

National Agromet Advisory Service Bulletin

Friday 23rd August, 2013

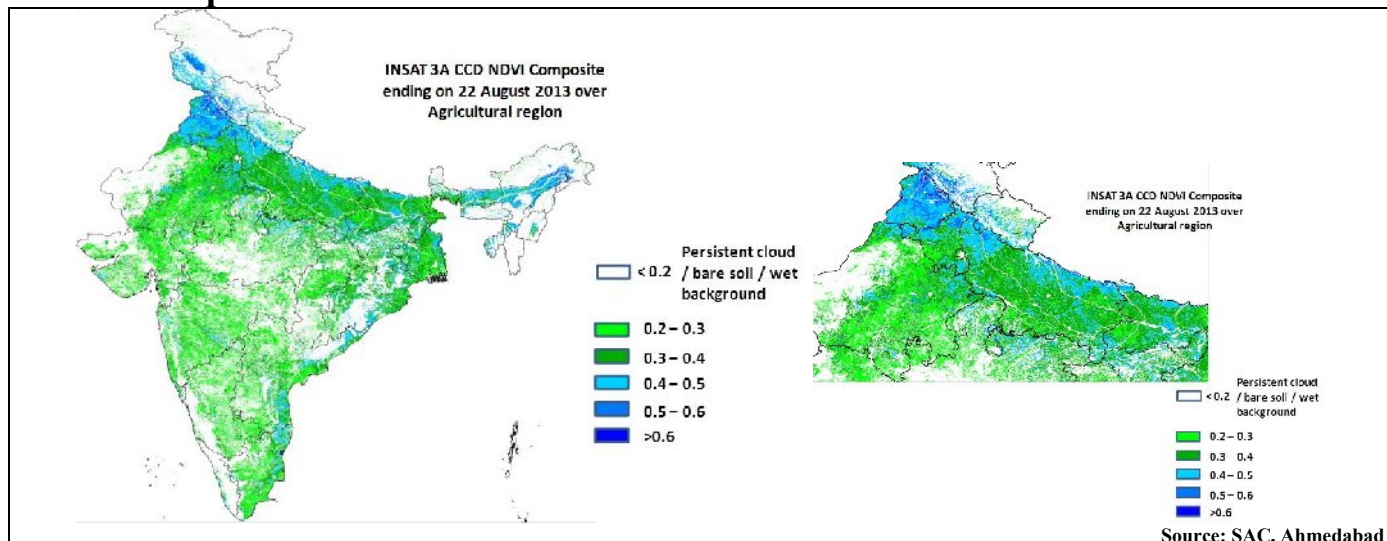
(For the period 23rd to 26th August, 2013)

Issued by

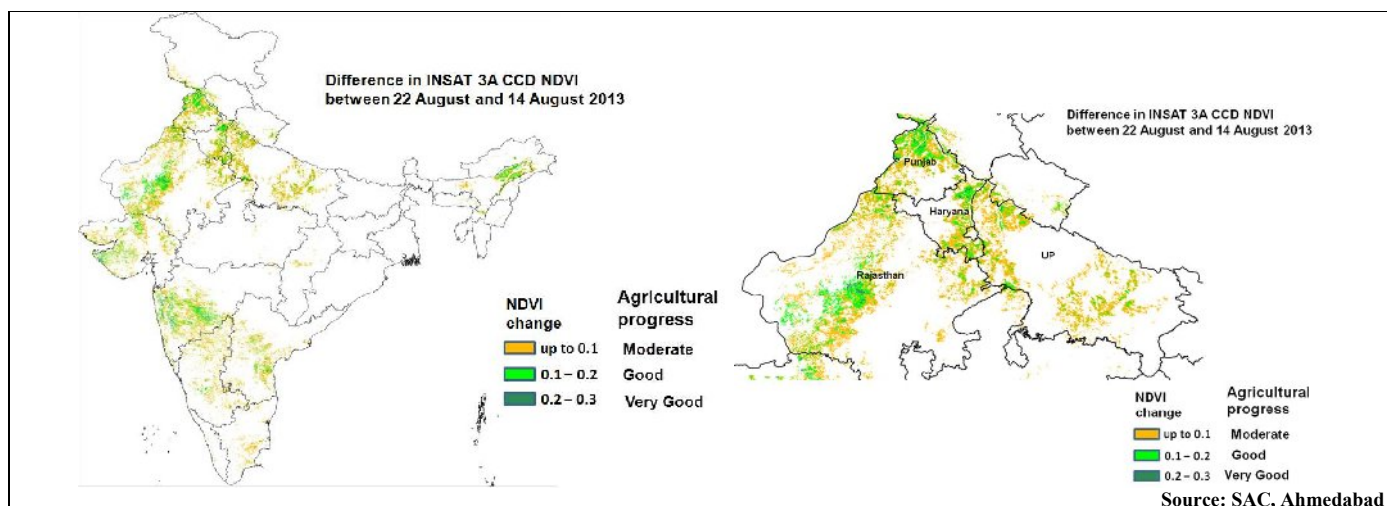
National Agrometeorological Advisory Service Centre, Agricultural Meteorology Division,
India Meteorological Department, Shivajinagar, Pune.



Crop condition based on Rainfall and INSAT 3A CCD NDVI **



Overall Agricultural Situation: Agricultural growth is very good (NDVI greater than 0.4) over Punjab, adjoining Haryana, parts of Rajasthan, western and northern Uttar Pradesh, eastern and western parts of West Bengal, north-eastern states, northern MP, pockets of Saurashtra and central Maharashtra, coastal Andhra Pradesh and Tamil Nadu as NDVI vigour showed more than 0.4 up to 22nd August. Maximum NDVI value was observed over central and north Punjab, Pockets of northern Haryana and western Uttar Pradesh. The growth is good over rest parts of Haryana, Uttar Pradesh, Madhya Pradesh, eastern Rajasthan, Central and Southern Gujarat, pockets of Saurashtra, Maharashtra, West Bengal, Odisha, interior Andhra Pradesh and Tamil Nadu as NDVI vigour showed the range from 0.3 to 0.4. Rest of the country showed moderate growth (NDVI: 0.2 to 0.3).

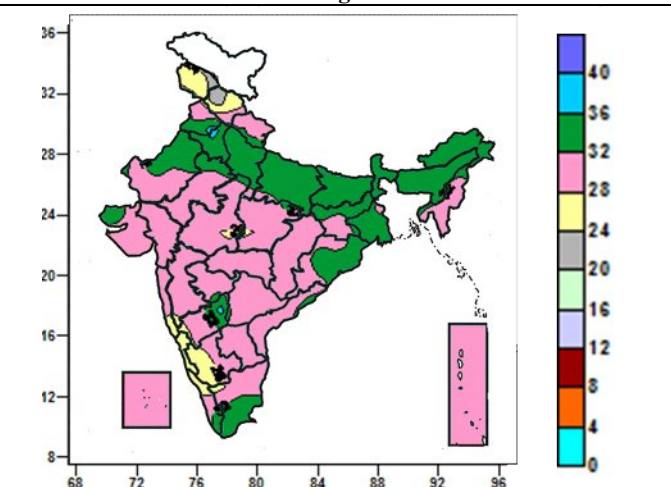
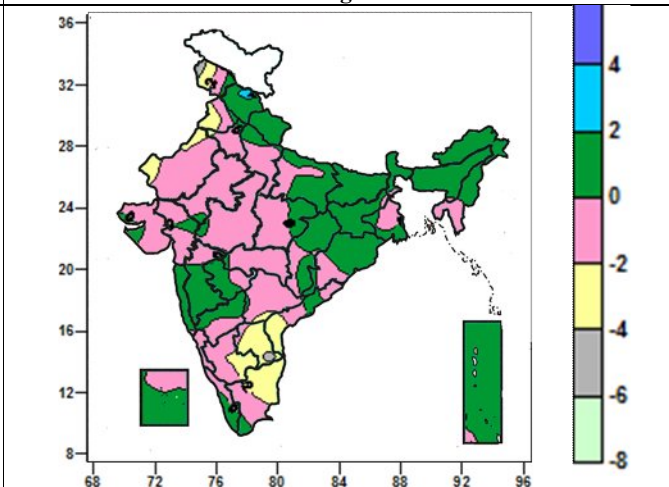
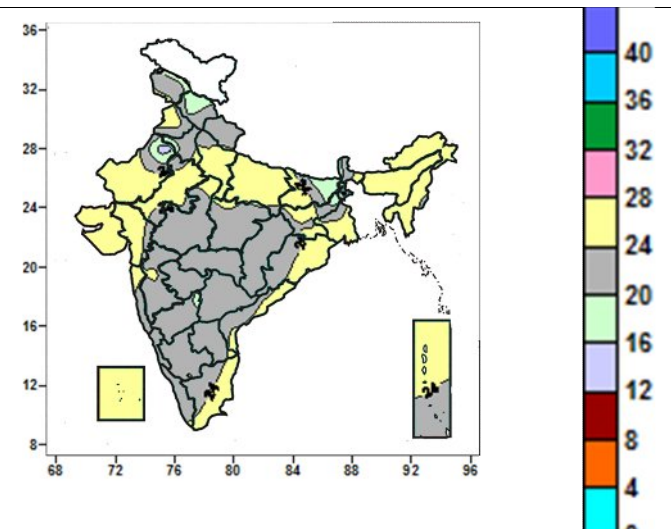
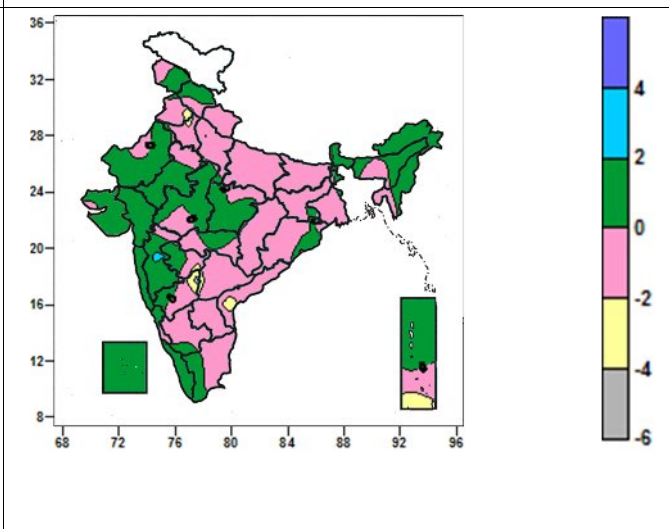


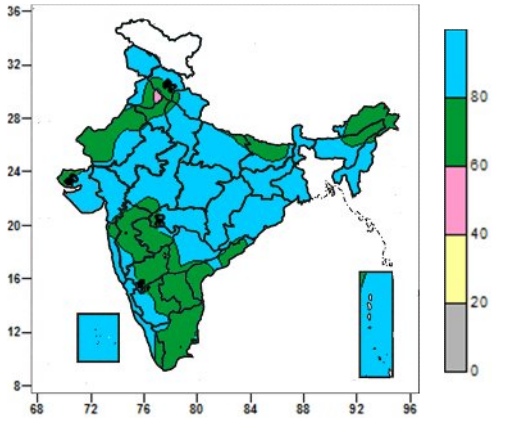
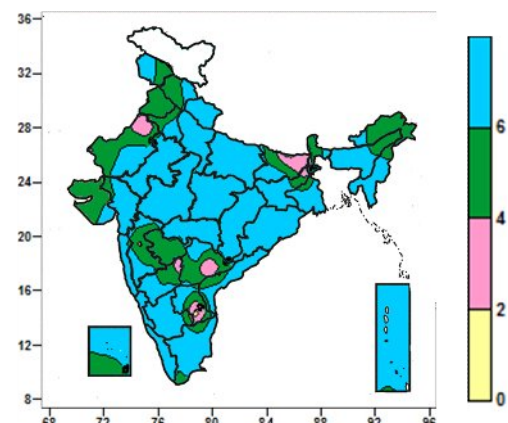
Progress of crop performance during last week: Agricultural progress between 22nd August and 14th August 2013 was found to be good in central Rajasthan, eastern Haryana, north Punjab, western Uttar Pradesh, pockets of Saurashtra, western and central Maharashtra, and pockets of central Andhra Pradesh. Rest of India shows moderate progress.

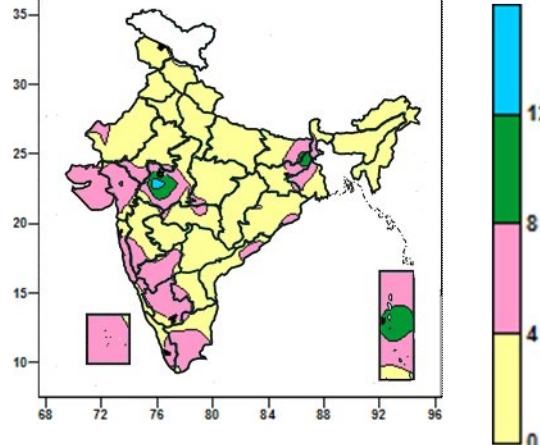
This information is in consistence with the good amount of rainfall received in the above mentioned areas (Annexure II).

