



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

Validity: (13 to 26th December 2019)

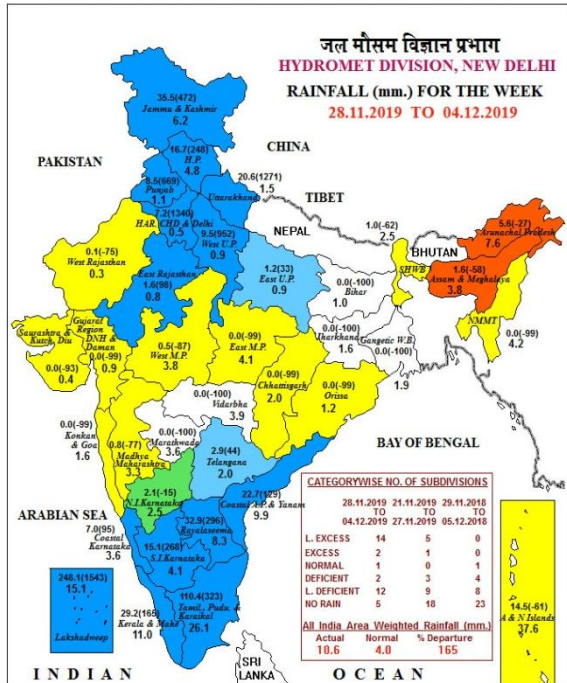
Date of issue: 13th December 2019

Issued by
Indian Council of Agricultural Research (ICAR)
All India Coordinated Research Project on Agro 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 (28th November to 11th December, 2019)

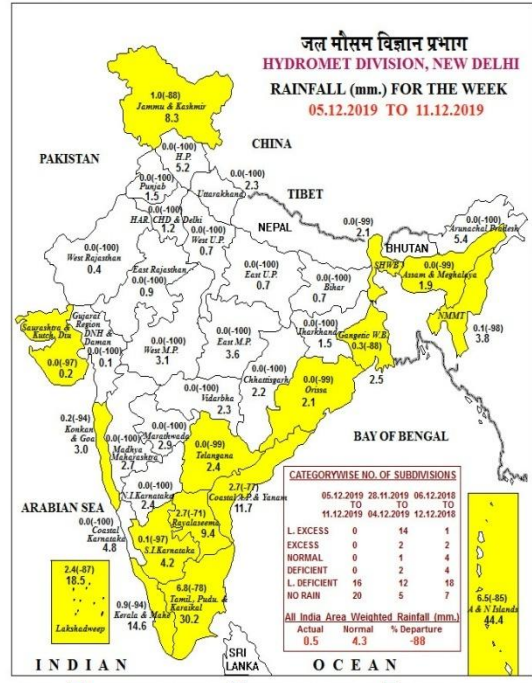
भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT



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.

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.

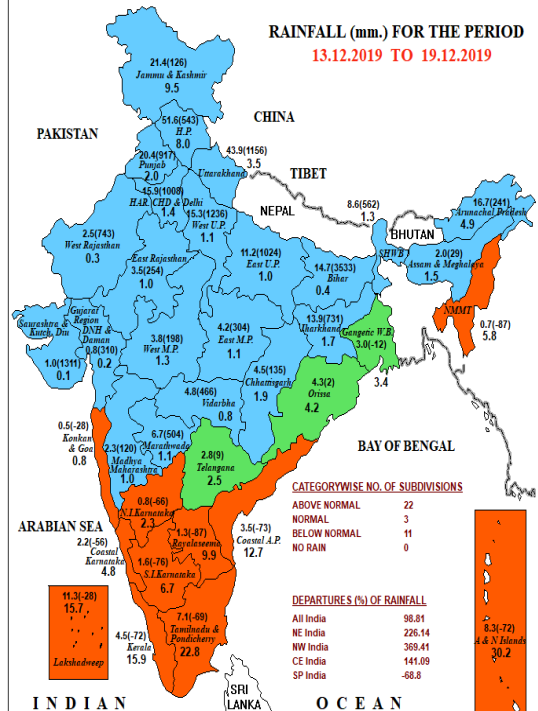
- Normal or above normal rainfall occurred in either of the two weeks in Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Chandigarh & Delhi, Uttarakhand, Uttar Pradesh, East Rajasthan, Telangana, Andhra Pradesh & Yanam, Tamil Nadu, Puducherry & Karaikal, Kerala & Mahe, Karnataka and Lakshadweep.
- Below normal rainfall/no rain occurred over rest of the country.

