



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

Valid for 12th August to 25th August, 2016

Date of Issue: 12th August, 2016

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**Earth System Science Organisation
India Meteorological Department**

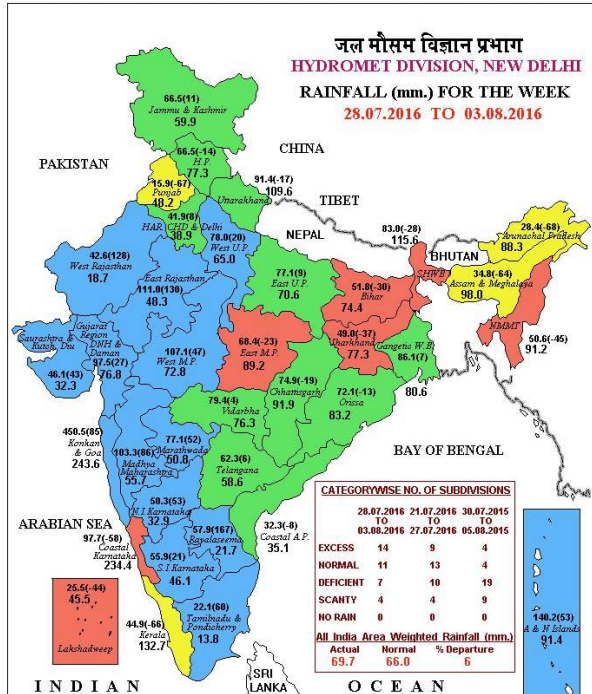
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**Indian Council of Agricultural Research (ICAR)
All India Coordinated Research Project on Agricultural Meteorology (AICRPAM),
Central Research Institute for Dryland Agriculture (CRIDA), Hyderabad**

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

Realized Rainfall (28th July to 10th August 2016)

भारत मौसम विज्ञान विभाग INDIA METEOROLOGICAL DEPARTMENT

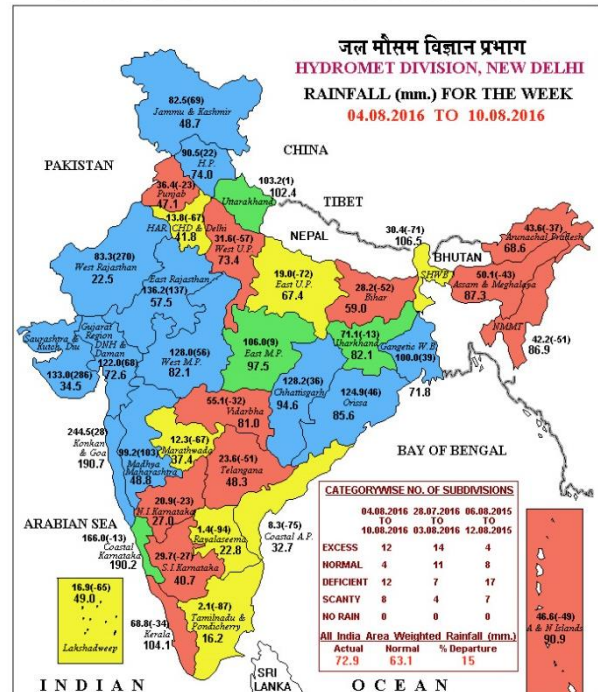


LEGEND: ■ EXCESS (+20% OR MORE) ■ NORMAL (+1% TO -19%) ■ DEFICIENT (-20% TO -59%)
■ SCANTY (-60% TO -99%) ■ NO RAIN (-100%) ■ NO DATA

