mustard when siliqua turns into bright yellow colour and digging up of matured tubers of early and medium varieties of potato. Apply irrigation in wheat, gram and vegetables. Continue seedling preparation of cucurbits in polythene bags. Continue planting of spring sugarcane. Continue sowing of spring moong. Continue land preparation for sowing of summer vegetables. Undertake sowing of leafy vegetables. In Plain Zone, undertake sowing of summer vegetables like pumpkin, bitter gourd, bottle gourd, okra etc.
- In Bastar Plateau Zone, continue planting of sugarcane. Apply irrigation in wheat. Continue sowing of summer moong and urad.
- In Bastar Plateau Zone, for the control alternaria disease in mustard, apply Propiconazole @ 1ml or Mencozeb @ 3g/litre of water.

- **Animal Husbandry**

- In Madhya Pradesh, keep animals in dry and shaded place and provide green fodder, fresh and clean water three times a day.
- In Chhattisgarh, provide concentrate feed to cattle mixed with dry and green fodder and ensure for feeding enriched diet having protein, carbohydrate, fat, vitamins etc.

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

- **Realised Rainfall:** Rainfall occurred in Fatehgarh Sahib, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Nawashahar, Patiala, Ropar in Punjab, Ambala, Chandigarh, Katihal, Yamunanagar in Haryana, North Delhi, South West Delhi and weather remained dry over the region during the week. Rainfall/snow occurred in all districts of Himachal Pradesh, all districts of Jammu & Kashmir except Leh and all the districts of Uttarakhand except Champawat during the week.
- **Advisories:**
- As thunderstorm accompanied with hail storm, lightning and gusty winds at isolated places very likely over Jammu & Kashmir and Himachal Pradesh on 18th & 19th and over Uttarakhand on 19th February, use hail net for orchard crops to protect from mechanical damage and provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
- As rain/snow likely at most places over Jammu & Kashmir on 18th & 19th, at many places over Himachal Pradesh and over Uttarakhand on 15th, 18th & 19th February, along with heavy rain/snow over Jammu & Kashmir and Himachal Pradesh on 19th February, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crops in Jammu & Kashmir and Himachal Pradesh.
- As dense fog in isolated pockets very likely over Punjab and north Rajasthan on 15th February, monitor the standing crops for incidence and spread of pest and diseases, potato, tomato and onion crops for early/late blight disease. If symptoms are noticed, undertake appropriate plant protection measures.
- **Jammu & Kashmir:**
 - In Sub Tropical Zone, postpone application of weedicides and fertilisers in wheat as heavy rain / snowfall is expected.
 - In Valley Temperate Zone, provide adequate drainage channels in the fields wherever there is possibility of water accumulation.
 - Weather conditions are favourable for the outbreak of aphids in late sown mustard crop. Monitor the crop regularly. If 10 cm of the branch have more than 20 aphids, spray imidacloprid @ 0.3 ml / litre of water or (Dimethoate) rogor 30 EC @ 1ml/litre of water after current spells of rain.
 - In Intermediate Zone, postpone irrigation, plant protection measures and application of fertilizers to the standing crops till the weather gets clear. Make necessary arrangements to drain out excess water from crops fields
 - Weather conditions are favourable for the attack of alternaria blight in mustard crop. If observed, apply Mancozeb @ 2.5 g/liter of water and ridomil MZ @ 2.5 g/litres of water alternately as curative measure after current spells of rain.
 - As there was significant rainfall in past few days and there is possibility of good rainfall in next 2 days, there may be chance of soft rot/root rot in pulse crops. If symptoms observed, apply Mancozeb @ 2.5 g/liter of water and ridomil MZ @ 2.5 g/litres of water alternately as curative measure after current spells of rain.
- **Uttarakhand:**
 - In Bhabar and Tarai Zone, avoid irrigation in wheat crop as rainfall is expected. To control the late blight disease in tomato, spray Mancozeb @ 2.5g/litre of water or copper oxychloride @ 3g/litre of water after current spells of rain.
 - In Hill Zone, undertake nursery preparation of tomatoes, capsicum, brinjal, and cucurbitaceous crops in poly house.
 - In Sub-Humid Sub-Tropic Zone, apply second dose of nitrogen as top dressing in wheat crop in afternoon after current spells of rain. Maintain proper drainage facilities in mustard crop. Undertake harvesting of sugarcane crop after current spells of rain.
- **Himachal Pradesh:**
 - In High Hill Temperate Zone, avoid pruning of apple trees when snow is fallen until the weather is warm.
 - In Mid-Hills Sub-Humid Zone, apply half dose of nitrogen fertilizers in onion and garlic after current spells of rain. Pea is in flowering to pod formation stage. Hence there should not be a shortage of irrigation in it. Carry out staking in pea. Carry out weeding in coriander & fenugreek. Undertake land preparations for summer vegetables like tomato, capsicum bhindi, gourd etc. in lower hills areas.
 - In Sub-Montane and Low Hills Sub-Tropical Zone, if symptoms of termite appear in wheat crop, apply Chlorpyrifos 20 EC @ 2.0 litres with irrigation after current spells of rain.
 - To control pod borer in gram crop, install Pheromone traps @ 3-4 traps per acre if flowering has reached 10-15%. Install "T" shaped bird perches in and around crop field to control insect population after current spells of rain.
- **Punjab, Haryana & Delhi:**