Extended Range Forecast System

Rainfall forecast maps for the next 2 weeks (IC – 11 December) (13th to 26th December 2019)

भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

Rainfall Forecast Map - Normal RF Based Categories

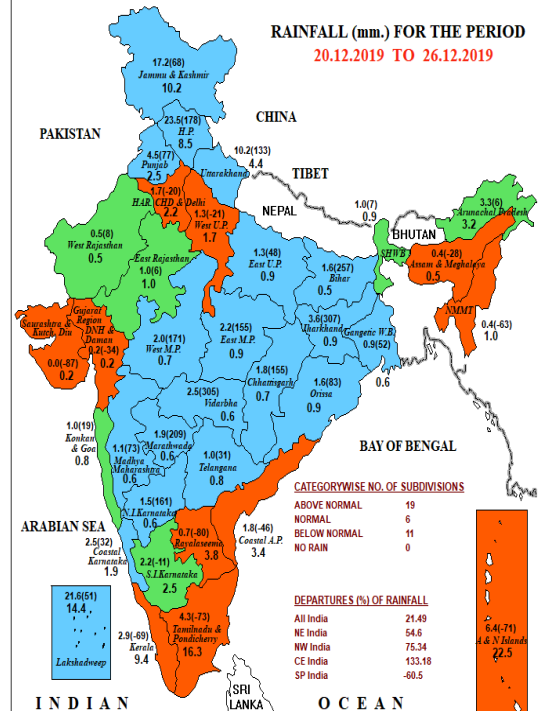


LEGEND: ■ ABOVE NORMAL (+20% OR MORE) ■ NORMAL (+19% TO -19%)
■ BELOW NORMAL (-20% TO -99%) ■ NO RAIN (-100%) ■ NO DATA

NOTES:
 (a) Rainfall figures are based on MME Forecast data.
 (b) Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)
 Percentage Departures of Rainfall are shown in Brackets.

भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

Rainfall Forecast Map - Normal RF Based Categories



LEGEND: ■ ABOVE NORMAL (+20% OR MORE) ■ NORMAL (+19% TO -19%)
■ BELOW NORMAL (-20% TO -99%) ■ NO RAIN (-100%) ■ NO DATA

NOTES:
 (a) Rainfall figures are based on MME Forecast data.
 (b) Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)
 Percentage Departures of Rainfall are shown in Brackets.

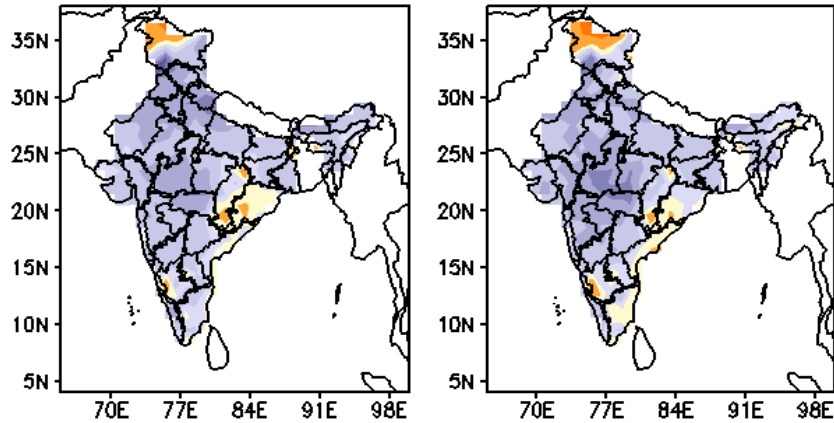
- **Week 1 (13.12.2019 to 19.12.2019) and Week 2 (20.12.2019 to 26.12.2019):** WD associated rainfall over extreme north India, UP, Bihar, Jharkhand etc mainly in week 1 and partly in week 2 also. Western part of Arabian Sea and some parts of southern Bay of Bengal and adjoining Sri Lanka and Tamil Nadu coast will get northeast monsoon rainfall.