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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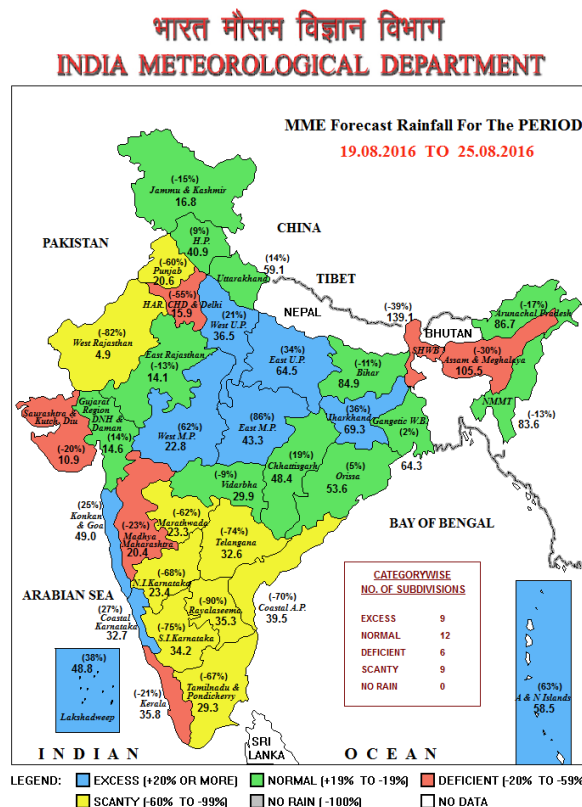
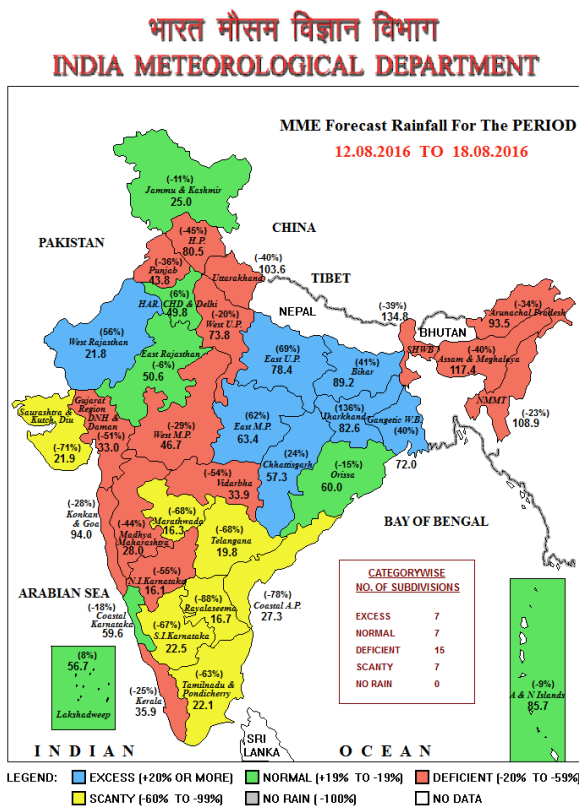
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 [b] Small figures indicate actual rainfall [mm.], while bold figures indicate Normal rainfall [mm.]
 Percentage Departures of Rainfall are shown in Brackets.

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

Extended Range Forecast System

Subdivisionwise rainfall forecast map for the next 2 weeks (IC =10 August)

Rainfall forecast (12 – 25 August, 2016)



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

Strategic Agricultural Planning based on rainfall during next two weeks till 25th August

- Rainfall activity is likely to be active during week 1 (12-18 August) and normal to slightly above normal during week 2 (19-25 August) over eastern parts of the country covering northern parts of Odisha, northern parts of Chhattisgarh and adjoining Jharkhand, eastern Uttar Pradesh, Bihar, eastern Madhya Pradesh and Gangetic West Bengal. Isolated pockets over the Northwest India will also be active during the week 1. Rest of the region will be normal to below normal rainfall during the period.
- State-wise crop varieties are given in Annexure I.