** Prepared jointly by Space Application Centre, Ahmedabad and Agricultural Meteorology Division, India Meteorological Department, Pune

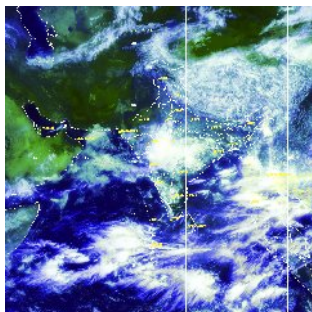
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 21.08.2013

Actual Mean Maximum Temperature (°C) in India for the week ending 21.08.2013	Mean Maximum Temperature (°C) Anomaly in India for the week ending 21.08.2013
 <ul style="list-style-type: none"> • 36 to 40°C over some parts of Punjab, Haryana, North Interior Karnataka. • 28 to 36°C over many parts of the country (except many parts of Jammu & Kashmir, Himachal Pradesh, Goa, Coastal & South Interior Karnataka, some parts of Konkan, Madhya Pradesh, Madhya Maharashtra, North Interior Karnataka, Kerala, Tamil Nadu). • 20 to 28°C over many parts of Jammu & Kashmir, Himachal Pradesh, Goa, Coastal & South Interior Karnataka, some parts of Konkan, Madhya Pradesh, Madhya Maharashtra, North Interior Karnataka, Kerala, Tamil Nadu. 	 <ul style="list-style-type: none"> • -2 to 2°C over many parts of the country (except many parts of Jammu & Kashmir, Punjab, Coastal Andhra Pradesh, Raylaseema, Tamil Nadu, some parts of West Rajasthan, Telangana). • -4 to -2°C over many parts of the country (except many parts of Jammu & Kashmir, Punjab, Coastal Andhra Pradesh, Raylaseema, Tamil Nadu, some parts of West Rajasthan, Telanagana).
Actual Mean Minimum Temperature (°C) in India for the week ending 21.08.2013	Mean Minimum Temperature (°C) Anomaly in India for the week ending 21.08.2013
 <ul style="list-style-type: none"> • 20 to 28°C over entire parts of country (except some parts of Jammu & Kashmir, Himachal Pradesh, West Rajasthan, Bihar, Jharkhand and North Interior Karnataka). • 16 to 20°C over some parts of Jammu & Kashmir, Himachal Pradesh, West Rajasthan, Bihar, Jharkhand and North Interior Karnataka). • 12 to 16°C over some parts of West Rajasthan. 	 <ul style="list-style-type: none"> • 2 to 4°C over some parts Madhya Maharashtra. • -2 to 2°C over all the parts of country (except some parts of Punjab, Haryana, Madhya Maharashtra, Marathwada, North Interior Karnataka, Coastakl Andhra Pradesh, Andaman & Nicobar Islands). • -4 to -2°C over some parts of Punjab, Haryana, Marathwada, North Interior Karnataka, Coastakl Andhra Pradesh, Andaman & Nicobar Islands.

Relative Humidity (%) over India for the week ending 21.08.2013	Cloud amount (okta) over India for the week ending 21.08.2013
	
<ul style="list-style-type: none"> • 80 to 100% over Many parts of Northwest India (except many parts of Himachal Pradesh, Punjab, Haryana, West Rajasthan), East India (except many parts of Bihar), Northeast India (except many parts of Arunachal Pradesh, eastern part of Assam), Central India, Gujarat, Saurashtra & Kutch, West Coast from Konkan to Kerala, South Interior Karnataka, Lakshdweep, Andaman & Nicobar Islands. • 60 to 80 % over many parts of Himachal Pradesh, Punjab, Haryana, West Rajasthan, Bihar, Arunachal Pradesh, eastern part of Assam, Madhya Maharashtra, Marathwada, Interior Karnataka, Andhra Pradesh (Except Telengana), Tamil Nadu. • 40 to 60% over some parts of Punjab. 	<ul style="list-style-type: none"> • 4 to 8 okta over many parts of the country (except some parts of West Rajasthan, Madhya Maharashtra, Bihar, Jharkhand, Telengana, Rayalaseema, North Interior Karnataka). • 2 to 4 okta over some parts of West Rajasthan, Bihar, Jharkhand, Madhya Maharashtra, Telengana, Rayalaseema, North Interior Karnataka. • 0 to 2 okta over some parts of Raylaseema.

Wind speed (knots) over India for the week ending 21.08.2013	
	
<ul style="list-style-type: none"> • 8 to 12 knots over some parts of Bihar, Jharkhand, West Madhya Pradesh, Andaman & Nicobar Islands. • 0 to 8 knots over over country (except some parts of Bihar, Jharkhand, West Madhya Pradesh, Andaman & Nicobar Islands). 	

Yesterday, Southwest monsoon was vigorous over East Madhya Pradesh and active over West Uttar Pradesh, West Madhya Pradesh and Jharkhand.



Satellite image date 23.08.2013, 0530 UTC

Weather Forecast

Weather Forecast for next 3 days (upto 0830 hours IST of 26th August, 2013)

- Rain/thundershowers would occur at most places over Madhya Pradesh during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at many places over Vidarbha, Jharkhand, Chhattisgarh, Odisha, north Madhya Maharashtra and Gangetic West Bengal during next 24 hours and decrease thereafter.
- Rain/thundershowers would occur at many places along west coast, over Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Andaman & Nicobar Islands and Lakshadweep.
- Rain/thundershowers would occur at many places over Himachal Pradesh, Uttarakhand, Gujarat region and East Rajasthan during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at a few places over rest parts of the country outside West Rajasthan, Saurashtra & Kutch, Rayalaseema and Tamilnadu, where it would be isolated.

Weather Warning during next 3 days

23 August: Heavy to very heavy rainfall would occur at isolated places over west Madhya Pradesh. Heavy rainfall would occur at isolated places over east Madhya Pradesh, Vidarbha and Andaman & Nicobar Islands.

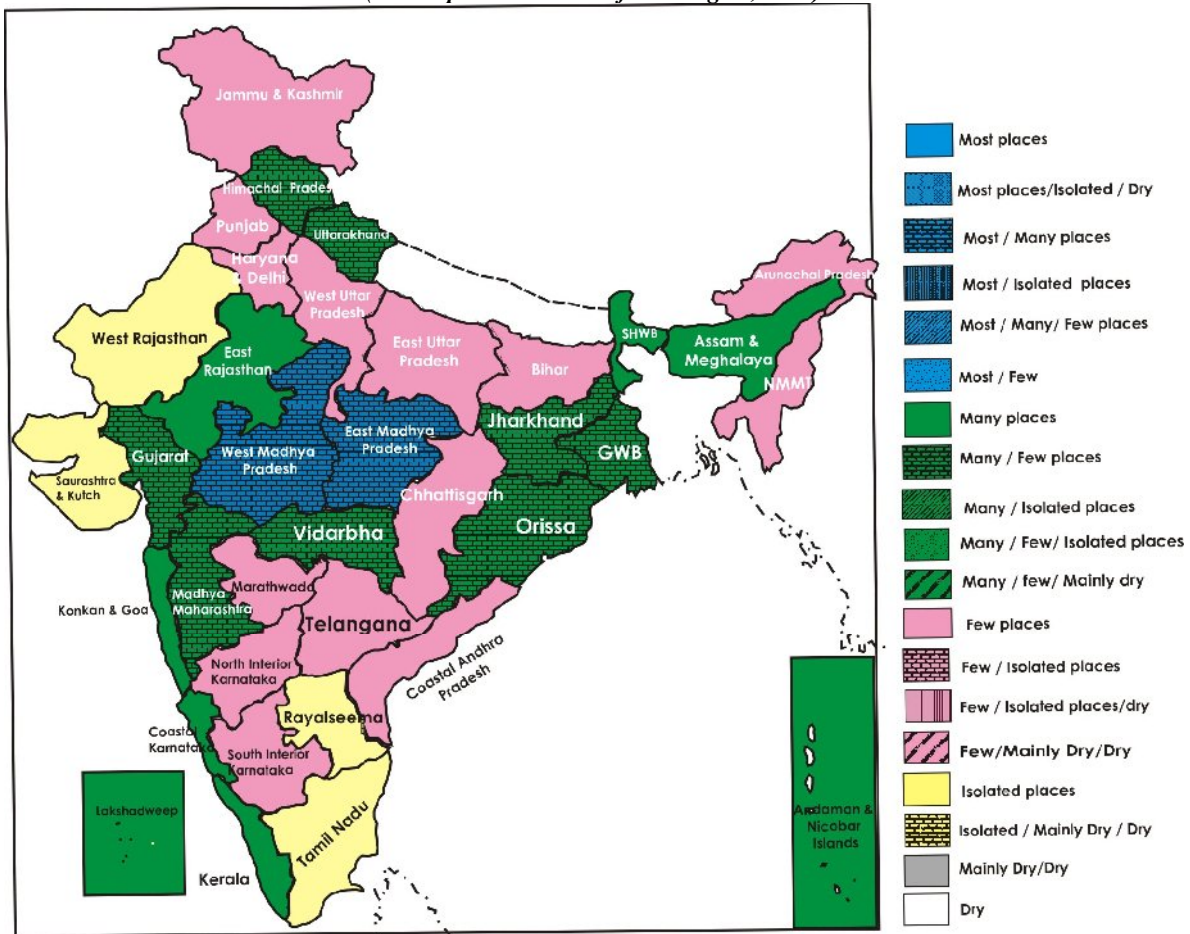
24 August: Heavy to very heavy rainfall would occur at isolated places over west Madhya Pradesh. Heavy rainfall would occur at isolated places over East Rajasthan, Gujarat region and north Madhya Maharashtra.

25 August: Heavy rainfall would occur at isolated places over East Rajasthan.

Weather Outlook for subsequent 4 days from 26th August to 30th August, 2013

- Rain/thundershower would occur at many places over west coast, eastern and northeastern states.
- Rain/thundershower would occur at a few places over central India, Uttar Pradesh, Western Himalayan region and isolated over remaining parts of the country.

*Weather Forecast Map
(Valid upto 0830 hours of 26th August, 2013)*



Salient Advisories

Northeast Region

- In **Assam and Meghalaya**, postpone irrigation, intercultural operations and application of fertilizers and plant protection measures in standing crops.
- Continue sowing of *kharif* sesame, black gram, green gram, and undertake transplanting of finger millet in Lower Brahmaputra Valley Zone and Barak Valley Zone of **Assam**.
- Continue transplanting of *sali* rice in Lower Brahmaputra Valley Zone and Upper Brahmaputra Valley Zone of **Assam**.
- Due to deficient rainfall situation in some parts of Darrang and Udalguri districts of North Bank Plain Zone of **Assam**, transplanting of *sali* rice could not be carried out; farmers are advised to undertake wet seeding of sprouted seeds (@ 75-80 kg/ha) of short duration varieties like Disang, Luit (100 days), Kapili, Kolong (120 days).
- In flood affected areas in Lower Brahmaputra Valley Zone of **Assam**, farmers are advised to undertake transplanting of short duration HYV rice varieties like Luit, Kapili, Kolong, Dishang etc., as these varieties can be transplanted or sown upto 1st week of September. Farmers from the flood affected areas may also select cultivars like Jalashree, Jalkuwari, Plaban etc. which remain alive under water up to 15 days before panicle initiation stage.
- Undertake sowing of green gram and black gram where *Sali* rice could not be sown due to long dry spell in Temperate Sub Alpine Zone of **Meghalaya**.
- In view of deficit rainfall, farmers are advised to apply mulching with locally available weeds to conserve soil moisture in the fields of tomato, brinjal and cucurbits in Sub Tropical Hill Zone of **Arunachal Pradesh**. Farmers are also advised to undertake harvesting of *jhum* rice on a non-rainy day.
- In the upland areas of Sub Tropical Plain Zone of **Manipur**, continue sowing of black gram and planting of onion.
- Complete transplanting of *jhum* rice in **Mizoram**.

South Region

- Undertake intercropping with banana, colocasia and vegetables etc. in coconut gardens in the Southern Zone of **Kerala**.
- In Anantapur district of **Royalaseema**, continue sowing of contingency crops like Jowar, Bajra, Fox tail millet, Green gram, Cow pea, Field bean and Fodder jowar up to end of August instead of delayed sowing of rainfed groundnut crop. Early and late sown groundnut crop are facing moisture stress due to deficient rainfall during previous weeks. Spray 2% potassium nitrate solution in order to recover the crop from stress. Wherever, water is available in farm ponds, provide supplementary irrigation using micro irrigation methods. Also undertake intercultivation with blade harrow for weed control and creating soil/dust mulch, mulch with groundnut shells to prevent moisture loss from soil.
- In **North Coastal Andhra Pradesh**, continue transplanting of rice. Also undertake sowing of cotton, pulses and nursery sowing of chilli.
- Continue transplanting of *kharif* rice in **Southern Transition Zone of Karnataka**. Drain out excess water from onion, groundnut, maize and red gram crop fields in Chickmagalur and Shimoga districts.
- In **North Interior Karnataka** continue sowing of groundnut, castor, red gram and bajra in Raichur, Gulbarga, Yadgir, Koppal and Bellary districts.
- Continue sowing of Bt. cotton and sunflower, transplanting of rice and chilli and undertake harvesting of green gram in the **North East Dry Zone of Karnataka**.
- Continue sowing of maize and planting of sugarcane in the **North Dry Zone of Karnataka** and undertake chilli transplanting in the **North Transition Zone of Karnataka**.
- Continue nursery sowing of *samba* rice, dry sowing of long duration varieties of rice and sowing of rainfed cotton and maize in the **Cauvery Delta Zone of Tamil Nadu**.

West Region

- In **Konkan and Goa**, undertake intercultural operations, application of fertilizers and plant protection measures in rice, finger millets, vegetable fields and mango, cashew and sapota orchards after current spells of rain. Maintain water level upto 5-7 cm in rice fields.
- In **Madhya Maharashtra**, hoeing in late sown crop may be undertaken. Apply protective irrigation to sugarcane, vegetables, groundnut, soybean, cotton and orchards in Ahmednagar, Sangli, Sangli, Satara and Solapur districts and in Eastern parts of Pune district.

- In **Marathwada**, undertake intercultural operations, application of fertilizers and plant protection measures in cotton and red gram. Apply protective irrigation in Aurangabad and Osmanabad districts.
- In **Vidarbha**, undertake intercultural operation, application of fertilizers and plant protection measures in rice, cotton, red gram and pulses after 3 days. Arrange for adequate drainage to remove excess water from the crop fields. Also maintain 5 cm water level in rice field. Continue sowing of contingent crops like sesamum, red gram, sunflower, bajra and castor in parts of Yavatmal, Washim, Chandrapur, Nagpur, Wardha, Amravati districts, where soybean and cotton crops are affected due to heavy rainfall, after current spells of heavy rainfall.
- Complete sowing of castor in **Bhal and Coastal Zone** and **South Gujarat Heavy Rainfall Zone**, sowing of castor and transplanting of vegetables in **North Gujarat Zone** and **Middle Gujarat Zone**.
- In Saurashtra and Kutch region, farmers are advised to undertake mulching in standing crops to conserve soil moisture.

