



National Agromet Advisory Service Bulletin

Based on

Extended Range Weather Forecast (ERFS)

Validity: 19 July to 01 August 2019

Date of issue: 19 July 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

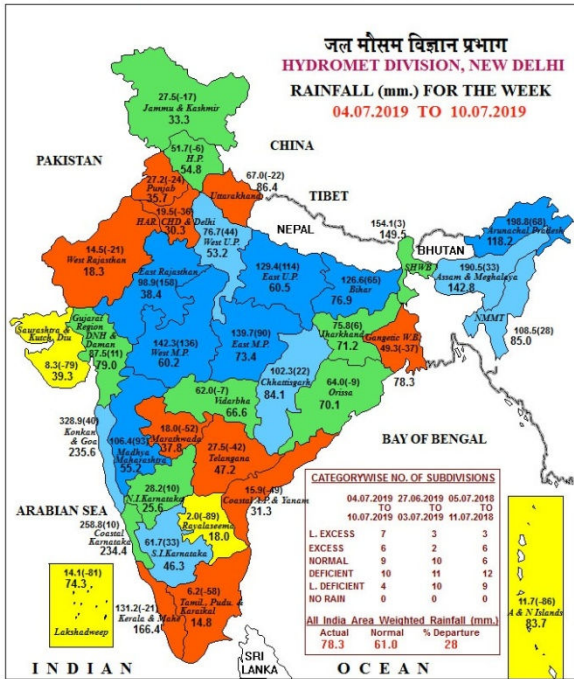
Realized Rainfall and Extended Range Forecast (Rainfall and Temperatures)

Realized Rainfall

(4th July, 2019 to 17th July, 2019)

भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

जल मौसम विज्ञान प्रभाग
HYDROMET DIVISION, NEW DELHI
RAINFALL (mm.) FOR THE WEEK
04.07.2019 TO 10.07.2019

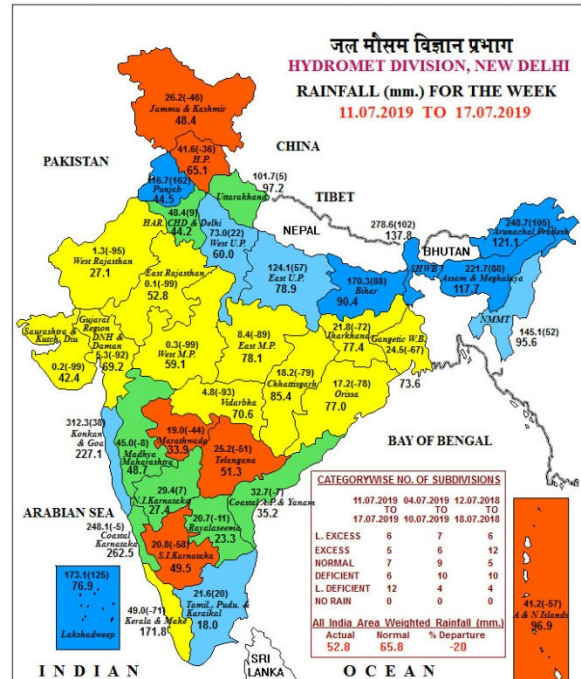


LEGEND: ■ L. EXCESS (+60% OR MORE) ■ EXCESS (+20% TO +59%) ■ NORMAL (+19% TO -19%)
■ DEFICIENT (-20% TO -59%) ■ L. DEFICIENT (-60% TO -99%) ■ NO RAIN (-100%) ■ NO DATA

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

जल मौसम विज्ञान प्रभाग
HYDROMET DIVISION, NEW DELHI
RAINFALL (mm.) FOR THE WEEK
11.07.2019 TO 17.07.2019



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.

