



**National Agromet Advisory Service Bulletin**  
**Based on**  
**Extended Range Weather Forecast (ERFS)**

**Validity: 17 to 30 May 2019**

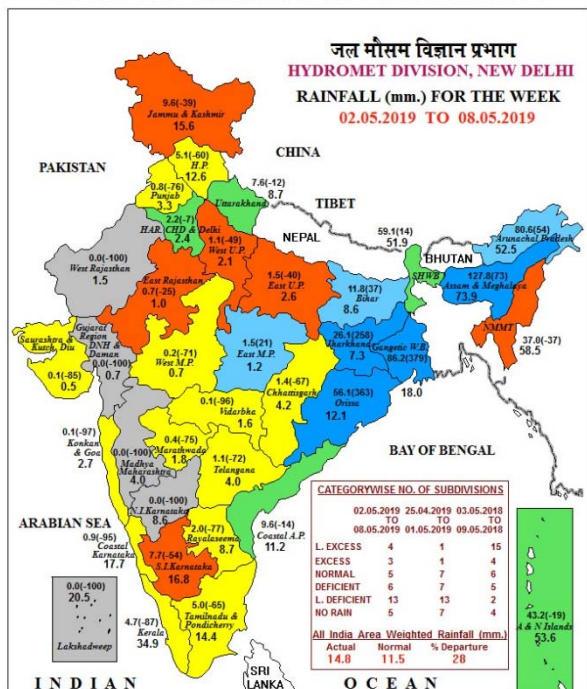
**Date of issue: 17 May 2019**

**Issued by**  
**Indian Council of Agricultural Research (ICAR)**  
**All India Coordinated Research Project on Agricultural Meteorology (AICRPAM),**  
**Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad.**  
**&**  
**Earth System Science Organization**  
**India Meteorological Department**

## Realized Rainfall and Extended Range Forecast (Rainfall and Temperatures)

### Realized Rainfall (2<sup>nd</sup> to 15<sup>th</sup> May, 2019)

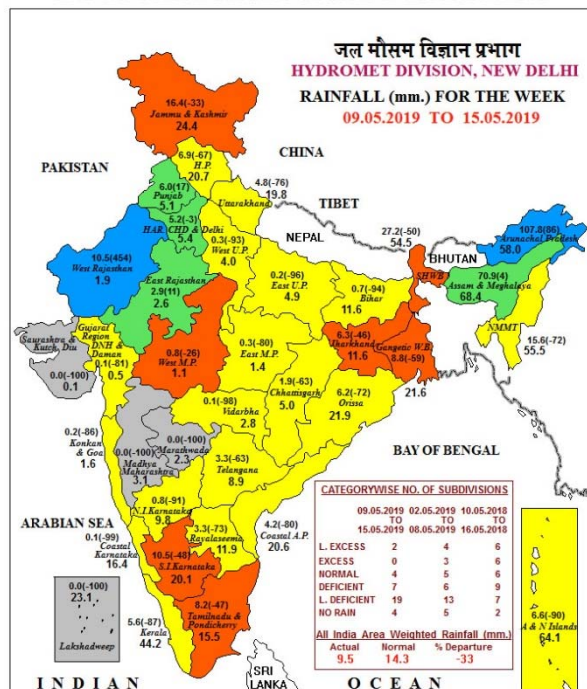
#### भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT



**LEGEND:** ■ L. EXCESS (>+60% OR MORE) ■ EXCESS (+20% TO +59%) ■ NORMAL (+19% TO -19%)  
 ■ DEFICIENT (-20% TO -59%) ■ L. DEFICIENT (-60% TO -99%) ■ NO RAIN (-100%) ■ NO DATA

**NOTES:**  
 [a] Rainfall figures are based on operational data.  
 [b] Small figures indicate actual rainfall [mm.], while bold figures indicate Normal rainfall [mm.]  
 Percentage Departures of Rainfall are shown in Brackets.