In view of subdued rainfall activity during second week of last fortnight over southern parts of India which is likely to continue during next fortnight following advisories are suggested:

Kerala

- Maintenance of 3-5 cm water level in transplanted rice.
- Paddy is in panicle initiation stage. There is a chance for Sheath blight disease during rainy season. Apply Propiconazole 25 EC @ 500 ml per 1 hectare to control sheath blight.
- Continuation of planting of new rubber saplings in Pathanamthitta district and tapping of rubber in Thiruvananthapuram and Pathanamthitta districts.
- Continuation of planting of banana cultivars like Poovan, Palayankodan, Robusta etc. in Kannur, Kasaragod, Malappuram and Kozhikode districts. Nursery sowing for cultivation of vegetables in upland.
- Prevailing weather conditions are congenial for incidence of pollu beetle in pepper in Palakkad, Ernakulam and Thrissur districts; to control, apply Quinalphos @ 2 ml/litre of water in clear weather.
- Coconut: Spray neem oil – garlic emulsion (20 ml neem oil+ 20 g garlic paste in 1 litre of water) as prophylactic measure against coconut eryophid mites. While spraying avoid the young inflorescence.
- Cardamom: Take necessary phyto-sanitary measures to manage capsule rot (Azhukal disease) and spray 1% Bordeaux mixture (500-1000 ml/plant).
- Nutmeg: During rainy season, there is a chance for fruit rot disease in nutmeg and splitting of fruit before ripening due to the deficiency of Potassium and Boron. To control this, apply 1% Bordeaux mixture.

Karnataka

Coastal Karnataka

- Drain out excess water from rice, ginger and turmeric fields in Uttar Kannada, Dakshin Kannada and Udupi districts. Rain water conservation for future use.
- Maintenance of 3-5 cm water level in transplanted rice.
- Continuation of transplanting of rice in Uttar Kannada district of Hill Zone with realised rainfall.

South Interior Karnataka

- Maintenance of 3-5 cm water level in transplanted rice.
- Completion of transplanting of ragi and rice in Chikkamagaluru and Shivamogga districts of

Southern Transition Zone with realised rainfall. Intercultural operations in red gram crop.

- Continuation of transplanting of rice and ragi in Kodagu, Mandya, Mysuru and Chamrajnagar districts of Southern Dry Zone under sufficient moisture condition. Carry out nursery sowing of rice.
- Completion of direct sowing of ragi in Chikaballapura and Kolar districts, continuation of sowing of maize and ragi in Bengaluru Rural, Bengaluru Urban, Ramnagara districts, sowing of maize in Chikaballapura and Kolar districts of Eastern Dry Zone under sufficient moisture condition. If required, make use of water stored in farm ponds, dams etc. during dry spell.
- Intercultural operations in earlier sown maize, groundnut and red gram crops to control the weeds and to increase the moisture availability to crops. Mulching in red gram and maize by using the residues of weeds, gliricidia and other green manure crops grown on the bunds, borders and along the drainage lines in Eastern Dry Zone.

North Interior Karnataka

- Maintenance of 3-5 cm water level in transplanted rice.
- Completion of sowing of minor millet in Vijayapura, Gadag and Bagalkote districts of North Dry Zone with sufficient moisture condition. Carry out intercultural operations in standing crops like bajra, sunflower, cotton, groundnut etc. Prepare ridges and furrows and compartment bunds in the lands reserved for *rabi* sowing.
- Completion of transplanting of rice in Bidar district of North East Transition Zone under optimum moisture condition by 15th August. Intercultural operations in soybean and pigeon pea to conserve moisture.
- Intercultural operations in already sown maize, cotton groundnut crops and sugarcane crops in Dharwad, Belagavi and Haveri districts of North Transition Zone on non-rainy day.
- Completion of transplanting of rice in Kalaburgi, Koppal, Raichur, Yadgir and Ballari districts of North East Dry Zone with optimum moisture condition by 20th August.

Andhra Pradesh

Coastal Andhra Pradesh

- Continuation of nursery sowing and direct sowing of rice in Srikakulam, Vizianagaram and Vishakapatnam districts with available soil moisture.
- Maintenance of 2-3 cm water level in rice (tillering) fields.
- Completion of nursery sowing of rice, sowing of maize, millets, red gram, black gram, green gram and cotton in Krishna, Guntur and West Godavari districts of Krishna Godavari Zone with available soil moisture.
- Yellow mosaic virus incidence is observed in green gram and black gram crops in Guntur, West Godavari and Nellore districts. Farmers are advised to pull out the infested plants and take control measures for whitefly by spraying Acetamiprid @ 0.6gm/litre or Acephate @ 1.5gm/litre of water. They can keep yellow sticky traps in the field to monitor and trap whiteflies.