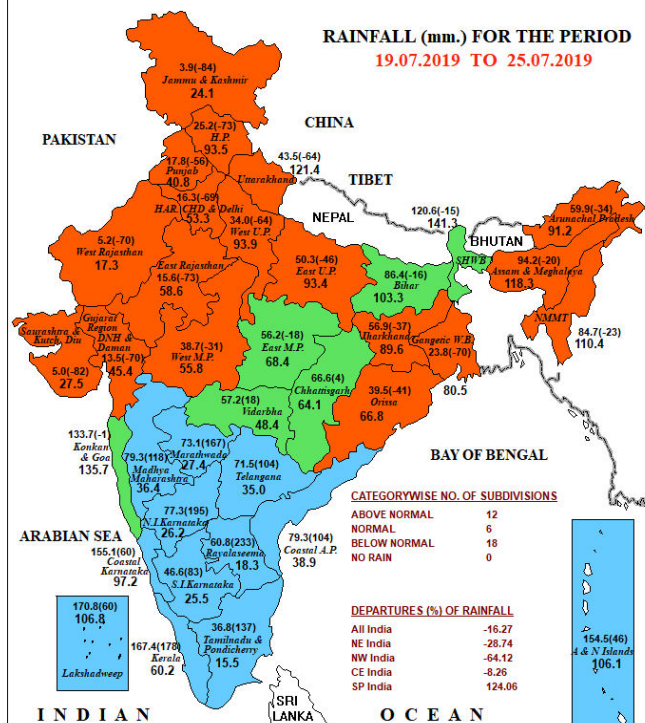
- Normal or above normal rainfall occurred in both the weeks in Uttar Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura (NMMT), Madhya Maharashtra, Konkan & Goa, North Interior Karnataka and Coastal Karnataka.
- Normal or above normal rainfall occurred in either of the two weeks in Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, East Rajasthan, Jharkhand, Odisha, Gujarat Region, Chhattisgarh, Madhya Pradesh, Vidarbha, Coastal Andhra Pradesh & Yanam, Rayalaseema, South Interior Karnataka, Tamil Nadu Puducherry & Karaikal and Lakshadweep,
- Below normal rainfall occurred in both the weeks in West Rajasthan, Saurashtra & Kutch, Marathwada, Gangetic West Bengal, Telangana, Kerala & Mahe and Andaman & Nicobar Islands.

Extended Range Forecast System

Rainfall forecast maps for the next 2 weeks (IC – 17 July) (19th July to 1st August 2019)

भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

Rainfall Forecast Map - Normal RF Based Categories

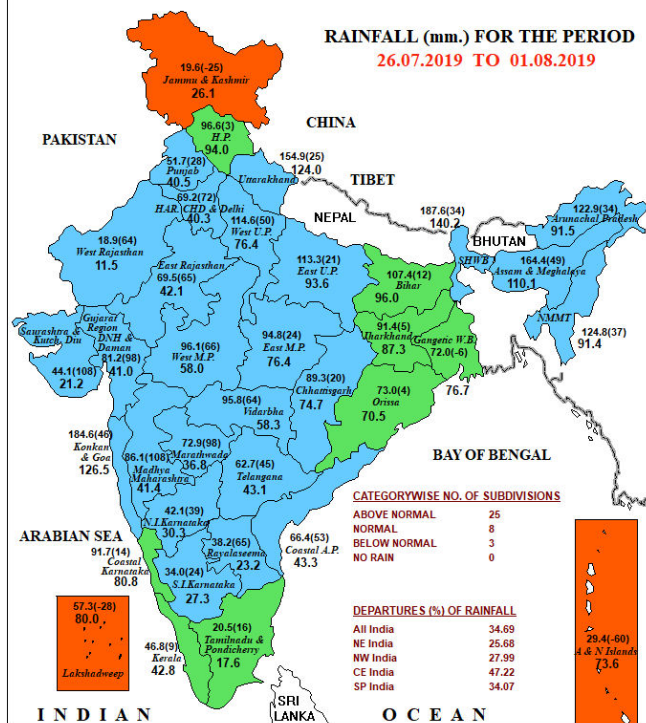


LEGEND: ■ ABOVE NORMAL (+20% OR MORE) ■ NORMAL (+19% TO -19%)
■ BELOW NORMAL (-20% TO -99%) ■ NO RAIN (-100%) ■ NO DATA

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.