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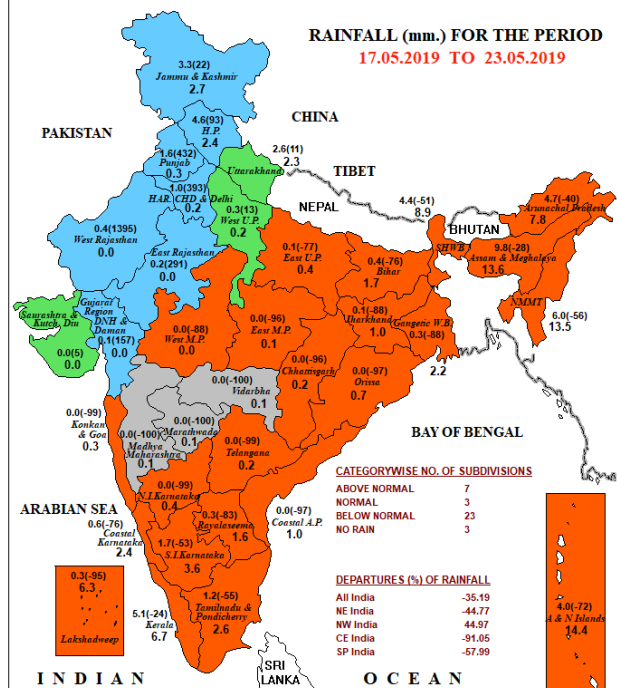
- Normal or above normal rainfall occurred in both the weeks in Haryana, Chandigarh & Delhi, Arunachal Pradesh and Assam & Meghalaya.
- Normal or above normal rainfall occurred in either of the two weeks in Uttarakhand, Punjab, Rajasthan, East Madhya Pradesh, Bihar, Jharkhand, West Bengal & Sikkim, Odisha, Coastal Andhra Pradesh and Andaman & Nicobar Islands.
- Below normal rainfall / no rain occurred over rest of the country.

# Extended Range Forecast System

## Rainfall forecast maps for the next 2 weeks (IC – 15 May) (17<sup>th</sup> May to 30<sup>th</sup> May 2019)

### भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

Rainfall Forecast Map - Normal RF Based Categories

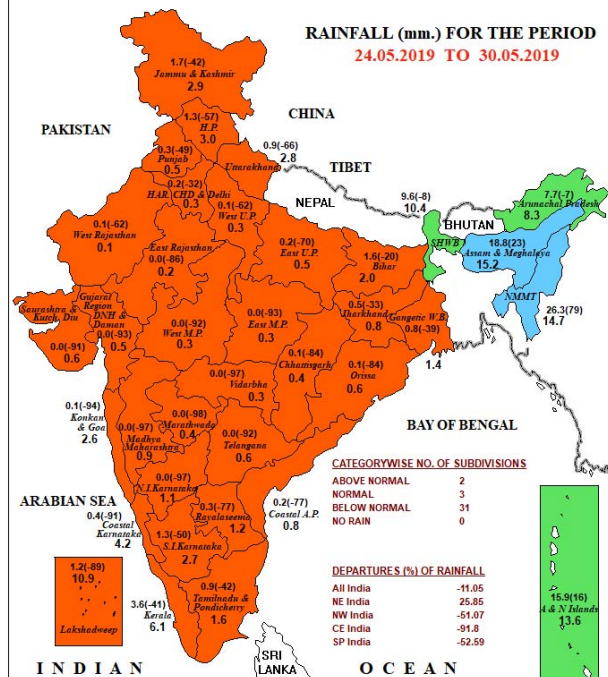


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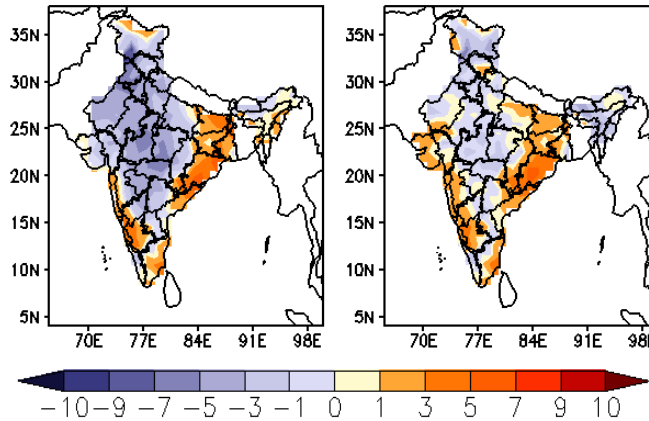
- **Week 1 (17.05.2019 to 23.05.2019) and Week 2 (24.05.2019 to 30.05.2019):** Northwest India expected to get rainfall due to the movement of Western Disturbance in week 1. North East India and extreme south peninsula regions expected to get some rainfall during week 2. Rainfall over Northeast India likely to increase from week 2 onward.

