



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

Valid for 9th to 22nd September, 2016

Date of Issue: 9th September, 2016

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**Earth System Science Organisation
India Meteorological Department**

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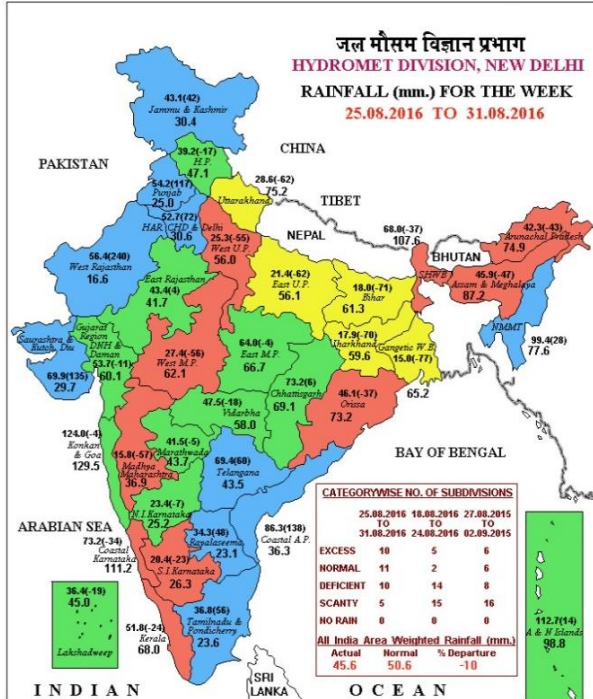
**Indian Council of Agricultural Research (ICAR)
All India Coordinated Research Project on Agricultural Meteorology (AICRPAM),
Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad**

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

Realized Rainfall

(25th August 2016 to 7th September 2016)

भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

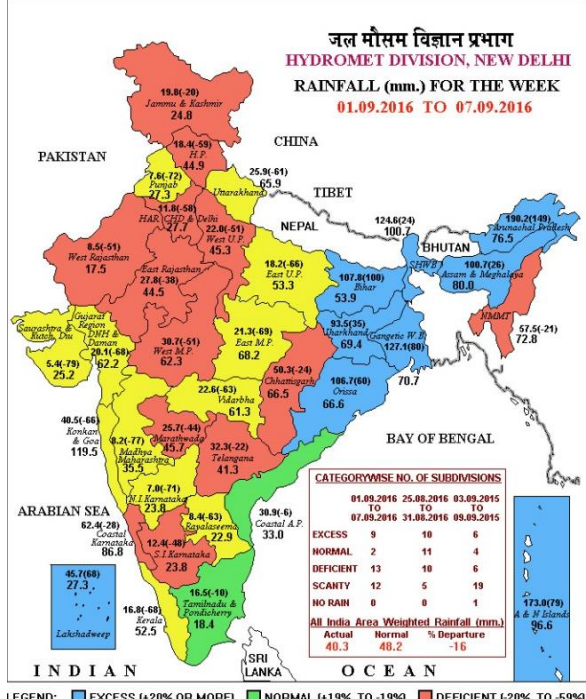


LEGEND: ■ EXCESS (+20% OR MORE) ■ NORMAL (+1% TO -1%) ■ DEFICIENT (-20% TO -5%)
■ SCANTY (-60% TO -9%) ■ NO RAIN (-100%) □ NO DATA