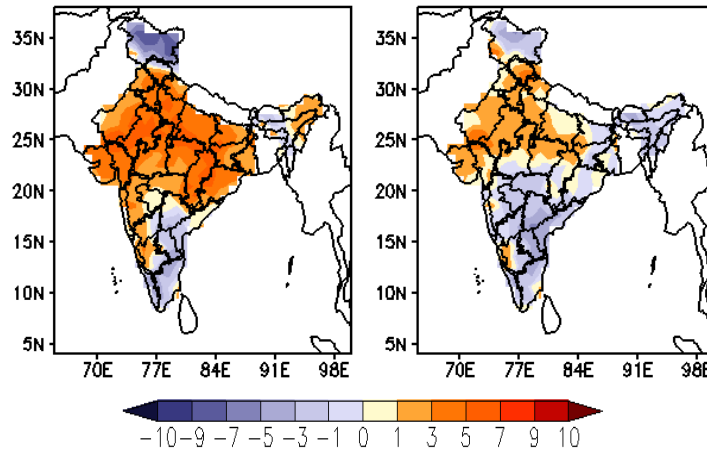
- Week 1 (19.07.2019 to 25.07.2019):** As indicated in the previous week, monsoon will be strengthened from south peninsula and adjoining central India during week 1 with above normal rainfall over the region. However, below normal rainfall over Northwest India, northeast India and northern part of central India likely to continue.
- Week 2 (26.07.2019 to 01.08.2019):** Mostly above normal rainfall over the country during the week with all four homogeneous regions are expected to be above normal.

**Maximum and Minimum temperature anomaly ($^{\circ}\text{C}$) forecast
for next 2 weeks (IC – 17 July)
(19th July to 1st August 2019)**

MME forecast Tmax anomaly (Deg C)

(Week1: 19Jul–25Jul)

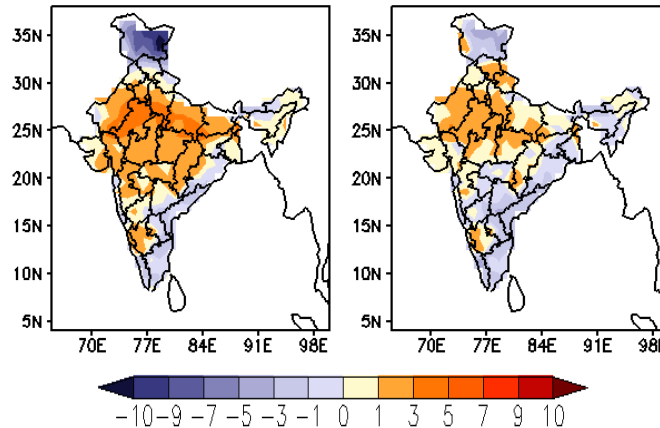
(Week2: 26Jul–01Aug)



MME forecast Tmin anomaly (Deg C)

(Week1: 19Jul–25Jul)

(Week2: 26Jul–01Aug)



Maximum Temperature (Tmax)

- **Week 1 (19.07.2019 to 25.07.2019) and Week 2 (26.07.2019 to 01.08.2019):** Tmax anomaly is likely to be positive over north India, central India and adjoining eastern parts of India during week 1. Some parts of northwest India will also be above normal during week 2.

Minimum Temperature (Tmin)

- **Week 1 (19.07.2019 to 25.07.2019) and Week 2 (26.07.2019 to 01.08.2019):** Mainly above normal Tmin over parts of Northwest India and normal over rest of the regions.

Strategic Agricultural Planning based on rainfall during next two weeks till 01st August 2019

Agromet Advisories

Kerala

Amount of rainfall received during the period from 01 June to 18 July 2019 over Kerala is 557.5 mm (48% deficit). The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is above normal for week-1 and normal for week-2.