Central Region

- In West **Madhya Pradesh**, drain out excess water from soybean fields. Provide adequate drainage in crop fields. Continue transplanting of rice.
- In **Chhattisgarh** Plain Zone and North Hill Plain Zone, complete transplanting of rice as soon as possible with 2 -3 plants per hill and also maintain 5 cm water level in the field. Complete sowing of maize, jowar, arhar, groundnut, sowing of *kharif* vegetables and nursery sowing of tomato, brinjal and chilli.

East Region

- In **Jharkhand, Odisha** and **West Bengal**, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- In **Odisha**, continue sowing of green gram, black gram, cowpea, sesame, ragi, castor and vegetables. Continue transplanting of rice. Planting of banana, cashewnut and marigold may be undertaken.
- In **Sub-Himalayan West Bengal** and **Gangetic West Bengal**, drain out excess water from standing crops. In Coastal Saline Zone of West Bengal (Purba Medinipur, 24 Parganas (North) and 24 Parganas (South) districts), Old Alluvial Zone and New Alluvial Zone, where water level is very deep in fields, postpone transplanting of rice till flood water recedes. Transplanting operation can be extended up to 1st week of September till the water level will be normal in submerged fields. Drain out excess water from the crop fields.
- In **North West Alluvial Plain Zone of Bihar**, continue direct sowing of short duration varieties of rice in low and medium land areas and continue transplanting of vegetables. In the upland areas of Bihar, where rice crop could not be transplanted, undertake sowing of contingency crops like maize, pigeon pea, sunflower, urad, castor and vegetable crops. In **South Bihar Alluvial Zone**, farmers are advised to continue sowing of urad, maize and small millets, planting of banana, papaya and *kharif* onion.
- In Western Plateau Zone of **Jharkhand**, complete transplanting of rice. In Central & North Eastern Plateau Zone of Jharkhand, continue transplanting of rice and sowing of til, urd, sweet potato and horse gram. In South Eastern Plateau Zone of Jharkhand, areas with fallow land, continue sowing of kulthi. Continue transplanting of rice.

North Region

- In Mild Hills Sub-Humid Zone of **Himachal Pradesh**, provide adequate drainage in soybean, maize and vegetable crop fields.
- In **Uttarakhand**, continue sowing of millets in Hill Zone.
- In **East Uttar Pradesh**, undertake nursery sowing of capsicum, cabbage and tomato. Complete sowing of pigeon pea, urd, moong and sesame.
- In **West Uttar Pradesh**, continue transplanting of brinjal, chilli and onion.
- In Central Plain Zone of **Punjab**, complete sowing of rainy season cucurbits such as bottle gourd, bitter gourd, ash gourd and sponge gourd and nursery sowing of tomato. In Western Plain Zone of **Punjab**, complete transplanting of *kharif* onion seedlings and in undulating Plain Zone, continue sowing of okra. In Western Zone of **Haryana**, continue transplanting of brinjal, tomato, chilli, onion and early cauliflower on ridge and also undertake sowing of onion. In **Delhi**, complete sowing of sweet corn (Madhuri, Vin orange), baby corn (H.M-4), carrot, radish, spinach and coriander. Also undertake transplanting of brinjal, tomato, chilli cauliflower and cabbage.
- In Intermediate Zone of **Jammu & Kashmir**, undertake sowing of carrot, turnip, radish, nursery sowing of cole crops and continue planting of fruit crops *viz.* pear, plum and peach, apple, almond, walnut, pecan nut

etc. In Valley Temperate Zone of Jammu & Kashmir farmers are advised to continue transplanting of cole crops.

- In **East Rajasthan**, continue sowing of radish, nursery raising for mid-season cauliflower and continue transplanting of brinjal and chilli, complete transplanting of papaya seedlings and planting of fruit trees after current spells of heavy rain.
- In **West Rajasthan**, continue planting of aonla, ber, anar, anjeer etc. and complete transplanting of papaya seedlings.

Detailed Zonewise Agromet Advisories

NORTH INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- **Realised Rainfall:** Significant rainfall has occurred in all the districts of Punjab, Haryana, Delhi, Jammu & Kashmir except Srinagar, Ladakh(Leh), Poonch, Pulwama and Kargil districts, Himachal Pradesh except Kinnaur and Lahaul and Spiti districts, East Uttar Pradesh except Kanpur City, Kanpur Dehat and Kushi nagar districts, West Uttar Pradesh except Badaun, Bulandsahar, Mahoba, Pilibhit and Saharanpur districts, Uttarakhand except Haridwar and Champawat districts, East Rajasthan except Banswara, Chittorgarh, Dungarpur, Rajsamand and Udaipur districts, West Rajasthan except Jalore and Pali districts.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Uttarakhand, Himachal Pradesh and East Rajasthan during next 48 hours and decrease thereafter. Rain / thundershowers would occur at a few places over Punjab, Haryana, Delhi, Jammu & Kashmir and Uttar Pradesh and at isolated places over West Rajasthan during the period.
- **Weather Warning:** Heavy rainfall would occur at isolated places over East Rajasthan on 24th and 25th August.
- **Weather Outlook:** Rain / thundershower would occur at a few places over Uttar Pradesh, Jammu & Kashmir, Himachal Pradesh and Uttarakhand and at isolated places over remaining parts of the country.
- **Advisory :**
 - Undertake intercultural operations and application of plant protection measures to the standing crops. In East Rajasthan, arrange for adequate drainage to remove excess water from the crop fields.
 - In Intermediate Zone of Jammu & Kashmir, undertake sowing of carrot, turnip, radish, nursery sowing of cole crops and continue planting of fruit crops viz. pear, plum and peach, apple, almond, walnut, pecan nut etc. In Valley Temperate Zone of Jammu & Kashmir farmers are advised to continue transplanting of cole crops.
 - In Mild Hills Sub-Humid Zone of Himachal Pradesh, provide adequate drainage in soybean, maize and vegetable crop fields.
 - In mild hills sub-humid zone, Sub-mountain & low hills sub-tropical zone of Himachal Pradesh, maintain 5-8 cm water in the rice field for good yields. Arrange for drainage in maize and soybean fields.
 - In East Uttar Pradesh, undertake nursery sowing of capsicum, cabbage and tomato. Complete sowing of pigeon pea, urd, moong and sesame.
 - In West Uttar Pradesh, continue transplanting of brinjal, chilli and onion.
 - In Uttarakhand, continue sowing of millets in Hill Zone.
 - In Delhi, complete sowing of sweet corn (Madhuri, Vin orange), baby corn (H.M-4), carrot, radish, spinach and coriander. Also undertake transplanting of brinjal, tomato, chilli cauliflower and cabbage.
 - In Central Plain Zone of Punjab, complete sowing of rainy season cucurbits such as bottle gourd, bitter gourd, ash gourd and sponge gourd and nursery sowing of tomato.
 - In Western Plain Zone of Punjab, complete transplanting of *kharif* onion seedlings and in undulating Plain Zone, continue sowing of okra.
 - In Western Zone of Haryana, continue transplanting of brinjal, tomato, chilli, onion and early cauliflower on ridge and also undertake sowing of onion.
 - In East Rajasthan, continue sowing of radish, nursery raising for mid-season cauliflower and continue transplanting of brinjal and chilli, complete transplanting of papaya seedlings and planting of fruit trees after current spells of heavy rain.
 - In West Rajasthan, continue planting of aonla, ber, anar, anjeer etc. and complete transplanting of papaya seedlings.
 - In East Uttar Pradesh, weather is congenial for attack of white fly and mites in cucurbits, brinjal and chilli; spray Dicofol @ 2 ml / litre on a non-rainy day.
 - In West Uttar Pradesh, due to moist weather yellow mosaic is observed in arhar, moong and urad; spray Emidacloroprid @ 400 g / ha on a non-rainy day.
 - In Bhabar and Tarai Zone of Uttarakhand, weather is congenial for stem borer and leaf folder insects in rice fields; broadcast 10 kg Phipronil 0.3G or 8 kg Phipronil 0.4G or 8 kg Cartop Hydrochloride 4G per acre on a non-rainy day.
 - In Sub-humid sub-tropical zone of Uttarakhand, weather is congenial for attack of leaf hopper. If Yellow scratches appear on the leaf surface, spray Methyl Parathion 50 EC @ 1.0 litre / ha or Phosphomedon 100EC @ 300 ml / ha or Dimethoate 30 EC @ 1.25 litre / ha after current spells of rain.
 - Due to continuous cloudy sky, groundnut may be affected by leaf spot disease in Semi Arid Eastern Plain Zone of Rajasthan. Spray Bavistin @ 0.5 g or Mencozeb @ 2 g per litre water.
 - In Himachal Pradesh, weather is congenial for rice blast; spray the crop with 750 g Bavistin 50 WP or 750 ml Hinosan in 750 litres of water / ha.
 - Stages of major crops are mentioned in Annexure I.

➤ Varieties are mentioned in Annexure III.

• **Animal Husbandry**

➤ In Mid Hills Sub-Humid Zone of Himachal Pradesh, cattle and buffaloes must be vaccinated against *Haemorrhagic Septicaemia*. There are chances increase of endo and ecto parasite infestation during this period in grazing as well as farm animals which results in severe losses. Deworming of animals should be done in this period. Single dose of Ivermectin tablet @10 mg / 50 kg body weight must be given to the animals and the dose should be repeated after 21 days with same dose rate.

➤ In Semi Arid Eastern Plain Zone of Rajasthan, protect domestic animals from rain. Do not allow water to stagnate in their sheds. Go for vaccination of animals

• **Floriculture**

➤ In Flood Prone Eastern Plain Zone of Rajasthan, continue transplanting of marigold, balsam and zenia.

➤ In Himachal Pradesh, undertake planting of marigold, cosmos, glardia, gomphrina, balsam and zenia after current spell of rain.

CENTRAL INDIA [M.P., CHHATTISGARH]

• **Realised Rainfall:** Significant rainfall occurred in all districts of Chhattisgarh, in Madhya Pradesh except Alirajpur, Badwani, Burhanpur Dhar, Harda Indore, Jhabua, Khandwa, Mandsaur, Khargone, Ratlam and Ujjain districts.

• **Weather forecast:** Rain/thundershowers would occur at most places over Madhya Pradesh during next 48 hours and decrease thereafter and at many places over Chhattisgarh during next 24 hours and decrease thereafter.

• **Weather Warning:** Heavy to very heavy rainfall would occur at isolated places over west Madhya Pradesh on 23rd and 24th August.

• **Weather Outlook:** Rainfall/thundershower would occur at a few places over the region.

• **Advisories:**

➤ In Madhya Pradesh and Chhattisgarh, postpone irrigation, intercultural operations, application of fertilizers and plant protection measures in standing crops.

➤ In Kymore Plateau and Satpura Hill Zone, Satpura Plateau Zone of Madhya Pradesh, drain out excess water from soybean fields. Provide adequate drainage in crop fields. Continue transplanting of rice.

➤ In Central Narmada Valley Zone of Madhya Pradesh, continue transplanting of vegetable crops like chilli, tomato, brinjal and cauliflower and planting of papaya and mango. Provide adequate drainage in crop fields.

➤ Due to continuous rain in Malwa Plateau Zone of Madhya Pradesh, maize and sorghum crops have been damaged. If the damage is severe, farmers are advised to undertake contingent crops like safflower and sunflower after spells of heavy rain.

➤ In Chhattisgarh, complete sowing of maize, jowar, arhar, groundnut, sowing of *khari* vegetables and nursery sowing of tomato, brinjal and chilli.

➤ In Chhattisgarh Plain Zone and North Hill Plain Zone, complete transplanting of rice as soon as possible with 2-3 plants per hill and also maintain 5 cm water level in the field.

➤ Due to humid and cloudy weather, there may be chance of occurrence of yellow vein mosaic in soybean, urad, moong crops in Kymore Plateau and Satpura Hill Zone and Bundelkhand Zone of Madhya Pradesh. Farmers are advised to uproot the affected plants and bury them.

➤ In Central Narmada Valley Zone of Madhya Pradesh, soybean crop is particularly infested by sap sucking insects and girdle beetle. Chlorpyrifos @ 1 lit./ha or Quinalphos @ 1.5 lit/ha may be sprayed to control insect pest after current spells of rain.

➤ In Kymore Plateau of Madhya Pradesh, present weather is congenial for the attack of sucking pest in soybean and attack of stem borer in maize, spray Trizophos @ 1.5 ml per litre of water for control of sucking pest, Florudon 4 G 2-3 kg/ha for stem borer after current spells of rain.

➤ Due to heavy rainfall in Central Narmada Zone of Madhya Pradesh, guava plants are infested by stem borer and papaya plants by root rot and stem rot, spray carbosulfan @ 2 ml/lit of water for control of stem borer and Copper Sulphate or Blitox @ 3 g/lit. of water root rot and stem rot after current spells of rain.

➤ In North Hill Plain Zone of Chhattisgarh, there is chance of attack of cut worm/army worm in rice, if there is attack, spray Quinalphos @1 litre/ha or Monoprotophos 1.5 to 2 ml/litre of water after current spells of rain.

➤ Stages of major crops are mentioned in Annexure I.

➤ Varieties are mentioned in Annexure II

• **ANIMAL HUSBANDRY & POULTRY**

➤ Farmers of Madhya Pradesh are advised that due to humid weather condition, cattle should be kept in dry and clean places and create smoke in evening to save them from mosquitoes and bees and undertake vaccination to protect the animals from mouth and jahari fever disease.

