



# *National Agromet Advisory Service Bulletin*

based on

**Extended Range Weather Forecast**

Valid for 21<sup>st</sup> August to 3<sup>rd</sup> September 2015

Date of Issue: 21<sup>st</sup> August 2015

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Earth System Science Organisation  
India Meteorological Department

Indian Institute of Tropical Meteorology, Pune

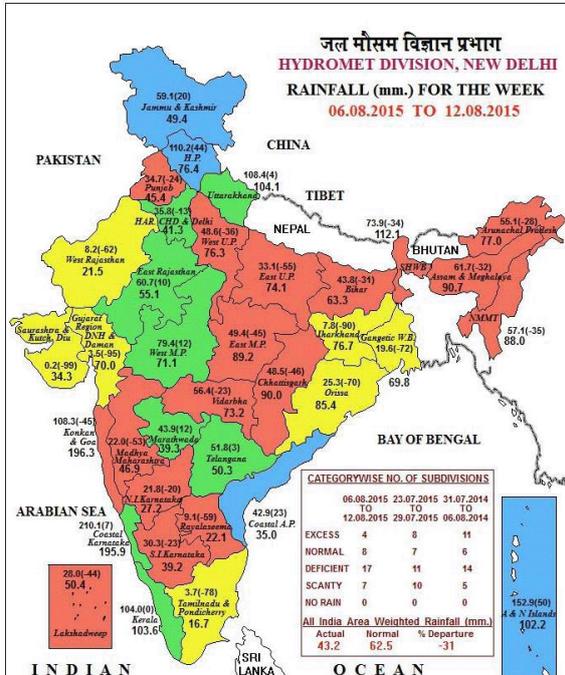
&

Indian Council of Agricultural Research  
AICRPAM, CRIDA, Hyderabad

# Realized Rainfall

## (6<sup>th</sup> to 19<sup>th</sup> August 2015)

### भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

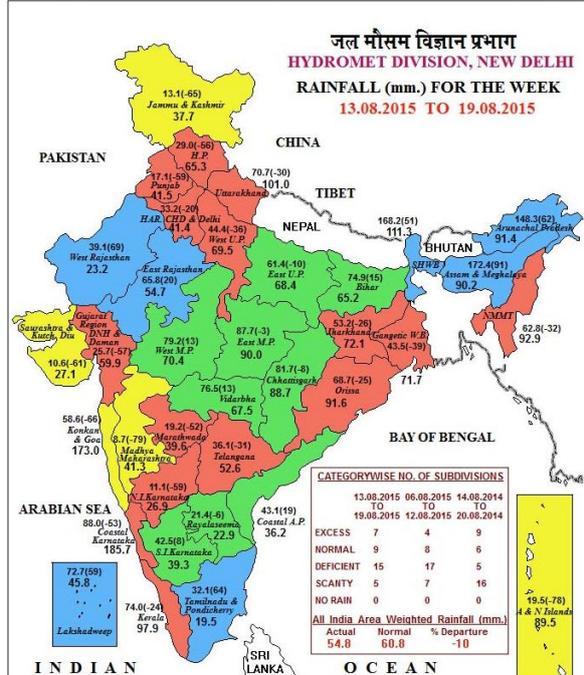


LEGEND: ■ EXCESS (+20% OR MORE) ■ NORMAL (+19% TO -19%) ■ DEFICIENT (-20% TO -59%)  
■ SCANTY (-60% TO -99%) ■ NO RAIN (-100%)  NO DATA

