



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

Valid for 17th to 30th June, 2016

Date of Issue: 17th June, 2016

Issued by

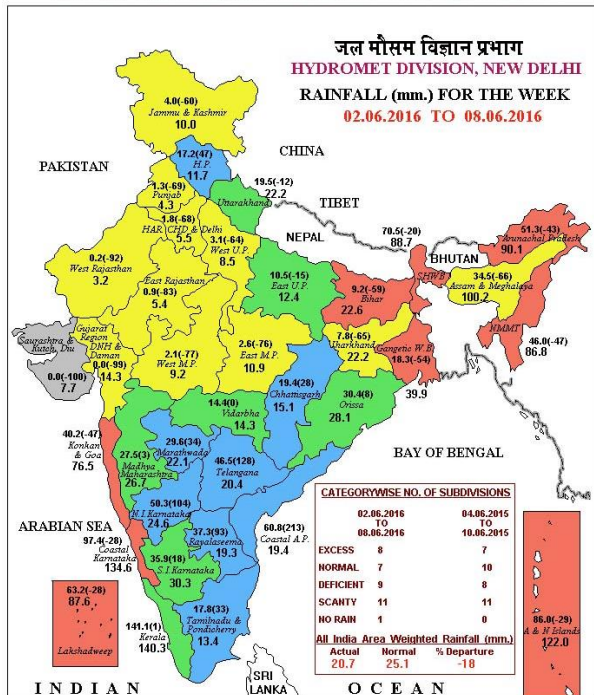
**Earth System Science Organisation
India Meteorological Department**

&

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

Realized Rainfall (2nd to 15th June 2016)

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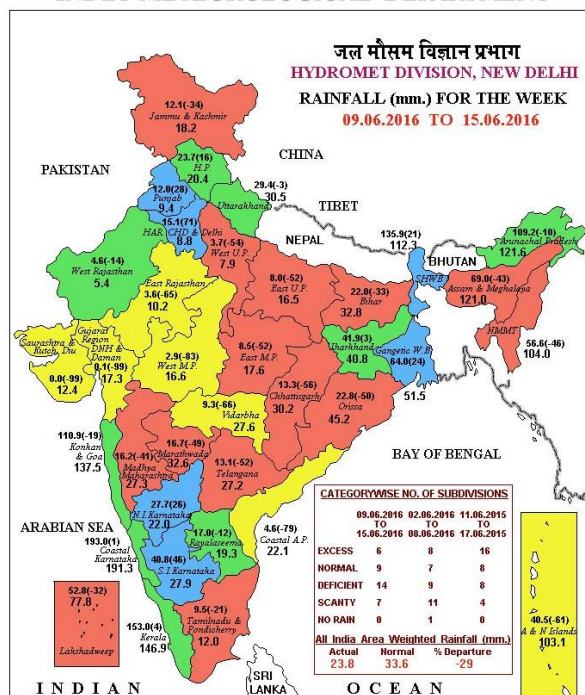


LEGEND: ■ EXCESS (+20% OR MORE) ■ NORMAL (+19% TO -19%) ■ DEFICIENT (-20% TO -59%)
■ SCANTY (-60% TO -99%) ■ NO RAIN (-100%) NO DATA

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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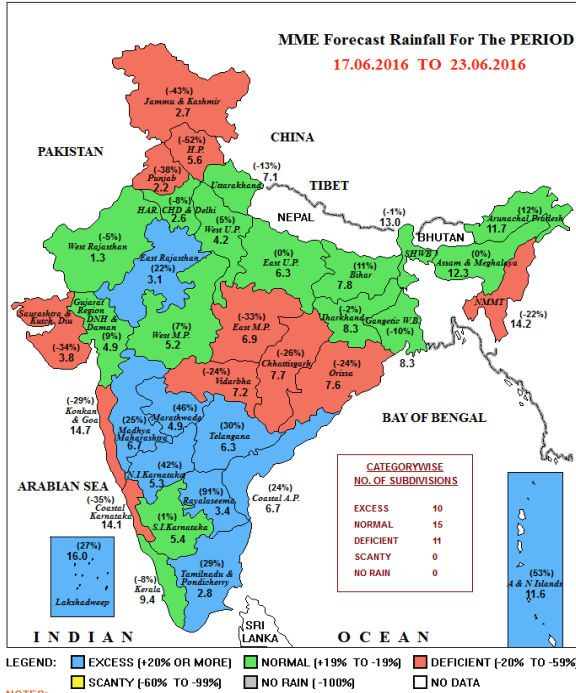
- Normal or above normal rainfall occurred during last two weeks in Himachal Pradesh, Uttarakhand, Rayalaseema, Interior Karnataka and Kerala
- Normal or above normal rainfall occurred in either of the last two weeks in Punjab, Haryana & Delhi, West Rajasthan, East Uttar Pradesh, Jharkhand, West Bengal and Sikkim, Odisha, Arunachal Pradesh, Chhattisgarh, Konkan & Goa, Madhya Maharashtra, Marathwada, Vidarbha, Telangana, Coastal Andhra Pradesh, Coastal Karnataka and Tamil Nadu.
- Below normal rainfall or no rain occurred in the last two weeks over Jammu & Kashmir, East Rajasthan, West Uttar Pradesh, Bihar, Madhya Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram, Tripura and Gujarat State.