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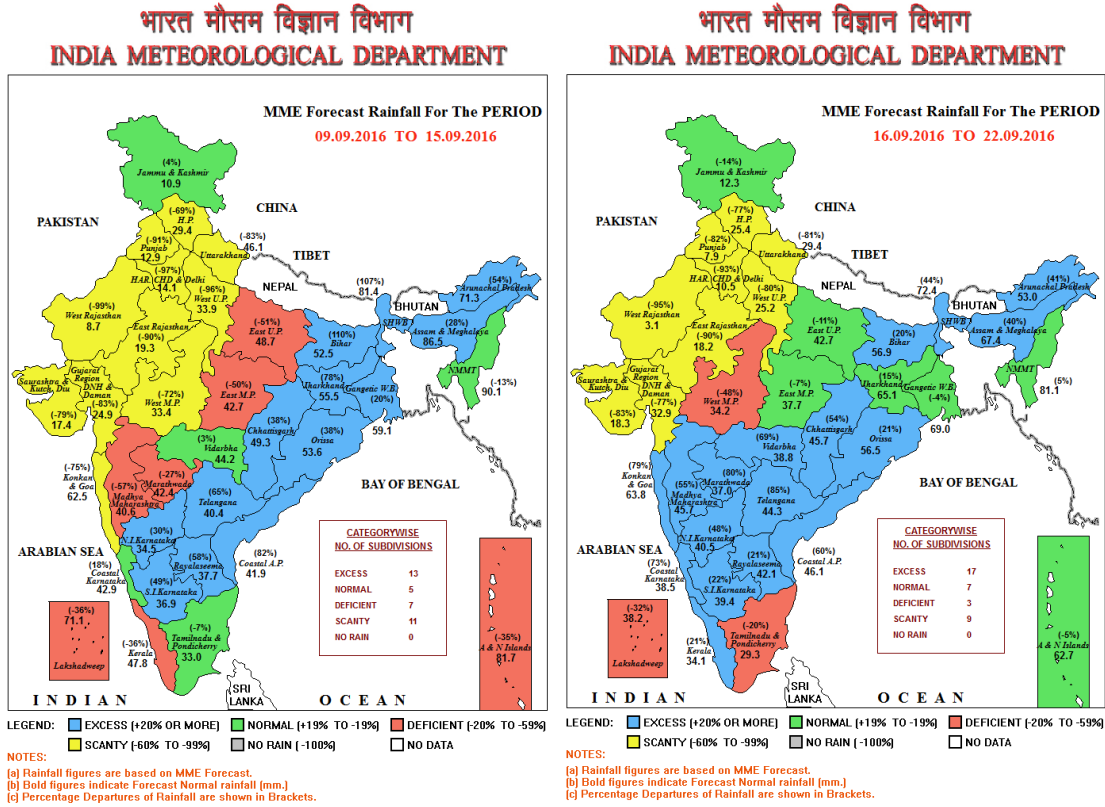
- [a] Rainfall figures are based on operational data.
 [b] Small figures indicate actual rainfall (mm.), while bold figures indicate Normal rainfall (mm.)
 Percentage Departures of Rainfall are shown in Brackets.

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

Extended Range Forecast System

Subdivisionwise rainfall forecast for the next 2 weeks (IC=7th September 2016)

Rainfall forecast (09-22 September, 2016)



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

Strategic Agricultural Planning based on rainfall during next two weeks till 22nd September

- During next fortnight (09-22 Sept.), rainfall activity is likely to be active normal/ slightly above normal over northeastern states, eastern states and most parts of south peninsula.
- During week 1 (09-15 Sept.), main rainfall activity is likely (Normal to slightly above normal) over the northeastern states, Bihar, Jharkhand, eastern coastal states and eastern parts of south peninsula. NE India, South Peninsula and country as a whole is expected to be normal/slightly above normal, whereas, the remaining region of India is expected to be below normal. (NW will be deficient followed by CE India with normal/below normal).
- During week 2 (16 -22 Sept.), there is possibility of increase of rainfall during week 2 with all regions (except NW India) expected to be normal to above normal). Most parts of NW India/north India are expected to be below normal.
- State-wise crop varieties are given in Annexure I.

Maharashtra

Madhya Maharashtra

Below normal rainfall occurred during last fortnight. Deficient rainfall is likely to occur during first week and excess rainfall is likely to occur during second week of next fortnight.

- Apply protective light irrigation in standing crops like red gram, groundnut, jowar, cotton and soybean.
- Undertake intercultural operations like hoeing in cotton and red gram to conserve soil moisture.
- Maintain water level of 5-7 cm in transplanted rice fields in Western Ghat Region.
- Complete picking of matured green gram.
- There may be reddening of leaf in cotton in north Madhya Maharashtra; spray 2% DAP fertilizer (200 gram DAP in 10 litres of water).

Marathwada

Normal rainfall occurred in first week and deficient rainfall occurred in second week of last fortnight. Deficient rainfall is likely to occur during first week and excess rainfall is likely to occur during second week of next fortnight.

- Complete picking of matured green gram.
- Apply light irrigation in standing crops like red gram, groundnut, jowar, cotton and soybean in Osmanabad district.
- Undertake intercultural operations like hoeing in cotton and red gram for conservation of soil moisture.
- There may be reddening of leaf in cotton; spray 2% DAP fertilizer (200 gram DAP in 10 litres of water).

