



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

Valid for 26th August to 8th September, 2016

Date of Issue: 26th August, 2016

Issued by

**Earth System Science Organisation
India Meteorological Department**

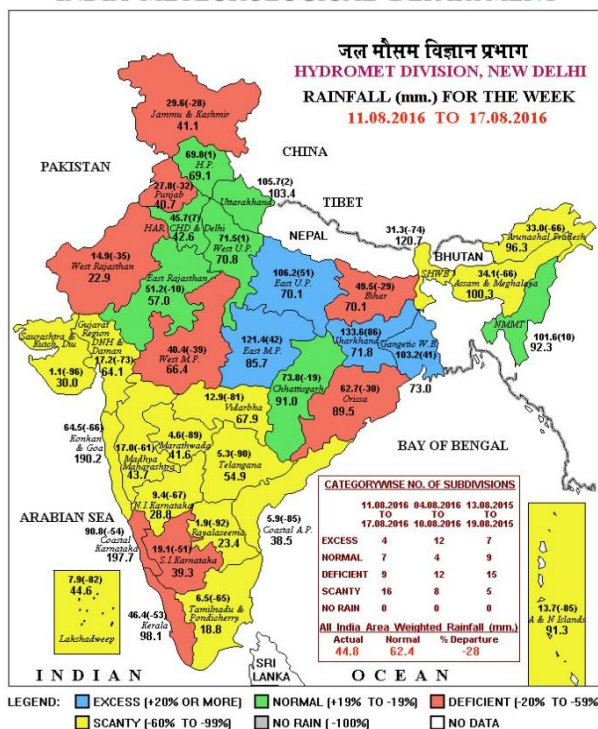
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**Indian Council of Agricultural Research (ICAR)
All India Coordinated Research Project on Agricultural Meteorology (AICRPAM),
Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad**

* National AAS Bulletin based on ERFS is available at <http://www.imdagrimet.gov.in/erfsview15>

Realized Rainfall (11th to 24th August 2016)

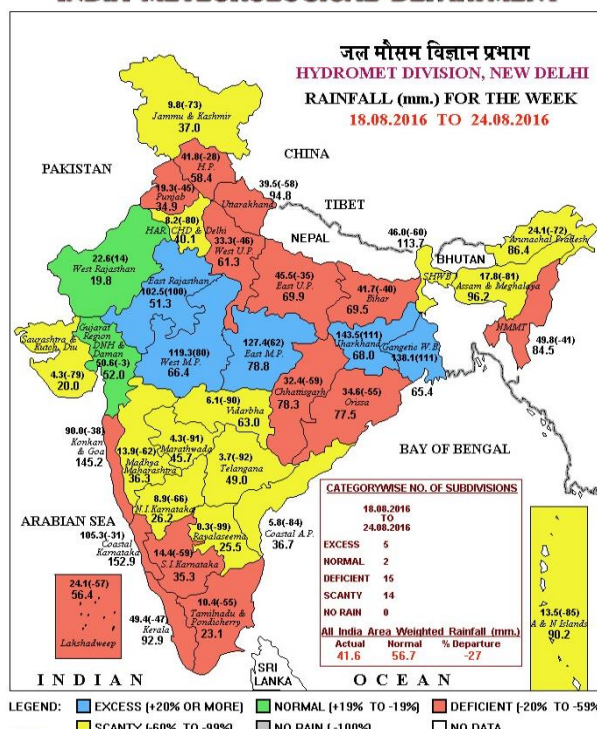
भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT



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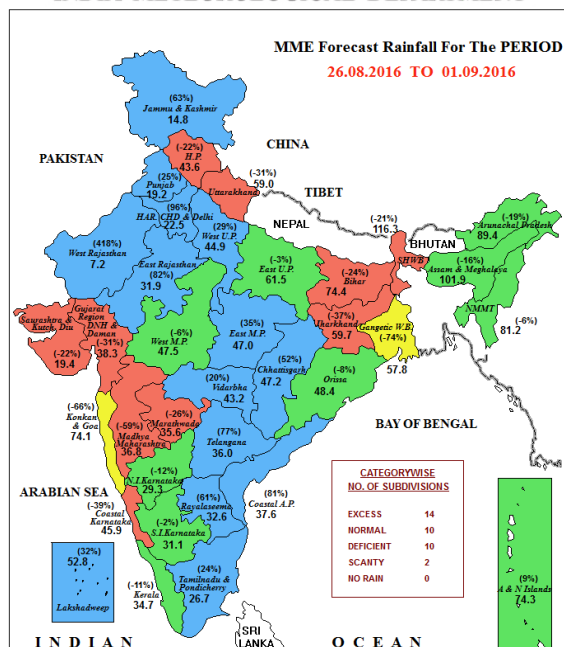
- Normal or above normal rainfall occurred during last two weeks in Jharkhand, Gangetic West Bengal, East Madhya Pradesh and East Rajasthan.
- Normal or above normal rainfall occurred in either of the last two weeks in Uttarakhand, Himachal Pradesh, Uttar Pradesh, Haryana & Delhi, West Rajasthan, Nagaland,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

Extended Range Forecast System

Subdivisionwise rainfall forecast for the next 2 weeks (IC =24 August)

Rainfall forecast (26 August -08 September, 2016)