Extended Range Forecast System

Subdivision wise rainfall forecast map for the next 2 weeks (IC = 15 June)

Rainfall forecast (mm/day) (17 June – 30 June, 2016)

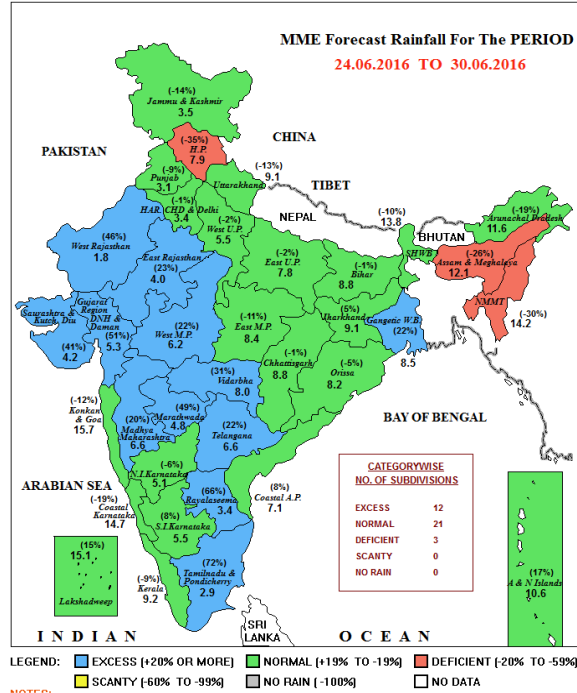
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- (c) Percentage Departures of Rainfall are shown in Brackets

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

Strategic Agricultural Planning based on rainfall during next two weeks till 30th June

- The rainfall is expected to be close to normal on all India scale with not large departure. However, there will be improvement of rainfall over the central India and northwest India during 2nd week (24-30 June) compared to 1st week (17-23 June). Rainfall over South peninsula is expected to be normal to slightly above normal during next 2 weeks.
- Southwest monsoon advanced over Kerala, Tamil Nadu, South Interior Karnataka, Coastal Karnataka, some parts of Coastal Andhra Pradesh, Rayalaseema and North Interior Karnataka. Conditions are favourable for further advance of southwest monsoon into remaining parts of central Arabian Sea and entire Konkan & Goa, some parts of south Chhattisgarh, Madhya Maharashtra & Marathwada, remaining parts of North Interior Karnataka, Rayalaseema and coastal Andhra Pradesh, some parts of Telangana, remaining parts of Bay of Bengal and some parts of Odisha, Gangetic West Bengal, Jharkhand and Bihar during next 2-3 days.

In view of the above, the following advisories are issued for Kerala, North-eastern States, Karnataka, Tamil Nadu, Andhra Pradesh, Telangana, Maharashtra, Gujarat State, West Bengal, Bihar, Jharkhand, Odisha, Madhya Pradesh and Chhattisgarh. State wise crop varieties are given in Annexure I.

Major advisories for *kharif* crops

Kerala

Kerala State received normal/excess rainfall during May and first fortnight of June; normal rainfall activity is likely during next fortnight.

- Transplanting of *Virippu* rice in Palakkad, Thrissur, Ernakulam, Thiruvananthapuram, Kollam, Kannur, Malappuram and Kozhikode districts.
- Continuation of direct sowing of rice in Alappuzha, Kottayam districts.
- Monitoring of pest and disease
 - Black Pepper: Drench the soil with 0.2 % Copper oxy Chloride and spray the aerial part with 1% Bordeaux mixture as a prophylactic measure to control Quick wilt and *pollu* disease.
 - Cashew: Closely watch the trees for early detection of stem borer attack. If attacked, chisel out the grubs and swab the tree trunk with Carbaryl WDP @ 4g/litre of water.
 - Rubber: Subsequent tappings must be done after proper drying of tapping panel. Apply Indofil M 45 4 g/litre at one week interval to avoid fungal diseases.

Karnataka

South Interior Karnataka received normal/excess rainfall during previous fortnight and normal rainfall is expected during next fortnight. Coastal Karnataka received normal rainfall during last week and normal rainfall is likely to occur during later part of next fortnight. Normal/excess normal rainfall was received in North Interior Karnataka during previous fortnight which is likely to be continued in next fortnight.

Coastal Karnataka

- Transplanting of rice in Dakshina Kannada and Udupi district of Coastal Zone of Karnataka utilising realised rainfall and expected rainfall.
- Continuation of drill sowing of rice (varieties for low land: Intan, Abhilash and Hemavati and for upland: Amrut or Prasanna) and undertake transplanting in last week of June in Uttar Kannada district of Hill Zone.

South Interior Karnataka

- Continuation of nursery preparation/sowing of rice, sowing of maize in Chickmangaluru, Hassan, Shimoga districts of Southern Transition Zone utilizing realised and expected rainfall.
- Nursery preparation/sowing of rice, continuation of sowing of pulses (cowpea, green gram, black gram, horse gram, field bean etc.) Sowing of jowar, jowar+red gram (2:1), groundnut+red gram (4:1 or 8:2) by using seed drill in Chamrajnagar, Kodagu, Mandya and Mysuru districts of Southern Dry Zone utilizing realised and expected rainfall.
- Continuation of sowing of red gram, maize, groundnut and ragi) in Bengaluru Rural, Chikaballapura and Kolar districts of Eastern Dry Zone with realised and expected rainfall.
- Sowing of sesame, green gram, black gram, cowpea and castor in Bengaluru Rural, Chikaballapura and Kolar, districts of Eastern Dry Zone with realised and expected monsoon rainfall. Undertake sowing in Bengaluru Urban and Ramnagara districts after receipt of sufficient rainfall.
- Nursery sowing of rice and sowing of red gram, groundnut, sorghum, sunflower, cotton, finger millet and maize in Chitradurga, Davengere and Tumakuru districts in Central Dry Zone with realised and expected rainfall. Undertake sowing of cotton.

North Interior Karnataka

- Continuation of Nursery sowing of rice and undertake sowing of soybean, green gram, black gram, sorghum, pigeon pea in Bidar district of North East Transition Zone with realised and expected monsoon rainfall.
- Continuation of sowing of red gram, black gram, green gram, cotton and maize in Koppal district which received significant rainfall during last week; undertake sowing of these crops in Ballari, Kalaburgi and Raichur districts of North East Dry Zone after receipt of monsoon rainfall.
- Nursery sowing of rice and sowing of *kharif* crops like green gram, black gram, soybean, sorghum, maize, cotton, groundnut in Dharwad, Belagavi and Haveri districts of North Transition Zone utilizing realised rainfall and expected monsoon rainfall.
- Continuation of sowing of green gram, sunflower, maize, Bt. cotton, red gram, bajra, sorghum, sesame, navane and groundnut in Bagalkote and Gadag districts of North Dry Zone with realised and expected monsoon rainfall. In Vijayapura district continue land preparation for above crops utilizing available soil moisture and undertake sowing after receipt of sufficient rainfall.
- Intercropping of bajra + groundnut (bunch) in 2:4 row proportion; bajra + red gram in 2:1 row proportion; groundnut (bunch) + red gram in 3:1 or 4:2 row row proportion, red gram + sesamum in 1:2 or 2:4 row proportion in light and medium black soils is suggested in North Dry Zone to make efficient use of available soil and water resources and to get higher returns.