- Farmers of Madhya Pradesh are advised to provide dry feed along with green feed in (50:50) ratio and 20-30 g mineral mixture and salt for the dairy animal's every day in this humid and rainy weather condition.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL & SIKKIM]

- **Realised Rainfall:** Significant rainfall occurred in all districts of Jharkhand, Sub Himalayan West Bengal, Sikkim and Gangetic West Bengal; in all districts of Odisha except Kendrapara, in many districts of Bihar except Begusarai, Bhagalpur, Buxar, Katihar, Khagaria, Lakhisarai, Madhepura, Madhubani, Monghyar, Muzaffarpur, Saharsa, Samastipur, Saran, Siwan and Vaishali.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Jharkhand, Odisha and Gangetic West Bengal during next 24 hours and decrease thereafter. Rain/thundershowers would occur at many places over Sub-Himalayan West Bengal & Sikkim and at a few places over Bihar.
- **Warning:** nil
- **Weather Outlook:** Rain/thundershower would occur at many places over the region.
- **Advisories:**
 - In Jharkhand, Odisha and West Bengal, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - In Odisha, continue sowing of green gram, black gram, cowpea, sesame, ragi, castor and vegetables. Continue transplanting of rice. Planting of banana, cashewnut and marigold may be undertaken as weather is optimum for the same.
 - In North West Alluvial Plain Zone of Bihar, continue direct sowing of short duration varieties of rice in low and medium land areas and continue transplanting of vegetables. In view of deficient/scanty rainfall situation in Bihar during recent weeks, transplanting of rice in upland areas should be avoided. In the upland areas, where rice crop could not be transplanted, undertake sowing of contingency crops like maize, pigeon pea, sunflower, urad, castor and vegetable crops. Undertake sowing of radish and pointed guard. Undertake intercultural operation in already sown pigeon pea, turmeric, yam bean and vegetable crops. Undertake weeding in cauliflower and apply urea@50 kg per hectare after weeding.
 - In South Bihar Alluvial Zone, farmers are advised to continue sowing of urad, maize and small millets, planting of banana, papaya and *kharif* onion. Undertake intercultural operation in *kharif* vegetables, *kharif* fodder and apply nitrogenous fertilizer.
 - In North East Alluvial Zone of Bihar, apply irrigation to standing crops in Katihar, Khagaria, Madhepura and Saharsa districts as rainfall is deficient. To prevent sheath blight in rice spray hexaconazole@01ml/one lit.of water on a non rainy day.
 - In Western Plateau Zone of Jharkhand, complete transplanting of rice. In fallow land areas farmers may sow the crop like kulthi and niger. Maintain well drainage system in the field of all crops except rice field. If the seedlings of rice are overaged, the upper part may be pruned (about 2-3 inch). In case of late transplanting, reduce the dose of fertilizer 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. Prepare field for early potato and green peas.
 - In South Eastern Plateau Zone of Jharkhand, areas with fallow land, continue sowing of kulthi. Continue transplanting of rice. Staking should be done in cowpea, sponge gourd and bottle gourd.
 - In Central & North Eastern Plateau Zone of Jharkhand, continue transplanting of rice and sowing of til, urd, sweet potato and horse gram. In transplanted rice crop, spray Butachlor(50% a.i.) @ 600 g / 250 litre of water at 5 to 6 DAT and in 20 to 25 days standing crop apply 2,4-D(80%) @ 250 g / 250 litre of water solution per acre and maintain water in field.
 - In Coastal Saline Zone of West Bengal, postpone transplanting of *Aman* rice and tomato till flood water recedes. Keep the nursery seedlings safely for transplanting later. In already transplanted fields drain out excess water.
 - Complete transplanting of *Aman* rice within this week in Laterite and Red Soil Zone, New Alluvial Zone, Terai Zone and Old Alluvial Zone of West Bengal and drain out stagnant water from the field. Transplant the seedling of early cabbage and cauliflower in high land of Terai Zone and drain out excess water. Complete the harvesting and retting operation of jute in New Alluvial Zone, and Old Alluvial Zone of West Bengal.
 - In Sub-Himalayan West Bengal and Gangetic West Bengal, drain out excess water from standing crops. In Coastal Saline Zone of West Bengal (Purba Medinipur, 24 Parganas districts), Old Alluvial Zone and New Alluvial Zone, where water level is very deep in fields, postpone transplanting of rice till flood water recedes. Transplanting operation can be extended up to 1st week of the September till the water level will be normal in submerged fields. Drain out excess water from the crop fields.
 - Due to cloudy weather, high temperature and humid condition in Laterite and Red Soil Zone of West Bengal, fungal and bacterial diseases may be attack in maize, fruit and shoot borer in brinjal and okra, leaf blight in tomato and chilli/capsicum. For fungal attack spray Mancozeb (2.5g) and in case of bacterial rot spray Streptocycline (0.1g per litre of water), for fruit and shoot borer spray Malathion @ 2 ml per liter of water and for leaf blight Mancozeb 75% @ 2.5 gm after current spell of rain.

- In South Eastern Plateau Zone of Jharkhand, due to intermittent rain, there are chances of leaf eating and sucking pests in arhar, spray Monocrotophos @ 1 ml per liter of water by mixing Teepol @ 0.5 ml per liter of water after current spells of rain. Present weather condition is also conducive for the occurrence of pests like hairy caterpillar in groundnut, apply Dichlorvos @ 0.5 ml per liter of water in early stage of caterpillar and for the control of adult caterpillar, provide bamboo perch for birds.
 - In Western Plateau Zone of Jharkhand, attack of stem borer is noticed. Spray Monocrotophos 36 E.C. @ 1-2 ml per litre of water and mix Teepol in the solution or prepare the solution in soap water. In case of heavy infestation, apply granular insecticide like Carbofuran 3 G @ 12 kg per acre or Forate 10 G (@ 4 kg per acre with stagnated water in the field.
 - In Jagatsingpur district of East and South Eastern Coastal Plain Zone of Odisha, maize crop has been infested with stem borer. Apply 1 g Furadan in the leaf whorl or spray 2 ml chloropyriphos or 1.5 ml phosphamidon per litre water after current spells of rain. Repeat the spraying after 15 days of first spraying. In groundnut, hairy caterpillar has been occurred, apply 10-12 kg Chloropyriphos or spray 400 ml Quinalphos and Endosulphan in 200 liter water after current spells of rain. Infestation of early shoot borer has occurred in sugarcane, spray 2.5 ml Monocrotophos per litre water after current spells of rain.
 - In rainfall deficit areas of Puri and Kendrapara districts of East and South Eastern Coastal Plain Zone of Odisha, white ant attack in groundnut has been found. Undertake soil drenching with 2 ml Chloropyriphos per litre of water thoroughly. Leaf minor has also occurred, spray 2 ml Chloropyriphos /litre of water.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- Farmers in South Bihar Alluvial Zone are advised to provide butocus medicine to animal to protect them from parasites and give them food with 50-60 gram minerals.
 - Farmers in North West Alluvial Plain Zone of Bihar are advised to vaccinate their cattle to protect from contagious diseases under current weather condition.
 - Farmers in South Eastern Plateau Zone of Jharkhand are advised to protect livestock from H.S., Ranikhet, foot rot and parasitic load by taking proper preventive measures

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- **Realised Rainfall:** Significant rainfall occurred in East Siang, Lohit, Tawang and Tirap districts of Arunachal Pradesh, Cachar, Dhubri, Dibrugarh, Hailakandi, Kamrup (Rural), Karimganj, Kokrajhar, Morigaon, N.C.Hills, Nowgaon, Nalbari, Sibsagar and Tinsukia districts of Assam, East Khasi Hills, Jaintia Hills, Ribhoi and West Garo Hills districts of Meghalaya, Aizwal, Lawngtlai, Lunglei, Saiha and Serchhip districts of Mizoram, Churachandpur, Imphal East and Thoubal districts of Mizoram and Kohima district of Nagaland and all districts of Tripura.
- **Weather Forecast:** Rain / thundershowers would occur at many places over Assam and Meghalaya and at a few places over remaining parts of the region.
- **Weather Warning:** Nil
- **Weather Outlook:** Rainfall / thundershower would occur at many places over the States of the region.
- **Advisories:**
 - In Assam and Meghalaya, postpone irrigation, intercultural operations and application of fertilizers and plant protection measures in standing crops.
 - Continue transplanting of *sali* rice in Lower Bramhaputra Valley Zone and Upper Bramhaputra Valley Zone of Assam.
 - Continue sowing of *kharif* sesame, black gram, green gram, and undertake transplanting of finger millet in Lower Bramhaputra Valley Zone and Barak Valley Zone of Assam.
 - In flood affected areas in Lower Bramhaputra Valley Zone of Assam, farmers are advised to undertake transplanting of short duration HYV rice varieties like Luit, Kapili, Kolong, Dishang etc., as these varieties can be transplanted or sown upto 1st week of September. Farmers from the flood affected areas may also select cultivars like Jalashree, Jalkuwari, Plaban etc. which remain alive under water up to 15 days before panicle initiation stage.
 - Due to deficient rainfall situation in some parts of Darrang and Udalguri districts of North Bank Plain Zone of Assam, transplanting of *sali* rice could not be carried out; farmers are advised to undertake wet seeding of sprouted seeds (@ 75-80 kg/ha) of short duration varieties like Disang, Luit (100 days), Kapili, Kolong (120 days).
 - In Dhemaji, Lakhimpur and Sonitpur districts of North Bank Plain Zone of Assam, if there is total damage of seedlings or crops in the main rice field due to flood, immediately undertake sowing of short duration cultivars like Luit, Kapilee and Dishang in the nursery bed at the earliest and undertake transplanting of 20-21 days old seedlings up to mid September. Sprouted seeds of the Luit, Kapilee, Dishang etc. can also be sown in the main field after receding of the flood water. In partially affected fields, drain out excess water and apply 1/3rd dose of N₂ + half dose of K₂O as top dressing during the tillering stage.

- Farmers in flood affected areas of Upper Brahmaputra Valley Zone of Assam are advised to undertake transplanting of cultivars like Jalashree, Jalkuwari, Plaban etc. which remain alive under water up to 15 days before panicle initiation stage.
- In view of deficit rainfall, farmers are advised to apply mulching with locally available weeds to conserve soil moisture in the fields of tomato, brinjal and cucurbits in Sub Tropical Hill Zone of Arunachal Pradesh. Farmers are also advised to undertake harvesting of *jhum* rice on a non-rainy day.
- In the upland areas of Sub Tropical Plain Zone of Manipur, continue sowing of black gram and planting of onion.
- Undertake sowing of green gram and black gram where *Sali* rice could not be sown due to long dry spell in Temperate Sub Alpine Zone of Meghalaya.
- Complete transplanting of *jhum* rice in Mizoram.
- Due to favourable weather conditions there is chance of attack of leaf folder and rice hispa in seedling and tillering stage of *sali* rice in Upper Brahmaputra Valley Zone and North Bank Plain Zone of Assam and rice hispa in *sali* rice in Central Brahmaputra Valley Zone of Assam. Farmers are advised to spray Chloropyrifos 20 EC @ 1 ml per liter of water or Monocrotophos 40 EC @ 1.5 ml per liter of water after current spells of rain.
- Due to cloudy and humid weather in Mild Tropical Plain Zone of Tripura, there is a chance of occurrence leaf blight in maize. Apply Zineb @ 3 g per liter of water to control leaf blight. There is also chance of infestation of sheath blight in *jhum* rice and sheath and leaf blight in *aman* rice due to humid weather. Apply bio agent like *Seodomonous flurensense* or *Trichoderma viridi* or *Chetomyum globosum* @ 6 to 8 ml per liter of water on a non rainy day.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.

• **Animal Husbandry**

- In flood affected areas of Assam, provide adequate clean drinking water to cattle and poultry. It is also advised to administer proper vaccination schedule to protect the cattle from viral and bacterial diseases. Farmers are advised to protect the fishes by restricting intrusion of unwanted fishes through flood water by putting nylon net or bamboo net around the unit.
- Farmers in the States of the region are advised that live stocks like cattle, goat and pigs should be vaccinated against BQ, HS, Foot and mouth disease as well as anthrax disease. They should not be fed with water submerged rotten grass and give anti-worm drugs. Poultry birds should be fed with antibiotics and vitamins.
- In Sub Tropical Hill Zone of Arunachal Pradesh, in present weather conditions, ensure proper ventilation in poultry sheds during day time. Provide adequate potable water to poultry.
- In Mild Tropical Plain Zone of Tripura, weather is favourable for endoparasitic disease in cattle and goat; deworm animals against such disease.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** All the districts in Konkan, Kolhapur and Nasik districts in Madhya Maharashtra, Latur and Nanded districts in Marathwada, Bhandara, Chandrapur, Gadchiroli, Gondia, Nagpur, Wardha, Yeotmal districts in Vidarbha received significant rain during last week. Significant rainfall occurred in many districts of Gujarat State (except Ahmedabad, Baroda, Broach, Dahod, Dangs, Kheda, Mehsana, Surat district of Gujarat region and Amreli, Bhavnagar, Junagadh, Jamnagar and Surendranagar districts of Saurashtra and Kutch region).
- **Weather Forecast:** Rain / thunder showers would occur at many places in Konkan and Goa, at a few places over South Madhya Maharashtra and Marathwada and at isolated places over Saurashtra and Kutch. Rain / thunder showers would occur at many places in North Madhya Maharashtra and Vidarbha during next 24 hours and decrease thereafter. Rain / thundershowers would occur at many places over Gujarat region during next 48 hours and decrease thereafter.
- **Weather Warning:** Heavy rainfall would occur at isolated places over Vidarbha on 23rd August and over Gujarat region and North Madhya Maharashtra on 24th August.
- **Weather Outlook:** Rain / thundershower would occur many places over Konkan & Goa, at a few places over Vidarbha and at isolated places over rest parts of the region.
- **Advisories:**
 - In Konkan and Goa, undertake intercultural operations, application of fertilizers and plant protection measures in rice, finger millets, vegetable fields and mango, cashew and sapota orchards after current spells of rain. Maintain water level upto 5-7 cm in rice fields.
 - In North Madhya Maharashtra, undertake intercultural operations, application of fertilizers and plant protection measures in cotton, jowar and red gram after current spells of rain. Maintain water level of 5 cm in rice fields. Start plucking of already matured green gram pods after current spells of rain. In view of likely occurrence of heavy rainfall on 24th August, arrange for adequate drainage to remove excess water from the crop fields.