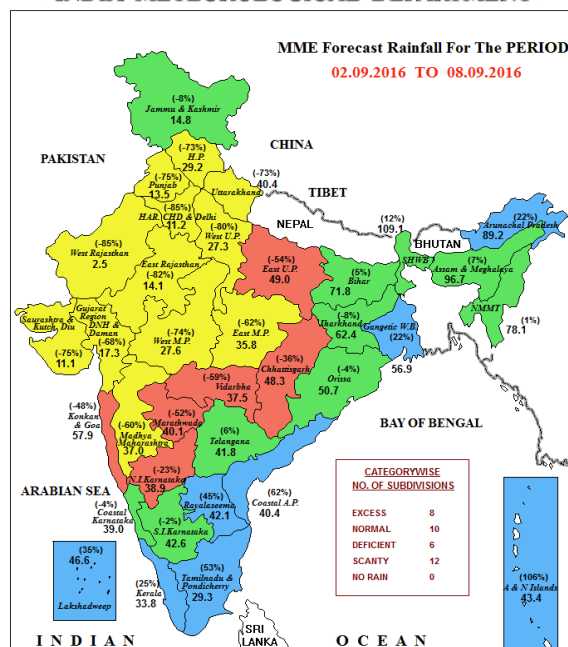
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NOTES:
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(b) Bold figures indicate Forecast Normal rainfall (mm.)
(c) Percentage Departures of Rainfall are shown in Brackets.

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

Strategic Agricultural Planning based on rainfall during next two weeks till 8th September

- During week 1 (26 August -01 Sep.), rainfall activity is likely to be active over parts of Northwest India covering Rajasthan, Haryana, Punjab, North MP, west UP and eastern parts of central India including Odisha, Chhattisgarh, Andhra Pradesh, Telangana. Whereas, Northeast India and western parts of India is expected to be below normal.
- During week 2 (02 -08 Sep), the parts of southern peninsula, eastern coastal belt and northeastern parts of the country is expected to be normal to slightly above normal. Most parts of Central and Northwest India is expected to be slightly below normal.
- State-wise crop varieties are given in Annexure I.

In view of subdued rainfall activity over South India and over Maharashtra and Saurashtra & Kutch subdivision of Gujarat during last fortnight, which is likely to continue over Coastal Karnataka, Madhya Maharashtra and Marathwada and Saurashtra & Kutch subdivision of Gujarat during next fortnight, following advisories are suggested:

Maharashtra

Madhya Maharashtra

- Apply protective irrigation in standing crops like red gram, groundnut, jowar, cotton and soybean due to prevailing dry spell conditions and likely subdued rainfall.
- Intercultural operations in cotton and pigeon pea to conserve soil moisture. Avoid intercultural operations in groundnut and soybean crop at flowering stage.
- Maintain water level of 3-5 cm in transplanted rice fields in Western Ghat Region.
- Organic mulching with crop residues in case of newly planted orchards to avoid water loss.
- Maintain optimum plant population in order to maintain water balance.

Marathwada

In view of prevailing subdued rainfall activity which is likely to continue during next fortnight (update after receipt of forecast), following advisories are suggested:

- Apply protective irrigation to *kharif* soybean, late sown sorghum, pearl millet, cotton, sugarcane, turmeric and vegetables by sprinkler irrigation system, which are under moisture stress.
- To control leaf roller in pigeon pea crop spray Azadirachtin (300 ppm) 50 ml or Emamectin Benzoate (18.5 SC) 2-3 ml in 10 litres of water remove the infested plant parts and destroy them properly.
- Spray Potassium Nitrate (KNO_3) 2 % (200 gm per 10 litres of water) in soybean and late sown sorghum crop.
- Spray 2 % MOP and 2 % urea in sugarcane, mulch with organic mulches and irrigate the crop through drip irrigation.
- In cotton crop, spray Magnesium Sulphate ($MgSO_4$) @ 20 gm per 10 litres of water at 55 to 60 DAS (square formation to flowering stage). Also spray Potassium Nitrate (13: 00: 45) @ 100 to 150 g per 10 litres of water during water stress condition.
- Dust mulching in cotton, pigeon pea and horticultural crops to reduce the loss of water by

evaporation from soil.

- Compartmental bunding to conserve soil moisture for taking *rabi* crops, wherever sowing is not carried out.
- Completion of plantation of fodder crops like maize, bajra and napier grass by end of August to avoid fodder shortage.

Vidarbha

- Maintenance 3-5 cm water level in rice (at tillering stage) fields in East Vidarbha.
- Intercultural operations like hoeing and weeding in cotton and pigeon pea to conserve moisture.
- Completion of plantation of fodder crops like maize, bajra and Napier grass by end of August.
- Apply foliar spray of 2% Urea (200 g Urea +10 litre water) at flowering stage and 2% DAP at boll development stage, especially to late sown cotton crop.
- Early-rabi crops like pigeon pea (C-11 or ICPL 87119 (Asha)) or early-rabi sesame (N-8) can be sown up to September 15.

Karnataka

Coastal Karnataka

- Maintenance of 5 cm water level in transplanted rice in Uttar Kannada district.
- Completion of transplanting of rice in Uttar Kannada district of Hill Zone with realised rainfall by end of August.

South Interior Karnataka

- Maintenance of 5 cm water level in transplanted rice.
- Intercultural operations in red gram in Hassan and Chikkamagaluru district of Southern Transition Zone.
- Complete sowing of short duration crops like ragi (HR-911, Indaf-5, 9, GPU-26, 28, 45, 48 and 66, PR-202) and sowing of contingent crops like miner millet viz. foxtail millet, kodo millet, proso millet, ragi, jowar, maize and pulses like avare, cowpea except green gram, black gram, niger and sesamum in Chamrajnagar, Mandya districts of Southern Dry Zone. Avoid sowing / planting of rice and sugarcane.
- Sowing of ragi in Bengaluru Rural and Bengaluru Urban districts of Eastern Dry Zone with expected rainfall.
- Carry out intercultural operations in earlier sown maize and groundnut crops on a non-rainy day to control the weeds and to increase the moisture availability to crops.

North Interior Karnataka

- Maintenance of 5 cm water level in transplanted rice.
- 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. This will help to conserve moisture in the soil profile and beneficial for *rabi* crops.
- Open conservation furrow after two rows in wider spaced crops and after every 8th row in narrow spaced crops to conserve soil moisture.