Rayalaseema

- As the cut-off date for sowing of groundnut is over by end of July in Rayalaseema and there will be a considerable reduction in yield under delayed sowings during August month, undertake sowing of following contingency crops:

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 CO-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) in Ananthapur and Kurnool districts with available soil moisture.

- Sucking pest incidence (thrips, jassids) observed in groundnut. Spraying of Monochrotophos @ 1.6g/litre or Dimethoate 2ml/litre or Imidacloprid @ 0.3 ml/litre or Thiomethaxam 0.2g/litre of water can be taken up for control.

Telangana

- Completion of nursery sowing of extra short duration varieties of rice (Prathyumna, Varalu, Anjana) in Karimnagar, Nizamabad and Khammam districts of North Telangana Zone by 15th August.
- Intercultivation in red gram with gorru/guntaka in tomato, bhindi and brinjal to keep the crop free from weeds upto 60 DAS in Northern Telangana Zone. Spraying of Magnesium Sulphate @ 10 gm/litre for correction of Magnesium deficiency in cotton.
- Transplanting of rice in Mahabubnagar, Nalgonda, Medak, Rangareddy, Khammam and Warangal districts of South Telangana Zone.

Tamil Nadu

- Continuation of sowing of *Samba* rice (CR 1009 and ADT 50) in Ariyalur, Nagapattinam, Perambalur, Thanjavur, Thiruvarur and Trichy districts.
- Provide dust mulching to conserve subsurface soil moisture to tackle soil moisture stress in groundnut sown in dry lands in Pollachi taluka of Coimbatore district.
- If sowing is delayed up to second week of August 2016, sowing of short duration varieties (Indaf 9 and CO 7) of finger millet is suggested in the place of long duration finger millet in Krishnagiri district.
- Crops such as varagu (Kodo millet) and cowpea are advocated instead of fallow in Pudukottai district.
- Intercultural operation and mulching for conservation of soil moisture.

Excess/normal rainfall occurred during last fortnight over western parts of India whereas subdued rainfall is likely to occur during next fortnight, following advisories are suggested:

Maharashtra

Konkan

- Maintenance of 5 cm water level in rice fields.
- Drain out excess water from crop fields.
- Bunding of rice fields and removal of weeds on the bund.
- Complete the new planting (on contour lines) of fruit crops like mango, cashew, coconut, arecanut and sapota.
- Apply second dose of fertilizers i.e. 870 g of urea/Are (100 m²) area, after one month of transplanting of rice.

Madhya Maharashtra

- Maintenance of 3-5 cm water level in transplanted rice field.
- Completion of planting of *adsali* sugarcane in Dhule, Nandurbar, Ahmednagar districts. Recommended varieties: CO - 86032 (Nira) and Phule - 0265.
- Intercultural operations and plant protection measures in soybean, cotton, red gram and green gram.

Marathwada

- Completion of planting of *adsali* sugarcane (CO - 86032 (Nira) and Phule– 0265) Aurangabad and Nanded districts..
- Intercultural operations and plant protection measures in soybean, cotton, red gram and green gram.

Vidarbha

- Maintenance 2-3 cm water level in already transplanted rice fields in Nagpur, Bhandara, Gondia, Chandrapur and Gadchiroli districts.
- Intercultural operations and plant protection measures in cotton, soybean, black gram and green gram.
- Unsown/delayed sowing areas can be accommodated till this week with pigeon pea (C-11, Asha, PKV- Tara and BSMR-736 with closer 60x20 spacing). Alternative crops include sunflower, Pearl millet, Sesame, Castor or intercropping systems pearl millet + pigeon pea (4:2), sunflower + pigeon pea (2:1) or sesame + pigeon pea (4:1) intercropping systems.