Andhra Pradesh

Coastal Andhra Pradesh and Rayalaseema received excess rainfall during last fortnight and

excess/normal rain is likely to occur during next fortnight.

Coastal Andhra Pradesh

- Nursery sowing of rice, sowing of maize, red gram , black gram, green gram and cotton in Krishna, Guntur and West Godavari districts of Krishna Godavari Zone with receipt of sufficient monsoon rainfall.
- Continuation of nursery sowing of rice and ragi in East Godavari district of High Altitude Tribal Zone.
- Sowing of maize, groundnut, red gram, green gram and black gram in East Godavari district of High Altitude Tribal Zone with receipt of sufficient monsoon rainfall.
- Continuation of land preparation for sowing of *kharif* crops like bajra, red gram, green gram, black gram, groundnut and undertake sowing in Srikakulam, Vizianagaram and Vishakhapatnam districts of North Coastal Zone after receipt of sufficient monsoon rains.

Rayalaseema

- Continuation of nursery sowing / transplanting of rice, continuation of sowing of kharif groundnut, undertake sowing of red gram in Chittoor, Cuddepah and Nellore districts of Southern Zone.
- Continuation of sowing of kharif crops like red gram, bajra, korra and castor in Anantpur and Kornool districts of Scarce Rainfall Zone.

Telangana

- Continuation of nursery raising of rice in Karimnagar, Nizamabad and Adilabad districts of North Telangana Zone.
- Continuation of land preparation and sowing of jowar, maize, green gram, black gram, red gram and soybean in Karimnagar, Nizamabad and Adilabad districts Northern Telangana Zone. Undertake sowing of kharif crops after receipt of sufficient monsoon rain during next fortnight.
- Nursery raising of paddy in Southern Telangana Zone.
- Continuation of land preparation for sowing of green gram, black gram, red gram, soybean, jowar, maize castor, sunflower, sesame, Bt. cotton, sorghum, maize in Southern Telangana Zone. Undertake sowing of kharif crops after onset of monsoon and with receipt of sufficient rainfall.

Tamil Nadu

Normal rainfall occurred in Tamil Nadu during previous fortnight and excess rainfall is expected during next fortnight.

- Continuation of nursery sowing of *kuruvai* rice and SRI cultivation in Thanjavur, Nagapattinam, Karur, Thiruvarur, Perambur, Trichy districts of Cauvery Delta Zone.
- Nursery preparation and sowing with pre-germinated seeds of short duration rice in Coimbatore , Thiruppur and Erode districts of Western Zone.
- Sowing of small millets in the foothills of western ghat areas in Coimbatore, Thiruppur and Erode districts of Western Zone.

Maharashtra

Konkan and Madhya Maharashtra received deficient rainfall during previous fortnight with normal rainfall during last week over Konkan, whereas deficient/normal rainfall is expected over Konkan and excess over Madhya Maharashtra during next fortnight. Marathwada received normal rainfall which is likely to improve during next fortnight. Vidarbha received deficient rainfall during previous fortnight and excess rainfall is expected during later part of next fortnight.

Konkan

- Completion of nursery sowing of rice, nagli in Raigad, Ratnagiri, Thane and Sindhudurg districts and transplanting of rice with seedlings of proper age.
- Continuation of sowing of *kharif* groundnut.

Madhya Maharashtra

- Continuation of nursery sowing of *kharif* rice on raised bed / direct sowing in Sangli, Satara and Kolhapur districts.
- Continue sowing of soybean in Sangli and Kolhapur districts.
- Continuation of land preparation and undertake sowing of *kharif* jowar, groundnut, cotton, redgram, greengram and black gram with receipt of monsoon rainfall.

Marathwada

- Sowing of Bt.cotton, pigeon pea, green gram, black gram, groundnut and maize and soybean in Latur, Nanded, Osmanabad districts.
- Intercropping of Cotton + Pigeon pea (6:1 or 8:2), Cotton + Soybean (1:1), Cotton + Green gram (1:2), Cotton + Black gram (1:1) serve as an insurance against crop failures and as a preventive against soil erosion.

Vidarbha

- Continuation of nursery sowing of *kharif* rice in Bhandara, Gondia, Chandrapur, Gadchiroli districts utilising realised rainfall.
- Land preparation for sowing of *kharif* jowar, soybean, cotton, green gram, red gram and black gram. Undertake sowing in later part of next fortnight after receipt of sufficient monsoon rainfall.
- Feasible risk minimizing intercropping systems include cotton + green gram/black gram (1:1), pigeon pea + green gram / black gram/soybean (1:2 / 2:4) , sorghum + green gram/pigeon pea (3:3) and Soybean + sorghum + pigeon pea (6:2:1). Also in soybean after every 6 or 9 rows one row of pigeon pea may be sown.

Gujarat

Gujarat received scanty rain during last fortnight whereas normal to excess rain is likely in next fortnight.

Gujarat Region

- Continuation of land preparation for *kharif* rice, nursery sowing of ragi. Wait for sowing till the receipt of monsoon rain in Navasari, Valsad and Dangs districts of South Gujarat Heavy Rainfall Zone.
- Continuation of land preparation for sowing of *kharif* crops like pearl millet, groundnut, green gram, black gram, maize etc. in Banskantha, Sabarkantha, Mehsana , Patan and

Gandhinagar districts of North Gujarat Zone. Undertake sowing after receipt of monsoon rainfall.