- Intercultivation and earthing-up in crops like red gram, soybean, maize, cotton etc.
- Completion of sowing of desi cotton, sunflower and fodder crops in medium black to deep black soils and sowing of sunflower, horse gram in shallow and red soils in Vijayapura, Gadag and Bagalkote districts of North Dry Zone with sufficient moisture condition.
- Intercultural operations in already sown maize, cotton groundnut crops and sugarcane crops in Dharwad, Belagavi and Haveri districts of North Transition Zone.
- Sowing of dual purpose crop like Sunhemp which may be used as fodder or may incorporated in soil as green manure may be taken up in the fields earmarked for *rabi* crops.

Andhra Pradesh

Coastal Andhra Pradesh

- Sowing of irrigated dry rice (MTU-1006) with gorru in Guntur district.
- In already sown rice nurseries, there is a possibility of Zinc and Iron deficiency due to hot weather in Guntur district; these deficiencies may be corrected by application of ZnSo₄ and FeSo₄ respectively in clear weather. Apply topdressing of Ammonium Sulphate to the nurseries for quick growth.
- Continuation/completion of nursery sowing of rice and sowing of pulses, maize and cotton in all the districts of Coastal Andhra Pradesh.
- Adopt intercultivation in red gram, black gram, green gram crops in Krishna and Guntur districts.
- Maintenance of 2-3 cm water level in transplanted rice fields.
- Prevailing dry weather conditions are congenial for infestation of stem fly and spodoptera in pulses in Guntur, Krishna districts; to control stem fly, spray Monochrotophos @ 1.6 ml or Acephate @ 1 gm or Dimethioate @ 1.5 ml/litre of water and to control spodoptera, spray Quinalphos 2.0 ml + Dichlorwas 1 ml /litre of water. If intensity is severe, spray Spinsad or Renoxypir @ 0.4 gm or Flubendimide @ 0.2 ml / litre of water in clear weather.

Rayalaseema

- Open dead furrows to retain the rain water.
- Take up hoeing to conserve soil moisture.
- Continuation of sowing of following contingency crops in Ananthapur and Kurnool districts with likely rainfall:
Sorghum (CSH-9, CSH-13, CSH-14, PSV-15, PSV-19), bajra (ICTP 8203, PBH 3), korra (Prasad, Krishnadevaraya, Narashimharaya, Srilakshmi, Surya Nandi), cowpea (C 152 GC3 C0-4 CO-5), sunflower (NDSH1, KBSH1, KBSH 44, DRSH 1), green gram (LGG 407, LGG 450, LGG 460, MGG 295, ML 267) and field bean (TFB-1 TFB-5).

Telangana

- Application of 25 kg urea/ha in rice (tillering stage) and jowar, 35 kg urea/ha and 15 kg MOP in cotton (vegetative stage) immediately on receiving rains.
- Intercultivation in cotton, soybean, red gram and tomato, bhindi and brinjal with gorru/guntaka to keep the crops free from weeds in Adilabad, Karimnagar, Nizamabad and Khammam districts of Northern Telangana Zone.

- Opening dead furrows to conserve soil moisture.
- Maintenance of 1-2 cm of water level at the time of transplanting and increasing water level upto 5 cm depth after transplanting till establishment in Adilabad, Karimnagar, Khammam, Nizamabad districts of Northern Telangana Zone.

Tamil Nadu

- Continuation/completion of nursery sowing of *Samba* rice (CR 1009 and ADT 50) in Ariyalur, Nagapattinam, Perambalur, Thanjavur, Thiruvarur and Trichy districts with irrigation.
- Sowing of long duration varieties of *samba* rice like (CR 1009 and KKLR 1) in Karaikal and Pudducherry; use sprouted seeds for sowing.
- Land preparation and sowing (in first week of September) of *rabi* horse gram in Krishnagiri district of North Western Zone and irrigated *rabi* maize in Pudukottai district of Southern Zone.
- Sowing of irrigated bajra in Coimbatore, Tiruppur, Erode districts.
- Completion of sowing of finger millet and little millet in Krishnagiri district by end of August.
- Basin preparation for pepper, clove, nutmeg and cinnamon for better rain water harvest and mulching the basins of fruit trees in Kanyakumari district.
- To increase yield and induce drought resistance in cotton, application of 2.5 kg/acre of “Cotton Plus” booster with nutrients and growth regulators twice, at flowering and at boll initiation stage in Nammakal, Salem, Dharmapuri and Krishnagiri districts.

Kerala

- Maintenance of optimum water level in transplanted rice.
- Drain out excess water from Kannur and Kasargod districts.
- Continuation of tapping of rubber in Thiruvananthapuram district.
- There is a chance for attack of thrips in rice; for control, apply 250 ml of DDVP 100 EC/AF formulation per litre of water.
- Paddy: Weather conditions may favour the attack of rice bug in the field. If the bugs are seen in large numbers apply fish amino acid 20 ml/L – done either before 9 am or after 3 pm in an encircling manner from outer to inner side.
- Ginger, Turmeric: During rainy season, there is a chance of rhizome rot. To control this dig out the affected plants and apply Kocide@2gm/litre of water.
- Strict field surveillance to monitor the incidence of black bug in rice in Kottayam district.
- Black pepper is in berry development stage. There is a chance of Pollu beetle during rainy season. Apply 2 ml quinalphos in one liter of water.

Gujarat

Saurashtra& Kutch

- As mid-season corrections, complete sowing of sorghum (fodder purpose) - CSH-6, GFS-4, GFS-5, GAFS-11, Sunflower - EC-68414, Modern GS-1, 2 & 3, Sesame - Gujarat sesame –1, 2, 3 & 4, Castor - GAUCH-1, GCH-2, GCH-4, 5, 6 & GCH-7.