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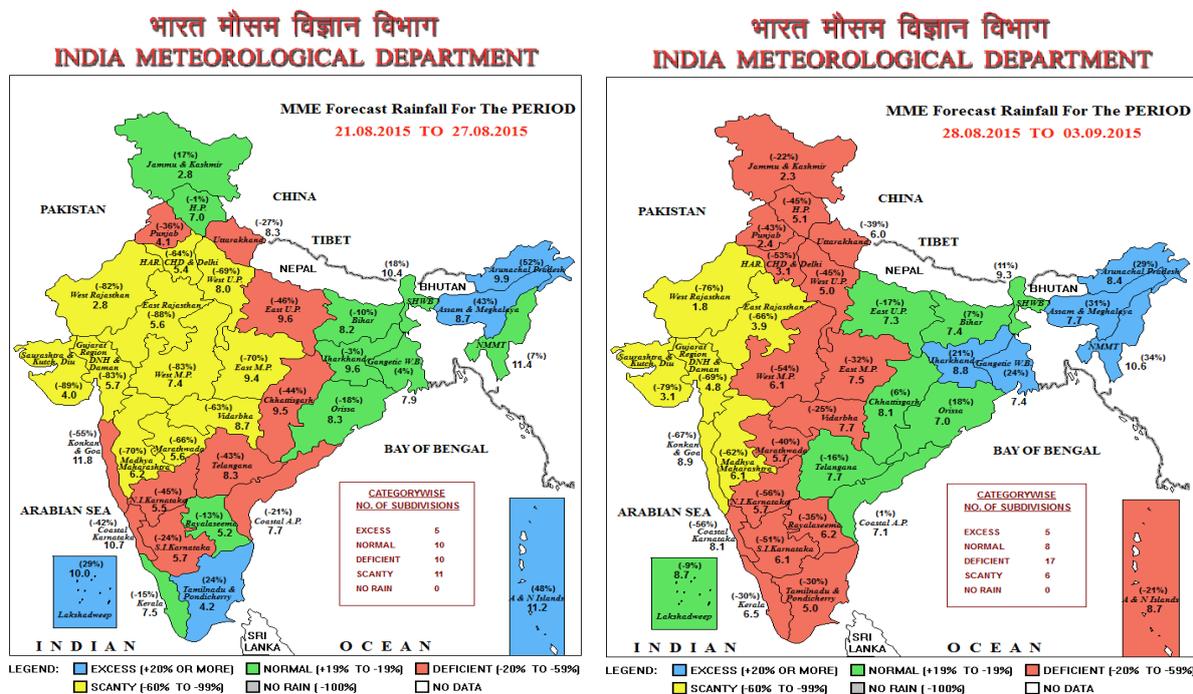
- (a) Rainfall figures are based on operational data.  
(b) Small figures indicate actual rainfall [mm.], while bold figures indicate Normal rainfall [mm.]  
Percentage Departures of Rainfall are shown in Brackets.

- Normal or above normal rainfall occurred during last two weeks in East Rajasthan, West Madhya Pradesh and Coastal Andhra Pradesh.
- Normal or above normal rainfall occurred in either of the last two weeks in Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Haryana & Delhi, West Rajasthan, East Uttar Pradesh, East Madhya Pradesh, Chhattisgarh, Marathwada, Vidarbha, Bihar, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Telangana, Rayalaseema, Coastal Karnataka, South Interior Karnataka, Kerala and Tamil Nadu.
- Below normal rainfall occurred in the last two weeks over Punjab, West Uttar Pradesh, Jharkhand, Gangetic West Bengal, Odisha, Gujarat State, Konkan & Goa, Madhya Maharashtra, Nagaland, Manipur, Mizoram, Tripura and North Interior Karnataka.

# Extended Range Forecast System

## Subdivisionwise rainfall forecast map for the next 2 weeks (IC = 19 August)

Rainfall forecast (mm/day) (21 August – 3 September, 2015)



**Notes:**

- (a) Rainfall figures are based on MME forecast
- (b) Bold figures indicate forecast Normal rainfall (mm/day)
- (c) Percentage Departures of Rainfall are shown in Brackets

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- (a) Rainfall figures are based on MME forecast
- (b) Bold figures indicate forecast Normal rainfall (mm/day)
- (c) Percentage Departures of Rainfall are shown in Brackets

- Normal or above normal rainfall would occur in next fortnight over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram, Tripura, West Bengal & Sikkim, Bihar, Odisha and Jharkhand.
- Normal or above normal rainfall would occur in either of the next two weeks in Jammu & Kashmir, Himachal Pradesh, East Uttar Pradesh, Chhattisgarh, Coastal Andhra Pradesh, Rayalaseema, Telangana, Tamil Nadu and Kerala
- Below normal rainfall would occur in the next two weeks over Uttarakhand, Punjab, Haryana & Delhi, West Uttar Pradesh, Rajasthan, Gujarat State, Maharashtra, Madhya Pradesh and Karnataka.