**Maximum and Minimum temperature anomaly ($^{\circ}\text{C}$) forecast
for next 2 weeks (IC – 11 December)
(13th to 26th December 2019)**

MME forecast Tmax anomaly (Deg C)

(Week1: 13Dec–19Dec)

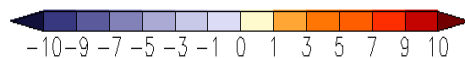
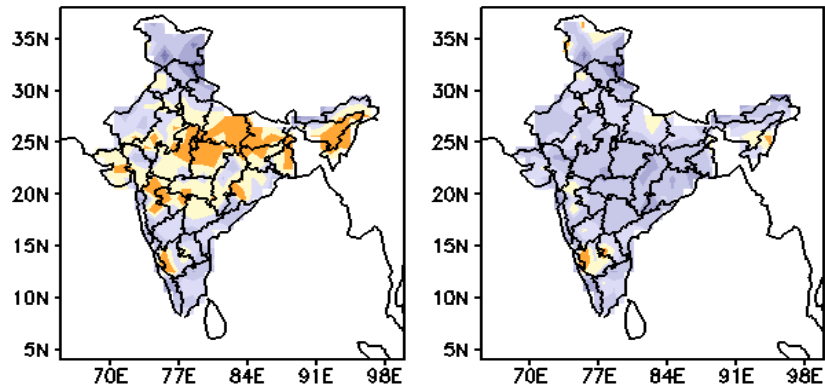
(Week2: 20Dec–26Dec)



MME forecast Tmin anomaly (Deg C)

(Week1: 13Dec–19Dec)

(Week2: 20Dec–26Dec)



Maximum Temperature (Tmax)

- **Week 1 (13.12.2019 to 19.12.2019) and Week 2 (20.12.2019 to 26.12.2019):** Tmax anomaly is mostly negative over central, western and southern parts of India during week 1 and week 2.

Minimum Temperature (Tmin)

- **Week 1 (13.12.2019 to 19.12.2019):** Above normal Tmin over central parts and adjoining Indo-Gangetic region during week 1, whereas over the rest region it is slightly less than normal.
- **Week 2 (20.12.2019 to 26.12.2019):** Below normal Tmin over entire India during week 2.

Strategic Agricultural Planning based on rainfall during next two weeks till 26th December 2019

Agromet Advisories

Kerala

Amount of rainfall received over Kerala is 615.2 mm (28% excess) during the period of 01 Oct. - 12 Dec. 2019. The extended range weather forecast for next two weeks (13-19 Dec. and 20-26 Dec. 2019) is below normal for week 1 and week-2.

- There is a chance of leaf folder attack in Mundakan paddy. It can be controlled by using trichogramma cards (2cc per one acre). Cut the cards into small pieces and fix in different regions of the field. If the attack is severe, spray quinalphos @ 2ml per one litre of water.
- To control the spread of bacterial leaf blight in paddy, spray 6g of Streptocycline in 30 litre of water.
- There is a chance of aphids in cowpea. Apply 2% neem oil emulsion or apply 20 g Verticillium lecanii per one litre of water in 10 days intervals. If aphid attack is severe, apply 3 ml Imidacloprid or 2 g Thiamethoxam per 10 litre of water.

Tamil Nadu

Amount of rainfall received over Tamil Nadu is 424.8 mm during the period of 01 Oct. - 12 Dec. 2019. The extended range weather forecast for next two weeks (13-19 Dec. and 20-26 Dec. 2019) is below normal for week 1 and week-2.