- Weeding/intercultural operations in pearl millet, sesame, early sown pulses, cotton etc. to conserve soil moisture.

Normal rainfall occurred over Gujarat Region during second week of last fortnight. Below normal rainfall is likely over Gujarat State and Konkan & Goa subdivision of Maharashtra during next fortnight. In view of this following advisories are suggested:

Gujarat

Gujarat Region

- Maintenance of water level of 5 cm in rice fields.
- Weeding and intercultural operations in transplanted rice, pearl millet, castor, red gram, pulses, cotton, vegetable crops etc to conserve soil moisture.
- Intercropping of late *kharif* pulses black gram and green gram in between two row of tree plantation in Navasari, Dangs and Valsad districts of South Gujarat Heavy Rainfall Zone.

Maharashtra

Konkan

- Maintenance of 5 cm water level in rice fields.
- Intercultural operations like weeding and earthing up in vegetables.
- Undertake soft wood grafting programme for mango nursery.
- Continuation of planting of biennial forage crops like paragrass, napier, gajraj etc.
- Drain out excess water from the field. Apply second one third dose of urea @ 720 to 870 g per Are (100 m²) to vegetable crops in clear weather.
- Complete planting of biennial forage crops like Paragrass, Napier and Gajraj.

In view of excess/normal rainfall activity during last fortnight over Madhya Pradesh, West Bengal, East Rajasthan and Jharkhand leading to flood like situation and likely to continue over next fortnight and due to swollen Ganga and Soni rivers in Bihar, following advisories are suggested:

Madhya Pradesh

East Madhya Pradesh

- Drain out excess water and maintain upto 5 cm water level in transplanted rice fields as rice is at tillering stage in the flood affected Rewa, Satna, Damoh and Panna districts of East Madhya Pradesh districts.
- Drain out excess water from standing crop fields in Anuppur, Chhatarpur, Katni, Panna, Rewa, Satna, Shahdol, Sidhi, Singrauli and Umaria districts.
- Undertake nursery preparation for cauliflower, cabbage and radish in Narsinghpur district. Apply one third dose of fertilizer in rice fields at the rate of 20 kg nitrogen and phosphorous per hectare in clear weather.
- In Bundelkhand Zone, due to humid weather there are chances of attack of semi lopper in soybean crop, spray Triazophos 40 E.C. @ 1.5 ml/litre of water after current spells of rain.

West Madhya Pradesh

- Drain out excess water from *kharif* soybean, maize, pulses and vegetable fields in Vidisha, Agar, Indore, Mandsaur, Rajgarh, Ratlam and Ujjain districts of West Madhya Pradesh.
- Continue planting of orchard crops like mango, lemon and guava, continue nursery preparation for cauliflower and transplanting of onion in Mandsaur, Ratlam, Ujjain, Dewas, Indore, Shajapur, Rajgarh and Neemuch districts of Malwa Plateau Zone. Undertake intercultural operations in maize.
- Continue transplanting of brinjal, tomato and onion in Gwalior, Bhind, Morena, Shivpuri, Guna, Ashoknagar, Sheopur districts of Grid Zone.
- In Hoshangabad district, undertake nursery preparation for cauliflower, cabbage and radish. Apply one third dose of fertilizer in rice fields at the rate of 20 kg nitrogen and phosphorous per hectare.
- In Malwa Plateau Zone, due to cloudy weather there are chances of attack of stem borer in maize, apply Phorate 10 G @10 kg/ha or Carbaryl @ 2.0 g/litre of water after current spells of rain.

West Bengal

Due to heavy rainfall and due to high tide, parts of Howrah and Hooghly districts were flooded. *aman* rice (in lowland) and vegetable crops (bitter gourd, pointed gourd, chilli) are mostly affected.

- Early transplanted *aman* rice is at tillering stage. Undertake strengthening and proper bunding to hold water in the field.
- Flood affected lowland area where rice seedling already damaged; farmers are advised to wait few days to cultivate early mustard, potato and winter vegetables.
- Drain out excess water from rice, maize and vegetable crop fields and maintain upto 3-5 cm water level in transplanted rice field.
- Resume sowing of black gram, green gram, horse gram and pigeon pea after receding of flood water.
- Apply top dressing in rice in Jalpaiguri district at about 21 DAT. If top dressing already completed, apply Fipronil @ 1.5 Kg/ Bigha for stem borer infestation.
- Keep the large cardamom field weed free in Darjeeling district.
- Carry out weeding followed by earthing up operation in turmeric field.
- Due to humid and warm weather, infestation of blight in vegetable crops is likely to increase; spray Mancozeb @ 2 g per liters of water.

Bihar

Due to swollen Ganga and Son rivers, a large part of Bihar has been inundated. The districts Buxar, Bhojpur, Patna, Vaishali, Samastipur (4 blocks), Begusarai, Lakhisarai, Khagaria, Bhagalpur, Munger, Bhagalpur and Katihar are badly affected. Standing crops like rice, maize, arhar, banana and vegetables have been damaged seriously due to flood. In order to minimize the damage, following advisories are suggested:

- Drain out excess water from crop fields wherever possible.
- Contingency planning for flood affected areas:

- Wait for flood water to recede from the crop fields.
- Sowing of arhar, black gram, early cauliflower, tomato, radish, brinjal and pointed gourd in the upland areas, if standing crops are severely damaged.
- Sowing of toria, sunflower in medium land at the end of this month.
- Avoid grazing of cattle in the areas from where flood water has just receded to avoid possible diseases.
- After receding of water, undertake land preparations for sowing of pigeon pea in the upland areas of Sitamarhi district where rice could not be transplanted. Pusa-9 and Sarad varieties are recommended for sowing in North Bihar. Apply 20kg/ha nitrogen, 45kg/ha Phosphorus, 20 kg/ha potash and 20 kg Sulphur/ha during land preparation. Treat the seeds with Thiram/Captan @ 2.5gm/kg of seed.
- Undertake transplanting of *kharif* onion seedlings in raised seedbed at a distance of 15x10 cm. The size of seed bed may be 3x2m or 5x2 m. Give light irrigation after transplanting. Carry out weeding in 20-25 days old onion crop.