- In Madhya Maharashtra, hoeing in late sown crop may be undertaken. Apply protective irrigation to sugarcane, vegetables, groundnut, soybean, cotton and orchards in Ahmednagar, Sangli, Sangli, Satara and Solapur districts and in Eastern parts of Pune district.
- In Marathwada, undertake intercultural operations, application of fertilizers and plant protection measures in cotton and red gram. Apply protective irrigation in Aurangabad and Osmanabad districts.
- In Vidarbha, undertake intercultural operation, application of fertilizers and plant protection measures in rice, cotton, red gram and pulses after current spells of rain. As heavy rain is likely to occur on 23rd August, arrange for adequate drainage to remove excess water from the crop fields. Also maintain 5 cm water level in rice field. Continue sowing of contingent crops like sesamum, red gram, sunflower, bajra and castor in parts of Yavatmal, Washim, Chandrapur, Nagpur, Wardha, Amravati districts, where soybean and cotton crops are affected due to heavy rainfall, after current spells of heavy rainfall.
- In view of likely occurrence of rain at many places, undertake intercultural operation, application of fertilizers and plant protection measures in standing crops after current spells of rain in Gujarat region. In view of likely occurrence of heavy rainfall on 24th August, arrange for adequate drainage to remove excess water from the crop fields.
- In Saurashtra and Kutch region, undertake mulching in standing crops to conserve soil moisture.
- Complete sowing of castor in Bhal and Coastal Zone and South Gujarat Heavy Rainfall Zone, sowing of castor and transplanting of vegetables in North Gujarat Zone and Middle Gujarat Zone.
- Taking the advantage of less possibility of rain, apply chemical fertilisers as top dressing @ 12.5 kg N / ha i.e. 27 Kg Urea / ha in sesame and @ 75-50-0 kg / ha as basal dose in castor in South Saurashtra Zone.
- Carry out plantation of sapling / grafting of horticultural crops like aonla, clustard apple, pomegranate, mango, sapota and papaya in North Gujarat Zone after current spells of heavy rain.
- Humid weather with temperature around 24-28^oC is congenial for infestation of tikka and rust on groundnut in Pune region; spray Mancozeb @ 25 g per 10 litres of water on a non rainy day.
- Humid and cloudy weather is favourable for the attack of leaf folder on red gram in Marathwada; spray Dimethoate 30 % @ 10 ml per 10 litres of water.
- Due to continuous rainfall and cloudy condition prevailed in South Gujarat Heavy Rainfall Zone, there is infestation of hairy caterpillar in pulses; spray 15 ml Monocrotophos in 10 liters of water after spells of rain and at an interval of 15 day to control the pest.
- Cloudy weather and humid condition is favourable for incidence of sucking pests in vegetables in North Gujarat Zone, South Gujarat Heavy Rainfall Zone and North Saurashtra Zone; spray Emidachoprid or Thiomethoxam 4 ml / 10 liter water after current spells of rain to control the pest.
- Due to cloudy weather in South Gujarat Zone, there are chances of incidences of sucking pests in cotton; farmers are advised to spray Emidacloprid or Thiomothoxam @ 4 ml per 10 liter of water after current spells of rain.
- Stages of the crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.

● **Animal Husbandry**

- Keep animals indoor during rainfall and keep fodder in safe place to avoid spoilage due to rainfall. Make arrangement for artificial light in poultry farm. Vaccinate animals against FMD and BQ to avoid disease outbreak.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

- **Realized rainfall:** Significant rainfall occurred in most of the districts in Kerala except in Allapuzha, Kollam and Thiruvananthapuram districts; most of the districts in Coastal Andhra Pradesh except Srikakulam district; most of the districts in Rayalaseema except Anantpur district; all the districts in Telangana; all the districts in Coastal Karnataka; Bidar, Koppal, Raichur and Yadgir districts in North Interior Karnataka, Bangalore Rural and Urban, Chickballapur, Chickmagalur, Davangere, Kodagu, Ramanagara and Shimoga districts in South Interior Karnataka and Ariyalur, Chennai, Cuddalore, Kancheepuram, Nagapattinam, Perambalur, Puducherry, Pudukottai, Sivaganga, Thanjavur, Thiruvallur, Thiruvannamalai, Thiruvarur, Vellore and Villupuram districts in Tamil Nadu. No significant rainfall occurred in the remaining parts of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at many places along Coastal Karnataka, Kerala, Andaman & Nicobar Islands and Lakshadweep. Rain/thundershowers would occur at a few places over rest parts of the region outside Rayalaseema and Tamilnadu, where it would be isolated.
- **Warning:** Nil
- **Weather Outlook:** Rain/thundershower would occur at many places over Kerala, Coastal Karnataka, at a few places over remaining parts of the region..
- **Advisories:**
 - Due to continuous rainfall in Kerala, weed problems may arise in the transplanted rice fields. Control the weeds using suitable weedicides after current spells of rain.

- Farmers in the South Telangana Zone are advised to apply urea at 25-30 days after sowing as top dressing in cotton and maize crops.
 - In North Coastal Andhra Pradesh, continue transplanting of rice. Also undertake sowing of cotton, pulses and nursery sowing of chilli.
 - In Anantapur district of Rayalaseema, continue sowing of contingency crops like Jowar, Bajra, Fox tail millet, Green gram, Cow pea, Field bean and Fodder jowar up to end of August instead of delayed sowing of rainfed groundnut crop. Early and late sown groundnut crop are facing moisture stress due to deficient rainfall during previous weeks. Spray 2% potassium nitrate solution in order to recover the crop from stress. Wherever, water is available in farm ponds, provide supplementary irrigation using micro irrigation methods. Also undertake intercultivation with blade harrow for weed control and creating soil/dust mulch, mulch with groundnut shells to prevent moisture loss from soil.
 - Undertake sowing of short duration pulse crops like black gram, cowpea, field bean and horse gram in the Eastern Dry Zone of Karnataka.
 - Continue sowing of Bt. cotton and sunflower, transplanting of rice and chilli and undertake harvesting of shattering varieties of green gram in the North East Dry Zone of Karnataka.
 - Harvest green gram in the North East Transition Zone of Karnataka.
 - Continue sowing of maize and planting of sugarcane in the North Dry Zone of Karnataka and undertake chilli transplanting in the North Transition Zone of Karnataka.
 - Continue transplanting of *kharif* rice in Southern Transition Zone of Karnataka. Drain out excess water from onion, groundnut, maize and red gram crop fields.
 - Undertake sowing of two thick rows of sorghum or maize or bajra around the onion field to manage the insect pests of onion crop in the North Dry Zone of Karnataka.
 - Undertake intercropping with banana, colocasia and vegetables etc. in coconut gardens in the Southern Zone of Kerala.
 - Continue nursery sowing *samba* rice, dry sowing of long duration varieties of rice and take up for sowing of rainfed cotton and maize in the Cauvery Delta Zone of Tamil Nadu.
 - Continue planting of *samba* rice, sowing of irrigated maize and winter irrigated cotton. Apply Butachlor @ 1.25 Kg/ha after mixing with 50 kg dry sand to control weeds as pre emergence application in *samba* rice fields and spray pendimethalin @3.3 litre/ha mixed in 900 litres of water three days after sowing, to control weeds in irrigated cotton in the Western Zone of Tamil Nadu.
 - Provide irrigation to sugarcane banana, tomato and brinjal in the South Zone of Tamil Nadu.
 - Apply *Pseudomonas fluorescense* (2.5kg per hectare) for the control of fungal and bacterial diseases disease occurrence and tilt (Propiconazol) 150ml/200 per litre of water to control sheath blight and sheath rot in rice in the Central and Southern Zone of Kerala after current spells of rain.
 - Undertake spraying of Carbaryl 85 MS @ 4 g per litre of water for incidence of leaf folder in the transplanted rice in the Northern Zone of Kerala after current spells of rain.
 - Spray Quinalphos to control incidence of leaf folder in rice and open the rolled leaves using a thorny twig in the Southern Zone of Kerala after current spells of rain.
 - Spray Carbandizm @ 1 g/l or Mancozeb @ 3 g/ per litre of water to control incidence of top rot in early planted sugarcane (Jan- March) in North Coastal Andhra Pradesh on a non rainy day.
 - Mass trapping with pheromone traps @4 per acre in the field for monitoring of tobacco caterpillar in early sown and late sown groundnut and applying of carbofuran 3G@3 kg per acre in whorl's of plant at the time of morning or evening hours to control stem borer in maize is to be undertaken on a non rainy day in the Scarce Rainfall Zone of Andhra Pradesh.
 - Spray streptocyclin @ 1g per 10 liters of water and copper oxicleotide @ 2g in 1 litre of water in nursery and main rice field (in case of advance sown crop) to control incidence of leaf blight in the Krishna Godavari Zone of Andhra Pradesh. Undertake plant protection measures to prevent incidences of powdery mildew in black gram and green gram and bacterial leaf spot in chillies and go for post emergence herbicide viz., quizalopof ethyl @ 400g/acre or fenoxapof ethyl @ 250g/acre for grasses and for management of broad leaf weeds apply Imazethapyr @ 200-250g/acre on a non rainy day.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure III.
- **Animal Husbandry:**
- Feed milch animals 8-12 kg of green fodder based on the body weight in addition to the concentrates in the Western Zone of Tamil Nadu.

Annexure I

Stages of Major Crops

NORTH INDIA [JAMMU & KASHMIR, HIMACHAL PRADESH, UTTARAKHAND, PUNJAB, HARYANA, DELHI, UTTAR PRADESH & RAJASTHAN]

- Tomato, brinjal, chilli (transplanting), French bean, okra (flowering / fruiting), rice (tillering / panicle initiation), maize (vegetative / tasseling), soybean (vegetative / tasseling), peas (flowering / pod formation / pod maturity), cauliflower (nursery sowing), cucurbits viz. khira, bitter gourd, tori (sowing / early vegetative), potato (sprouting / vegetative) in Himachal Pradesh.
- Rice (tillering / panicle initiation), ginger (vegetative), okra (flowering / fruiting), sugarcane (vegetative), cucurbits (flowering / fruiting), vegetables viz. tomato, *Capsicum*, chilli, brinjal, cabbage, cauliflower in mid and high hilly area (flowering / fruiting), vegetables viz. palak (vegetative), fenugreek, coriander, bhindi, French bean and lobia (flowering / fruiting), maize, finger millet, urad, moong, soybean, pigeon pea, cowpea, horse gram, rice bean (early vegetative / vegetative), sesame, pearl millets (sowing / early vegetative) in Uttarakhand.
- Fodder Maize, bajra, sorghum and other fodder crops (vegetative), lady's finger, chilli and cucurbits (flowering / fruiting), brinjal, onion, tomato, chilli and cauliflower (transplanting), radish, spinach, coriander (sowing), carrot (sowing), onion (transplanting) in Delhi.
- Rice (active tillering / panicle initiation), maize (Early sown) (vegetative / tasselling / silking), maize (normal sown) (Knee high / vegetative), bajra, pole type beans (vegetative), cowpea (vegetative), sunflower (vegetative / flowering), garlic, cucurbits, okra (vegetative / flowering), radish, spinach (transplanting / early vegetative), carrot, turnip (sowing), onion, cole crops (nursery sowing / transplanting), fruit crops (planting), brinjal, chilli, tomato, (transplanting / early vegetative / vegetative), potato (early vegetative / vegetative), *kharif* pulses (moong, mash) (early sown) (vegetative / flowering), *kharif* pulses (moong, mash) (normal sown) (vegetative), groundnut (vegetative / active vegetative), radish, carrot, cucurbits (nursery sowing) in Jammu & Kashmir.
- *Kharif* maize and jowar (early vegetative / knee high), rice (vegetative / tillering), groundnut, arhar, moong and urad (early vegetative / vegetative), tomato, brinjal (transplanting / vegetative), and cucurbitaceous vegetables (flowering / fruiting), spring sugarcane (vegetative), jute (vegetative) in Uttar Pradesh.
- New sugarcane (tillering / vegetative), cotton (early vegetative), cucurbits, cowpea (sowing), rice (early vegetative / tillering), pearl millet, black gram, green gram, soybean, arhar (germination / vegetative), mash, sesamum (germination / vegetative) in Punjab.
- New sugarcane (vegetative), cotton (early vegetative), rice (early vegetative / tillering) in Haryana.
- Rice (early tillering / tillering), cotton (flowering / boll formation), tomato, brinjal, chilli (nursery sowing / transplanting), shimla mirch (early vegetative), groundnut (early vegetative / vegetative), new sugarcane (early vegetative / vegetative), bajra, sorghum, soybean, moong, guar, sesame, moth, maize, cowpea, cluster bean, castor (early vegetative), cucurbits (sowing) and fruit crops (ber, aonla, pomegranate, phalsa) (transplanting) in Rajasthan.

CENTRAL INDIA [M.P., CHHATTISGARH]

- *Kharif* rice (transplanting/early vegetative/tillering), soybean, onion (vegetative), maize, jowar, arhar, sesame, groundnut (early vegetative), sugarcane (elongation / grand growth), vegetables (transplanting / early vegetative) in Madhya Pradesh.
- Sugarcane (tillering), *kharif* rice (transplanting /early vegetative), maize, groundnut, green gram (sowing/germination/ early vegetative), jowar, arhar, soybean (vegetative), ragi and kodomillet (sowing/germination), ginger, turmeric, papaya (vegetative), onion (vegetative), vegetable crops (transplanting/early vegetative) in Chhattisgarh.

EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL &SIKKIM]

- *Kharif* rice, (transplanting), maize(sowing/germination/tasseling), sugarcane (early vegetative / tillering), onion(transplanting), urad (sowing), yam (vegetative) in Bihar.
- *Kharif* rice (tillering), maize, urad, marua (sowing), arhar, groundnut (early vegetative), onion (vegetative), ginger and turmeric (vegetative), *kharif* vegetables viz. bhindi, bean, French bean (sowing), tomato, cauliflower, cabbage (transplanting/vegetative), niger, potato, green peas, horsegram, sweet potato(sowing) in Jharkhand.
- Rice (transplanting/early tillering), pigeon pea, groundnut, arhar, maize, cotton and *kharif* vegetables (sowing/early vegetative), fruit crops (planting), green gram, black gram, cowpea, sesame, ragi, castor, soybean (sowing), Jute (active vegetative), turmeric, ginger, yam (planting / early vegetative), sugarcane (tillering), banana (planting/vegetative), tomato (fruiting / harvesting), sunflower (maturity/harvesting), marigold(sowing), in Odisha.
- *aman* rice (transplanting/tillering), *kharif* maize (CRI Stage), ginger, turmeric (vegetative), pigeon pea (early vegetative), *kharif* vegetables (vegetative), brinjal, Okra, tomato and chilli (vegetative/fruiting), , pointed gourd, banana (planting), jute (harvesting), tomato, cowpea (sowing) in West Bengal.
- Ginger (vegetative), large cardamom (secondary flowering), *kharif* vegetables (vegetative) in Sikkim.

NORTHEAST INDIA [ARUNACHAL PRADESH, NMM&T, ASSAM, MEGHALAYA]

- Sugarcane (active vegetative / elongation), *sali* rice (transplanting / tillering), *Olitorius* and *Capsularis* jute (retting), *Olitorius* and *Capsularis* jute (seed crop) (sowing / vegetative), pigeon pea (vegetative), sesame (sowing / germination), ginger, turmeric (vegetative), early cauliflower, cabbage, knolkhol (nursery sowing / early vegetative), cow pea (sowing), green gram and black gram (sowing / germination / vegetative) and radish (sowing) in Assam.

- *Jhum* rice (grain maturity / harvesting), WRC rice early sown (flowering / grain formation), main WRC rice (tillering / panicle initiation / flowering), cucurbits (maturity / harvesting), brinjal, tomato (fruiting / maturity / harvesting) in Arunachal Pradesh.
- *Kharif* rice (tillering / panicle initiation), *kharif* rice (late variety) (transplanting / tillering), groundnut (vegetative / flowering / pegging), soybean (vegetative / flowering), black gram, rice bean (sowing / vegetative), turmeric, ginger (vegetative), cauliflower (early variety) (early vegetative), cauliflower, tomato (midseason variety) (nursery raising/transplanting), banana (planting), okra (sowing / vegetative), cucurbits (fruiting/ harvesting), onion (planting) in Manipur.
- *Sali* rice (tillering), turmeric, ginger (rhizome formation / rhizome maturity), cucurbits (vegetative / fruiting), green gram and black gram (sowing) in Meghalaya.
- *Jhum* rice (transplanting / tillering), groundnut (vegetative), cucurbits (flowering / fruiting), soybean (sowing), ginger and turmeric (vegetative) in Mizoram.
- Upland rice (grain formation), lowland rice (tillering), chilli (vegetative / flowering), okra, brinjal (fruiting / harvesting), ginger (vegetative) and cucurbits (flowering / fruiting) in Nagaland.
- *Jhum* rice (flowering / grain filling), *aman* rice (early vegetative / active tillering), groundnut (pegging / pod formation), maize (active vegetative / tasselling), banana (vegetative), *kharif* vegetables like okra, cucurbits (active vegetative / flowering) in Tripura.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- *kharif* rice (tillering in Konkan and early tillering / tillering in Kolhapur, Nasik (Ghat), cotton (vegetative growth / floral bud initiation in Madhya Maharashtra, Marathwada and Vidarbha), jowar (vegetative in Madhya Maharashtra, Marathwada and Vidarbha), red gram (early vegetative / primary branching in Madhya Maharashtra, Vidarbha and Marathwada), bajra (flag leaf initiation / flowering in Madhya Maharashtra and Marathwada), soybean (branching / flowering / pod formation in Madhya Maharashtra, Marathwada and Vidarbha), groundnut (flowering / pegging in Madhya Maharashtra, Marathwada and Vidarbha), green gram (pod formation / pod maturity / plucking in Madhya Maharashtra and Marathwada), black gram (flowering / pod formation in Madhya Maharashtra and Marathwada), sugarcane (*adsali*, pre-seasonal and *suru*) (active tillering / elongation), Sugarcane (new *adsali*) (sprouting in Marathwada and Madhya Maharashtra) in Maharashtra.
- *Kharif* rice (tillering), castor (sowing / germination / vegetative), pearl millet (tillering / vegetative), sesame (vegetative / flowering), groundnut (flowering / pegging / pod formation), cotton (vegetative / flowering / squaring), pulses (vegetative / flowering), maize (vegetative), *kharif* vegetables (seedling / transplanting), sugarcane (grand growth) in Gujarat.

SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]

- *kharif* crops: early sown groundnut (pegging/pod development), maize (vegetative), Bt.cotton (vegetative/flowering), late sown groundnut (vegetative/flowering), cotton (vegetative/flowering), red gram (seedling/vegetative), sugarcane(Jan-Feb planted) (grand growth), rice (nursery sowing/transplanting), castor(vegetative/flowering), banana (vegetative), direct sown rice (tillering), onion (vegetative), rainfed sugarcane (germination/tillering), pulses (sowing/seedling) and vegetables (vegetative) in Andhra Pradesh.
- *kharif* crops: sugarcane (grand growth), *kuruvai* rice (flowering), *samba* rice (nursery sowing/transplanting), irrigated rice (active tillering), irrigated maize(vegetative/flowering), irrigated cotton (maturity), maize (vegetative/flowering), onion (vegetative), sunflower (flowering), black gram (flowering), groundnut (flowering) and vegetables (sowing) in Tamil Nadu.
- *Viruppu* rice (transplanting/ heading), direct seeded rice (seedling), arecanut (nut formation), sugarcane (grand growth), rainfed banana (planting), new Nendran banana (planting), rubber (tapping/planting), *Kharif* vegetables (flowering/harvest), pepper (berry development), cardamom (flowering), ginger (vegetative) in Kerala.
- Sugarcane (grand growth), arecanut (nut maturity), new arecanut (planting), *kharif* crops: sorghum, bajra, sesame, sunflower, navane, Bt. Cotton, cowpea(sowing), sugarcane(planting) ragi (sowing/tillering), maize(vegetative/tasseling/cob formation), red gram(vegetative),groundnut (flower initiation/pegging), greengram(maturity) black gram and soybean (pod initiation), rice (transplanting), cotton (vegetative/ square formation stage), vegetable crops (transplanting) in Karnataka.

Annexure II

Week by Week Rainfall Distribution

State/Districts	03.07.13		10.07.13		17.07.13		24.07.13		31.07.13		07.08.13		14.08.13		21.08.13	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
Punjab																
Amritsar	10.2	-60	63.0	62	14.0	-71	19.7	-65	21.7	-58	106.9	95	18.2	-67	184.6	367
Barnala	25.5	34	25.5	-10	0.0	-100	58.5	118	1.0	-97	8.0	-76	0.0	-100	32.5	16
Bhatinda	0.0	-100	50.0	182	0.0	-100	30.0	5	27.0	13	85.0	97	30.0	26	170.0	514
Faridkot	6.5	-60	11.0	-43	5.0	-83	42.6	33	0.0	-100	41.7	50	13.0	-41	313.5	1079
Fatehgarh Sahib	40.8	48	61.0	16	5.5	-91	8.0	-79	1.0	-98	63.0	37	72.0	55	48.0	8
Ferozpur	13.3	-6	26.6	0	1.0	-97	65.9	97	1.8	-94	37.8	0	0.0	-100	123.7	348
Gurdaspur	30.3	-25	93.5	74	24.0	-69	154.1	82	93.9	12	197.4	137	155.3	58	193.1	180
Hoshiarpur	20.8	-54	19.7	-64	34.7	-45	22.7	-67	27.3	-58	17.4	-75	50.3	-31	60.0	21
Jalandhar	43.2	54	27.9	-40	2.9	-94	67.8	28	19.6	-53	29.4	-44	2.0	-96	93.1	125
Kapurthala	84.6	252	58.1	67	4.3	-89	42.8	-10	17.6	-49	35.6	-4	17.8	-54	88.5	205
Ludhiana	41.3	43	48.7	8	5.2	-91	17.3	-62	25.2	-42	62.1	36	15.2	-67	64.4	52
Mansa	0.6	-95	10.2	-50	0.0	-100	10.5	-65	14.0	-39	37.4	2	0.0	-100	37.4	23
Moga	47.3	245	21.0	-18	0.0	-100	51.7	94	3.0	-90	39.7	31	2.0	-95	262.7	661
Muktesar	26.0	71	0.0	-100	0.0	-100	1.7	-94	45.1	123	75.0	128	1.5	-94	249.0	969
Nawashahar	42.0	-23	67.4	-11	52.0	-33	58.0	-12	0.8	-99	48.0	-33	74.9	19	46.5	-7
Patiala	17.0	-44	59.6	-1	51.0	-20	14.8	-66	7.3	-87	47.3	-16	22.4	-56	78.0	64
Ropar	46.5	11	63.8	8	52.8	-23	97.1	50	7.1	-91	46.7	-41	87.7	46	75.2	39
Sangrur	0.2	-99	5.6	-82	0.7	-99	9.5	-72	2.3	-94	26.7	-32	1.1	-97	53.2	38
Mohali	20.0	-42	48.0	-17	27.0	-53	22.0	-57	6.0	-89	8.0	-88	94.0	80	55.0	18
TarnTaran	10.5	-17	48.5	84	0.0	-100	31.1	-10	12.0	-66	40.4	36	4.0	-84	155.1	472
Haryana																
Ambala	56.4	24	58.8	-20	106.1	42	32.9	-51	14.6	-80	59.1	-19	129.4	36	66.0	-13
Bhiwani	0.8	-94	25.1	12	3.6	-89	28.3	-15	17.9	-44	18.6	-36	45.9	32	46.1	56
Chandigarh	37.0	-32	39.5	-46	62.5	-6	31.8	-35	46.6	-35	37.8	-56	95.7	27	105.2	52
Faridabad	4.8	-77	2.3	-93	36.5	-42	65.3	54	97.3	92	33.1	-50	34.5	-18	133.6	142
Fatehabad	2.8	-85	11.5	-33	0.8	-97	11.9	-57	4.6	-80	8.9	-70	6.7	-68	70.1	217
Gurgaon	3.3	-85	19.3	-36	6.5	-87	45.4	11	7.8	-79	32.8	-34	11.3	-76	76.3	87
Hissar	0.0	-100	29.7	52	6.8	-77	21.2	-34	4.2	-85	48.5	68	9.8	-65	64.1	116
Jhajar	1.7	-93	7.7	-68	17.5	-63	25.8	-28	7.1	-82	15.5	-62	2.3	-93	75.2	105
Jind	2.0	-93	27.7	14	10.8	-76	32.0	5	23.1	-8	45.5	12	31.0	7	84.3	123
Katihai	5.0	-59	21.1	-12	6.9	-83	5.1	-82	18.1	-42	12.5	-62	35.1	0	54.0	55
Karnal	40.5	33	33.1	-33	43.0	-29	26.7	-23	29.6	-23	72.8	60	43.5	-13	68.5	16
Kurukshetra	22.5	-16	9.0	-81	0.2	-99	7.1	-85	4.0	-90	26.5	-39	40.3	-8	33.7	-42
Mahendragarh	2.2	-89	21.9	8	3.3	-93	35.8	-19	21.7	-38	48.3	35	50.9	23	71.5	148
Mewat	0.3	-99	12.5	-58	0.0	-100	59.7	49	51.9	29	20.9	-55	16.7	-69	87.7	119
Palwal	8.3	-60	27.2	-19	32.0	-19	6.8	-82	16.3	-58	28.5	-34	23.2	-41	45.6	10
Panchkkula	28.9	-48	31.7	-54	45.2	-40	39.8	-50	22.0	-73	38.1	-57	65.3	-31	80.0	12
Panipat	9.0	-64	7.6	-80	2.3	-96	10.8	-69	16.5	-54	16.5	-66	32.0	-33	64.8	20
Rewari	0.5	-97	21.5	0	11.9	-71	26.2	-43	29.7	-11	38.0	-28	59.4	17	47.6	31
Rohtak	15.4	-54	4.8	-83	13.2	-77	6.5	-87	15.4	-65	14.0	-70	10.9	-77	72.4	88
Sirsa	0.3	-98	21.2	63	1.8	-94	6.8	-73	0.0	-100	53.6	215	0.0	-100	55.8	158
Sonepat	1.8	-93	29.1	-10	19.7	-64	42.8	-7	36.3	-26	46.5	-15	13.9	-70	93.2	89
Yamunanagar	34.7	-39	94.6	84	5.6	-91	84.1	2	24.7	-67	87.3	9	215.5	182	45.7	-40
Delhi	6.2	-79	26.9	-41	26.4	-60	90	57	30.6	-43	32.8	-55	28.8	-54	100.2	85
East Madhya Pradesh																