**Maximum and Minimum temperature anomaly ( $^{\circ}\text{C}$ ) forecast  
for next 2 weeks (IC – 01 May)  
(3<sup>rd</sup> May to 16<sup>th</sup> May 2019)**

**MME Bias Corrected Tmax Anomaly (Deg)**

(Week1: 17May–23May)

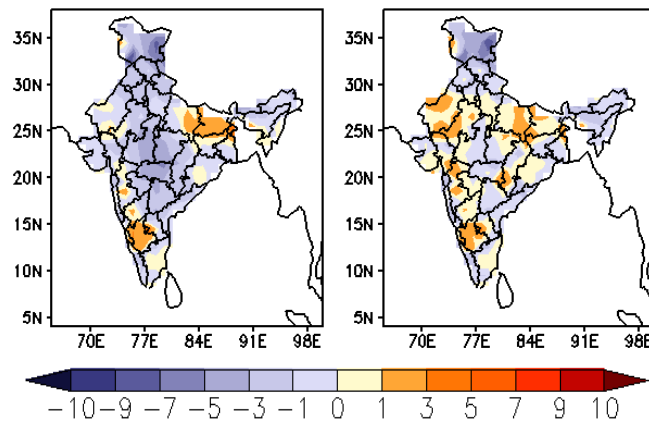
(Week2: 24May–30May)



**MME Bias Corrected Tmin Anomaly (Deg)**

(Week1: 17May–23May)

(Week2: 24May–30May)



**Maximum Temperature (Tmax)**

- **Week 1 (03.05.2019 to 09.05.2019) and Week 2 (10.05.2019 to 16.05.2019):** Tmax will remain below normal over most of the central and northwestern parts of India in week 1 and week 2. However, in eastern/NE parts of India, Tmax will be above normal in both the weeks. In addition, northwestern part of India and parts of western coastal regions of India will have above normal Tmax in week 2.

**Minimum Temperature (Tmin)**

- **Week 1 (03.05.2019 to 09.05.2019) and Week 2 (10.05.2019 to 16.05.2019):** Mostly, Tmin is expected to be normal to slightly below normal over most of India.

## **Strategic Agricultural Planning based on rainfall during next two weeks till 30<sup>th</sup> May 2019**

### **Agromet Advisories**

#### **Kerala**

Amount of rainfall received during the period from 01 March to 15 May 2019 over Kerala is 124.8 mm (45% deficit). The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is below normal for both the weeks.

- There is a chance of appearance of rice bug in paddy. To control them, spray 2 ml malathion per one litre of water. Pesticides application should be done either before 9 am or after 3 pm. Otherwise, the pesticide application will adversely affect the pollination.
- There is a chance of foot rot in pepper. Add 2 kg Trichoderma to a mixture of 90 kg FYM and 10 kg Neemcake for two weeks with sufficient moisture. Add 2.5 kg of this mixture to each matured vine to control foot rot of pepper.
- As there is increase in atmospheric temperature, the attack of insects such as whitefly, mealy bug and grass hopper is increased in vegetables. They can be controlled by applying 2% neem oil emulsion once in a week.
- The attack of Jassid in lady finger was increased due to increased atmospheric temperature. Apply 2% neem oil garlic emulsion once in a week or spray Lecanicillium lecanii at 20 g per litre of water to control.
- There is a chance of sigatoka disease in banana. As a precaution, spray 20 g Pseudomonas per one litre of water.
- There is a chance of Thrips, White flies, Katte disease in Cardamom -Take necessary control measures against cardamom thrips, white flies etc. Continue irrigation, apply mulch and clean the drainage channels. Give a heavy irrigation once in a fortnight. Destroy the katte disease affected plants.

#### **Karnataka**

Amount of rainfall received over North Interior Karnataka is 27 mm (46% deficit), South Interior Karnataka is 63 mm (31% deficit) and Coastal Karnataka is 31.2 mm (54% deficit) during 01 March to 15 May 2019. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) over North, South Interior Karnataka and Coastal Karnataka is below normal for both the weeks.

#### **South Interior Karnataka**

- Sailage, hay and crop residues may be used for cattle feed when there is a shortage of green fodder.
- Periodically water spray during peak hot hours lowers the temperature and consequently reduces the heat load on animals
- For soil moisture conservation in mango orchard, weeds and crop residues mulching is recommended.