- Prevailing weather condition is favorable for shoot fly incidence in sorghum. It is advised to spray insecticides of Dimethoate 30 EC @ 500 ml/ha or Neem Seed Kernel extract 5%.
- Farmers are advised to monitor fall army worm incidence (Spodoptera Frugiperda) in maize. If symptoms were noticed, to control spray Azadirachtin 1 EC @ 2 ml/l (or) Thiodicarb 75 WP @ 2 g/l (or) Emamectin benzoate 5 SG @ 0.4 g/l (or) Spinetoram 12 SP @ 0.5 ml /litre insecticides.
- Shoot fly occurrence is noticed in sorghum in the prevailing weather condition. If ETL is above 1 egg/plant in 10% of plants in the first two weeks of sowing or 10% dead hearts, spray Dimethoate 30 EC @ 500 ml/ha (or) Neem Seed Kernel extract 5% insecticides to control the occurrence.
- To control leaf hopper in pulses, spray the infested crop with methyl-o-demeton 750 ml in 700 - 1000 litre of water per hectare.
- To control white fly in pulses, spray (spray fluid 250 l /ha) Methyl demeton 25 EC 500 ml/ha (or) Dimethoate 30 EC 500 ml/ha insecticides.

Maharashtra

Rainfall received over Madhya Maharashtra is 228.0 mm, over Marathwada is 255.6 mm, Vidharbha is 63.8 mm and Konkan region 281.5 mm during 01 Oct. - 12 Dec. 2019. The extended range weather forecast for next two weeks (13-19 Dec. and 20-26 Dec. 2019) over Madhya Maharashtra, Marathwada and Vidharbha are above normal and over Konkan is below normal for week-1 and over Madhya Maharashtra, Marathwada and Vidharbha are above normal and over Konkan is normal week-2.

Marathwada

- For management of shoot borer and fruit borer in brinjal, spray Chlorantraniliprole 18.5 % SC @ 4 ml or Chloropyriphos 20 % EC @ 20 ml or Cypermethrin 10 % EC @ 11 ml per 10 liter of water.
- To control fall armyworm in rabi sorghum crop, spray Thiamethoxam 12 % + Lambda – cyhalothrin 9.5 % ZC @ 5 ml or Spinetoram 11.7 % SC @ 4 ml per 10 litre of water.
- To control pod borer in pigeon pea crop, spray Chlorantraniliprole 18.5 % SC @ 3 ml or Emamectin benzoate 5 % @ 4.4 gm per 10 litre of water.
- To control leaf spot disease in turmeric crop, spray Mancozeb 25 gm or Carbendazim 10 gm per 10 litre of water. To control rhizome fly, earthing up should be done in turmeric crop and drenching of Chloropyriphos 50 % @ 500 ml per acre in water.

Madhya Maharashtra

- If incidence of army worm is reached at 10% level on maize, sorghum and sugarcane crops, spray Spinetoram (11.7% SC) 10 ML OR Chlorantraniliprole (18.5 % SC) 3 to 4 ml per 10 litre of water + 10 ml sticker.
- To control aphid attack on safflower crop, spray Dimethoate 20 EC @15 ml per 10 litre of water.

Konkan

- There is possibility of incidence of tea mosquito bugs on the inflorescence of cashewnut, to protect the cashew inflorescence, spray Profenophos 50% EC @10 ml per 10 liter of water.
- There is a possibility of incidence of hoppers and aphids in watermelon, spray dimethoate 30%EC @10 ml per 10 liter of water. Also use yellow sticky cards in field to attract the sucking pests.
- For protection of farm animals from external parasites such as ticks, maintain sanitation in farm shed and to control spray deltamethrin 2 ml/litre of water on to the body of animal under guidance of veterinarian.

Vidarbha

- In chickpea monitor collar rot / root rot. To control uproot and destroy affected plants followed by soil application of Trichoderma mixed with FYM at infected patches of the field.
- In pomegranate to control telya (oily spot) disease undertake spray of copper oxychloride 25g + streptomycin sulphate 5g (or) bronopol 5g per 10 litres of water. Depending upon the severity of disease repeat the spray after 15 days if needed.
- Farmers are advised to take preventive measures for vaccination of foot and mouth disease (FMD) and deworming of flat worms.
- To control initial infestation of pod borer (*Helicoverpa*) undertake spray of 5% neem seed kernel extract. If ETL levels are above (10-20 larvae/plant) undertake spray of Emamectin benzoate 5% SG @ 3g in 10 litres of water. Avoid green pod picking till 10 days after insecticidal spray.