Gujarat

Gujarat Region

- Drain out excess water from rice, pulses, sugarcane fields in Navasari, Dangs, Valsad, and from papaya plants in Surat and Tapi districts.
- Complete sowing of castor up to 15th August in Surat, Narmada, Tapi and Bharuch districts.
- Maintenance of 5 cm water level in transplanted rice field in Anand, Dahod, Kheda and Panchmahals districts. Completion of sowing of castor upto 15th August to avoid semi looper in castor in Dahod, Panchmahals, Kheda, Vadodara and Anand districts. Intercultural operations in pigeon pea and rice on non-rainy day.
- Completion of sowing of castor and sowing of sorghum (S-1049, GFS-4 and GFS-5) in Banaskantha, Mehsana, Gandhinagar, Patan and Sabarkantha districts. Intercultural operations in pearl millet, sesame, early sown pulses and vegetable crops on a non-rainy day to conserve soil moisture.
- Rain water harvesting for future use.

Saurashtra & Kutch

- Drain out excess water from crop fields (groundnut, cotton, pulses and soybean) in Junagadh and Porbandar districts. Carry out intercultural operations in groundnut and cotton on a non-rainy day.
- Completion of sowing of castor by 15th August and intercultural operations in sesame crop in Kachchh district.
- Completion of transplanting of rice in Bhavnagar and Ahmedabad districts with realised

rainfall. Weeding and other intercultural operations in sesame, pearl millet, maize and early sown pulses in clear weather.

- Completion of sowing of castor and pigeon in Amreli, Rajkot, Surendranagar and Jamnagar districts of North Saurashtra Zone with realised rainfall. Intercultural operations to remove weeds and mulching in pulses and pearl millet to conserve soil moisture in Surendranagar district.

In case of failure of first crop due to dry spell, following crops can be adopted as mid-season corrections.

- 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

In view of excess/normal rainfall activity during last fortnight over north-eastern, eastern, northern and parts of central India which is likely to continue during next fortnight, following advisories are suggested:

Arunachal Pradesh

- Carry out weeding and cleaning in upland *Jhum* rice.
- Do not disturb the soil structure by spading/hoeing in the groundnut field at pegging stage.
- Carry out hand weeding with care.
- Undertake weeding and earthing up in ginger and turmeric in vegetative stage.

Assam & Meghalaya

Assam

- Undertake replanting of dead hills within 7-10 days of transplanting with *Sali* rice seedlings of same age in Karbi Anglong district.
- Carry out first weeding in already sown, 20-25 days old arhar crop.
- Undertake sowing of sesame.
- For normal transplanting (July-Aug) of *Sali* rice in Kokrajhar district, farmers should maintain 2-3 seedlings per hill and 4-6 cm depth for all varieties. Complete transplanting of *Sali* rice in Cacher district.
- Continue planting of pineapple suckers in Karbi Anglong district.
- Carry out earthing up operation in ginger and turmeric.
- Undertake land preparation and sowing of radish in Karbi Anglong district.
- Remove old and dry leaves of sugarcane in Kokrajhar district.
- Drain out excess water from crop fields to avoid water logging.

Meghalaya

- Continue transplanting of *sali* rice in all the districts of Meghalaya.
- Maintain water level of 2-5 cm from transplanting to tillering stage. Carry out replanting of dead hills or gap filling with seedlings of similar age within 7-10 days of transplanting.
- Harvest mature maize cobs and sundry before storing.
- Carry out weeding operation in ginger and turmeric.

- Undertake first hand weeding in groundnut at flower initiation stage followed by earthing up.
- Undertake weeding and hoeing in tomato.
- Drain out excess water from crop fields to avoid water logging.