- Continuation of land preparation for *kharif* crops like cotton, pearl millet, green gram in Bhal and Coastal Zone and for groundnut in Anand, Dahod, Kheda, Panchmahals and Vadodara districts of Middle Gujarat Zone. Undertake sowing after receipt of monsoon rainfall.
- Land preparation for sowing of *kharif* crops like cotton, pigeon pea, sorghum etc. in Bharuch, Surat, Narmada and Tapi districts of South Gujarat Zone. Undertake sowing after receipt of sufficient monsoon rainfall.

Saurashtra & Kutch

- Continuation of land preparation for sowing of *kharif* cotton, groundnut, sesame, soybean, castor in Junagadh and Porbandar districts of South Saurashtra Zone and undertake sowing after receipt of sufficient monsoon rainfall
- Continuation of pre-sowing of groundnut with irrigation in Junagadh and Porbandar districts of South Saurashtra Zone.
- Continuation of land preparation for sowing of pearl millet, groundnut, green gram, black gram, cow pea, pigeon pea, sesame and cotton in Amreli, Jamnagar, Surendranagar and Rajkot districts of North Saurashtra Zone and undertake sowing after receipt of sufficient monsoon rains.
- Continuation of land preparation for sowing of *kharif* crops like pearl millet, groundnut, green gram, black gram, maize etc. in North West Zone and undertake sowing after receipt of sufficient monsoon rains.

Arunachal Pradesh

Subdued rainfall activity observed during first half of last fortnight and normal rainfall is likely to occur during next fortnight.

- Nursery sowing /transplanting of rice.

Assam

Scanty rainfall activity observed during last fortnight in Assam & Meghalaya. Normal rainfall is likely to occur during first half and subdued in later part of next fortnight.

- Completion of transplanting of normal *ahu* rice.
- Sowing of *baou* rice in Lower and Central Bramhaputra Valley Zone.
- Nursery raising and main field preparation for *sali* rice.
- Land preparation and sowing of groundnut in Lower Bramhaputra Valley Zone.

Meghalaya

- Nursery raising and main field preparation of *sali* rice.
- Sowing of groundnut.
- Sowing of soybean.
- Sowing of *kharif* pulses green gram, black gram and rajma.

Deficient rainfall occurred in last fortnight and likely to continue during next fortnight over Nagaland, Manipur, Mizoram and Tripura.

Manipur

- Land preparation for nursery sowing of *kharif* rice
- Sowing of groundnut and black gram.

Mizoram

- Transplanting of *kharif* rice.
- Sowing of *kharif* green gram, black gram and rajma.

Tripura

- Sowing of *aman* rice.
- Field Preparation and sowing of maize.
- Complete sowing of groundnut.

Nagaland

- Nursery preparation for low land rice.

West Bengal

Deficient rainfall is occurred in first half and excess in later part of last fortnight. Normal/excess rainfall is likely to occur in next fortnight.

- Nursery sowing of *aman* rice.
- Continue transplanting of *aus*-rice in Laterite and Red Soil zone.
- Start sowing of dry seeded long duration rice in Coastal Saline Zone.

Andaman & Nicobar

- Prepare rice nursery in low laying area.
- Prepare the raised bed for sowing of cowpea in double row system.

Odisha

Normal rainfall occurred in first half and deficient in later part of last fortnight. Deficient rainfall is likely to occur in first half and normal in later part of next fortnight.

- Sowing of rice in North Central Plateau Zone and North Eastern Plateau zone.
- Nursery bed preparation for *kharif* rice in Eastern Ghat High Land zone.
- Sowing of maize.

Bihar

Deficient rainfall occurred in last fortnight and normal rainfall is likely to occur in next fortnight.

- Completion of nursery sowing of long duration rice in North Bihar utilising realised rainfall.
- Preparation of nursery bed for long duration rice North East Alluvial Zone.
- Nursery sowing of medium duration rice in North Bihar.
- Sowing of *kharif* maize in North Bihar utilising realised rainfall.
- Land preparation for sowing of rice in South Bihar Alluvial Zone utilising realised rainfall.

Jharkhand

Normal rainfall occurred during later part of previous fortnight and is likely continue in next fortnight.

- Sowing of maize.
- Land preparation for timely sowing of direct seeded upland rice in Central and North Eastern Plateau Zone and South Eastern Plateau Zone.
- Prepare rice nursery bed for transplanting.
- Land preparation for sowing of pigeon pea
- Inter cropping of arhar with groundnut.

Madhya Pradesh

Scanty / Deficient rainfall occurred in last fortnight. Normal /excess rainfall is likely to occur over West Madhya Pradesh during next fortnight and normal over East Madhya Pradesh in later part of next fortnight.

- Undertake nursery sowing of rice in Kymore Plateau Zone and in Jhabua Hill Zone.
- Continue land preparation for sowing of pigeon pea.
- Undertake sowing of maize in Satpura Zone.
- Undertake land preparation for sowing of soybean.
- Undertake nursery sowing of rice in Grid Zone.
- Undertake land preparation for sowing of arhar.
- Undertake nursery sowing of rice in Central Narmada Valley Zone. Prepare field for sowing of arhar, soybean, maize, sesame and for sowing of groundnut.
- Continue sowing of cotton in Satpura Zone.
- Continue sowing of cotton in Nimar Valley Zone.

Chhattisgarh

Excess rainfall occurred in first half of last fortnight and normal rainfall is likely to occur in later part of next fortnight.

- Undertake nursery sowing of long duration rice in North Hill Zone.
- Prepare field for rice nursery in Chhattisgarh Plain Zone.

Jammu & Kashmir

Scanty/deficient rainfall occurred in last fortnight and likely to continue in first half of next fortnight. Normal rainfall is likely to occur in later part of next fortnight.

- Continue nursery raising of rice in Sub Tropical Zone.
- Continue land preparation for sowing of maize in Sub Tropical Zone.
- Start preparing land for transplanting of rice seedlings in Intermediate Zone. Transplant seedlings at 4-6 leaf stage.
- Undertake sowing of maize crop.
- Undertake transplanting of rice seedlings, transplant 2-3 plants/hill after proper puddling in Valley Temperate Zone.