Vidarbha

Normal rainfall occurred in first week and scanty rainfall occurred in second week of last fortnight. Normal rainfall is likely to occur during first week and excess rainfall is likely to occur during second week of next fortnight.

- Maintain 5-7 cm water level in transplanted rice fields in Nagpur, Bhandara, Gondia, Chandrapur and Gadchiroli districts.
- Complete picking of matured green gram.
- In view of continued subdued rainfall activity during last 3 to 4 weeks and consequent moisture stress symptoms, protective irrigation is advisable in rain deficient areas particularly in soybean being at pod formation/seed development stage and cotton being at reproductive development.
- Dry and cloudy weather caused incidence of armyworm in rice crop in eastern Vidarbha districts. For control spraying with 10 EC Cypermethrin (6 ml/10 litres of water) in the field is advisable.

Konkan

Normal rainfall occurred in first week and scanty rainfall occurred in second week of last fortnight. Scanty rainfall is likely to occur during first week and excess rainfall is likely to occur during second week of next fortnight.

- Maintain water level upto 7-8 cm in rice field by bunding the fields.
- Continue intercultural operations and plant protection measures in rice, finger millets, vegetable fields and mango, cashew and sapota orchards.

Gujarat

Gujarat Region

Normal rainfall occurred in first week and scanty rainfall occurred in second week of last fortnight. Below normal rainfall is likely to occur during next fortnight.

- Apply irrigation to green gram, groundnut and pearl millet.
- Carry out hand weeding and intercultural operations and apply fertilizer in groundnut in Anand district.
- Carry out hand weeding and intercultural operations in castor in Banaskantha district.
- Carry out hand weeding and gap filling in black gram.
- Brown Leaf hopper in paddy can be controlled by spraying Monocrotophos 36% (15 ml) + Dichlorvos (5 ml) or Fenobucarb 15 ml / 10 litre of water.

Saurashtra & Kutch

Excess rainfall occurred in first week and scanty rainfall occurred in second week of last fortnight. Below normal rainfall is likely to occur during next fortnight.

- Apply irrigation to cotton, groundnut, sesame and castor.
- Carry out hand weeding and intercultural operations in castor and vegetable crops in Kachchh district.
- In present dry weather conditions severe attack of thrips has been reported in chilli in Jamnagar district. Spray neem seed extract 500 ml or neem seed oil 50 ml or neem oil 40 ml and 20 ml Propenofos in 10 litres of water.

Kerala

Below normal rainfall occurred during last fortnight. Deficient rainfall is likely to occur during first week and excess rainfall is likely to occur during second week of next fortnight.

- Land preparation for sowing of *puncha* rice in Kottayam district.

- Maintenance of optimum water level in transplanted rice.
- Undertake planting of Cardamom in Idukki district. Apply second dose of fertilizers @ 500g Urea, 600g Rock phosphate and 800g Potash per plant in rainfed coconut.
- Field surveillance to monitor the incidence of thrips and brown plant hopper in rice.
- Continuation of tapping of rubber in Thiruvananthapuram district.
- Undertake planting of banana suckers in Pathanamthitta district.
- Viruppu paddy is ready for harvesting in Kollam district. Drain the field 10 days before harvesting.
- Apply light irrigation to standing crops and carry out intercultural operations to conserve soil moisture.
- Paddy crop is in milk stage. The light rains and high humidity predicted are favourable for the blast disease of rice especially neck blast. To control this apply Carbendazim (Bavistin) 1gm/L.
- Stem borer is seen in Cashew. To control the disease, chisel out the grubs and swab the tree trunk with Acephate @ 4g/L of water. Swabbing (adult trees only) with coal tar kerosene mixture at 1:2 proportion is also recommended.
- Tapping can be resumed in rubber plants. Start arrangements for rain guarding. Subsequent tapping must be done after proper drying of tapping panel.

Karnataka

Coastal Karnataka

Deficient rainfall occurred during last fortnight. Normal rainfall is likely to occur during first week and excess rainfall is likely to occur during second week of next fortnight.