- In Punjab, complete sowing of sunflower. Complete transplanting of tomato seedlings. Continue sowing of long duration varieties of sunflower. Complete sowing of spring potato in the 2nd fortnight of this month. Undertake planting of sugarcane from second fortnight of this month (CoPB-92, Co118, CoJ-85, CoJ-64 (early maturing), CoPB-94, CoPB-93, CoPB-91, Co-238, CoJ-88 for mid-season), spring maize (PMH-10, DKC-9108, PMH-8, PMH-7 and PMH-1) and okra (Punjab Suhawani, Punjab Padmini, Punjab-7 and Punjab-8). when frost period is over, remove “Sarkanda” or plastic bags/sheets from the fields.
 - In Haryana, continue transplanting of matured seedlings of tomato, cauliflower, & cabbage in prepared field. Monitor mustard and vegetable crops for sucking pests.
 - In Delhi, continue planting of winter sugarcane at optimum soil moisture for better seed germination. Continue transplanting of onion. Continue transplanting of cauliflower, cabbage, broccoli and tomato. Continue sowing of spinach, coriander, fenugreek. Continue preparation of seedling of early cucurbitaceous crops in small polythene bags in poly houses. Undertake nursery preparation of chilli, tomato and brinjal crops in poly house.
 - In Punjab, check aphid damage in mustard and if aphid population is above ETL, spray 40 g Actara 25 WG or 400 ml of Rogor 30 EC or 600 ml Dursban/Coroban 20 EC in 80-125 litres of water per acre. For control of late blight of potato, spray Indofil M-45/Markzeb/Kavach @ 500-700 g in 250-350 litres of water per acre after current spells of rain. Monitor the wheat crop for occurrence of yellow rust in fields. If symptoms of yellow rust are noticed, spray the crop with Nativo @ 120g or Tilt or Shine or Bumper or Stilt or Compass or Markzole @ 200 ml in 200 litres of water per acre.
 - In Haryana, due to high humidity prevailing in the environment or cloudy weather, may occur the infestation of early blight in potato and tomato constant monitor/whistle is required.
- **Uttar Pradesh:**
- As rain/snow likely at many places over Uttar Pradesh on 15th February, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - In East Uttar Pradesh, undertake sowing of cucurbits crops, bitter guard, bottle guard, cucumber, pimpkin, musk melon and watermelon. Stop irrigation in potato crop one month before harvest for proper maturation of tubers of potato
 - In West Uttar Pradesh, farmers are advised to stop irrigation for next few days as sufficient moisture is available in all the crop. Nursery preparation should be done for chilli, tomato and brinjal crops in poly house. Transplantation of healthy seedlings of late varieties of cabbage, cauliflower, knolkhol etc. may be done on ridges. Continue transplanting of onion seedling. In mango trees spray monocofos 40 ec. 1.5ml/ litre water or chloropyrifas 20% of 2ml / litre water for preventing from moth insects or lassihoppar insects.
 - Prepare nursery for tomato and chilli. There is possibility of pod-borer on Gram, to prevent this spray quinolfos 25 ec or mythile 50% @ 2 litre per hectare in 600-750 litre water.
 - In West Uttar Pradesh, install pheromone traps @ 3-4 traps per acre for monitoring of the pest population for diamond back moth in cole crops, pod borer in pea and fruit borer in tomato.
- **Rajasthan:**
- In Sub humid and Southern Plain and Aravali Hill Zone, undertake sowing for summer groundnut and summer okra.
 - Due to increase in temperature in coming days increase the water demand of the rabi crops. Therefore irrigate the crops as and when crops show wilting symptoms and as per need on the basis of critical growth stages.
 - In gram, to prevent Heliothis infestation, spray Quinolphos 25 EC @ 1200 ml/ha or Indoxcarb @ 200 ml/ha or Emamectin benzoate @ 100 gm/ha or spinosad @ 73 gm/ha along with water at the time of flowering and repeat the spray if required.
 - In Southern Humid Plain Zone, farmers are advised to apply third irrigation in wheat at jointing stage. Maize crop may be intercultural and irrigated with top dressing of nitrogen at the knee high stage. Farmers are also advised to be applied irrigation in gram and mustard at the pod formation stage.
 - In wheat crop 40-50 day after sowing yellowing of leaves starts appearing which may be symptoms of deficiency of zinc. For control of the above spray of zinc sulphate (commercial grade) 1.5 kg and 750 gm calcium hydroxide in 100-125 litre water per bigha in the affected field.
 - In Flood Prone Eastern Plain Zone, farmers are advised to regularly monitor the mustard crop and destroy aphid infested branches of plant, spray Dimethoate 30 EC @ 1litre/ ha dissolved in 800 litre water when at least 10% plants are infested with 25-26 aphid per plant.
 - For the control of termites in wheat and other crops, spray of solution of Chloropyriphos 20EC 2l/ha with irrigation water. For broadcast Chloropyriphos 20EC mix with 100 kg/ha sand than apply light irrigation.
- **Animal Husbandary**
- In Uttar Pradesh, provide vaccination to cattles to prevent foot and mouth disease if not vaccinated. Provide the mixture of berseam with fodder as supplement to cattle. Give Dewormis or Nematicide orally to poultry.
 - In Uttarakhand, install electric bulbs in cattle shed to protect them from cold. Feed ajwain and jaggery to animals to maintain the body temperature. Doors and windows should be covered properly so that cold

winds do not enter the animal shed. Cover young calves with gunny/jute bags during night.

- **Apiculture**

- In Sub Tropical Zone of Jammu & Kashmir, shift the bee colonies near mustard field. Keep the colony under cover during night time to protect it from cold.

- **Poultry**

- Cover the poultry sheds in Jammu & Kashmir with gunny bags in order to protect the birds from cold weather. Install electric bulbs to maintain optimum temperature.

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