### Strategic Agricultural Planning based on rainfall during next two weeks till 3 September

Good rainfall occurred mainly over East Rajasthan, Madhya Pradesh, Andhra Pradesh, Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Haryana & Delhi, West Rajasthan, Chhattisgarh, Marathwada, Vidarbha, Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Telangana, Coastal Karnataka, South Interior Karnataka, Kerala and Tamil Nadu during last fortnight. Even though crops experienced moisture stress situation over the regions like **Gujarat** and **Madhya Maharashtra** upto third week of July and over **Telangana** upto first week of August

due to deficient rainfall during earlier weeks, the situation improved due to good rainfall during last three weeks. Over the regions like **Marathwada, North Interior Karnataka and Rayalaseema**, crops have been still experiencing moisture stress situation due to deficient rainfall during last few weeks, even though there is some improvement of the situation in **Marathwada** due to occurrence of rainfall during last week. There are reports of floods in **Assam** during end of July and in **Gangetic West Bengal and Manipur** during first week of August due to heavy to very heavy rainfall.

Except some meteorological subdivisions over Northeast India, eastern India, extreme north and south peninsula most parts of central and NW India will remain deficient to scanty rainfall during Week 1 (21-27 Aug). As a result the country as a whole will be deficient during the week. Deficient to scanty rainfall continues over major parts of NW, Central India and south peninsula. Rainfall will be normal to excess over met-subdivisions mainly to the east of 80E (eastern and NE India) during week 2 (28 Aug -03 Sep).

**. In view of prevailing poor rainfall situation in northwestern states like Rajasthan, West Uttar Pradesh and Haryana, Delhi and also in western India like Gujarat, Madhya Maharashtra, Marathwada and in south India like Rayalaseema, North Interior Karnataka and waterlogging situation in Assam, Manipur, Gangetic West Bengal and Jammu & Kashmir following agricultural activities are suggested.**

#### **Gujarat**

- Completion of resowing of cluster bean (GC-2) and castor (GAUCH-2, GCH-4 and GCH-7), fodder sorghum (S-1049, GFS-4 and GFS-5) and fodder maize (African Tall), where early sown crops had been affected due to heavy rainfall and transplanting of fennel, brinjal, tomato, chilli and other vegetables in North Gujarat Zone, North West Zone and Bhal and Coastal Zone.
- Maintenance of 5 cm water level in transplanted rice field in Middle Gujarat Zone and South Gujarat Heavy Rainfall Zone.
- Weeding, hoeing and intercultural operations in the standing crops to conserve soil moisture.
- Intercropping of soybean with two rows of castor to get more production and more income in South Saurashtra Zone.
- Protective irrigation to cotton and groundnut crops.
- Planting of different fruit crops (lemon, sapota, pomegranate, mango) in North Gujarat Zone and North West Zone. Irrigation
- Transplanting of tobacco with 90 cm x 75 cm spacing.

#### **Madhya Maharashtra**

- Sowing of seeds of *rabi* vegetables like tomato, brinjal, cabbage, cauliflower, sweet paper on raised beds.
- Intercropping of red gram + coriander (1:2) (red gram: BSMR- 736, 853, BDN- 708, Phule Rajeshwari, Vipula, coriander No.65,T-5365, NPJ-16, V-1) and sunflower/ castor + ridge gourd (mixed crop), (castor: VI-9,DCH-32, Sunflower: modern, Phule Raviraj,Bbhenu).
- Completion of transplanting of rice in Western Ghat region.
- Sowing of fodder crops like jowar (Ruchira, Phule Amruta, Phule Godhan), maize (African Tall, Karveer, Rajshree) and bajra (Nutrifeed).
- Intercropping of onion and *adsali* sugarcane depending on availability of water in Ahmednagar, Pune, Satara and Sangli districts.