Himachal Pradesh

Excess/ normal rainfall occurred during last fortnight and deficient rainfall is likely to occur in next fortnight.

- Continue nursery sowing of rice and sowing of maize in Sub-Montane and Low Hills Sub-Tropical Zone and Mid Hills Sub Humid Zone.

Uttarakhand

Normal rainfall occurred in last fortnight and likely to continue in next fortnight.

- Undertake transplanting of rice seedlings at 4-5 leaf stage in Hill Zone.
- Undertake nursery sowing of rice in Sub Humid Sub Tropical Zone.
- Continue sowing of pigeon pea in Bhabar and Tarai Zone.
- Continue sowing of maize.
- Undertake transplanting of rice.
- Undertake sowing of soybean.

Uttar Pradesh

Scanty/deficient rainfall occurred over West Uttar Pradesh in last fortnight and normal rainfall is likely to occur in next fortnight. Normal rainfall occurred in East Uttar Pradesh in first half of last fortnight and likely to occur in next fortnight.

- Continue nursery sowing of rice and sowing of maize In Central Plain Zone (Allahabad). Undertake sowing of arhar. Undertake nursery sowing of rice in Bundelkhand Zone.
- Undertake nursery sowing of late maturing varieties of rice and sowing of arhar in Eastern Plain Zone.
- Undertake nursery sowing of rice and sowing of early maturing variety of maize in Central Plain Zone (Kanpur).
- Undertake nursery sowing of rice in Central Plain Zone (Varanasi).

Punjab

Excess rainfall occurred in later part of first fortnight and normal rainfall likely to occur in later part of next fortnight.

- Continue nursery sowing of short duration rice varieties in Western Zone.
- Continue nursery preparation for rice in Undulating Plain Zone. Continue sowing of maize. Undertake nursery sowing of *basmati* rice.
- Undertake transplanting of rice seedlings in Western Plain Zone.

Haryana & Delhi

Excess rainfall occurred in later part of last fortnight and normal rainfall is likely to occur in next fortnight.

- Complete nursery sowing of rice in Western Zone. Undertake field preparation for transplanting of rice seedlings.
- Complete sowing of cotton.

Delhi

- Continue nursery sowing of rice in Western Semi Arid Zone.
- Continue sowing of pigeon pea.

Advisories for other crops

Kerala

- Continuation of transplanting of *kharif* vegetables like bhindi and brinjal, planting of cucurbits like pumpkin, cucumber and bottle gourd; plant seedlings at 3-4 leaf stage in Southern Zone.
- Continuation of transplanting of vegetables like bhindi, brinjal and chilli in Alappuzha, Kottayam districts of Problem Area Zone.
- Continuation of planting of new pepper cuttings in Pathanamthitta district.
- Continuation of planting of ginger and turmeric with adequate drainage facility in Central Zone.
- Continuation of planting of coconut, arecanut, pepper and cardamom in Wayanad and Idukki districts of High Altitude Zone.
- Provide propping for bunched Nendran plants.
- Completion of planting of coconut and rubber in Southern Zone; avoid water stagnation in the pits/basins.
- Continuation of cultivation of ginger, turmeric, banana, mulberry and tuber crops as intercrops along with coconut.
- Continue tapping in rubber.
- Provide adequate drainage facility for vegetables and orchards to avoid water stagnation.

Karnataka

South Interior Karnataka

- Continuation of planting of ginger and turmeric.
- Completion of planting of coffee, cardamom, arecanut and banana in Kodagu district of Southern Dry Zone.
- Provide adequate drainage facility in arecanut fields.
- Preparation of the soil conservation structures like bunds to drain out the excess water and to avoid soil erosion incorporate the farm yard manure in soil.
- Maintenance of optimum room temperature in silkworm and poultry rearing houses on Southern Dry Zone.

North Interior Karnataka

- Continue fresh plantation of fruit trees, teak, neem, tamarind, acacia or other trees on the bunds, uncultivated and marginal land in North East Transition Zone and North East Dry Zone.
- Repairing of bunds and check dam so as to reduce the runoff and to check the soil erosion.
- Sowing of crops in rows across the slope to facilitate better conservation of moisture in the soil.

Andhra Pradesh

- Removal of water from the sesame field as the crop is sensitive to excess moisture.
- Procurement of good quality seeds from reputed firms.

Rayalaseema

- Spacing: red gram 90 x 20 cm for light red soils and 180 x 20 cm for black soils, bajra 45 x 12-15 cm, korra 22.5 X 7.5 cm.

Telangana

- Continuation of digging of pits for new planting orchards in Northern Telangana Zone.
- Continuation of harvesting of matured vegetables in Northern Telangana Zone.

Tamil Nadu

Other Advisories

- Continue cultivation of small onion in the North Western Zone, utilizing the realized rainfall.
- Hand weeding and hoeing may in irrigated 30 days old turmeric.
- Covering the root zone of horticulture crops with coir pith to conserve moisture in the North Eastern Zone.

Maharashtra

Konkan

- Continuation of new planting of mango, cashew, coconut and arecanut.
- Planting of biennial forage crops like Paragrass, Napier, Gajraj etc.
- Harvesting and transportation (during night hours) of matured mango fruits.
- Protect the animals and poultry birds during rains.

Madhya Maharashtra

- Complete nursery sowing of vegetable crops like tomato and chilli in kharif season.
- Continuation of nursery preparation for *kharif* onion & tomato crops in Nashik district.
- Continuation of fresh planting of orchards mango, banana, papaya and pomegranate.
- Cultivation of ginger and turmeric.
- Cultivation of sorghum, bajra, maize, cowpea and hybrid napier as green fodder for livestock.

Marathwada

Advisories for other crops

- Continuation of nursery cultivation of *kharif* vegetable crops like brinjal, chilli and tomato seed on raised bed.
- Planting of mango and custard apple crops.
- Continuation of land preparation for floriculture crops.
- Continuation of sowing of fodder crops like African Tall, Ganga-5, Vijay and Manjari.