#### **Tamil Nadu**

Amount of rainfall received during the period of 01 March to 15 May 2019 over Tamil Nadu is 35.6 mm (62 % deficit). The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is below normal for both the weeks.

- Prevailing weather condition is favorable for citrus canker/scab disease incidence. To control, spray Copper Oxchloride 0.2% at fortnight intervals.
- For protecting banana from high wind speed, mount the soil around the base of the tree and give support by using Casuarinas poles.
- In the prevailing weather condition, tobacco caterpillar is noticed in groundnut. Spray Neem oil (2%) 20 litre /ha or insecticides Imidacloprid 17.8% SL 100 -125 ml/ha to control.
- Anticipated weather condition is favourable for Fruit rot / Die back in chilli. Good control may be observed by three sprayings with Wettable Sulphur (or) Copper Oxy Chloride 0.25% (or) Zineb 0.15%.
- Prevailing weather condition is congenial for sucking pests like Thrips and Aphids problem in Chilli. To control spray Imidachlorpid 17.8% SL @ 3 ml/10 liters or Dimethoate 30% EC @ 1.0 lit/litre.
- Preventive medicine for Anthrax and FM disease should be given to the goat and sheep by utilizing the facility from nearby veterinary hospital for tolerating heat stress.

### **Maharashtra**

Amount of rainfall received over Madhya Maharashtra is 7.0 mm (64% deficit), over Marathwada is 5.9 mm (64% deficit), Vidarbha is 6.6 mm (73% deficit) and Konkan region 0.7 mm (90% deficit) during 01 March to 15 May 2019. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) over Marathwada, Madhya Maharashtra and Vidarbha has no rain for week-1 and over Marathwada, Madhya Maharashtra and Vidarbha is below normal for week-2 and over Konkan region is below normal for both the weeks.

### **Marathwada**

- For management of stem borer in sugarcane crop, give a spray of Chlorantranilipole 18.5 % SC @ 3 to 4 ml per 10 liter of water or make use of 0.4 % granular 18.75 kg/ha. Irrigation management should be done in sugarcane crop.
- Irrigation for vegetable crops should be provided through micro irrigation system i.e. drip or sprinkler method.
- Due to high temperature and water stress cracking of watermelon fruits may observed to protect the crop irrigation management should be done in watermelon crop.
- Management practices should be adopted to control powdery mildew in April pruning grape orchard.
- Due to increase in temperature the quality of fruit may affects. To avoid quality loss, harvest mature mango fruits early in the morning. Harvesting of fruits should be done along with stalk for uniform ripening and to increase shelf life. For post harvest management the harvested fruits of mango should be dipped into 0.1 % solution of Carbendanzim.
- Irrigation management should be done in mrug bahar citrus orchard. Provide 20 to 25 liter water for four years old plant, 70 to 80 liter water for eight to ten years old plants and 80 to 130 liter water per plant per day for more than 10 years old plant.

### **Madhya Maharashtra**

- To control fruit flies in cucurbit vegetables, install clue-luer traps @ 2 per acre and spray 5% Azadirachtin @ 10 ml + 10 litre of water.
- Store seed and food grain should be periodically inspected for pest infestation. If pest attack is observed, commodity should be sundried, sieved and restored by mixing 1 to 2% neem leaves.
- Give clean, sufficient water and green fodder to milch animals and place them in to shade to avoid high temperature.
- In fruit orchards to reduce evapotranspiration rate apply mulch of sugarcane trash.

### **Vidarbha**

- Maintain adequate moisture in the soil profile to reduce the impact of heat stress on summer crops with irrigation schedule at about 6 days interval.
- Frequent light irrigation coupled with basin mulching (2 to 3 inch layer of organic mulch over the root zone and a few inches away from the trunk) is advisable in orange and mango orchards to reduce solar heat stress.
- Provide mechanical support to papaya, banana bunches, young fruit trees to avoid damage/lodging due to windy weather .
- Provide thatches/shading made of cotton/pigeon pea stalks/green shade net to young fruit plantation and nurseries to reduce heat stress impact.
- Provide proper ventilation and heat protection in the animal/poultry sheds. Applying gunny bags/grass on roof of shed with sprinkling of water is advisable to reduce heat impact.