Nagaland, Manipur, Mizoram and Tripura (NMMT):

Manipur

- Carry out one hand weeding at 20-30 days after transplanting of main *kharif* rice.
- Undertake weeding in *kharif* maize on a bright sunny day. Maintain proper drainage and harvest the matured cob.
- Maintain proper drainage system to avoid water logging in soybean and groundnut.
- Prepare raised beds for cauliflower nursery. Also prepare temporary rain shelter to protect it. Arrange for drainage facility.

Mizoram

- Carry out hand weeding in *kharif* rice.
- Remove unwanted plant near base of the *kharif* maize plant in vegetative stage and cut dead branches. Carry out earthing up of soil along with fertilizer mixture. Apply split dose of fertilizer.
- Ginger and turmeric is in vegetative stage. Remove unwanted plant near base of the plant and cut dead branches.

Tripura

- Harvest the Aus rice and dry it properly before storing. Weather for next few days may not be fully favorable for drying. Thus, advised to keep the rice under shed or cover.
- Carry out weeding in 20-25 days old *Aman* rice.
- Maintain proper drainage in groundnut at pod filling stage.

Nagaland

- Carry out weeding in soybean at vegetative stage.
- Maintain proper drainage and carry out timely earthing up in ginger.

West Bengal

- Drain out excess water from the standing crops in Bankura, East Midnapur, Kolkata, Purulia and South 24 Pargana districts.
- Apply Nitrogenous fertilizer @ 20 kg N/ ha at 21 days after transplanting of rice in Darjeeling district.
- Continue transplanting of *Aman* rice in Murshidabad district.
- Carry out weeding in transplanted rice field in Birbhum district.
- Harvest jute in Howrah district at 100 DAS if *aman*-rice-growers want to cultivate rice in the same field. Otherwise, jute may be harvested at 120 to 125 DAS.
- Avoid stagnation of water in turmeric at vegetative stage.
- Maintain the drainage channels in ginger. Take care to prevent the entry of running water from upper infected terraces or stream water (Jhora) into the healthy ginger field.
- Keep the large cardamom field weed free and avoid water stagnation.

Odisha

- Make drainage arrangement for bunded upland crop field in Kalahandi district.
- Sowing of black gram, green gram and cow pea.
- Avoid spraying operation. If necessary add sticker to the spray solution.
- Rice crop is at three to four week stage in nursery. Maintain water level upto 2-3cm as the seedlings grow in height.
- Transplanting of 3-4 week old seedlings.
- Sugarcane is at grand growth stage.
- Drain out excess water from maize field in Sundergarh district.

Bihar

- Undertake transplanting of 45-55 days old onion seedlings in Madhubani district at a planting distance of 15x10 cm. Light irrigation is suggested after transplanting.
- Undertake transplanting of chili seedlings at a distance of 50x45 cm in West Champaran district.
- Maintain proper drainage to avoid water logging in kharif maize in Purnea district.
- Carry out weeding in turmeric, ginger, and *kharif* vegetables such as ladies finger (*Bhindi*), bottle guard, ridge guard, bitter guard, cucumber etc in West Champaran district.
- Undertake transplanting of brinjal, tomato, chilli, cauliflower and cabbage seedlings on raised beds in Gaya district.

Jharkhand

- Continue transplanting of rice seedlings in Godda district.
- Carry out weeding and earthing up in pigeon pea.
- Undertake sowing of improved varieties of black gram in upland.
- Provide proper drainage facility in turmeric and ginger in Dhanbad district.

Jammu & Kashmir

- In rice crop, apply Butachlor granules 5G @ 1.5 kg/Knal in standing water which is to be retained in the field Jammu, Kathua and Reasi districts of Sub Tropical Zone. Also apply 2nd dose of nitrogenous fertilizer as top dressing in normal transplanted rice crop if the crop is 25-30 days old. In maize crop, undertake intercultural operations (weeding, hoeing and earthing up) as and when soil acquires optimum moisture conditions.
- Apply first top dressing of urea where the rice crop is at mid tillering stage in Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone. Apply second top dressing of urea in maize crop, before tassel formation i.e. about two months after sowing. Apply fertilizer during fair weather condition only. Farmers are advised to do weeding at regular intervals to keep the crop free of weeds to avoid yield loss.
- Arrange for drainage facility in crop fields.
- Due to the presence of sufficient moisture go for transplanting of root cuttings of Chrysanthemum.
- Monitor brinjal and okra for jassid and white fly attack and spray Imidacloprid @ 0.3ml/litre of water during clear weather if disease is observed.