Rajasthan

Rainfall received during 01 Oct. - 12 Dec. 2019 over East Rajasthan is 34.3 mm. The

extended range weather forecast for next two weeks (13-19 Dec. and 20-26 Dec. 2019) over East Rajasthan is above normal for week-1 and normal for week-2.

- The present weather is favourable for powdery mildew disease in peas, cauliflower, cabbage and raddish, so spray of karathane 1 ml / litre of water or other sulfur based fungicides to control the disease .
- To control pod borer in gram dusting of methyl parathion 2% @ 25 kg/ha before flowering should be done and spray acephate 75 s.p. @ 500 g/ ha after 10 to 15 days.
- To control Phalaris minor and wild oat in barley, spray ofisoproturon@ 0.75 kg/ha for light soil and @ 1.25 kg/ha in heavy soil at 30-35 days.
- Farmers are advised to irrigate wheat crop which is at CRI stage (21-25 days after sowing). Top dress the remaining half dose of N (86 kg urea/ha) in heavy soil and ¼ dose of N (43 kg urea/ha) in light soil. Late sowing of wheat should be completed during this week. The improved varieties for late sowing are Raj-3765, Raj-3777, Lok-1 and HI-8498.

West Bengal

Rainfall received during 01 Oct. - 12 Dec. 2019 in Jammu is 233.2 mm. The extended range weather forecast for next two weeks (13-19 Dec. and 20-26 Dec. 2019) is normal for the week-1 and above normal for week-2.

- Postpone irrigation and sowing of late sown wheat crop due to the chances of rainfall. Apply second dose of fertilizer after the receipt of rainfall.
- There is a chance of attack of black-rot of crucifers in the cabbage and cauliflower n the prevailing weather condition. This causes rotting of leaves and blackening of head. Apply 1g Streptocycline in 10 lit. of water and spray thoroughly. Apply top-dressing to cauliflower field. Spray on a dry day.
- Farmers are advised to start nursery bed preparation and collect seeds of improved varieties like Supriya, Jamini, Bhupen, IET-2233 etc. Treat the seeds with Thiram 75% or Bavistin @ 2.5-3 g dissolved in 1.5 lit. of water and soak 1 kg seed for 8-10 hrs. Apply 100kg FYM/kata of seedbed, 1 week before sowing.

Jammu

Rainfall received during 01 Oct. - 12 Dec. 2019 in Jammu is 190.1 mm. The extended range weather forecast for next two weeks (13-19 Dec. and 20-26 Dec. 2019) is above normal for the week-1 and week-2.

- Postpone irrigation and sowing of late sown wheat crop due to the chances of rainfall. Apply second dose of fertilizer after the receipt of rainfall.
- In oilseed crops apply 1st dose of nitrogen fertilizer as top dressing during afternoon after the receipt of rain.
- Protect young plants from low temperature. Remove the stock sprout, suckers and water sprout from budded/grafted vegetable plants.

Chhattisgarh

Amount of rainfall received over Chhattisgarh is 101.0 mm during 01 Oct. - 12 Dec. 2019. The extended range weather forecast provided for next two weeks (13-19 Dec. and 20-26 Dec. 2019) over Chhattisgarh is above normal for week-1 and week-2.

- In case of extreme cold conditions, there may be infestation of yellow vein mosaic in okra. Farmers are advised to go for spraying of systemic fungicides.
- To control powdery mildew in pea field, spray liquid Sulfex @ 8 ml/ 14 ltr water.
- If there is recurring infestation of wilt and collar rot disease in each year, farmers are advised to follow crop rotation. In rabi season wheat, safflower and linseed crops sowing is advised.