- Protective irrigation (sprinkler / drip irrigation method) in crops / orchards under moisture stress in rainfall deficient districts like Sangli and Solapur or light hoeing in late sown crops to create soil mulch to conserve soil moisture.
- Light hoeing, weeding and organic mulching in newly planted orchards.
- Maintenance of 2-3 cm water level in transplanted rice in Western Ghat (western parts of Sangli, Satara, Kolhapur, Pune, Ahmednagar, Dhule, Nandurbar and Nasik districts).
- For taking *rabi* crops, compartmental bunding to conserve soil moisture wherever sowing is not carried out.
- Frequent intercultivation.
- Use surface mulch to reduce evapotranspiration loss.
- Protective irrigation wherever possible.

### **Marathwada**

- Sowing of contingent crops like sesame, sunflower and fodder maize.
- Sowing of contingent crops like maize (African Tall) for fodder purpose.
- Foliar spray of 8% Kaolin in orchards like banana, pomegranate and sweet lime and also spraying of 2% Potassium Nitrate (KNO<sub>3</sub>) on *kharif* jowar and soybean in Latur district and also in cotton crop to reduce rate of transpiration.
- For taking *rabi* crops, compartmental bunding to conserve soil moisture wherever sowing is not carried out.
- Light hoeing and weeding in cotton and soybean.
- Mulching with crop residues to conserve soil moisture in long duration crops like cotton.
- Protective irrigation (drip or sprinkler method) to crops like soybean, cotton and sorghum in view of prevailing moisture stress condition.
- For animal fodder purpose, use fodder cutter (chaff cutter) to avoid wastage of fodder.

### **Telangana**

- Sowing of contingency crops like red gram (Maruti, Lakshmi, PRG 158 etc.) and castor; sowing of medium duration varieties of red gram with closer spacing 120 x 20 cm in black soils and 90 x 20 cm in red soils in Southern Telangana Zone.
- Nursery sowing of rice. Sowing of red gram (PRG-158, Asha, LRG-41), castor and sunflower and red gram intercropped with jowar/bajra @ 1:2 ratio in the Northern Telangana Zone.
- Maintenance of 5 cm water level in rice fields.
- Mulching in early sown jowar, soybean, green gram and black gram for conservation of soil moisture.

**In view of continuous deficient rainfall situation during last few weeks, following agricultural activities are suggested for North Interior Karnataka, Rayalaseema, some districts in East Uttar Pradesh, West Uttar Pradesh, Haryana, Delhi, Rajasthan and Madhya Pradesh.**

### **North Interior Karnataka**

- Long dry spell has resulted in severe depletion of soil moisture, hampering the growth of seedlings of the sown crops. However, there is no scope for taking up any sowing operation in view of poor soil moisture status. Following contingency measures to mitigate deficit rainfall conditions are suggested for already sown crops in North East Transition Zone:
  - Thinning out excess and weak crops by removing alternate rows as the moisture stress is severe.
  - Repeated intercultivation and earthing up to keep the crops free from weeds.
  - Spraying of 1% Potassium Nitrate to already sown crops where slight soil moisture is

- available to induce drought resistance in the crops.
- Opening conservation furrow after two rows in wider spaced crops and after every 8<sup>th</sup> row in narrow spaced crops.
- Withholding top-dressing till soil moisture conditions improve.
- Light irrigation by sprinkler or drip.
- Only fodder crops can be sown with risk in case of any local rainfall occurrence so as this may help the farmer to protect at least their livestock.
- Adoption of moisture conservation techniques for dry land such as compartmental bunding, ridges furrow and scooping in fields spared for *rabi* sowing in North Dry Zone.
- Sowing of cowpea and fodder crops like jowar, maize, bajra in Haveri, Koppal, Bidar, Yadgir and Kalaburgi districts after receipt of sufficient rain.