Jharkhand

- Provide proper drainage facility in standing crop fields.
- Carry out weeding, intercultural operations and earthing up in 30 days old maize crop followed by top dressing of urea @ 35 kg /acre.
- Carry out first weeding and intercultural operation in 20 days old black gram crop and second weeding in 40 days old crop.

Rajasthan

East Rajasthan

- Due to heavy rain in East Rajasthan during last week, there may be water logging in standing *kharif* crops, drain out excess water from pearl millet, maize, sorghum, maize, moong, urd, cotton, cluster bean, moth bean, sesame and groundnut crop fields. Farmers are also advised to postpone application of fertilizers and plant protection measures in standing crops.
- Provide adequate drainage in heavy rainfall areas (Banswara, Baran, Bhilwara, Chottorgarh, Dholpur, Dungarpur, Jhalawar, Kota, Pratapgarh, Rajsamand, Sirohi, Udaipur).
- Procure improved varieties of fodder crops like guar, bajra and sorghum for sowing in areas where the crops are damaged due to heavy rainfall as and when the field comes to normal condition.
- Avoid top dressing of urea in maize and other cereal crops till rain water receded, in the areas where heavy rainfall occurred.
- Continue planting of fruit crops like mango, plum and pomegranate in Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone.

Subdued rainfall activity during last fortnight over north-eastern India and Odisha, whereas normal / excess rainfall is likely to continue during next fortnight, following advisories are suggested:

Arunachal Pradesh

- Avoid intercultural operations in groundnut field at pegging stage. Carry out hand weeding with care.
- Apply basal dose of fertilizers in ginger and turmeric fields after weeding and earthing up operation.

Assam & Meghalaya

Assam

- Carry out weeding operation and top dressing of half of urea from remaining dose in *Sali* rice at tillering stage i.e., 20-30 days after transplanting in Karbi Anglong district.
- Carry out one weeding operation in already sown 20 days old sesame crop. Undertake thinning operation simultaneously to maintain the spacing within the row.
- Continue planting of pineapple suckers / slips / crowns. Plant the pineapple at a spacing of 60 cm between the rows, 30 cm between plants and 90 cm between the beds containing two rows. Undertake replanting in freshly prepared land after two ratoons.
- Ginger and turmeric are in vegetative growth stage. Carry out second earthing up operation in 60 days old crop.

Meghalaya

- Apply urea @ 35 kg/ha as top dressing in upland *Jhum* rice in West Khasi Hills district after hand weeding at 40-45 DAT.
- High relative humidity with intermittent rain is favourable for development of blast in rice. If blast spots are seen, apply Mancozeb @ 2g/l or Carbendazime @ 1g/l. Spraying should be done in sunny days.

Nagaland, Manipur, Mizoram and Tripura (NMMT):

Manipur

- Spray Thiomethoxam @ 5 gm/ 15 lit of water after rain to control leaf folder in main *kharif* rice in Ukhrul district.
- Spray (Mancozeb + Carbendazim) @ 20-30g/ 15 lit of water against tikka disease in groundnut after rain.
- Undertake sowing of onion in the upland areas.
- Complete field preparation for sowing of French bean for both bush and pole type by the end of August.

Mizoram

- To control yellow stem borer in rice in Kolasib district, cut leaf tip from the seedling. Collect and destroy infected parts of the plant. Apply insecticide like Imidacloprid 0.5 ml or Phosalone 1.5 ml or Acephate 1.0 g or Dimethoate 2 ml/litre of water.

Tripura

- *Aman* rice transplanted at first fortnight of July is now at tillering stage in Gomati district. Carry out weeding in the field. Give one spray of Zinc Sulphate and apply urea @ 10kg per kani for better tiller. In SRI field maintain aerobic condition through proper drainage.
- Due to cloudy and humid weather, there may be attack of leaf blight in maize field. Spray Zineb @ 3gm per litre of water at 20 days interval. In case of attack of stem borer, spray Novacron 2ml per liter of water.

Nagaland

- Carry out proper earthing up operation in chilli.

Odisha

- In rainfed upland paddy fields of Mayurbhanj district, the field bunds might have been damaged and large hole in places might have been formed due to heavy rains. Farmers are advised to plug the hole and repair the bunds and bund trimming is advised to further store and conserve the rain water for better water management in rice fields.
- Carry out final intercultural operation and apply 12 kg of urea as the second top dressing per acre wherever direct seeded rice is of about 45-50 days old.
- Apply rest 1/3rd of N and K (12kg Urea and 4kg MOP) per acre where the plant is at 60DAS.
- Drain out excess water from the maize fields in Mayurbhanj district to avoid lodging and diseases.
- Pulses are at flowering stage. Spray DAP 2% solution for providing nutrients through foliage.
- Groundnut crop is at 3 to 4 week stage. Go for hoeing and weeding. Apply 100 kg Gypsum/acre. Do not follow weeding after flowering in groundnut.