- Maintenance of 5 cm water level in transplanted rice.
- In Uttar Kannada district of Hill Zone, in some area, paddy crop is in tillering stage (25 – 30 days after transplanting). Apply 18.75 kg nitrogen and 43.75 kg potassium per hectare of paddy at 25 days after transplanting as first top dressing. Before top dressing with fertilizers, drain the water from fields, apply fertilizer preferably during evening hours and later impound the water 24 hours after application.
- Spraying of Planofix@ 0.25 ml/litre of water to reduce the flower drop in cotton in Uttar Kannada district.

South Interior Karnataka

Deficient rainfall occurred during last fortnight. Excess rainfall is likely to occur during next fortnight.

- Maintenance of 5 cm water level in transplanted rice.
- In Central Dry Zone, undertake sowing of sunflower.
- Intercultural operations in red gram, earlier sown maize to control the weeds and to increase the moisture availability to crops

North Interior Karnataka

Normal rainfall occurred in first week and scanty rainfall occurred in second week of last fortnight. Excess rainfall is likely to occur during next fortnight.

- Maintenance of 5 cm water level in transplanted rice.

- Continue harvesting of green gram, black gram in Bidar district of North East Transition Zone. Carry out weeding/intercultural operations to conserve soil moisture and earthing-up in pigeon pea. Spray 2% urea (20 g urea in one liter of water) at 50% flowering.
- 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.
- Continue sowing of sunflower in wider rows of 135 cm in medium black to deep black soils in Vijayapura, Bagalkote and Gadag districts of North Dry Zone with sufficient moisture condition.
- Sowing of sunflower, desi cotton, castor, navane, savi, maize or horse gram may be taken up.
- Use available short and medium duration varieties, instead of long duration varieties of the above suggested crops.
- Sowing of dual purpose crop like Sunhemp which may be used as fodder or may be incorporated in soil as green manure may be taken up in the fields earmarked for *rabi* crops.

Andhra Pradesh

Coastal Andhra Pradesh

Excess rainfall occurred in first week and normal rainfall occurred in second week of last fortnight. Excess rainfall is likely to occur during next fortnight.

- To control weeds in direct seeded rice apply namini gold 80-100 ml per acre in 200 litres of water in Prakasam, Guntur, Krishna and West Godavari districts.
- Carry out intercultural operation in green gram, black gram in Prakasam, Krishna and West Godavari districts.
- Earthing up in 120 days old sugarcane crop.
- Maintenance of 3-5 cm water level in transplanted rice fields.

Rayalaseema

Excess normal rainfall occurred during first week and scanty rainfall occurred during second week of last fortnight. Excess rainfall is likely to occur during next fortnight.

- In Anantapur and Chittoor districts of Rayalaseema, due to scanty rainfall in second week of last fortnight, monitor soil moisture condition in groundnut crop and apply irrigation if required.
- In Kadapa district of Southern Zone, prevailing weather conditions are congenial for attack of leaf folder and sucking pests in groundnut (flowering stage). To control leaf folder, spray Monocrotophos @ 1.6 ml or Quinolphos @ 2 ml/ litre of water and to control sucking pests, spray Imidacloprid @ 0.3 ml/ litre of water.

Telangana

Excess rainfall occurred during first week and deficient rainfall occurred during last fortnight. Excess rainfall is likely to occur during next fortnight.

- Maintenance of water level upto 3-5 cm in rice in Adilabad, Karimnagar, Khammam, Nizamabad districts of Northern Telangana Zone.

- Opening dead furrows to conserve soil moisture.
- Harvesting of rain water.
- If soil moisture is sufficient, in cotton crop apply 30-35 kg urea and 10 kg Muriate of Potash per acre at 60 and 80 days after sowing as top dressing. Carry out intercultural operations to control weeds and to conserve soil moisture in Southern Telangana Zone.

Tamil Nadu

Excess rainfall occurred during first week and normal rainfall occurred during second week of last fortnight. Normal rainfall is likely to occur during first week and deficient rainfall is likely to occur during second week of next fortnight.