### **Konkan**

- To prevent incidence of post harvest diseases on fruits, place the fruits in hot water of 52<sup>0</sup>C for 10 minutes and then keep for ripening.
- For control of fruit fly incidence, install 'Rakshak fruit fly trap' developed by University @ 4 traps per hectare. Collect and destroy fallen fruits and keep orchard clean.
- Mango and Cashewnut : There is possibility of incidence of stem borer on cashew nut and mango plants on onset of monsoon. If incidence of stem borer is noticed in orchards remove infected portion with the help of 15 mm. chisel and destroy grub. Prepare solution of Chlorpyrifos 20% EC @ 5 ml. per litre of water and apply it to infected portion. Pour the Chlorpyrifos 20%EC @ 10 ml. + 50 ml. kerosene in the hole prepared by stem borer.
- Due to increase in rate of evaporation, provide irrigation to arecanut orchard at 4 to 5 days interval. Clean the arecanut plant by removing dry leaves and other material and spray 1 % bordomixture to control 'koleroga' disease.
- For control of eriophyid mite on Coconut, neembased insecticide neemazal 5% @ 7.5 ml be mixed in equal quantity of water apply through root feeding during month of April-may. Harvesting is avoided at least 45 days after treatment. In addition to this spray nemazal 1% @4 ml per liter of water on bunch of nuts. Collect and destroy all infected inflorescence and nuts before spraying.
- **Milch animal /goat/poultry:** There is forecast for increase in temperature, hence protect animals and poultry birds from heat by covering roof of the shed with insulating materials such as paddy straw, dry coconut leaves and make arrangement for sprinkle cold water on the roof of shed during afternoon time. Use wet gunny bags as side curtains to protect animals and poultry birds from direct hot winds.

- Vaccination against Haemorrhagic Septicemia (H.S) disease in farm animals under supervision of veterinary officers is advocated.

### **Rajasthan**

Amount of rainfall received over East Rajasthan region is 21.9 mm (111% excess) and West Rajasthan is 18.9 mm (64% excess) during 01 March to 15 May 2019. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) over East and West Rajasthan is above normal for week-1 and is below normal for week-2.

- As summer groundnut is at peg formation stage, irrigation should be applied.
- Before storage, grains should be properly cleaned and should be dried to the recommended level of moisture content.
- Apply irrigation in fodder crops like maize, sorghum, bajra and cluster bean.
- Farmers are advised to procure good quality cotton seeds for sowing in coming weeks.
- Withheld the irrigation in Pomegranate and Guava as the crops are at flowering (Mrigbahar) stage. This will prevent flower drop.

### **Gujarat**

Amount of rainfall received over Gujarat region is 1.1 mm (59% deficit) and Saurashtra & Kutch is 0.4 mm (80% deficit) during 01 March to 15 May 2019. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) over Gujarat region is above normal and for Saurashtra & Kutch is normal for week-1 and over Gujarat region and for Saurashtra & Kutch is below normal for week-2.

- In summer green gram, under high temperature condition evaporation rate will be higher so reduce interval between two irrigations and apply irrigation at evening time.
- Do not carry out weeding and inter culturing practices during pegging stage in summer groundnut.
- Infestation of white fly in chilli and brinjal can be manage by applying Trizophos 40 EC @ 20/10 litre of water.
- To control whiteflies in summer pulses, spray Acetamiprid 20 % SP@ 5.0 gm and 500 ml of 5 % neem seed extract or neem seed oil 50 ml with Profenofos 20 ml or Lemdacyhalothrin 10 ml / 10 lit of water.
- Infestation of white fly in Chilli and Brinjal can be managed by applying Triazophos 40 EC @ 20/10 lit. of water.
- Under present weather condition keep animals under shade or in sheds during noon hours, provide plenty of cool water mixed with minerals for drinking and shower the animals with cold water.

### **Jharkhand**

Amount of rainfall received over Jharkhand during 01 March to 15 May 2019 is 98.6 mm (78 % excess). The extended range weather forecast provided for next two weeks (17 to 23 and 24 to 30 May) is below normal for both the weeks.

- To conserve soil moisture for a longer period in Green gram, interculture operation (weeding) must be done.
- Irrigate different vegetables at the regular interval. Before irrigation, weeding is essential.