Vidarbha

- Land preparation for turmeric in Eastern Vidarbha Zone with realised rainfall.
- Completion of sowing of vegetables like bitter gourd, tinda, ridge gourd, smooth gourd, bottle gourd, cowpea, cluster bean, coriander etc. in Central Vidarbha Zone.

Gujarat

Gujarat Region

- Continuation of preparation for new plantation of horticultural crops (mango, sapota, lemon, pomegranate, ber, guava).
- Pre-sowing of irrigated *kharif* groundnut under assured irrigation facilities.
- Make necessary arrangements for water harvesting in the fields.

Arunachal Pradesh

- Prepare half moon terraces in fruit crops (orange/banana/apple/peach) grown in steep slopes to prevent nutrient loss during heavy downpour.

Assam

- Land preparation and sowing of turmeric and ginger in Central Bramhaputra Valley Zone.
- Sowing of bottle gourd and planting of lemon in Lower Bramhaputra Valley Zone.

- Planting of okra in Barak valley Zone.
- Planting of papaya in Central Bramhaputra Valley Zone
- Planting of tapioca in Hill Zone.
- Planting of pineapple in North Bank Plain Zone and Hill Zone.
- Sowing of *Colocasia* in Lower Bramhaputra Valley Zone.
- Sowing of fodder crops like Hybrid Napier, Setaria and Guinea etc. may be planted at a spacing of 45 cm in Upper Bramhaputra Valley Zone.
- Sowing of pigeon pea in Lower Bramhaputra Valley Zone.
- Planting of black pepper in Lower Bramhaputra Valley Zone and North Bank Plain Zone.

Meghalaya

- Planting of High Yielding Varieties of ginger/turmeric (varieties: turmeric- Lakadong, RCT-1, ginger- Nadia, Poona, Riodegenerio etc.).

Manipur

- Transplanting of papaya, tree bean, mango.

Mizoram

- Transplanting of brinjal and chilli in the main fields.
- Sowing of maize, okra, French bean, cowpea, Colocasia, planting of ginger and turmeric and also new planting of orchard crops like passion fruit, Khasi mandarin and acid lime.
- Sowing of Khasi Mandarin and acid lime.
- Transplanting of passion fruit.

Tripura

- Planting of banana.

West Bengal

- Land preparation and planting of ginger and turmeric in Terai Zone.
- In Hill Zone, undertake land preparation for new plantation of large cardamom.
- Undertake harvesting of matured sesame in Laterite and Red Soil zone.
- Land preparation and sowing of fruits like guava and coconut in Coastal Saline Zone.
- Sowing of bitter gourd as *kharif* crop.

Andaman & Nicobar

- Raising nursery of vegetable like chilli and brinjal in the upland area of Portblair.
- Prepare the raised bed for sowing of cowpea in double row system.
- Sowing of seeds of bhendi and lobia in raised beds.

Odisha

- Planting of ginger in North Eastern Plateau zone.
- Planting of okra.
- Land preparation and sowing for mixed cropping of fodder maize and cowpea.

Bihar

- Sowing of turmeric in North Bihar utilising realised rainfall.
- Sowing of fodder crops such as *sorghum*, *maize* and *bajra* utilising realised rainfall.
- Nursery preparation for early cauliflower, tomato, chilli and brinjal.

Jharkhand

- Planting of ginger and turmeric.
- Start sowing of *Kharif* fodder like Jowar, Bajra, Tetra Kalai, Dinanath.
- Prepare the seed bed for kharif onion to transplant in this month.

- Sowing of Marua the seed in nursery bed to raise the seedlings.
- Preparation of nursery for early cauliflower, tomato, chilli and brinjal.

Madhya Pradesh

- Continue nursery preparation for *kharif* vegetables like brinjal, tomato, kharif onion, early cauliflower chili etc. in Malwa Plateau Zone. Undertake nursery preparation for merigold and other flower crops.
- Continue sowing of cotton in Satpura Zone. Continue land preparation for nursery sowing of *kharif* onion and cauliflower.
- Continue sowing of cotton in Nimer Valley Zone.
- Undertake land preparation for planting of turmeric and ginger in Central Narmada Valley Zone.
- Continue planting of ginger in Bundelkhand Zone. Undertake seed bed preparation for kharif onion.

Chhattisgarh

- Continue nursery sowing of different vegetables in North Hill Zone.
- Continue digging of pit for the planting of fruit crops like Papaya, Guava, Mango, Litchi, and Pomegranate etc. in North Hill Zone,

Himachal Pradesh

- Continue sowing of bhindi and French bean in Sub-Montane and Low Hills Sub-Tropical Zone and Mid Hills Sub Humid Zone. Continue planting of ginger and turmeric in Low hills. Undertake direct sowing & transplanting of tomato brinjal, chilli and capsicum.
- Continue sowing of fodder maize alongwith cowpeas and soybean in irrigated and rainfed areas. Preferably chari +Bajra crop should be taken.
- continue sowing of pea and planting of potato in High Hill Temperate Dry Zone.

Uttarakhand

- Undertake digging of pit for planting fruit crop. Undertake sowing of okra and nursery sowing of chilli in Bhabar and Tarai Zone. Undertake sowing of short duration variety of cabbage, cauliflower, knol-Khol and Broccoli.

Uttar Pradesh

- Undertake nursery sowing of vegetables like cauliflower, cabbage, brinjal, tomato and chilli in Bundelkhand Zone.

Punjab

- Undertake nursery sowing of cauliflower, Brinjal and *kharif* onion in Western Zone. Undertake sowing of okra.

Haryana & Delhi

Haryana

- Undertake field preparation for sowing of guar (cluster bean), pearl millet (bajra) in Western Zone.