- Continuation of land preparation for transplanting of *Samba* rice (CR 1009 and ADT 50) in Ariyalur, Nagapattinam, Perambalur, Thanjavur, Thiruvavur and Trichy districts. Undertake nursery sowing of *Samba* rice.
- Continuation of sowing of long duration varieties of *samba* rice (CR 1009 and KCLR 1) in Karaikal and Pudducherry; use sprouted seeds for sowing.
- Undertake cultivation of short duration crops like black gram (Co-6, Vamban-6, 8), green gram (Co-8), red gram (Co-7, VBN-3) in Salem, Dharmapuri, Namakkal and Krishnagiri districts utilizing the realized rainfall.
- Land preparation for sowing of cotton and maize in Kanniwadi, the Southern Zone.
- Spray 1% DAP on leaves of pepper plantation in Nilgiris district to prevent spike drop and to enhance yield.

Arunachal Pradesh

Deficient rainfall occurred in first week and excess rainfall occurred in second week of last fortnight. Excess rainfall is likely to occur during next fortnight

- Undertake land preparation and sowing of black gram and green gram and nursery sowing of winter vegetables.
- Carry out hand weeding with care in groundnut field at pod formation stage.
- Apply basal dose of fertilizers in ginger and turmeric fields after weeding and earthing up operation.

Assam & Meghalaya

Deficient rainfall occurred in first week and excess rainfall occurred in second week of last fortnight. Excess rainfall is likely to occur during next fortnight.

Assam

- In Karimganj, Hailakandi and Cachar districts of Barak valley Zone of Assam, apply top dressing of Urea @ 6 kg per bigha 25-30 days after transplanting of *Sali* rice. Before top dressing of urea, weeds must be removed from the field.
- In Karbi Anglong district of Hill Zone of Assam, undertake land preparation for sowing of black gram and green gram. Planting of coconut can be done in this month in low lying areas.
- In Dhemaji, Darrang, Lakhimpur and Sonitpur districts of North Blank Plain Zone of Assam, complete transplanting of *Sali* rice. Those who had lost seedlings in flood may go for sowing seeds of short duration varieties up to middle of September. Continue nursery sowing of early cauliflower, radish, brinjal and sowing of *kharif* sesame, green gram and black gram.

- In Barpeta, Bongaigaon, Dhubri and Goalpara districts, undertake harvesting of jute and land preparation for nursery sowing of brinjal and radish.

Meghalaya

- Undertake weeding in ginger and turmeric fields in West Jaintia Hills district.
- Repair bunds in *Jhum* rice and *Sali* rice field to retain standing water.

Nagaland, Manipur, Mizoram and Tripura (NMMT):

Excess rainfall occurred in first week and deficient rainfall occurred in second week of last fortnight. Normal rainfall is likely to occur during next fortnight.

Nagaland

- To control gundhi bug in *Jhum* rice, undertake weed control and eradication of alternate hosts from *Jhum* rice fields and surrounding areas which can help prevent the multiplication of the bug. Mechanical control measures such as smoking the field, hand-picking of adults and nymphs have also been advocated.
- Carry out timely earthing up in soybean fields in Kohima district.

Manipur

- Undertake sowing of French bean for both bush and pole type.
- Continue sowing of onion in the upland areas.
- Undertake nursery raising for cabbage/cauliflower/broccoli.
- Construct bunds/ridges in main *kharif* rice at panicle initiation stage to maintain optimum water level of 5-8 cm in Senapati district.

Tripura

- Maintain adequate drainage in groundnut fields particularly in lowland where chances of stagnant water due to rain is more.

West Bengal

Scanty rainfall occurred during first week and excess rainfall occurred during second week of last fortnight over Gangetic West Bengal. Excess rainfall is likely to occur during first week and normal during second week of next fortnight.

Deficient rainfall occurred during first week and excess rainfall occurred during second week of last fortnight over Sub-Himalayan West Bengal and excess rainfall is likely to occur during next fortnight.

- In Burdwan, Murshidabad, Nadia, North 24 Parganas of New Alluvial Zone, in rice fields, first weeding should be done at 3 weeks after transplanting and second weeding at 6 weeks after transplanting. Apply 4.5 kg Urea / bigha as 1st top dressing after 1st weeding and same amount after second weeding. Keep 3 to 5 cm stagnant water in rice field at the time of tillering and at the time of panicle initiation, keep 5 to 7 cm water in the fields.
- In South Dinajpur and Malda districts in Sub-Himalayan, undertake nursery sowing of early cabbage and cauliflower.
- In Darjeeling district of Hill Zone, maintain adequate drainage channel in ginger, turmeric and large cardamom fields to prevent water stagnation in the fields.