### **Rayalaseema**

- Mulching in already sown crops for conservation of soil moisture.
- Maintenance of 2-3 cm water level in rice field.
- Protective irrigation in early sown groundnut, pearl millet, cotton, castor, pigeon pea and sorghum to avoid moisture stress if water is available in farm ponds or bore wells; spraying of 2% urea solution to prevent wilting, running a dead furrow for every 12 rows i.e. for every 3.6 meters.
- Intercultivation for weed control and moisture conservation.
- Due to lack of sufficient rains, already sown rainfed crops are suffering from moisture stress in the districts of Rayalaseema; due to deficit rainfall. Sowing of contingency crops, as mentioned below, after receipt of sufficient rain.
  - Sowing of green gram and korra after receipt of sufficient rainfall in Ananthapur and Kurnool districts.
  - Sowing of red gram (LRG 30, LRG 41, TRG 22) as mono crop in areas where there is enough soil moisture in Kadapa district in the Southern Zone.
- Supplementary irrigation from farm pond with sprinklers @ 20 mm (2 hrs) and continue spraying of 2% urea solution to avoid moisture stress in June sown groundnut and maize, provide.
- Spraying of 2% urea solution + 10 g MgSO<sub>4</sub> / litre of water followed by DAP 15-20 g + 10 g Potassium Nitrate (KNO<sub>3</sub>) / litre of water at weekly interval to control wilting in rainfed cotton in Cuddepah district.
- Compartmental bunding to conserve soil moisture for taking *rabi* crops, wherever sowing is not carried out.
- Paddy: To mitigate moisture stress spraying of urea + MOP solution @ 1% to nurseries and 2.5% to sugarcane under moisture stress conditions. Spraying of 2.0% urea solution on foliage in maize under moisture stress conditions.
- Top dressing of nitrogen fertilizers for cotton (30 kg N/ha), castor (15kg N/ha), sorghum (30 kg N/ha), pearl millet (30 kg N/ha) and foxtail millet (20 kg N/ha) crops in the districts wherever rainfall is received.

### **East Uttar Pradesh**

- Completion of transplanting of rice upto 20-22 August and direct sowing of short duration varieties of paddy such as NDR-97, NDR 80, NDR-2064, Pant Dhari-4 and Shusk Samrat after 22<sup>nd</sup> August.
- Intercultural operation in green gram and black gram and thinning in jowar and bajra.
- Gap filling to maintain plant population of rice.
- Mulching with crop residue to conserve soil moisture.

- Lifesaving irrigation, wherever possible.
- Sowing of pulses and oilseeds.
- Completion of sowing of short duration varieties of pearl millet, black gram and green gram.

### **West Uttar Pradesh**

- Spraying of 2% Urea to protect crops from moisture stress condition.
- Light hoeing, mulching with crop residue to conserve soil moisture.
- Weeding and thinning in green gram, black gram, pearl millet and pigeon pea.
- Transplanting of brinjal and chillies.
- Sowing of sorghum (Pusa chari-23, SSG-98-8MFSH-3, H Pant-5 and MP chari) with lobia (Russian Joint, UPC-5286, UPC-5287, NP-3, Bundhel lobia-2, UPC-9202 and UPC-4200), maize hybrid varieties like Ganga-2, 5,7 or composite as Kishan, African Tall and Vijay or indigenous variety Type-41 for fodder.

### **Haryana**

- Weeding and hoeing in bajra, cotton.
- Use herbicides for control of weeds in paddy and other kharif crops
- Transplanting of rice, brinjal, tomato, onion, early cauliflower and chilli.
- Sowing of desi cotton, bajra and pigeon pea
- Planting of jamun and mango
- Monitoring of cotton for attack of white fly.

### **Delhi**

- Transplanting of rice and kharif onion, chilli, brinjal, tomato and early cauliflower on ridges.
- Sowing of short duration varieties of black gram and green gram, guar, radish, cluster bean, beans, spinach and amaranths.
- Sowing of sweet corn and baby corn on a raised bed.