In view of subdued rainfall activity during last fortnight over parts of northern India and Chhattisgarh whereas excess / normal rainfall is likely during first week of next fortnight, following advisories are suggested:

Jammu & Kashmir

- Maintain proper drainage in maize, pulses and vegetable crop field and postpone plant protection measures in Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, till weather gets clear after current spell of rain. Postpone irrigation in paddy and summer fodder crop. Apply second dose of Nitrogen as top dressing to paddy just before panicle initiation stage i.e about 55 – 65 days after transplanting and to maize crop before tassel formation i.e about 30-40 days after sowing when weather will be clear after current spell of rain.
- Postpone nursery sowing of early cauliflower and Knol Khol in Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone. Undertake sowing of carrot and radish on ridges.
- Weather is congenial for attack of blast on paddy crop in Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, to control, spray Trycycloazole (beam) @ 0.06% on a non rainy day. There may be attack of stem borer, maize cut worm and aphid on maize. Take proper plant protection measures and spray insecticides in clear weather.
- Prevent water logging in the field of Chrysanthemum in Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone to protect young seedlings from rotting. Transplant the rooted cuttings at optimum soil moisture. Raise seedlings of Marigold on raised beds under protected structures. Cover the seed beds with polythene to give protection against rainfall.

Uttarakhand

- Complete sowing of mid variety of cabbage and transplanting of chilli in Udham Singh Nagar district of Bhabar and Tarai Zone till end of this month. Carry out weeding and hoeing in the early variety of Cabbage.
- Continue sowing of French bean and early varieties of pea, radish and rai in mid hills of Nainital district of Bhabar and Tarai Zone and complete it at the earliest.
- Apply top dressing of Urea to paddy crop in Dehradun, Pauri and Haridwar districts of Sub

Humid Sub Tropic Zone after 20 to 25 days and to maize after 15-20 days of sowing after current spell of rain. Undertake transplanting of seedlings of brinjal and chilli in main field.

- Continue sowing of carrot and undertake sowing of toria, pea and garlic in rainfed condition at mid to higher latitude of Tehri Garhwal, Chamoli, Champawat, Pithoragarh, Rudraprayag and Uttarkashi districts of Hill Zone. Undertake transplanting of seedlings of cabbage and broccoli in the main field.
- Farmers in Tehri Garhwal, Chamoli, Champawat, Pithoragarh, Rudraprayag and Uttarkashi districts of Hill Zone are advised for constant monitoring of finger millet crops against blast disease, if the population is above ETL then spray Tilt 2.0 ml/litre of water after current spells of rain.
- Drain out excess water in sugarcane and vegetable fields.

Himachal Pradesh

- Continue nursery sowing of cauliflower and transplanting of seedlings of cabbage in Bilaspur, Solan, Shimla and Sirmaur districts of Mid Hills Sub-Humid Zone. Continue plantation of evergreen plants like mango, litchi, guava, citrus, laquat and amla.
- In mid hill region continue nursery sowing of Chinese cabbage and direct sowing of radish, carrot, broccoli and lettuce in Una, Hamirpur, Kangra and Chamba districts of Sub-Montane and Low Hills Sub-Tropical Zone. Continue nursery sowing of cauliflower and transplanting of cabbage.
- Continue sowing of oats in Kinnaur, Lahaul & Spiti districts of High Hill Temperate Dry Zone. Continue nursery sowing of vegetables.
- Drain out excess water from standing crop fields in Hamirpur and Kangra districts.
- Continue plantation of mango, litchi, guava, citrus, laquat and amla in Una, Hamirpur, Kangra and Chamba districts of Sub-Montane and Low Hills Sub-Tropical Zone.
- Weather is conducive for attack of stem borer in paddy crop and white flies or sucking pests in soybean in Una, Hamirpur, Kangra and Chamba districts of Sub-Montane and Low Hills Sub-Tropical Zone. Farmers are advised to take proper controlling measures for the protection of crops from above pest and disease.

Haryana & Delhi

Haryana

- In Western Zone, undertake weeding in rice crop for removing the weeds in clear weather.
- Carry out weeding and hoeing for conserving the moisture and removing weeds in guar and bajra crop.
- Continue planting of mango, banana, jamun, pomegranate, papaya, amla, phalsa in Western Zone.

Delhi

- Continue transplanting of brinjal, tomato, chilli cauliflower and cabbage raised beds if seedlings are ready. Farmers are advised to do proper arrangement for drainage in the field. This is suitable time for preparation of nurseries of cauliflower for mid-season.
- Continue sowing of carrot (Pusa Vrishti), sarson saag (Pusa saag-1), radish (Versa kee rani, summer long, long chetaki), spinach (All green) and coriander (pant Haritama) on raised

bed.

- Transplanting of Chrysanthemum, marigold and sowing of gladiolus should be done on raised bed.

Punjab

- Due to subdued rainfall conditions prevailing over the State, maintain 3-5 cm in the rice fields by applying supplementary irrigation.
- Undertake sowing of Asiatic (*Desi*) varieties of radish, carrot and turnip in Moga, Bhatinda, Mansa, Muktsar, Sangrur and Barnala districts of Western Zone. Continue planting of *kharif* onion crop both with bulb sets as well as seedlings.
- If Zinc deficiency appears in paddy crop even after the application of recommended dose of Zinc Sulphate, farmers are advised to apply an additional dose of 10 kg Zinc Sulphate (21%) or 6.5 kg Zinc Sulphate (33%) per acre mixed with equal amount of dry soil, on the affected area in highly deteriorated soils of Ferozpur and Faridkot districts of Western Plain Zone. At the stage of tasseling, farmers are advised to apply last dose of nitrogen i.e. 37 kg urea per acre to early sown hybrids or high yielding varieties of maize.
- Undertake transplanting of papaya seedlings in the fields in Central Plain Zone. For control of weeds in maize crop, use atrazine 50 WP @ 500g per acre as pre-emergence application on light textured soils and @ 800 g per acre on heavy textured soils.
- Raise nursery of Cauliflower in Rupnagar, Patiala and Nawanshahar districts of Sub-Montane undulating Zone. Undertake hoeing and weeding in vegetable crops followed by supplementary irrigation in vegetable crops in the absence of rainfall.