- Undertake weeding in rice at 35 days after transplanting and maintain 2-3 cm of standing water.
- In Purba Medinipur and South 24 Parganas of Coastal Saline Zone, undertake intercultural operation and thinning in rice at tillering stage. Maintain optimum water level in *Aman* rice fields.

Bihar

Scanty rainfall occurred during first week and excess rainfall occurred during second week of last fortnight. Excess rainfall is likely to occur during next fortnight.

- In Araria, Katihar, Kishanganj, Madhepura, Purnea, Saharsa and Supaul districts in North East Alluvial Zone, continue planting of pointed gourd.
- Undertake intercultural operation in rice. Apply top dressing of 1/3 urea (44 kg/ha) after 1st hand weeding at 25-30 days after transplanting and apply remaining 1/3 urea (44 kg/ha) after 2nd hand weeding at 40-45 days after transplanting.
- In Darbhanga, East Champaran, Gopalganj, Samastipur, West Champaran districts of North West Alluvial Plain Zone, undertake nursery sowing of cabbage and cauliflower.
- Undertake transplanting of *kharif* onion and early varieties of cauliflower and planting of pointed gourd.

Jharkhand

Scanty rainfall occurred during first week and excess rainfall occurred during second week of last fortnight. Excess rainfall is likely to occur during first week and normal rainfall is likely to occur during second week of next fortnight.

- In Western Plateau Zone, continue intercultural operations to control weeds in different *kharif* crops like rice, urd, arhar, maize, mung etc. in uplands. After weeding, broadcast urea as per the requirement of the crops.
- In Central and North Eastern parts of Jharkhand, continue sowing of horse gram, sesame, niger, plantation of new trees and undertake nursery raising of tomato, cabbage cauliflower with improved varieties on raised bed and before sowing treat the seed with Carbendazim @ 2 g or Trichoderma @ 5 g per kg of seed.
- To prevent from rhizome rot, drainage facility should be provided in ginger and turmeric fields.
- In North Eastern parts of Jharkhand, complete planting of sweet potato, sowing of black gram, til and horse gram, plantation of new trees with realized rainfall.

Odisha

Deficient rainfall occurred during first week and excess rainfall occurred during second week of last fortnight. Excess rainfall is likely to occur during next fortnight.

- In East and South Eastern Coastal Plain Zone, undertake topdressing of Nitrogen in early sown direct seeded rice at three weeks after weeding and gap filling, apply 6-8 kg N/acre under saturated condition.
- Complete sowing on non-paddy crops like pulses and sesame etc. in uplands.
- Go for sowing of pre-*rabi* pulse crops like green gram, black gram, horsegram in the up and

up-medium lands.

- It is time for sowing niger in the fallow uplands. Grow High Yielding Varieties suitable for Orissa climate such as Deomali and IGP-76. Use 4 kg seeds/acre.
- Undertake transplanting of brinjal and planting of marigold.
- The current weather is favourable for infestation of fruit and shoot borer in brinjal. To control them, install Pheromone trap and spray 4 g Sevin WP or 2 ml Malathion in 1 litre water alternatively.
- In Koraput and Nawarangpur districts, complete sowing of maize and other non-paddy crops in upland condition.
- In Mayurbhanj and Keonjhar districts, in the transplanted rice fields, maintain water level up to 5 cm.
- Continue nursery raising of tomato, cauliflower, cabbage.
- Undertake intercultivation in pulses and groundnut.

Madhya Pradesh

East Madhya Pradesh

Normal rainfall occurred during first week and scanty rainfall occurred during second week of last fortnight. Deficient rainfall is likely to occur during first week and normal rainfall is likely to occur during second week of next fortnight.

- Prepare nursery of tomato, chilli, brinjal, papaya and early cauliflower in Chhindwara district of Satpura Plateau Zone.
- Undertake nursery preparation for cauliflower in Jabalpur, Rewa, Satna, Panna districts.
- Timely sown urd and moong crops are at harvest stage therefore start the harvesting of the crop during end of week in Chhatarpur and Tikamgarh districts of Buldelkhand Zone. Carry out weeding in the paddy crop and apply the recommended nitrogen fertilizer and also ensure the moisture availability.

West Madhya Pradesh

Deficient rainfall occurred during last fortnight. Below normal rainfall is likely to occur during next fortnight.