Uttarakhand

- Carry out weeding and hoeing in the maize and soybean crop field within 20-25 days of sowing in Udham Singh Nagar district of Bhabar and Tarai Zone. Urea should be given as top

dressing in the finger millet after one month of sowing. Tie 5-6 sugarcane of each row with dry leaves at the height of 1.5 to 2 feet from the ground to avoid damage due to heavy rain and high wind. Continue transplanting of chilly. Proper drainage should be arranged in the vegetable fields.

- Carry out weeding and hoeing in the paddy field, sown in the last month in Nainital district of Bhabar and Tarai Zone. Apply 1.25 Kg/nali urea as top dressing in the Chetki/ Jethi variety of Paddy. Undertake sowing of French bean and early varieties of pea in mid hills.
- Farmers are advised for making drainage channel in maize, rice, sugarcane and vegetable fields. Avoid stagnation of water in pulse crops. Apply nitrogen in maize crop when sky is clear in Dehradun, Pauri and Haridwar districts of Sub Humid Sub Tropic Zone. First top dressing of Nitrogen in paddy crop with Zinc Sulphate @ 25 kg/ha for the prevention of khaira disease.
- Drain out excess water from crop fields.

Himachal Pradesh

- Continue transplanting of onion in Solan, Simla and Sirmaur districts of Mid Hills Sub-Humid Zone. Continue nursery sowing of cabbage in Solan, Simla 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 raddish, 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.
- Undertake sowing of oats and continue nursery sowing of vegetables in Kinnaur, Lahaul & Spiti districts of High Hill Temperate Dry Zone.
- Drain out excess water from crop fields.

Haryana & Delhi

Haryana

- In Western Zone, undertake intercultural / hoeing operations in cotton crops for removing the weeds on a non rainy day. Undertake transplanting of brinjal, tomato, chilli, onion and early cauliflower on ridge, with sufficient soil moisture.
- 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.
- In Eastern Zone of Haryana continue sowing of fodder crops such as guar, maize and bajra.

Delhi

- Continue transplanting of onion seedling in the prepared fields. Undertake sowing of carrot (Pusa Vrishti), sarson saag (Pusa saag-1), radish (Versa kee rani, summer long, long chetaki), spinach (All green), coriander (pant Haritama) on raised bed.
- Continue planting of mango, citrus and guava.

Punjab

- In direct seeded rice (DSR) apply second and third dosage of about 43 kg urea/acre each at 5

and 9 weeks of sowing in Moga, Bhatinda, Mansa, Muktsar, Sangrur and Barnala districts of Western Zone. Continue transplanting of onion seedling.

- In rice crop, apply last dose of nitrogen (37 kg urea/acre) if already not given in Ferozpur and Faridkot districts of Western Plain Zone.
- Prepare nursery of mid-season cauliflower in Moga, Bhatinda, Mansa, Muktsar, Sangrur and Barnala districts of Western Zone districts.
- 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.

Uttar Pradesh

- Complete sowing of green gram and black gram in Kanpur, Sitapur, Unnao, Lucknow districts of Central Plain Zone.
- Carry out weeding in rice black gram, green gram, pigeon pea, bajra, jowar and maize crop in Varanasi, Azamgarh, Gazipur, Chandauli, Sonbhadra, Mirzapur, Sant Ravidas Nagar and Jaunpur districts.
- Continue transplanting of early varieties of Brinjal, Chilies early cauliflower and onion crops in Allahabad, Fatepur, Chitrakut districts of Central Plain Zone.
- Continue planting of mango, guava and banana in Faizabad, Gorakhpur, Sultanpur districts of Eastern Plain Zone.
- Undertake sowing of sweet corn and baby corn in raised bed in Meerut, Saharanpur, Gazipur, Muzaffarnagar, Aligarh districts of Western Plain Zone of Uttar Pradesh.
- Undertake weeding in green gram and black gram.
- Drainage of excess water from pulse/oil seed crops.