- **Summer Rice:** Timely transplanted crop is at grain filling stage and this stage is sensitive of moisture stress. Hence, maintain the water level in the field.
- Animals suffering with heat stroke, should be allowed to bath, ice cubes should be kept on their nose and head. And in extreme cases, the medicine Avilin should be injected @ 10 ml for adult, 5 ml for kids and 2 ml for goats.
- Add cow dung and lime in the pond as a natural foods for fishes and alternative feeds may also be used like Rice Bran and Mustard cake (each of 5 kg per day per acre area of pond).

### **Bihar**

Amount of rainfall received over Bihar during 01 March to 15 May 2019 is 48.6 mm (2% excess). The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is below normal for both the weeks.

- Sowing of *Rajendra Sonia* and *Rajendra Sonali* varieties of turmeric is advised. Application of 25-30 tons of cow dung, 60-75 kg nitrogen, 50-60 kg phosphorus, 100-120 kg potassium and 20-25 kg zinc sulphate per hectare is advised during land preparation. The size of the seed should be around 30-35 gram which contains 4-5 buds. Seed materials should be sown at 30X20 cm apart maintaining a soil depth of 5-6cm. Seed treatment with 2.5 gram Diethane M-45 plus 0.1% bavistin/Kg of seed is advised.
- Sowing of *Maran* and *Nadia* varieties of ginger is advised. Application of 25-30 tons of cow dung, 30-40 kg nitrogen, 50 kg phosphorus, 80-100 kg potassium 20-25 kg zinc sulphate and 10-12 kg borax per hectare is advised during land preparation. The size of the seed should be around 20-30 gram which contains 3-4 buds. Seed materials should be sown at distance of 30X20 cm. Seed treatment with solution of 0.2% redomil/Kg of seed is advised.
- Maintain the proper soil moisture of litchi and mango orchard.
- Land preparation is advised for paddy nursery. During land preparation, application of cow dung is suggested for good and healthy seedlings.
- Farmers are advised to harvest matured pods of early sown black gram/green gram. Regular monitoring is advised in late sown green gram /black gram against infestation of pod borer.
- In view of dry weather, farmers are advised to give irrigation in summer vegetables such as lady's finger, pumpkin, cucumber, sponge gourd, bottle gourd. Intercultural operation is also advised.
- Monitoring is advised for infestation of mites in okra. If infestation is found, spray of Ethion @ 1.5-2 ml/liter of water is advised.
- Monitoring is advised for infestation of fruit fly in cucurbitaceous crop. If infestation of is found, spray of Dimethoate 30 EC @ 2 ml+10 gram suger /liter of water is advised.

### **West Bengal**

Amount of rainfall received over Gangetic West Bengal during 01 March to 15 May 2019 is 203.4 mm (82 % excess). The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is below normal for both the weeks.

- **Boro Rice:** If more than 80% grains are ripened then harvest the crop. After harvesting, dry the crop properly as no rainfall is expected in coming days.
- **Sesame:** Weeding should be done properly and irrigate the crop if necessary.

- Mango: Start harvesting of matured fruits.
- In pumpkin, ridge-gourd, pointed gourd and cucumber, there is a chance of attack of Red-Pumpkin Beetle in this weather condition. To control the pest apply Dimecron or rogor (1ml per lit. of water).
- Under prevalent weather situation, there is chance of the attack of weevil in Jute crop. To control it apply 2ml Endosulphan per lit of water.

### **Assam**

Rainfall received over Assam is 444.1 mm (7% excess) during 01 March to 15 May 2019. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is below normal for week-1 and above normal for week-2.

- If farmers have failed to plant banana suckers during April, then they may go for planting during this month. For planting, select healthy sword suckers and are advised to plant in the pit maintaining an optimum distance. For dwarf varieties such as Jahaji, an optimum distance of 1.8m × 1.8m and for tall varieties such as Seni-champa, Malbhog and Bor-Jahaji, an optimum distance of 2.1m × 2.1m should be maintained.
- As optimum quantity of rainfall is forecasted in the coming 5 days, summer ploughing in rice fields is advocated. This will kill the eggs and larvae of insects and also will help in moisture conservation in soil.
- Farmers are advised to harvest the matured Arecanut and sort out the healthy seed nut from the harvested lot which are suitable for raising seedlings. For nursery bed, select well drained soil free from water-logging.
- During this period farmers may observe circular spot as well as water soaked sunken lesions with black margin on fruits. To control this disease, spraying of captan or captaf 5 gm/2.5 litre of water.
- Recommended varieties of pepper are Panniyur-1, Kalluvalli, Balankotta and Arkulam Munda.
- **Cattle:** Vaccination should be taken against foot and mouth disease, BQ, SH and other bacterial diseases in cattle and Buffaloes before the start of monsoon season.