- Since cloudy weather is prevailed, there is a chance of leaf folder attack in Virippu Paddy. It can be controlled by using Trichogramma cards (2CC per one acre). Cut the cards in to small pieces and fix in different regions of the field. If the attack is severe, spray Quinalphos @ 2ml per one litre of water.
- Since humid conditions prevailed in the state, there is a chance of bud rot in coconut Plantations. Hence keep three numbers of perforated Mancozeb sachets (5 g) per palm around spindle leaves as a prophylactic measure against bud rot.
- Due to the onset of monsoon, rubber farmers may discontinue tapping. Protect tapping panels from direct sun.
- 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.

Karnataka

Amount of rainfall received over North Interior Karnataka is 178.4 mm (5% excess), South Interior Karnataka is 200.7 mm (23% deficit) and Coastal Karnataka is 1181.8 mm (20 % deficit) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is above normal for week-1 over all the sub divisions of Karnataka and above normal over North and South Interior Karnataka and normal over coastal Karnataka for week-2.

South Interior Karnataka

- Undertake intercultural operation to control the weeds and to increase the moisture availability in crops.
- Due to high humidity (warm and humid weather) possibility of pest and disease build up is more in already sown crop. Take prophylactic measures depending on the crop.
- TTB-7, BRG-1,2,4&5 are recommended varieties of red gram.
- Ganga-11, Deccan -103, Vijaya composite, Composite NAC- 6004,6002, Hybrid-Nityashree (NAH-2049) are recommended varieties of maize.

Tamil Nadu

Amount of rainfall received during the period of 01 June to 18 July 2019 over Tamil Nadu is 61.9 mm (33 % deficit). The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is above normal week-1 and normal for week-2.

- In the prevailing weather condition, paddy stem borer incidence is noticed. ETL: 25% Dead heart symptoms. Farmers are advised to spray Neem seed kernel extract to control stem borer or Azadirachtin @ 0.03% 1000 ml/ha or insecticides Chlorpyrifos 20% EC @ 1.25 litre/ha or

Chlorantraniliprole 18.5% SC @ 150 ml/ha.

- In the prevailing weather condition, Yellow mosaic virus is noticed in pulses. To control, spray Dimethoate 30 EC @500 ml / ha or Thiamethoxam 75 WS @1 g/ litre at rainless days.
- In the prevailing weather condition, rhinoceros beetle and red palm weevil occurrence is noticed in coconut. To control rhinoceros beetle, remove and burn all dead coconut trees in the garden (which are likely to serve as breeding ground) to maintain good sanitation.

Maharashtra

Amount of rainfall received over Madhya Maharashtra is 310.5 mm (9% excess), over Marathwada is 145.4 mm (36% deficit), Vidarbha is 214.4 mm (36% deficit) and Konkan region 1501.7 mm (18% excess) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) over Marathwada, Madhya Maharashtra is above normal, Vidarbha and Konkan & Goa is normal for week-1 and above normal over all the sub divisions of Maharashtra for week-2.

Marathwada

- Take a spray of Potassium Nitrate @ 100 g per 10 litre of water in cotton and pigeon pea crop 30 DAS. As per availability of water, protective irrigation should be applied with the help of drip irrigation system.
- Light hoeing should be done in germinated black gram / green gram crop for weed management and conservation of soil moisture in the field. As per availability of water, protective irrigation should be applied in black gram / green gram crop with the help of sprinkler irrigation system.
- Light hoeing should be done in germinated maize crop for weed management and conservation of soil moisture in the field. As per availability of water protective irrigation should be applied in maize crop with the help of sprinkler irrigation system.

Madhya Maharashtra

- To control the leaf eating caterpillars in *kharif* sunflower, greengram, blackgram, pigeonpea etc, spraying of chloropyriphos or quinolphos @ 15-20 ml + 10 litre of water + 5 ml sticker is recommended.
- If sufficient rain is received in second fortnight of July, carryout sowing of pigeon pea, Bajra, Sunflower. For intercropping bajra + pigeon pea (2:1) and sunflower + pigeon pea (2:1) should be followed.
- Wherever the incidence of white grub, termites, nematodes etc. pests infesting through the soil is there, mix the granular insecticide (10% phorate) with the applying fertilizers @ 15 kg/ha.