Rajasthan

East Rajasthan

- Carry out weeding and maintain plant population by thinning in timely sown crop like sorghum, pearl millet, sesame and groundnut on clear days in Bharatpur, Alwar, Karauli districts of Flood Prone Eastern Plain Zone.
- Carry out hoeing & weeding in 3-4 weeks crops of pearl millet, maize & sorghum pomegranate in Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone.
- Drain out excess water from crop fields.
- Continue planting of fruit crops like mango, plum and pomegranate in Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone.

West Rajasthan

- Carry out weeding in desi & American cotton in Sriganganagar and Hanumangarh districts of Irrigated North Western Plain Zone. For the control of annual, perennial grasses & broad leaf weeds in guar and groundnut fields, spray Imezathapyr (10% SL) @ 40 g a.i. per hectare with 400 to 500 liter water after 30-35 days of sowing. Start planting new seedlings of kinnow in already prepared pit in the field.
- Start preparation of nursery of vegetables like cauliflower, cabbage chilli and brinjal vegetables in Bikaner and Jaisalmer districts of Arid Western Plain Zone.
- Drain out excess water from crop fields.

Madhya Pradesh

East Madhya Pradesh

- Carry out intercultural operation in early sown in maize, soybean, urd and moong crop. Maize crop is at 40 to 45 days stage, apply 2nd nitrogen dose (top dressing).

West Madhya Pradesh

- Carry out intercultural operation in early sown in maize, soybean, urd and moong crop in Betul district. Maize crop is at 40 to 45 days stage, apply 2nd nitrogen dose (top dressing).
- Transplant onion seedling in the prepared fields in Mandsaur, Ratlam, Ujjain, Dewas, Indore, Shajapur, Rajgarh and Neemuch districts of Malwa Plateau Zone.
- Carry out hand weeding in rice, maize, soybean and arhar crop fields. In maize crop undertake top dressing of nitrogen and potash fertilizer after 40 days of sowing.
- Prepare nurseries of cauliflower for mid-season (Nov.-Dec.) in Mandsaur, Ratlam, Ujjain, Dewas, Indore, Shajapur, Rajgarh and Neemuch districts of Malwa Plateau Zone. Undertake planting of mango, citrus and guava.
- Continue transplanting of brinjal, tomato and onion in Gwalior, Bhind, Morena, Shivpuri, Guna, Ashoknagar, Sheopur districts of Grid Zone

Chhattisgarh

- In the transplanted rice field maintain water level up to 5 cm in North Hill Zone.
- If the seedlings are over aged (more than 30 - 35 days) then, at the time of transplanting reduce the dose of fertilizer than normal dose and plant 4 to 5 seedlings at a distance of 15 cm (row to row) and 10 cm (plant to plant) at a lesser depth.
- In transplanted rice to control narrow leaf weeds, apply Butachlor @ 1.5kg a.i per ha.+500 liters of water or Oxadygril @ 80 gram a.i. or Pyrazosulfuron (10% WP) @ 25 gram a.i. +500 liters of water within 3 to 7 days of planting.
- Carry out inter-culture operation to control weeds in different kharif crops like rice, maize, arhar, groundnut, soybean, urd, mung etc. After weeding, broadcast urea as per their requirement.
- Continue planting of papaya, mango, guava etc. in North Chhattisgarh. Continue nursery sowing of brinjal, early tomato, chilli and onion in the upland areas.
- In the deficit rainfall areas, there is possibility of infestation of cutworm in rice crop. If cut worm is observed in the field, spray Dichlorvos @ 1 ml/200 liter water in per acre. Apply 1 litre kerosene oil/acre in available water in the rice field and move rope from one side to another side.

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, DRSH 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 Shadabahar, 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 sughanda-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.