- Prepare nursery of tomato, chili, brinjal, papaya and early cauliflower in Betul district of Satpura Plateau Zone.
- Continue nursery preparation for cauliflower and transplanting of onion in Mandsaur, Ratlam, Ujjain, Dewas, Indore, Shajapur, Rajgarh and Neemuch districts of Malwa Plateau Zone. Continue transplanting of brinjal, tomato, chilli, cauliflower and cabbage if seedlings are ready.
- Undertake harvesting of matured green gram in Khargone, Khandwa, Harda, Barwani districts of Nimar Valley Zone. In cotton crop (3 month old) apply 20 kg urea 35 kg DAP and 20 kg Potash near root zone 6 inch deep in to the soil.
- Undertake land preparation for sowing of toria and carry out weeding in brinjal, tomato and onion crops in Gwalior, Bhind, Morena, Shivpuri, Guna, Ashoknagar, Sheopur districts of Grid Zone.
- Timely sown urd and moong crops are at harvest stage therefore start the harvesting of the

crop during end of week in Datia district of Buldelkhand Zone. Carry out weeding in the paddy crop and apply the recommended nitrogen fertilizer and also ensure the moisture availability.

Chhattisgarh

Normal rainfall occurred during first week and deficient rainfall occurred during second week of last fortnight. Excess rainfall is likely to occur during next fortnight.

- In North Chhattisgarh, rice crop is at tillering stage, carry out weeding and apply first top dressing with urea (25 kg/acre). Continue sowing of crops like horsegram and niger in uplands. Sowing of horsegram and niger would be done upto mid-September. Continue intercultural operations in *kharif* crops in a clear weather.
- Continue sowing of crops like horsegram and niger in Central Chhattisgarh. Keep inputs ready for sowing of *rabi* crops like chickpea, wheat, linseed, toria etc.
- Undertake intercultural operations in rice and apply 2nd dose of Urea in a clear weather in South Chhattisgarh. Continue sowing of crops like niger, horse gram, black gram and green gram.

Jammu & Kashmir

Excess rainfall occurred during first week and deficient rainfall occurred during second week of last fortnight. Normal rainfall is likely to occur during next fortnight.

- Continue nursery sowing of cauliflower, cabbage and knol khol in Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone. Continue sowing of carrot and radish on ridges. Apply irrigation to rice and maize if required.
- Undertake sowing of toria in Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone. Raise seedlings of Marigold on raised beds. In Jammu, Kathua, Samba and Reasi districts, apply irrigation to rice in uplands and also apply irrigation to maize as per requirement.

Uttarakhand

Below normal rainfall occurred during last fortnight which is likely to continue during next fortnight.

- Undertake field preparation and sowing of early variety of spinach (palak) in Udhampur district of Bhabar and Tarai Zone. Continue grafting in mango, guava and leechi. Monitor soil moisture condition and apply irrigation to maize and rice crop if required.
- Continue transplanting of rai, cabbage and cauliflower if the seedlings are ready in Nainital district of Bhabar and Tarai Zone. Continue sowing of early variety of pea, radish and turnip in the mid hills.
- Continue sowing of carrot, toria, pea and radish in Tehri Garhwal, Chamoli, Champawat, Pithoragarh, Rudrapur and Uttarkashi districts of Hill Zone.

Himachal Pradesh

Normal rainfall occurred during first week and deficient rainfall occurred during second week of last fortnight. Below normal rainfall is likely to occur during next fortnight.

- Maintain optimum water level in rice crop.
- Undertake sowing of pea in Bilaspur, Solan, Shimla and Sirmaur districts of Mid Hills Sub-Humid Zone.
- 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. In lower regions, undertake transplanting of Chrysanthemum, marigold and sowing of gladiolus on raised bed.

Haryana & Delhi

Excess rainfall occurred during first week and deficient rainfall occurred during second week of last fortnight. Below normal rainfall is likely to occur during next fortnight.

Haryana

- In Western Zone, undertake harvesting and threshing of matured bajra crop. Apply irrigation and carry out weeding operation in paddy as per requirement.

Delhi

- Continue transplanting of brinjal, tomato, chilli cauliflower and cabbage raised beds if seedlings are ready. Continue preparation of nurseries of cauliflower for mid-season.
- Continue sowing of carrot (PusaVrishti), sarson saag (Pusa Saag-1), radish (Versa Kee Rani, Summer Long, Long Chetaki), spinach (All green) and coriander (Pant Haritama) on raised bed.
- Continue transplanting of Chrysanthemum, marigold and sowing of gladiolus on raised bed.