Vidarbha

- Under prevailing subdued rainfall activity and insufficient soil moisture condition, remaining sowing of *kharif* crops should be done upon receipt of sufficient rains. Preferably use early duration varieties with 20% higher seed rate.
- As far as possible, avoid sowing of cotton. Otherwise under late sowing condition. Use only short duration varieties such as desi early variety like AKA-7 and American improved early variety like AKH-081 if sufficient rain is received.
- Remaining sowing of pigeonpea should be done upon receipt of sufficient rains. For sole pigeonpea recommended varieties include early duration varieties for medium soil type (ICPL 87 AKT-8811) , medium duration varieties for medium to heavy soil type (PKV Tara, BSMR-853) and long duration

varieties for heavy soil type (BSMR-736, ICPL-87119).

- In isolated areas with insufficient pre-sowing rains, remaining soybean sowing should be done upon receipt of sufficient rains with early duration soybean varieties JS 93-05, JS 95-60, JS 20-29, JS 20-34, MAUS-71, MAUS-158.

Andhra Pradesh

Amount of rainfall received over Coastal Andhra Pradesh is 125.5 mm (32% deficit) and in Rayalaseema 80.0 mm (32% deficit) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) over Coastal Andhra Pradesh and Rayalaseema is above normal for both the weeks.

- With the rainfall received during last week and forecasted during the next week, farmers are advised to take up sowing of rainfed crops like groundnut, redgram, maize, castor, bajra, foxtail millet in Chittoor.
- Farmers of Krishna zone are advised to take up sowing of pulses. Treat the seed with Mancozeb @ 3g/kg of seed or Carbendazim @ 1 g per kg seed and Imidacloprid @ 5 ml or Thomethaxim @5 g per kg seed for controlling sucking pest incidence.
- Farmers are advised to monitor incidence of fall army worm in maize by arranging 10 pheromone traps per acre.

Jharkhand

Amount of rainfall received over Jharkhand during 01 June to 18 July 2019 is 229.5 mm (39 % deficit). The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is below normal for week-1 and normal for week-2.

- Either drizzle or very light rain in some patches had occurred during previous days and similar situation will prevail during next four days. Hence, farmers are advised to conduct inter-culture operations to conserve soil moisture in different crop field.
- In fallow land, farmers may proceed for sowing arhar, urd and mung, if optimum soil moisture exists. Farmers can also go for inter-cultural operation to control weeds and conserve soil moisture in different kharif crops like rice, urd, ground nut, arhar, maize, mung etc. After weeding, broadcast urea as per their requirement and soil moisture status.
- Maintain the rice seedlings and irrigate them as per their requirement. Apply 2 kg urea per 100 square meter area in 10-15 days old rice seedlings. Start transplanting in low land, if there is sufficient water is available for puddling.

West Bengal

Amount of rainfall received over Gangetic West Bengal during 01 June to 18 July 2019 is 220.0 mm (50 % deficit). The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is below normal for week-1 and normal for week-2.

- Light to moderate rainfall is expected in coming days. Thus, complete the sowing operations of aman rice as well as transplanting operations with sufficient irrigation. Ensure weed free seed bed and make proper drainage channel. Use suitable and improved varieties like IET-4786, Khitish, Swarna, IR-36, etc.
- Complete the intercultural operations in jute. In the present weather condition, attack of stem and root

rot is common. To control it, apply 0.1% Carbendazim or 0.25% Mancozeb. Spraying should be done in non-rainy days.

- In pumpkin, ridge-gourd, pointed gourd and cucumber, there is a chance of attack of red-pumpkin beetle in the weather condition. To control the pest, apply Dimecron or Rogor (1ml per litre of water).

Bihar

Amount of rainfall received over Bihar during 01 June to 18 July 2019 is 407.3 mm (11 % excess). The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is normal for both the weeks.