Uttar Pradesh

- Continue nursery sowing of cauliflower, brinjal, tomato and planting of mango, guava and banana in Faizabad, Gorakhpur, Sultanpur districts of Eastern Plain Zone.
- Continue sowing of sweet corn and baby corn in raised bed in Meerut, Saharanpur, Gazipur, Muzaffarnagar, Aligarh districts of Western Plain Zone of Uttar Pradesh. Continue transplanting of brinjal, tomato, chilli cauliflower and cabbage on raised beds.
- Undertake nursery sowing / transplanting of mid-season brinjal, chilli, tomato, cabbage, cauliflower in Baharaich, Sarvasti, Balarampur, Gonda, Kushinagar, Sidharthnagar and Maharajganj district of Bundelkhand Zone of West Uttar Pradesh. Apply Urea @ 30 kg per hectare in late sown sesame crop after current spells of rain.
- Drain out excess water from pulse/oil seed crops in Central Plain Zone, Bundelkhand Zone and Eastern Plain Zone.
- Due to humid and warm weather in Kanpur region during this week, infestation of Bacterial blight or Blotch in rice crop is likely to increase; spray Mancozeb @ 25 g per 10 liters of water.

Rajasthan

West Rajasthan

- Continue planting new seedlings of kinnow in already prepared pit in the field in Sriganganagar and Hanumangarh districts of Irrigated North Western Plain Zone.

- Continue preparation of nursery of vegetables like cauliflower, cabbage chilli and brinjal vegetables in Bikaner and Jaisalmer districts of Arid Western Plain Zone.
- Carry out hoeing and weeding in Pulse crops in Barmer, Churu and Jodhpur districts of Arid Western Plain Zone. Apply 20 kg nitrogen per hectare in cucurbit vegetables at flowering stage. Spray @ 2kg Mancozeb per hectare at flowering stage in pearl millet crop to protect from ergot disease.
- Prevailing weather condition is congenial for attack of yellow mosaic virus in mung and moth in Barmer, Churu, Jalore, Jodhpur and Pali districts of Arid Western Plain Zone and sucking pest in cotton, for control spray Agrimycin @ 200 gm per hectare for yellow mosaic virus and spray Cypermethrine @ 450 ml per hectre for sucking peast in cotton after current spells of rain.
- Prevailing weather condition is congenial for attack of fruit borer in bitter gourd, tinda, cucumber, brinjal& tomato in Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, for control pluck affected fruits and bury them deep in soil & spray Malathion 50 EC @ 1.0 ml per litre water after current spells of rain.
- Application of fertilizers, pesticides and insecticides must be done after receding of flood and in clear weather.

Chhattisgarh

- Continue planting of orchard crops like papaya, guava, mango, litchi and pomegranate in North Chhattisgarh. Continue nursery sowing of brinjal, tomato, chilli and onion in upland areas. Undertake intercultural operations in kharif crops on a non rainy day.
- Undertake intercultural operations in rice, sugarcane and vegetables after current spells of rain. In the transplanted rice field, maintain 5 cm water in rice fields in Central Chhattisgarh.
- Undertake intercultural operations in rice and apply 2nd dose of Urea after current spells of rain in South Chhattisgarh.
- Continue field preparation for sowing of crops like niger, horse gram, black gram and green gram in South Chhattisgarh.
- In South Chhattisgarh, due to humid weather, there are chances of attack of blast in rice crop. For control spray Tricyclazole (Beem or Bon) @ 6g/10 litre of water after current spells of rain.
- In Central Chhattisgarh due to cloudy weather there are chances of attack of leaf caterpillar in soybean, spray Triazophos @ 2ml/acre after current spells of rain.

Annexure –I

State-wise Varieties of different crops for *Kharif* Season

State	Subdivision	Crop	Varieties
Karnataka		Ragi	Indaf-5, Indaf-9, and GPU-28.MR-01,MR-06 & ML-365
		Maize	Hybrids –DMH-2, Arjun and Private hybrids, GH-0727, Renuka (G-25)
		Rice	Jaya, Rasi, BPT-5204
Andhra Pradesh	Coastal AP	Maize	DCH-111, DCH-113, DCH-115, Maandhuri&Priya (sweet varieties)
		Black gram	LBG-752, LBG-20, T-9, LBG-623, PU-31, LB-402, LBG-709 and LBG-787,TBG 1,GBG 104
		Red gram	LRG- 38, LRG- 41, laksmi, Abhaya, Asha, Maruthi and PRG-158,LRG 52
	Rayalaseema	Sorghum	CSH-9, CSH-13,CSH-14, PSV-15,PSV-19
		Bajra	ICTP 8203,PBH 3
		Korra	Prasad, Krishnadevaraya, Narashimharaya, Srilakshmi, Surya Nandi
		Sunflower	NDSH1, KBSH1, KBSH 44, DRSB 1
		Green gram	LGG 407, LGG 450, LGG 460, MGG 295, ML 267
		Field bean	TFB-1, TFB-5
		Cowpea	C 152, GC 3, CO-4, CO-5
Telangana		Rice	Prathyumna, Varalu, Anjana
Tamil Nadu		Samba rice	CR 1009, ADT 50
		Finger millet	Indaf 9, CO 7
Gujarat		Pigeonpea	BDN-2, Vaishali, GTH-1, GT-100
		Sunflower	EC-68414, Modern GS-1, 2 & 3
		Sesame	Gujarat sesame –1, 2, 3 & 4
		Castor	GAUCH-1, GCH-2, GCH-4, 5, 6 & GCH-7
		Sorghum (fodder)	CSH-6, GFS-4, GFS-5, GAFS-11