Anuppur	66.1	-2	47.4	-52	8.3	-91	54.8	-36	72.2	-9	58.7	-40	85.5	-3	102.3	12
Balaghat	76.3	-6	60.6	-43	234.5	94	114.5	10	126.8	15	41.2	-60	71.1	-33	107.2	-12
Chhatarpur	260.5	340	16.7	-75	56.0	-12	74.6	-8	122.7	57	56.3	-46	140.4	59	110.8	35
Chindwara	103.2	81	60.1	-16	92.8	44	51.6	-19	91.5	59	109.8	43	68.0	8	65.4	18
Damoh	334.4	359	34.1	-51	112.4	39	104.8	23	173.2	90	34.7	-72	172.4	111	250.4	179
Dindori	66.8	-19	36.2	-66	46.0	-57	94.2	8	140.0	67	43.3	-61	141.4	54	59.0	-42
Jabalpur	150.3	150	60.0	-27	107.4	34	81.1	0	103.3	22	55.0	-50	93.3	1	372.6	303
Katni	262.0	316	79.0	6	30.3	-65	68.1	-15	169.0	105	56.7	-50	65.7	-23	205.9	137
Mandla	109.1	41	57.4	-43	124.4	19	125.9	37	184.6	83	61.2	-44	103.4	-6	279.3	159
Narsingpur	247.5	346	18.6	-78	132.2	67	121.0	51	99.0	17	66.6	-32	135.5	66	156.2	54
Panna	313.6	365	6.0	-92	18.3	-77	58.7	-35	196.1	143	73.0	-27	96.5	-2	91.5	8
Rewa	134.2	109	22.9	-61	113.5	50	112.6	59	188.6	136	19.8	-76	182.4	122	148.8	95
Sagar	446.1	559	33.0	-53	115.6	40	84.7	-1	307.8	288	48.1	-60	136.5	50	202.4	129
Satna	168.3	143	42.0	-33	61.1	-2	53.2	-27	111.5	39	52.2	-41	109.6	24	148.2	96
Seoni	86.1	39	72.4	-14	232.6	168	67.7	-8	90.7	7	61.7	-29	114.7	54	152.0	109
Shahdol	55.7	-1	4.0	-95	19.6	-75	74.0	2	44.0	-27	38.6	-61	61.5	-29	72.0	-13
Sidhi	190.0	223	6.8	-91	44.4	-47	84.2	33	244.0	201	19.4	-74	**	**	130.2	58
Singrauli	51.0	-3	130.0	178	41.5	-37	70.1	42	119.0	51	14.2	-79	50.7	-18	34.4	-54
Tikamgarh	204.0	256	23.5	-59	86.5	38	122.5	69	154.0	131	39.0	-51	80.0	-4	121.0	38
Umaria	114.6	99	26.7	-65	68.2	-23	42.0	-45	102.3	36	113.6	12	37.4	-58	37.7	-63
West Madhya Pradesh																
Alirajpur	27.2	-35	148.4	133	63.2	14	65.8	-4	120.7	74	93.3	37	60.6	25	5.3	-90
Asoknagar	135.8	148	29.3	-46	78.3	26	108.3	6	271.7	310	69.5	-14	143.8	128	67.0	-22
Badwani	40.7	15	78.8	81	56.0	25	55.7	18	50.0	2	84.5	85	41.6	-1	9.4	-78
Betul	73.3	41	51.3	-22	199.7	227	121.4	77	124.6	69	173.8	110	51.0	-22	118.3	75
Bhind	134.5	279	53.7	15	24.1	-50	37.0	-37	65.5	24	74.8	27	109.5	49	56.3	-6
Bhopal	195.6	214	28.4	-62	40.2	-39	59.2	-20	230.2	157	68.1	-27	34.5	-54	55.2	-37
Burhanpur	27.8	-51	71.6	55	113.4	144	151.2	226	56.2	-17	124.7	92	104.7	110	26.9	-51
Datia	135.8	256	20.9	-60	40.5	-23	57.1	-16	50.3	-11	108.4	36	116.3	63	178.1	143
Dewas	58.8	9	137.2	115	86.0	23	72.2	6	161.8	88	119.0	42	57.0	-16	57.2	-29
Dhar	54.3	26	125.6	127	73.0	19	52.7	-15	129.8	81	94.9	30	56.7	14	19.1	-65
Guna	140.0	126	68.2	1	131.0	113	124.6	23	277.5	269	104.8	11	244.2	240	92.1	11
Gwalior	60.9	60	42.1	-24	44.2	-22	46.3	-31	57.8	-11	80.5	9	58.9	-22	137.8	103
Harda	54.6	3	268.2	272	64.7	-17	92.8	17	84.3	-4	163.1	63	70.8	-13	13.0	-87
Hosangabad	206.8	185	64.7	-30	177.3	86	155.5	68	205.1	101	200.7	65	75.1	-25	178.1	58
Indore	60.6	25	226.0	296	112.5	90	31.6	-47	165.4	121	113.9	70	54.4	-3	13.1	-78
Jhabua	28.5	-31	157.9	174	55.4	7	51.7	-9	177.6	197	105.1	54	34.3	-31	24.9	-47
Khandwa	71.8	41	188.3	237	85.3	50	50.3	-14	16.3	-78	134.0	82	102.4	62	27.7	-54
Khargone	36.9	-24	152.6	244	35.5	-33	35.8	-31	63.3	2	121.7	89	33.1	-30	14.4	-70
Mandsaur	51.6	31	56.1	9	160.4	172	91.4	39	175.6	106	74.9	-1	78.1	40	27.9	-60
Morena	29.0	-12	45.0	7	46.0	-2	98.0	40	54.0	-12	123.0	71	115.3	51	136.3	102
Neemuch	27.5	-37	64.9	31	133.4	134	137.5	140	137.0	60	59.3	-5	53.3	-4	74.3	9
Raisen	276.1	334	40.3	-50	51.0	-37	133.8	46	195.6	118	81.7	-24	110.3	32	134.1	35
Rajgarh	175.3	311	62.9	-3	123.7	96	136.1	80	166.4	112	119.6	30	85.3	31	171.2	96
Ratlam	73.3	50	129.2	134	144.1	120	42.9	-37	209.8	134	116.7	45	62.7	6	9.2	-87
Sehore	104.3	99	59.4	-17	68.4	-13	124.1	49	153.5	62	117.5	16	71.3	-9	79.5	-15
Shajapur	88.7	133	36.1	-41	116.8	88	76.0	10	187.0	104	137.3	52	51.0	-17	111.3	34
Sheopur Kalani	107.0	135	20.0	-64	39.0	-42	54.0	-19	168.0	153	84.5	40	161.0	109	184.0	147
Shivpuri	101.4	117	29.1	-46	107.8	108	115.8	44	172.8	165	104.8	41	171.0	146	76.5	24
Ujjain	65.1	56	102.6	64	107.2	88	62.2	6	125.4	54	116.0	55	68.8	37	28.6	-61

Vidisha	225.8	302	59.0	-24	144.7	106	115.3	23	288.4	235	99.0	2	164.4	124	94.1	-3
East Uttar Pradesh																
Allahabad	266.2	455	14.6	-73	38.9	-46	62.3	8	80.5	24	26.5	-57	93.3	18	115.9	94
Ambedkar Nagar	180.2	311	154.2	151	3.0	-96	89.8	19	16.0	-80	34.2	-53	91.0	24	79.0	34
Azamgarh	147.7	183	21.5	-72	5.0	-94	24.6	-68	64.0	-3	32.4	-55	71.9	-4	53.7	-5
Bahraich	132.5	111	107.9	67	65.2	-30	63.3	-26	26.8	-66	67.9	2	89.4	24	32.4	-51
Ballia	75.3	52	46.0	-30	22.5	-71	22.7	-67	43.4	-29	22.7	-64	62.3	-7	47.2	-4
Balrampur	309.3	516	49.3	-26	23.1	-79	95.0	-6	7.5	-92	45.6	-28	72.1	-17	102.0	38
Banda	342.1	459	13.2	-76	68.8	4	94.6	80	115.1	75	60.8	-19	51.4	-44	88.9	25
Barabanki	171.6	214	77.0	23	44.9	-48	33.9	-55	15.7	-77	18.7	-72	78.4	8	32.6	-51
Basti	390.9	638	64.6	-4	36.9	-54	47.1	-45	8.5	-88	5.1	-93	141.9	103	44.1	-27
Chandauli	58.2	46	73.6	23	60.4	-34	0.0	-100	51.4	-23	35.2	-42	10.2	-87	88.2	41
Deoria	82.5	30	69.0	5	2.0	-98	31.0	-57	5.0	-93	36.5	-39	80.0	2	39.0	-39
Faizabad	290.6	405	33.3	-49	12.3	-88	24.3	-71	4.1	-95	31.7	-59	41.9	-46	39.5	-43
Farrukhabad	88.4	116	34.9	-31	39.1	-46	68.5	34	78.8	38	4.0	-92	31.9	-65	40.4	-34
Fatehpur	259.4	416	31.6	-45	70.3	-3	17.0	-66	60.4	-4	3.2	-95	66.3	-24	75.8	26
Gazipur	62.4	55	59.4	0	24.3	-66	11.3	-82	98.9	77	20.2	-77	102.8	34	71.1	14
Gonda	346.4	525	84.3	32	7.5	-92	114.3	31	30.8	-57	11.3	-87	57.8	-25	67.1	12
Gorakhpur	451.9	594	83.9	13	30.9	-69	21.0	-76	26.9	-68	36.8	-62	94.2	-7	51.6	-40
Hardoi	74.2	45	32.9	-39	38.2	-47	76.6	33	74.3	21	25.1	-54	27.2	-61	58.4	10
Jaunpur	167.2	202	23.4	-66	32.2	-62	7.3	-88	46.0	-28	13.6	-75	18.3	-74	35.1	-28
Kannauj	151.2	279	51.0	2	66.0	-7	74.6	51	101.8	80	3.8	-94	92.0	-1	137.8	114
Kanpur City	218.8	451	19.5	-55	24.9	-54	90.2	66	97.3	60	66.4	21	32.8	-57	29.7	-52
Kanpur Dehat	125.7	227	27.3	-30	39.6	-29	43.4	-34	50.0	-21	31.5	-54	19.2	-75	24.2	-60
Kaushambi	236.6	450	15.1	-73	2.1	-97	13.6	-74	42.9	-29	3.3	-94	29.9	-63	81.1	42
Kheri	104.0	134	59.5	-21	46.5	-35	103.9	40	30.9	-49	136.7	89	18.3	-72	45.9	-35
Kushi nagar	75.5	4	57.3	-25	14.5	-85	2.5	-97	1.5	-98	6.5	-92	28.0	-69	24.0	-72
Lucknow	136.8	208	33.0	-40	19.3	-73	79.2	54	22.3	-65	27.3	-57	51.7	-23	59.6	7
Maharajganj	115.4	61	58.4	-31	25.7	-76	20.6	-79	4.0	-96	15.7	-80	46.6	-55	49.2	-45
Mau	126.5	136	22.5	-66	16.0	-83	1.0	-99	29.8	-59	3.5	-95	26.5	-67	44.5	-37
Mirzapur	166.8	239	42.9	-31	27.7	-65	26.5	-58	65.0	-2	30.3	-57	66.7	-24	93.5	76
Pratapgarh	281.9	456	34.0	-45	22.0	-71	44.3	-26	62.3	-11	13.3	-77	49.3	-36	138.5	133
RaiBareilly	254.2	537	28.8	-51	18.8	-73	77.3	48	54.4	-11	20.4	-63	29.0	-58	35.2	-38
Sahuji Maharajnagar	294.3	359	31.3	-51	54.3	-13	105.4	61	123.5	118	31.0	-54	76.0	-4	167.5	131
Sant Kabirnagar	369.0	694	43.0	-41	23.0	-76	24.0	-73	24.0	-69	25.0	-68	67.0	-4	37.0	-42
Sant Ravidas Nagar	163.0	308	69.0	15	12.0	-87	8.0	-88	44.0	-34	52.0	-14	43.0	-45	72.0	15
Shrawasti	96.5	54	161.4	149	85.4	-8	78.2	-8	37.5	-52	51.3	-23	61.5	-14	67.3	1
Sidharthnagar	355.5	638	71.3	1	50.2	-47	84.5	-5	32.5	-62	35.9	-47	35.9	-55	36.5	-48
Sitapur	139.0	201	73.3	25	44.5	-37	74.9	15	48.5	-25	172.7	230	34.4	-51	69.4	14
Sonbhadra	114.0	95	35.9	-45	39.8	-47	46.3	-26	137.2	132	52.9	-25	78.8	-3	82.2	35
Sultanpur	206.5	410	28.5	-62	62.7	-18	92.3	34	29.0	-56	23.8	-58	67.8	0	62.4	2
Unnao	200.7	342	45.2	-15	23.8	-65	46.5	-19	36.5	-37	27.8	-58	16.3	-80	42.8	-29
Varanasi	116.2	114	64.0	-2	52.3	-43	10.3	-85	74.2	13	34.5	-43	64.8	-6	88.6	49
West Uttar Pradesh																
Agra	37.1	-6	55.7	26	26.3	-52	59.0	4	20.3	-63	37.7	-45	78.4	4	53.5	-14
Aligarh	39.5	36	30.1	-35	25.5	-51	28.6	-42	79.5	43	18.7	-73	65.0		73.6	28
Auraiya	96.3	189	49.7	3	86.9	53	17.0	-69	36.5	-33	72.0	14	41.0	-45	40.9	-23
Badaun	20.3	-46	32.2	-41	43.6	-22	42.0	-21	66.7	-7	4.0	-94	43.4	-40	14.0	-74
Baghpat	32.4	40	14.6	-67	5.5	-90	30.8	-20	23.2	-49	110.8	83	61.8	14	36.6	-20
Bareilly	38.5	-17	122.4	99	62.9	-9	131.5	112	103.1	27	42.2	-40	25.5	-65	62.5	20