- As good rainfall has occurred, over North Bihar districts, farmers are advised to transplant 20-22 days old paddy seedlings in medium and low land areas.
- Sowing of pigeon pea in upland areas is advised. Bahar, Pusa-9, Narendra Arhar-1, Rajendra Arhar-1 and Maalvia-13 varieties of pigeon pea are recommended for sowing in North Bihar. Application of 20kg/ha nitrogen, 45kg/ha phosphorus and 20 kg/ha potash and 20 kg sulphur/ha is advised during land preparation.
- Onion nursery should be covered by net at the height of 6-7 feet for protection against rainfall/scorching sunlight. Protect the nursery crop against infestation of damping off disease.
- Present weather is favourable for planting of new saplings of fruit plants (Mango, litchi, guava, jackfruit, citrus, papaya and banana) and forestry plants. Application of 50 kg FYM is suggested per plant.
- Vaccination of cattles is advised against anthrax, black quarter. Hygiene should be maintained at the place where animals are kept.

Odisha

Amount of rainfall received over Odisha during 01 June to 18 July 2019 is 290.1 mm (26 % deficit). The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is below normal for week-1 and normal for week-2.

- Rice seedlings is at 15 days in nursery. Apply 4 kg urea in 10 percent nursery beds for proper growth and development.
- Light to moderate rainfall is expected in next two days because of likely low pressure in north Bay of Bengal. Keep water ponding in the main field of rice.
- In uplands, farmers are advised to grow vegetables like lady's finger, cowpea, cauliflower, cluster bean, brinjal, tomato and chillies. Drain out excess water from the vegetable nursery.
- Go for improved HYV of sesame like Prachi, Kalika, Kanak, Vinayak etc. Use 1 to 1.2 kg seeds /acre. Before sowing treat the seeds with 3 g Ceresan/kg seeds.

Chhattisgarh

Amount of rainfall received over Chhattisgarh during 01 June to 18 July 2019 is 314.6 mm (20 % deficit). The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is normal for week-1 and above normal for week-2.

- In the upland areas where rainfall has been less, early varieties of rice crop like Tulsi, Aditya, Kalinga-3, Samleshwari, Vanprabha, Indira R-1 (Rajeshwari), Indira Barani Dhan-1 should be

selected and sown in lines.

- The areas where sowing has not been possible due to rainless situation, farmers are advised to go for sowing of green gram varieties like Pusa Vishal and HUM-1 and black gram crop varieties like TU 94-2, TAU-2, KU 96-3, Indira Urad-1 etc.
- Prepare seedlings for *kharif* vegetables. Seeds of pumpkin, bitter gourd and bottle guard should be sown by vegetable growers in the fields.
- Weed management should be done in brinjal, tomato, lady finger and cauliflower.
- Need based intercultural operations should be done in tomato, brinjal, chilli, okra and other vegetable crops.

Rajasthan

Amount of rainfall received over East Rajasthan is 185.1 mm (6% excess) and West Rajasthan is 46.0 mm (49% deficit) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) over East and West Rajasthan is below normal for week-1 and above normal for week-2.

- Incidence of "Fall Armyworm" is seen in maize crop in southern part of the state. Farmers are advised to spray Emamectin benzoate 5 SG (0.4 g/l of water) or Spinosad 45 SC (0.3 ml/l of water) to control.
- In soybean crops where the soybean crops is at 15-20 days or 5th leaf stage, farmers are advised to spray herbicide Imazethapyr 75g/ha for the control of broad and grassy weeds.
- Looking at the prolonged dry spell, irrigation in *kharif* crops is advised.

Gujarat

Amount of rainfall received over Gujarat region is 235.7 mm (26% deficit) and Saurashtra & Kutch is 76.0 mm (61% deficit) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) over Gujarat region and Saurashtra & Kutch is below normal for week-1 and above normal for week-2.

- As per the availability of irrigation water, life-saving irrigation should be given to the crop in alternative furrow. Moreover drip or sprinkler irrigation system is advised to irrigate the crop at critical growth stage.
- Do not sow crop till good rain is received.
- Pests and diseases infected plants should be removed from the field.
- Frequent light inter-cultural operation should be done to avoid the evaporation losses of soil moisture.