Punjab

Excess rainfall occurred during first week and scanty rainfall occurred during second week of last fortnight. Below normal rainfall is likely to occur during next fortnight.

- Undertake sowing of peas, palak and planting of early varieties of potato. Continue sowing of Asiatic (*Desi*) varieties of radish, carrot and turnip in Moga, Bhatinda, Mansa, Muktsar, Sangrur and Barnala districts of Western Zone. Complete planting of *kharif* onion crop both with bulb sets as well as seedlings. Undertake transplanting of fully developed seedlings (4-6 weeks old) of main season varieties of cauliflower. Sowing of late season varieties of cauliflower i.e. Pusa Snow Ball-1 and Pusa Snow Ball K-1 can be started.
- Undertake planting of early varieties of potato and continue planting of *kharif* onion crop both with bulb sets as well as seedlings in Ferozpur and Faridkot districts of Western Plain Zone.
- Raise nursery of Cauliflower in Rupnagar, Patiala and Nawanshahar districts of Sub-Montane undulating Zone.

Uttar Pradesh

Below normal rainfall occurred during last fortnight over Uttar Pradesh.

Deficient rainfall is likely to occur during first week and normal rainfall is likely to occur during second week of next fortnight over East Uttar Pradesh.

Below normal rainfall occurred during last fortnight over West Uttar Pradesh.

- Undertake nursery sowing of tomato (specially hybrid variety) Knol khol and gobhi, sowing of radish and continue sowing of toria (T-9, Bhawani, PT-30 and PT-507) in Allahabad, Fatepur, Chitrakut districts of Central Plain Zone. Apply second top dressing or last dose of nitrogen 30 kg / ha (65 kg urea) for high yielding varieties at panicle formation (after 50-55 days of transplantation) and 15 kg/ha (33 kg urea/ha) in paddy.
- Undertake sowing of bajra, arhar and black gram in Faizabad, Gorakhpur, Sultanpur districts of Eastern Plain Zone.
- Undertake nursery sowing / transplanting of mid-season brinjal, chilli, tomato, cabbage, cauliflower in Jalaun, Jhansi, Lalitpur, Mahoba, Banda and Hamirpur districts of West Uttar Pradesh. Apply Urea @ 30 kg per hectare in late sown sesame crop. Apply light irrigation to rice crop.
- Apply irrigation to rice crop in Meerut, Pilibhit, Moradabad, Badaun districts of Western Plain Zone. Carry out intercultural operations in green gram, black gram and vegetables to conserve soil moisture.

Rajasthan

East Rajasthan

Normal rainfall occurred during first week and deficient rainfall occurred during second week of last fortnight. Below normal rainfall is likely to occur during next fortnight.

- Continue planting of papaya in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts of Sub Humid Southern Plain and Aravali Hill Zone. Broadcast 40 kg Nitrogen/hectare through urea in standing maize crop before tasseling stage.
- Undertake weeding and hoeing operation in maize, moong, urad crops.
- Raise nursery of cauliflower in Alwar, Bharatpur, Dhaulpur, Karauli, Sawai Madhopur districts of Flood Prone Eastern Plain Zone. Continue nursery sowing of radish.

West Rajasthan

Excess rainfall occurred during first week and deficient rainfall occurred during second week of last fortnight. Below normal rainfall is likely to occur during next fortnight.

- Continue planting new seedlings of kinnow in already prepared pit in the field in Sriganganagar and Hanumangarh districts of Irrigated North Western Plain Zone.
- Apply protective irrigation to kharif crops like groundnut, guar and pulses showing wilting symptoms in Bikaner and Jaisalmer districts of Arid Western Plain Zone. Undertake hoeing and weeding operation in rainfed crops to create dust mulch for checking evaporation losses and also for control of weeds.
- Apply irrigation to groundnut crop as and when required. To protect flower drop in cucurbits (Bottle gourd, Ridge gourd etc.,) spray planofix @ 0.25 ml/lit. Prepare fields for sowing of early varieties of radish (Pusa Rashmi).

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
Tamil Nadu		Samba rice	CR 1009, ADT 50, KCLR 1
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
		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