Assam		Sali Rice	Ranjit, Bahadur, Peoli, Moniram, Pankaj, Kushal, for typical lowland rice area, Medium duration varieties: Satya and Basundhara T.T.B.-404, Mulagabharu, Kanaklata, Joymoti, IR-36, IR-64. for Flood prone area: Luit, Jalashree, Plaban.
Meghalaya		Sali rice	Shahsarang -1, Lampnah, IR 64, Ranjit, RCPL 1-412, RCPL 1-410, RCPL 1- 411 & local varieties like Mendri, Manipuri
Tripura		Aman rice	Gomati, Ranjeet, Swarna, Naveen
Nagaland		Rice	CAU R1, CAU R3, RCM-9 and RCM-1.
West Bengal		Aman rice	medium duration MTU-7029, MTU1001, Pratiksha and for long duration CR1017, CR1018,
		Rice	dry seeded long duration: Sabita Foundation, Swarna sub-1 certified, IR-64, Hira T.L.
Odisha		Rice	Early varieties: Jogesh, Siddant, Hazaridhan, Mandakini, Jyotirmayee, Virendra, Sahabhagi, Medium varieties: Pratikshya, Manaswini, Tapaswini MAS, Konark, Surendra, Kharavela, Naveen, Abhisek, Late varieties: Varshadhan, Ranidhan, Pooja, Mrinalini, RGL-2837, Moti, Ketakijoha, Padmini, Kanchana, Mahanadi, Jagabandhu. Hybrid varieties: CR Dhan 701, NK 5251, JKRH 401, Ajay, Rajalaxmi, Arize 6444G. short duration varieties: Sahabhagi, Khandagiri, Udaigiri, Kalinga-3, Jyotirmayee, Mandakini etc.
Bihar		Rice	Long duration rice- Rajshree, Rajendrasweta, RajendraMansuri, BPT-5204, Swarna, Satyam and Kishori), medium duration rice- Seeta, Santosh, Saroj, Rajshri, Prabhat, Rajendrasuvasni, Rajendrakasturi.
Jharkhand		Rice	Direct seeded upland rice; improved varieties: Vandana, BirsaVikasDhan -109 & BirsaVikasDhan - 110, medium land rice improved varieties: Anjali, Sahbhagi, Naveen, Lalat, Birsamati, Sugandha, BR-10, Pro-Agro 6444, IR-36, IR-64, low land rice improved varieties Swarna (MTU-7029), Rajshree, SambhaMahsuri (BPT-5204), BirsaDhan- 202, Birsamati, Pro-Agro 6444.
Madhya Pradesh		Rice	Very early maturing: JawaharDhan (JD) 75, Vandana. Early maturing: JD 201, JRH-5, JRH-8, Danteshwari, Sahbhagi. Medium duration: MR-219, WGL 32100, IR 36, IR 64, Kranti, Mahamaya, Pusa Sugandha-3, Pusa Sugandha-5, Pusa basmati-1, MTU 1010. Long duration: Mahsuri, Swarna

		Green Gram	JM-721, TARM-1, LAM-410, HUM-1, HUM-16
		Arhar	TJT-501, ICPL-87
Chhattisgarh		Rice	Upland: CR-40, Purnima, Danteswari, Shabagi, Midland: MTU1010, Samleswari, Rajeswari, Low land : MTU 1001, Suwarna ,Mahamaya, JalDube ,Hybrid : Arice 6444, US 312.
		Soybean	J.S. 335, Indira soya-9, J.S. 80-21, J.S. 93-05.
		Groundnut	SB -11 (J 11), ICGS-37, ICGS-44, T.A.G.-24, T.A.G.-28.
		Til	T.K.G. -21, T.K.G-22, T.K.G-55, and T.K.G - 8.
		Tomato	Pusa early dwarf, Sweet 72, Pusaarubi, PusaGurab, Mangala, Naveen, Laxmi 5005 & NS 815.
		Brinjal	Punjab Shadabahr, K S 331, P H 5, P H 6 ,KS 224 ,A R B H -543.
Jammu & Kashmir		Rice	Basmati 370 and Ranbir Basmati
Uttarakhand		Rice	Sharbati, Pusa1121, Pusa1, Pusa44, NDR359 etc.
		Pigeon pea	Pant Arhar-3, Pant Arhar-291, UPAS-120, Pusa-992
		Maize	Tarun, Navin, Kiran, Navjot, Pratap maize-1, Pusa sankul-3& 4.
Uttar Pradesh		Arhar	Prabhat and UPAS-120 fast-ripening and late-ripening varieties- NarendraTur- 1 and Malviya -15
Punjab		Rice	Basmati 370 and Basmati 386; direct sowing: basmati variety Pusa Basmati 1121.
		Maize	PMH 1, PMH 2 and Parbhat.
		Brinjal	BH-2, PBH-3, Punjab Barsati, Punjab SadaBahar, Punjab Nagina and Punjab Neelam
		Okra	Punjab-8 and Punjab-7
		Kharifonion	Agrifound Dark Red
Delhi		Rice	Hybrid varieties: - K. R. H 2, PHB 71, Pant hybrid Dhan1, Narendra hybrid dhan 1, P R H 10, High yielding varieties- Pusa 44, Pant Dhan-4, Pant Dhan-10, Pusa-834, Pusa basmati-1, Pusa basmati-1509, Pusa, Improved basmati, Pusa sugandha-5, Pusa sugandha-4 (Pusa 1121), Ranvir basmati and Taravadi basmati
		Guar	PusaNavbahar, DurgaBahar
		Bajra	Pusa Composite-443, Pusa Composite-383, HSB -67
		Cluster bean	PusaKomal
		Beans	PusaSem 2, PusaSem 3

Rajasthan		Pearl millet	RHB-121, HHB-67, HHB-60, Raj-171, GHB-538, Pusa-605, RHB-177.
		Maize	HQPM-1, HQPM-5, PEHM-1, PEHM-2, Pratap Hybrid-1, Bio-9681, Bio-9637, Navjot, MahiKanchan, Pratap Makka-5.