### **Uttarakhand**

Rainfall received over Uttarakhand is 86.5mm (28% deficit) during 01 March to 15 May 2019. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is normal for week-1 and below normal for week-2.

- Prepare the field for sowing of ginger. Select disease free and treated rhizome as seed. Apply enriched compost and bio fungicide during the field preparation.
- Avoid water logging condition in onion and garlic. Apply bio-fungicide in field to minimize the pathogen attack.
- Earthing-up and mulching should be done in potato.
- Wheat, Barley and Mustard: Harvest matured crop and kept in safer place. Postpone the irrigation.
- Barnyard millet, pigeon pea: Apply bio-fungicide in field during inter-culture operations to minimize the pathogen attack.
- FMD vaccination should be given to cows and buffaloes. During summer, @50-60 grams salt per animal per day must be fed.

## **Haryana**

Rainfall received over Haryana is 26.6 mm (6% deficit) during 01 March to 15 May 2019. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is above normal for week-1 and below normal for week-2.

- Wheat & Barley: Due to chances of gusty winds, farmers are advised to make arrangements to cover grains while transport and store at dry places.
- Due to chances of rainfall, farmers are advised to withhold irrigation in sugarcane crop and vegetable crops till 19th May.
- Possibilities dusty high winds and thunderstorm, farmers are advised to keep the animals under sheds/trees. Provide them clean water to drink to avoid heat stress. Provide 50 grams iodized salt and 50 to 100 grams mineral mixture daily to the cattle/animal with feed & green fodder to keep them healthy.

## **Punjab**

Rainfall received over Punjab is 41.1 mm rainfall (11% deficit) during 01 March to 15 May 2019. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is above normal for week-1 and below normal for week-2.

- For the management of early shoot borer in sugarcane, use Tricho-cards having 20,000 eggs of *Corcyra Cephalonia* parasitized (seven days old) by *Trichogramma chilonis* per acre at 10 days interval.
- Fruit and shoot borer of brinjal should be controlled by spraying 100 ml Sumicidin 20 EC or 200 ml Ripcord 10 EC or 160 ml Decis 2.8 EC in 100-125 litres of water per acre.
- For the control of powdery mildew in cucurbit, spray the crop with Karathane 50-80 ml/acre at the appearance of powdery patches on the leaves. Avoid sprays of sulphur or copper based fungicide on cucurbits.
- Eradicate the weeds like *kanghi buti*, *peeli buti*, *puth kanda* etc growing on cotton field bunds, waste lands, road side and irrigation channels/canals to avoid further spread of whitefly to cotton field.
- To manage fruit fly in peach and plum fruits, fix PAU fruit fly traps @ 16 traps per acre.
- To check zinc deficiency in citrus, spray the affected trees with 0.47 zinc sulphate (4.7g/litre of water) solution, without addition of lime, to spring flush.

## **Jammu**

Rainfall received during 01 March to 15 May 2019 over Jammu is 171.0 mm, which is 41% deficit. The extended range weather forecast for next two weeks (17 to 23 and 24 to 30 May) is above normal for week-1 and below normal for week-2.

- Hoeing and weeding in moong and mash crop is advised.

- Due to chances of thundershowers/light rainfall on 17<sup>th</sup> & 18<sup>th</sup> of May, shift threshed produce to safer place immediately. After proper drying, store wheat grain in clean and disinfected store bins.
- To check the attack of red pumpkin beetle, spray Chloropyriphos @ 1.5ml/litre of water followed by dusting of ash to protect plants from attack. Spray Mancozeb @ 2.5g/litre of water to control anthracnose.
- Weeding may be done in Okra followed by application of 2<sup>nd</sup> dose of nitrogen.

***Disclaimer:** The predictability of weather depends on many factors which are dynamic in nature. The success of agromet advisories provided here depends on the accuracy of the forecasts. In no event will India Meteorological Department (IMD) and Indian Council of Agricultural Research (ICAR) be liable to the user or to any third party for any direct, indirect, incidental, consequential, special or exemplary damages or lost profit resulting from any use or misuse of the information on this bulletin.*