Delhi

Advisories for other crops

- Continue nursery sowing of tomato, chilli and brinjal **in Western Semi Arid Zone.**

❖ National AAS Bulletin based on ERFs is also available at <http://www.imdagrimet.gov.in/erfsview15>

Annexure I

Karnataka

Coastal Karnataka

Rice: for low land Intan, Abhilash and Hemavati, for upland Amrut or Prasanna

South Interior Karnataka

Red gram: TTB-7, BRG-1, 2, 4, 5

Groundnut: TMV-2, JL-24, KCG-6

Ragi: Indaf -9, ML-365

Sesame: Navile-1, T-7

Green gram: PS-16, PDM-84,178

Black gram: Karagao-3, T-9, Rashmi

Cowpea: TVX-944, KBC-1

Castor: DCS-9 (Jyothi), DCH-177 & 32

North Interior Karnataka

Rice: Jaya, Rasi, BPT-5204

Soybean: JS-335, DSB-21

Green gram: BGS-9, Sel-4, S-4, Chainamung & Pusa baisaki

Black gram: DU-1, TAU-1, TU-1

Sorghum: DSV-2, CSV-15, DSV-3, DSV-62, Hybrids – CSH-14, CSH-16, CSH-18

Pigeon pea: BSMR 736, TS-3R

Soybean: JS-335, DSB-1,

Maize Hybrids – DMH-2, Arjun and Private hybrids,

Cotton: DHH-11, NCH-145, NHH-44, DHB-105 and Sahana,

Groundnut: Bunch type varieties GPBD-4, JL-24 and TMV-2, spreading type varieties: DSG-1 and JSP-39

Andhra Pradesh

Coastal Andhra Pradesh

Rice: BPT-5204, vijetha, IR-64 and Bavapuri sannaalu, MTU 1010, MTU 1075, NLR 34449

Maize: DCH-111, DCH-113, DCH-115, Maandhuri & Priya (sweet varieties), DHM 111, DHM 117, DHM-119, KH 510, Bio 9637, KH 9541, MCH 2, Kohinoor, Prabhal and Bisco 855

Red gram: LRG- 38, LRG- 41, laksmi, Abhaya, Asha, Maruthi and PRG-158, LRG 52

Black gram: LBG-752, LBG-20, T-9, LBG-623, PU-31, LB-402, LBG-709 and LBG-787 , TBG 1, GBG 104

Green gram: LGG-407, LGG-460, LGG-450, LGG-410, TM-96-2

Cotton: Cotton Dorasannaalu

Ragi: Bharati, Srichaitanya, Vaula

Groundnut: Kadiri-7 Bold, Kadiri-8, Bold, kadiri-6 Kadiri-9, Kadiri Harithandra, Kadiri Anantha

Rayalaseema

Rice: (MTU 1010, Nellore Masuri in Nellore district

Groundnut: Narayani, Abhaya, Dharani, K-6, Grishma, TPT-4, K-6,

Redgram: L.R.G-30, L.R.G-41, T.R.G-22, LRG-41, PRG-158, PRG-176, Lakshmi, and Asha

Bajra: P.H.B-3, I.C.M.H-356, Dhanashakthi

Korra: Prasad, SIA-3085, Krishnadevaraya, Surya nandi, Narasimharaya, Srilakshmi and SIA 3156

Castor: PCH-111, PCH-222, Haritha, Kiran

Telangana

Jowar: CSH 6,9,10,11, CSV -15, PNV-1

Maize: DHM-101, 103,107 and other private hybrids

Greengram: ML-267, LGG 407,410,450,460

Blackgram: T-9, LGG-20, 623, PBG-1

Red gram: LRG 30, ICPL 8863, 332,87119, 85063

Soybean: JS 335, MACS-13,58

Rice: RNR15048, *kuruvai*, ADT 36, ADT 43, ADT 45 and ADT 47.

Maharashtra

Konkan

Kharif Groundnut: Konkan Gaurav and Trombay Konkan (Tapora), high yielding varieties: TG-26, TAG-24 and TPG-41.

Madhya Maharashtra

Soybean: Phule Kalyani, Phule Agrani (KDS 344), JS 335, MACS 11188, JS 335, Phule Kalyani (DS-228).

Sorghum: Hybrid varieties: CSH 5, CSH 9, CSH 13, CSH 14, CSH 16, CSH 21, CSH 25.

Improved varieties: SPV 462, CSV 13, CSV 15, CSV 17 and CSV 23.

Sweet sorghum: SSV 84, CSV 24 SS, CSV 19 SS.

Groundnut: Phule Morana, Phule Pragati, Phule Vyas, Phule Unnati, Phule RHRG 6021, SB11, TPG41, TG 26.

Rice: Halava: Karjat 184, Ratnagiri 1, Karjat 4, Ratnagiri 711, Phule Radha; Nimgarva: Jaya, Phule Maval, Phule samruddhi, Phule R G -N-6; Garva: Ratnagiri 2, Karjat 2, Daranna, Suvarna; Scented rice: Basmati 370, Indrayani, Prabhavati, Sughandha; Hybrid: Sahyadri 1, Sahyadri 2, Sahyadri 3, Sahyadri 4, Sahyadri 5, K R H 2.

Pearl Millet: Shraddha, Saburi, Phule Shanti or ICTP 8203, ICMV 155.

Pigeon pea: ICPL 87, Vipula, BSMR-853, BSMR-736.

Sunflower: EC 68414, SS 56, Bhanu.

Marathwada

Pigeon pea: rainfed: BDN-2, BDN-708 (Amol), BDN-711, BDN-716; irrigated: BSMR-853, BSMR-736)

Green gram: BM-4, Kopargaon, BPMR-145, BM-2002-01, BM-2003-2,

Black gram: BDU-1, TU-1

Groundnut: JL-24, LGN-2 (Manjra), TLG-45, LGN-1, LGN-123

Maize: early varieties: Paras, Arun, Kiran, Surya; mid late varieties: Navjot, Manjra, DMH-107, KH-9451, MHH, late varieties: Prabhat, Deccan-103, K-2492, Bio-9381, Maharaja

Fodder crops: African Tall, Ganga-5, Vijay and Manjari.

Vidarbha

Red gram: ICPL- 87119 (Asha), C-11

Cotton: desi cotton: AKA-5, 7, 8, American improved varieties: AKH – 081, PKV-Rajat, AKH-8828, hybrid varieties: PKV-DH-1

Sorghum: early duration- CSH-14 and CSH-17, medium duration- CSH-9 SPH-388 and improved- SPV-669.