### **Rajasthan**

- Nursery sowing of cauliflower, sowing of radish, green gram, black gram, cowpea, cluster bean and fodder varieties of maize and sorghum.
- Weeding and hoeing in cotton, groundnut, maize, moongbean and uradbean crop.
- Transplantation of fruit plants like ber, aonla, pomegranate and beel.
- Undertake transplantation of kinnow saplings in Irrigated Northwestern Plain Zone.

### **Madhya Pradesh**

- In paddy, weed control by applying post-emergent application of herbicide like Whip super @ 250 ml/acre. Also apply nitrogenous fertilizers in paddy crops.
- Post-emergent application in paddy, green gram and black gram. For paddy spray Whip super (250 ml/acre) + (Almix@1 packet/acre) and for green gram and black gram, apply Pursuit 250 ml/acre for weed control.
- In soybean, insecticide application of Imidacloprid 17.8 SL at 200 ml/ha for white fly control. For controlling leaf eating caterpillar, application of Triazophos 40 EC at 80 ml/ha as spray on soybean plants.
- Sowing of kodo millet and little millet in Satpura Plateau Zone and plantation of fruit saplings and nursery sowing of early winter vegetables in Malwa Plateau Zone.

**Though good rainfall has been received in Bihar during last week, some regions remain dry. Following agricultural activities are suggested for those regions.**

## **Bihar**

- Rice: transplanting of medium and long duration variety of 40-45 days old seedling can be done with closer spacing 15 cm x15 cm providing 3-4 seedlings/hill.
- Maize: apply nitrogen @ 30 kg or 66 kg urea per hectare in the maize crop which has come to the tasseling stage.
- Pointed gourd: Sowing of pointed gourd is advised. Rajendra Parwal-1, Rajendra Parwal-2, FP-1, FP-3 varieties are recommended for Bihar. Keep a seed rate of 2500 plant/ha and planting distance 2x2 meters for better yield.
- Animal care: foot and mouth disease are very common in this season. Apply potash solution in the mouth of animal. And wash foot with phenyl.

**In view of occurrence of floods in Assam during end of July and in Manipur, Gangetic West Bengal during first week of August and heavy to very heavy rainfall in Jammu & Kashmir, following agricultural activities are suggested.**

## **Assam**

- In North Bank Plain Zone of Assam, in flood affected areas cultivation of short duration HYV of rice like Luit, Kapili, Kolong, Dishang etc. These varieties can be transplanted or sown upto 1st week of September. Transplanting of old seedlings of other improved long duration varieties like Monohar Sali, Salpona, Prasadbhog, Gobinbhog etc. up to mid-September. Sowing of kharif sesame, green gram, black gram, early cauliflower and radish. Late and staggered planting after receding flood water with 60 to 80 days old seedlings of the varieties like Prafulla (80 days) and Gitesh (60 days) up to mid-September.
- In Lower Bramhaputra Valley Zone of Assam, contingency plan for rice in flood affected area:
  - Raising of community nursery for late planting with old seedlings of the varieties like Profulla and Gitesh (If more than 50% damaged).
  - Nursery raising of the photo insensitive short duration varieties like Luit for replanting (in case of total damage).
  - Replanting of dead hills within 7-10 days of transplanting with seedlings of same age.
  - Nursery bed preparation for finger millet and winter vegetables and sowing of green gram and black gram.
  - Wet seeding of sprouted seeds (@75-80 kg/ha of short to medium duration varieties like Dishang, Luit(100 days), Kapili, Kalong (120 days).
  - Late and staggered planting with the old seedlings (50-60 days old seedlings) of the varieties like Profulla and Gitesh (if the field is heavily damaged).
  - Direct seeding with the photo insensitive short duration variety like Luit.
  - Adoption of submergence tolerance varieties like Jalashree and Jalkuwari for repeat flood prone areas.
- In partially affected fields, draining out excess water and apply 1/3<sup>rd</sup> N + 50% K<sub>2</sub>O as top dressing during the tillering stage.
- Sowing of finger millet, winter vegetables and sowing of green gram and black gram in Lower Bramhaputra Valley Zone of Assam.
- Sowing of *kharif* pulses like black gram / green gram and nursery raising of cole crops and early radish in Central Bramhaputra Valley Zone.
- Nursery sowing of mid cauliflower and radish in Upper Bramhaputra Valley Zone.