Assam

Rainfall received over Assam is 814.8 mm (normal) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is below normal for week-1 and above normal for week-2.

- Farmers may start transplanting of sali rice seedlings in medium low land areas. In case of short duration, for high yielding varieties, the age of seedlings during the time of transplanting should be 21 days and for long duration varieties the age of seedling should be 30-40 days.

- Farmers can plant the sucker, slip and crown of pine apple at a distance of 30, 60 and 90 cm from plant to plant, row to row & bed to bed respectively. Apply 24g urea, 12g SSP and 16g MOP per plant. Treat the planting materials by dipping in Mancozeb 2g/l to protect from bud rot.
- During this monsoon period, farmers are advised to provide mechanical support by bamboo sticks to sugarcane crop in order to prevent the plant from logging.
- Poultry growers can use the hybrid variety of chicken like BV300, Babcock, BV 380 etc for egg production purpose.

Haryana

Rainfall received over Haryana is 88.2 mm rainfall (33% deficit) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is below normal for week-1 and above normal for week-2.

- Transplant the 25-30 days old paddy seedlings and avoid deep planting for better crop establishment and fill up the gaps within a week. Maintain 5-6 cm standing water up to maximum tillering stage.
- Due to possibility of rain, farmers are advised to drain out the excess rain water in the cotton crop. Farmers are advised to withhold irrigation.
- Due to possibilities of rain, farmers are advised not to start the sowing of guar, bajra, maize. Keep fields prepared for sowing after rains and procure the certified seeds of recommended varieties of guar, bajra, maize, cluster bean.
- Farmers are advised to postpone irrigation and spray operations in existing vegetable crops. Make arrangement to avoid plant damage (particularly staked creeper) from anticipated gusty winds.

Uttarakhand

Rainfall received over Uttarakhand is 264.7 mm rainfall (32% deficit) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is below normal for week-1 and above normal for week-2.

- Transplanting may be done in tomatoes, chilli, capsicum, brinjal and cucurbitaceous crop. Black polythene use as mulch to avoid water logging and emergence of weeds. Staking should be done. Build suitable structures for storage of rainwater.
- Re-sowing, gap filling, hoeing and weeding should be done in finger millet, amaranths, soybean, horse gram, black gram and kidney bean.
- Vaccinate cattle and buffalos against the rainy season diseases. Protect cattle from rain and arrange dry bedding for cattle. Avoid water logging in cattle shed.

Punjab

Rainfall received over Punjab is 171.1 mm rainfall (20% excess) during 01 June to 18 July 2019. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is below normal for week-1 and above normal for week-2.

- To save the rice crop from sheath blight, keep the bunds of the field clean by removing grasses.
- Start transplanting of basmati varieties like CSR 30, Pusa Basmati 1509, Basmati 370 and Basmati 386.

- Drain out the stagnant rain water from the cotton fields.
- Prevailing weather is favourable for the development and spread of fruit rot in chilli. Farmers are advised to give 3-4 sprays @ 250 ml of Indofil M-45 or blitox 50 WP @ 750 g/acre at 10 days interval during clear weather.

Jammu

Rainfall received during 01 June to 18 July 2019 over Jammu is 136.4 mm, which is 19% deficit. The extended range weather forecast for next two weeks (19 to 25 July and 26 July to 01 August) is below normal for both the weeks.

- Due to chances of rainfall, farmers are advised to bund their fields for in situ storage of rain water and utilize the same for puddling. Farmers can continue transplanting of rice seedlings which are at 4-6 leaves stage (varieties: China-1039, IET-1410, Ratna, PC-19, SJR-5, Jaya & Basmati) after receipt of rain.
- Make arrangement to drain out excess water from the fields where maize crop is sown.
- Application of 1st dose of nitrogen fertilizer is recommended as top dressing in maize and bajra crop.
- Do not allow rain water to stand in the fields. Postpone irrigation, plant protection measures and application of fertilizers. Avoid direct contact of cucurbit fruits with soil.

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.