Green gram: PKV- green gold, PKV mug -8802, TARM-18

Black gram: PKV-15, TAU-1, TAU-2 and TPU-4.

Gujarat

Gujarat Region

Rice: (NAUR-1, GNR-2 (Costal area), GNR-3 (N/V), GNR-4 (long duration), Jaya, Ghujari, GR-5, 7, 8, 9, IR-28 and GAR-13)

Groundnut: semi-spread GG.20 or erect GG.2, GG.5, GG.7 and TG-26

Saurashtra & Kutch

Groundnut: GG-20 & 22, GUG-10, GG-2,11,13, TAG- 24 & 37, TPG-41, TLG-45

Sesame: Guj.Til-1,2,3,10, GT-2 or GT-3

Pigeonpea: BDN-2, Vaishali, GTH-1, GT-100,

Soybean: Guj. Soya. 1,2,3

Castor: GAUCH-1, GCH-4,5,6,7, GC-2,3

Pearl millet: GHB-558,577,538,719,732,744

Green gram: GM-4, K-85

Black gram: T-9, GU-1,

Cow pea: Gujarat Cowpea-1,2,4, Pusa Falguni,

Cotton: early: Bg-II GCH-8, Agritop-333, 777, 444, Jay, Beejdhan-2, Sarju, Atom, Bhakti, Medium Late: Bg-II GCH-6, Agritop-444, Solar-76, Swapna, Mallika

Assam

Bao rice: Maguri, Kekua Bao, Negheri Bao, Tara Bao

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.

Groundnut: Varieties: TG-1A, JL-24

Pigeon pea: T-21

Black pepper: Panniyur-1, and 2, Kalluvali, Karimunda, kottandam, Balankotta

Meghalaya

Sali rice: Shahsarang -1, Lampnah, IR 64, Ranjit, RCPL 1-412, RCPL 1-410, RCPL 1- 411 & local varieties like Mendri, Manipuri

Groundnut: ICGS76 and JL 24

Soybean: JS 335, Bragg, Ankur, Pusa Soybean-1 and Local JS 2

Tripura

Aman rice: Gomati, Ranjeet, Swarna, Naveen

Maize: DMH- 849, 117, HQPM 1, BQPM 9

Groundnut: TAG 24, TG 37A, ICGS 76

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, Cr1019, Sabita.

dry seeded long duration rice: Sabita Foundation, Swarna sub-1 certified, IR-64, Hira T.L.

Guava: Himsagar, Mallicka, Langra for Mango; Safeda, L-49

Coconut: Eastcoastal, Hazari.

Odisha

Rice: Early varieties - Jogesh, Siddant, Hazaridhan, Mandakini, Jyotirmayee, Virendra, Sahabhazi, 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: Sahabhazi, Khandagiri, Udaigiri, Kalinga-3, Jyotirmayee, Mandakini etc.,

Cotton: HYV cotton: Suraj, Supriya, B.S.-30, B.S.-279, Surabhi, Hybrids varieties: Bunny, Diana, Bhaskra, Namaskara, Tulasi, Sigma, Chiruta, Takat etc)

Arhar: Asha, Laxmi, UPAS-120, ICPL-88039

Maize: Shakti-1, Navjot, Decan-107, Decan-109 etc. and hybrids varieties: Megan-G, Megan, MM- 1107, Highshell, Prabal, Proagro 4643, Bio9681, Pinnacle, DMH-7705

Bihar

Rice: Long duration rice- Rajshree, Rajendra sweta, Rajendra Mansuri, BPT-5204, Swarna, Satyam and Kishori), medium duration rice- Seeta, Santosh, Saroj, Rajshri, Prabhat, Rajendra suvasni, Rajendra kasturi

Maize: Devki, Suwan, Shaktimaan-1, Shaktimaan-2, Rajendra Shanker Makka-3 and Ganga 11

Onion: Agrifound Dark Red (ADR), N-53, Bhima Super, Arka Kalyan),

Turmeric: Rajendra Sonia and Rajendra Sonali

Ginger: Maran and Nadia.

Jharkhand

Maize: Birsa Makka-1, Birsa Makka-2, Suwan-1(Hybrid), HQPM (Hybrid)

Rice: Direct seeded upland rice; improved varieties: Vandana, Birsa Vikas Dhan -109 & Birsa Vikas Dhan - 110, medium land rice improved varieties: Anjali, Sahbhazi, Naveen, Lalat, Birsamati, Sugandha, BR-10, Pro-Agro 6444, IR-36, IR-64, low land rice improved varieties Swarna (MTU-7029), Rajshree, Sambha Mahsuri (BPT-5204), Birsa Dhan- 202, Birsamati, Pro-Agro 6444

Pigeon pea: Birsa Arhar (210 days), Bahar (240 Days) and ICPH 2671 (210 days).

Ginger: Vardhaman or Nadia

Turmeric: Rajendera Sonia.

Madhya Pradesh

Rice: Very early maturing: Jawahar Dhan (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, PusaSugandha-3, PusaSugandha-5, Pusa basmati-1, MTU 1010. Long duration: Mahsuri, Swarna

Soybean: Short-duration: JS 93-05, JS 95-60, JS 335, JS 90-4. Medium duration: JS 97-52, JS 20-29, NRC-37, NRC-7, NRC-12.

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- Narendra Tur- 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 Sada Bahar, Punjab Nagina and Punjab Neelam *Kharif* onion: Agrifound Dark Red

Okra: Punjab-8 and Punjab-7

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

Rajasthan

Pearl millet: RHB-121, HHB-67, HHB-60, Raj-171, GHB-538, Pusa-605, RHB-177 in western and eastern Rajasthan

Maize: HQPM-1, HQPM-5, PEHM-1, PEHM-2, Pratap Hybrid-1, Bio-9681, Bio-9637, Navjot, Mahi Kanchan, Pratap Makka-5