## **Manipur**

- Due to heavy rain during last fortnight, low lying areas in many districts got flooded. Crops like rice, ginger and turmeric were affected due to water logging. Contingency measures are-
  - Draining out excess water.
  - Transplanting with old seedlings of rice (40-45 days old) @ 4 to 5 seedlings per hill.
  - Completion of gap filling of rice seedlings.
  - Maintenance of 5cm water in the upland rice fields.
  - Sowing of onion in the upland areas.
  - For flood affected areas, raising contingency rice nurseries (late variety RC Maniphou 7).
  - Nursery raising for cauliflower and tomato.
  - Planting of banana after recession of flood water.

## **West Bengal**

- Due to heavy rainfall in last few weeks and release of water from different dams (Panchet, Massanjore, Maithon, Hinglo etc.) flood situation occurred in South 24 Parganas, East and West Midnapore, Burdwan, Birbhum, Murshidabad, Howrah and Nadia Districts. Crop damage in 12 districts of West Bengal is reported. Contingency plan for flood affected areas is as follows-
  - In all flood prone districts, collection of rice seedling from non-flooded areas and transplanting or gap filling as early as possible. Seedbed preparation for vegetable crops after drainage of excess water.
  - Replanting in the flood affected area (after flood water recedes) with short duration cultivars of rice like PNR-519, Kalinga, Kalyani, Rasi and Satabdi (IET-4786).
  - In flood prone areas, selection of submergence tolerance rice cultivars (e.g. Jaladhi, Jalashree, Plaban) wherever planting is not carried out yet.
  - If aged seedlings of rice are being used, transplanting with more seedlings per hill with stagnant water (2 to 3 cm) upto 10 days in rice field after transplanting.
  - In the main field where rice seedlings are found normal, draining out of excess water and apply urea 3.2 @ kg/bigha and MOP @ 2kg/bigha
  - For medium land condition, sprouted seeds of rice can also be directly sown after recede of the flood water. Plucking the tillers from old seedbed and re-transplanting immediately in the main field with more depth.
  - After recession of flood water, preparation of fields for cultivation of early mustard and black gram in regions in which transplanting is not possible due to deep water.
  - The fields where the seedlings of tomato and brinjal are found fine, application of copper fungicide @ 4g/litre of water at 7 days interval.
  - Maintenance of drainage system in the soybean and ginger fields in view of occurrence of moderate to very heavy rainfall.
  - Harvesting jute crop and preparation of main field for transplanting rice. Transplanting with will be three weeks old seedlings.
  - Rejuvenation of the low lying areas to store rainwater for jute retting without mud and banana stem for retting purpose.
  - In vegetable fields, proper irrigation as well as drainage facility must be provided, particularly in medium and upland. Provision of Polythene cover should be assured for seedbed of early cabbage/ cauliflower (which are harvested in November).
  - In worst flood affected area and those field where rice crop cultivation is not possible, farmers can cultivate gai mung or maize, cow peas, for fodder as substitute of paddy straw.

## **Jammu & Kashmir**

- Avoid stagnation of water maize, pulses, turmeric and vegetable fields.
- Plants should be given adequate support and root zone always covered. Weeds should be

suppressed by manual weeding.

- For control of weeds in paddy crop application of Bispyrebac @ 25-30 gm/ ha in 500 liters of water to the crop between 30-35 days after transplanting when ponded water just disappears from the field.
- Application of 2<sup>nd</sup> dose of nitrogen fertilizer as top dressing in normal sown maize crop before tassel formation as sufficient moisture is present in the soil.
- Sowing of mixed fodder i.e. legume + cereal (maize, cowpea & chari) at optimum soil moisture conditions.
- In pulse crop do not allow water to stagnate and farmer may go for intercultural operations (thinning, weeding and hoeing) keeping in view the moisture status of fields.

**Normal agricultural activities are continued over remaining parts of the country in view of receipt of good rainfall during the season.**