Himachal Pradesh

Amount of rainfall received over Himachal Pradesh is 72.5 mm during 01 Oct. - 12 Dec. 2019. The extended range weather forecast provided for next two weeks (13-19 Dec. and 20-26 Dec. 2019) on rainfall over Himachal Pradesh is above normal for week 1 and week 2.

- Late sowing of wheat crop should be completed after rainy spell. For obtaining optimum yield, use 125 kg/ha seed rate.
- Farmers are advised to sow dingri in closed room, maintain temperature of 25-28 0C and relative humidity of 80-85 % for good crop.
- It is advised to sow nursery of mid season cauliflower and cabbage in poly houses in mid and lower hills.
- Night temperature has started falling, farmers should not expose milch animals and their young ones to cold. Adequate protection should be given by covering them with gunny bags during night and ample exposure to sun during day to avoid pneumonia.

Bihar

Amount of rainfall received over Bihar is 25.5 mm during 01 Oct. - 12 Dec. 2019. The extended range weather forecast provided for next two weeks (13-19 Dec. and 20-26 Dec. 2019) for rainfall over Bihar is above normal for week 1 and week 2.

- Farmers are advised to complete the sowing of gram till 10th December. To protect against Kajra caterpillar (cut worm), seeds should be treated with Chlorpyrifos@ 8ml/kg.
- Monitoring is advised for infestation of fruit and shoot borers in brinjal, tomato, chilli, gram and pea. Installation of pheromone traps @ 3-4 traps per acre is advised.
- Farmers are advised to transplant onion seedlings of 50-55 days old. Transplanting of seedlings should be done in small beds with a size of 3x2 m or 5x2 m and with a spacing of 15 cm line to line and 10cm plant to plant. Deep transplanting should be avoided. And are advised to remove weeds from late sown onion nursery.
- Farmers are advised to remove weeds from wheat crop, which is in 30-35 days stage, spraysolution of 33g Sulfosulfuron and 20g Metsulfuron in 600-700 liters of water per hectare is advised.

Hisar

Amount of rainfall received over Hisar is 18.3 mm during 01 Oct. - 12 Dec. 2019. The extended range weather forecast provided for next two weeks (13-19 Dec. and 20-26 Dec. 2019) on rainfall over Hisar is above normal for week-1 and below normal for week-2.

- In view of dry and cloudy weather conditions, farmers were advised to do sowing of recommended varieties of wheat. Apply irrigation at CRI stage of crop.
- Apply requirement based irrigation and recommended doses of fertilizers in existing vegetable crops and monitor for insect-pests and diseases. Adopt effective weed management measures.
- Due to fall in night temperature and cloudy weather keep the animals under shed. Provide 50g iodized salt and 50 to 100g mineral mixture daily with animal feed/fodder to keep them healthy. Adopt recommended vaccination schedule.

Karnataka

Amount of rainfall received over Karnataka is 305.4 mm during 01 Oct. - 12 Dec. 2019. The extended range weather forecast provided for next two weeks (13-19 Dec. and 20-26 Dec. 2019) on rainfall over Himachal Pradesh is below normal for week 1 and normal for week 2.

- 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 per litre of water (or) spray indoxycarb 14.5 SC @ 0.5 ml/litre or spynosad 45 SC @ 0.15 ml/litre or chloropyrifos 20 EC @ 2ml/litre. for the effective control of pod borer.
- Maintain the optimum room temperature in poultry and sericulture units. Provide artificial brooding to chicks to maintain adequate temperature. Ensure proper cross ventilation to avoid ammonia accumulation.

Punjab

Amount of rainfall received over Punjab is 36.2 mm during 01 Oct. - 12 Dec. 2019. The extended range weather forecast provided for next two (13-19 Dec. and 20-26 Dec. 2019) on rainfall over Assam is above normal for week-1 and week-2.

- Farmers are advised to monitor the potato crop regularly, if symptoms of late blight are observed in the field then protect the crop by spraying Indofil M-45/Mass M-45/Markzeb/Antracole/Kavach @ 500-750 g using 250-350 litres of water per acre at 7 days interval.
- If yellowing of leaves appear due to manganese deficiency in wheat crop, protect the crop by spraying manganese sulphate.

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.