Bijnor	18.3	-59	17.1	-74	20.3	-74	76.9	-8	105.0	10	81.6	-4	116.7	44	32.4	-48
Bulandsahar	57.4	91	17.1	-63	5.8	-89	38.1	-22	39.1	-36	7.4	-87	34.7	-43	24.6	-59
Etah	44.8	36	22.7	-52	20.3	-59	56.5	27	56.3	20	4.0	-93	67.8	-1	71.0	50
Etawah	73.9	117	47.5	7	79.5	62	19.5	-66	39.5	-32	53.3	-30	61.0	-24	63.8	-2
Firozabad	86.5	86	33.6	-17	37.9	-33	56.4	-7	57.8	49	30.1	-49	88.7	29	127.6	130
GBNagar	4.5	-85	17.0	-52	7.0	-86	20.0	-57	12.0	-67	6.0	-90	33.0	-44	44.0	-16
Ghaziabad	48.4	95	9.5	-79	19.7	-67	37.0	-18	7.0	-87	11.5	-83	27.0	-53	36.2	-36
Hamirpur	198.6	332	2.2	-96	29.7	-47	65.3	2	58.2	-6	61.6	-18	80.0	-14	73.1	15
Jalaun	115.0	167	8.8	-83	24.6	-57	90.7	53	52.8	-5	57.0	-27	23.7	-76	46.8	-18
Jhansi	174.7	224	33.6	-46	83.2	51	25.9	-61	105.2	68	27.2	-62	79.9	-14	86.1	22
Jotirba Phule Nagar	26.3	-10	44.5	-38	2.5	-96	61.5	3	21.5	-70	34.0	-45	102.0	26	30.5	-52
Kanshiramnagar	102.0	217	11.0	-77	0.0	-100	26.0	-51	44.0	-18	1.0	-98	138.0	90	72.0	34
Lalitpur	221.5	246	8.5	-86	131.0	104	122.4	33	269.5	262	87.5	0	184.5	98	183.0	152
Mahamaya Nagar	7.0	-78	13.0	-69	18.5	-69	52.0	10	26.5	-51	11.5	-79	117.0	58	81.5	52
Mahoba	103.4	122	18.2	-64	13.8	-72	23.4	-62	95.2	51	14.6	-81	34.6	-63	12.4	-82
Mainpuri	113.5	180	25.5	-44	70.0	31	28.2	-41	57.3	16	18.5	-67	50.9	-32	103.7	92
Mathura	34.3	14	23.0	-38	24.5	-46	65.7	31	22.2	-54	10.0	-83	22.5	-62	47.8	-16
Meerut	37.8	13	4.3	-93	53.3	-19	49.5	-18	36.7	-44	118.6	63	83.4	11	36.5	-48
Moradabad	17.2	-61	128.1	94	21.5	-65	108.5	66	81.5	2	17.4	-76	82.9	3	60.7	-9
Muzaffarnagar	67.9	75	0.0	-100	12.5	-82	42.5	-22	40.0	-35	103.9	57	138.2	95	40.8	-39
Pilibhit	43.1	-18	52.0	-27	22.9	-69	78.7	11	59.1	-33	44.2	-47	63.4	-19	21.6	-70
Rampur	31.5	-27	76.2	-5	28.6	-57	49.9	-29	62.2	-35	33.8	-58	50.9	-34	51.0	-24
Saharanpur	31.3	-39	53.0	-3	32.0	-59	207.7	269	83.3	33	122.7	62	219.0	225	11.3	-86
Shahjahanpur	68.5	45	138.4	115	53.5	-21	133.6	95	50.1	-28	59.8	-14	32.2	-56	78.1	22
East Rajasthan																
Ajmer	29.3	13	29.7	14	12.6	-74	31.9	-31	39.0	0	34.6	2	65.2	74	45.6	7
Alwar	16.6	-35	75.1	142	33.4	-36	67.7	27	33.7	-30	82.2	55	62.5	12	96.4	96
Banswara	1.8	-96	171.4	176	76.1	21	66.3	11	142.0	73	62.1	-18	81.7	32	8.7	-88
Baran	143.5	245	58.7	18	107.2	75	155.7	68	267.5	271	135.6	82	252.5	230	150.5	97
Bharatpur	17.6	-27	45.7	39	45.3	-4	60.9	27	38.2	-15	38.7	-34	77.4	39	82.7	61
Bhilwara	14.5	-60	79.4	106	35.1	-32	53.0	-3	84.5	64	55.1	16	111.0	118	32.8	-46
Bundi	53.9	53	77.2	75	80.4	44	91.5	18	152.8	143	80.6	43	114.0	99	68.5	10
Chittorgarh	27.3	-32	92.4	99	62.2	11	59.6	0	124.0	75	80.2	38	151.2	167	27.5	-63
Dausa	65.8	101	56.6	59	67.9	-2	67.0	-2	79.0	56	65.4	16	146.6	127	88.6	65
Dholpur	15.6	-57	38.5	-8	41.0	-18	111.2	114	38.3	-25	99.8	55	132.5	80	121.7	90
Dungarpur	0.8	-98	96.9	69	108.3	104	86.7	103	105.5	78	68.9	20	54.0	27	26.3	-54
Jaipur	16.8	-40	50.8	86	44.1	-26	41.9	-34	52.2	13	68.9	45	77.3	63	94.6	120
Jhalawar	124.9	160	82.4	55	155.2	175	161.1	105	208.4	181	93.9	12	144.1	103	155.0	70
Jhunjhunu	16.1	-16	44.1	107	28.7	-33	59.4	19	26.7	-8	61.2	62	37.9	7	52.1	74
Karauli	61.7	104	61.7	97	69.8	26	83.5	20	79.4	48	60.2	-2	137.8	45	111.0	91
Kota	111.9	168	52.0	23	60.5	4	128.9	55	217.5	204	109.9	78	144.8	113	101.1	37
Pratapgarh	13.4	-76	130.2	117	134.6	113	131.4	127	156.4	96	73.2	0	104.8	94	31.4	-60
Rajsamand	3.2	-91	50.7	60	65.6	39	58.9	52	87.3	96	58.7	49	92.7	127	28.4	-37
Sawai Madhopur	75.7	116	86.6	120	106.8	79	44.3	-43	81.4	35	52.8	-19	159.1	102	110.0	82
Sikar	18.2	-17	28.3	19	50.9	18	30.2	-46	61.2	83	71.4	119	41.4	20	53.0	89
Sirohi	7.6	-79	45.3	-42	45.3	-34	79.5	7	130.7	35	61.1	-30	106.9	61	43.7	-43
Tonk	29.6	-9	56.7	70	55.8	-5	57.9	-13	115.7	133	61.2	22	142.6	178	88.5	58
Udaipur	2.4	-94	42.7	-5	53.8	11	87.5	93	98.7	92	66.0	24	58.7	41	21.5	-56
West Rajasthan																
Barmer	0.0	-100	26.1	42	21.9	-7	0.7	-97	70.6	239	12.4	-52	55.1	212	72.0	226

Bikaner	0.4	-97	23.8	58	7.3	-67	31.7	16	35.0	117	26.2	41	41.2	161	44.3	146
Churu	11.9	-23	21.5	-1	39.0	20	47.5	25	43.8	75	48.8	84	38.1	57	52.8	155
Hanumangarh	14.9	-10	18.3	-1	9.6	-59	11.4	-59	45.6	110	28.2	26	12.2	-42	88.1	336
Jaisalmer	0.9	-90	4.9	-55	3.3	-79	3.3	-79	31.5	152	17.9	36	15.2	18	87.3	382
Jalore	2.6	-86	24.4	-35	8.9	-77	13.9	-52	96.4	111	32.2	-14	100.9	269	22.6	-37
Jodhpur	2.4	-82	4.1	-80	10.7	-64	45.4	71	63.9	143	14.0	-40	77.9	251	62.2	166
Nagaur	4.7	-78	14.7	-24	15.1	-67	53.7	22	33.5	36	57.5	130	49.9	92	63.3	121
Pali	0.0	-100	15.4	-54	10.8	-76	68.5	65	53.2	21	48.3	26	113.5	220	13.2	-66
Sri Ganganagar	10.4	-17	0.8	-94	12.5	-36	7.8	-69	25.7	81	12.9	-21	13.7	-13	65.0	285
Gujarat Region																
Ahmedabad	4.4	-89	111.0	101	82.5	68	51.6	13	87.9	82	94.0	96	35.6	-30	25.3	-37
Anand	8.5	-84	151.2	135	93.9	48	91.9	49	140.5	115	84.8	38	104.9	65	39.8	-32
Banaskantha	0.0	-100	24.9	-57	150.6	220	29.2	-30	109.7	84	46.4	-9	69.9	86	46.2	9
Baroda	7.1	-89	141.0	79	124.8	68	85.9	17	113.0	43	129.2	71	63.0	-13	16.6	-75
Broach	6.0	-89	57.4	-21	168.3	193	62.6	6	59.6	-11	97.0	73	41.6	-20	7.2	-85
DNH	93.1	-46	98.6	-50	556.9	191	396.7	103	195.9	-7	307.7	79	151.3	-10	67.4	-43
Dahod	3.1	-94	154.7	135	45.3	-25	25.6	-53	90.8	10	74.8	-6	59.5	-1	21.9	-66
Daman	103.6	-40	121.0	-38	459.0	140	249.0	28	215.0	2	258.6	51	93.4	-44	24.8	-79
Dangs	36.7	-67	100.5	-37	170.2	5	122.7	-24	119.0	-45	74.8	-54	219.9	64	26.4	-78
Gandhinagar	0.0	-100	173.3	139	120.8	105	44.9	-28	75.1	23	152.9	102	59.5	29	33.4	-23
Kheda	0.0	-100	149.7	126	78.4	24	47.6	-25	134.9	89	95.7	47	53.3	-14	23.1	-60
Mehsana	0.8	-98	119.6	81	169.2	184	62.2	31	104.1	88	68.3	21	45.4	-4	25.0	-41
Narmada	17.7	-75	111.8	11	66.3	-24	84.7	3	116.1	16	232.0	150	69.3	-20	38.6	-44
Navsari	69.3	-54	92.0	-44	267.3	64	206.7	34	143.9	-14	132.2	-1	123.8	0	36.6	-62
Panchmahal	5.9	-89	173.3	145	80.8	11	56.3	-10	138.8	64	73.6	-12	83.7	12	32.3	-54
Patan	0.0	-100	114.4	139	88.6	77	24.0	-38	54.4	5	58.1	35	69.5	80	47.7	35
Sabarkantha	1.4	-97	120.4	68	111.8	65	95.0	66	145.0	95	107.9	51	100.8	67	34.0	-37
Surat	41.7	-60	99.4	-17	206.9	88	163.0	62	162.7	46	149.6	74	118.4	40	28.7	-55
Tapi	36.2	-66	96.0	-26	151.5	24	267.1	141	204.6	30	115.3	-9	133.0	24	31.7	-60
Valsad	117.8	-28	145.2	-12	456.8	152	270.4	58	194.9	13	215.8	49	128.6	-2	38.6	-62
S K & Diu region																
Amreli	5.9	-86	12.2	-70	79.6	73	51.0	14	97.2	156	73.4	150	8.0	-73	14.3	-49
Bhavnagar	15.3	-58	40.6	-5	98.4	156	52.4	35	63.8	55	90.5	179	33.2	8	20.1	-31
Diu	47.0	-42	28.0	-65	50.8	-15	65.1	13	85.1	63	57.0	33	30.6	-23	42.8	65
Jamnagar	1.8	-96	45.9	25	123.5	156	26.7	-49	40.3	7	60.4	107	29.1	-21	23.8	21
Junagarh	22.1	-77	36.8	-48	86.0	21	91.9	14	146.1	133	49.5	15	27.1	-39	20.8	-42
Kutch	0.2	-99	35.8	26	41.1	0	3.4	-91	67.0	108	16.6	-38	22.4	-21	46.8	146
Porbandar	14.0	-79	33.2	-48	84.7	23	80.5	15	87.3	93	55.2	45	28.6	-39	52.6	96
Rajkot	5.4	-87	44.6	4	72.7	41	53.2	2	81.2	60	54.0	41	28.9	-23	30.6	9
Surendranagar	4.3	-88	49.5	43	39.7	5	39.4	-17	44.1	30	23.2	-38	21.7	-34	21.2	-27
Maharashtra																
Konkan & Goa																
Goa	363.6	28	313.9	43	276.6	11	429.3	59	288.2	18	143.0	-30	74.6	-62	235.2	80
Mumbai	58.7	-70	105.6	-43	227.2	32	441.9	157	97.0	-41	93.1	-31	64.8	-50	34.5	-63
Raigad	277.8	-4	198.1	-28	450.6	74	618.4	134	258.6	-7	174.1	-24	111.9	-48	79.3	-56
Ratnagiri	300.5	-4	319.6	18	354.9	41	633.5	128	207.6	-25	203.5	-16	119.8	-46	159.3	-14
Sindhudurg	393.9	43	379.2	68	339.8	43	479.1	82	198.3	-22	151.5	-23	65.7	-64	265.4	94
Thane	153.8	-25	145.1	-35	387.1	61	374.6	84	188.5	-8	182.2	-4	137.4	-25	94.9	-28
Madhya Maharashtra																
Ahmednagar	3.1	-87	15.0	-33	45.4	111	71.8	204	10.9	-53	30.7	55	11.7	-31	5.6	-69

Dhule	9.4	-76	46.3	17	72.2	92	58.4	49	93.0	145	79.0	92	43.1	68	4.3	-84
Jalgaon	11.1	-75	38.6	-7	61.5	46	102.2	147	45.3	-9	79.4	55	55.3	23	11.9	-73
Kolhapur	116.3	-29	91.1	-46	158.3	3	302.3	72	202.9	35	168.1	20	46.7	-63	60.6	-41
Nandurbar	23.7	-59	100.4	45	47.0	-31	67.8	1	198.2	178	91.7	33	109.0	101	23.5	-52
Nasik	56.7	3	64.6	-8	113.0	61	136.4	95	73.8	-7	84.1	17	81.7	34	35.7	-35
Pune	34.1	-45	56.2	-26	93.5	36	118.7	76	113.1	58	68.6	6	25.2	-58	17.4	-62
Sangli	10.4	-68	19.1	-48	46.5	41	77.4	122	36.9	11	36.3	19	4.2	-85	10.9	-44
Satara	23.2	-57	37.7	-36	70.7	27	96.8	63	72.2	24	74.2	45	17.2	-64	12.9	-62
Solapur	8.7	-57	30.3	74	54.3	165	61.6	151	1.5	-95	21.5	-5	7.2	-63	10.7	-48
Marathwada																
Aurangabad	5.4	-83	19.2	-37	62.2	88	73.1	100	8.4	-80	52.9	44	26.1	-22	6.0	-81
Beed	24.6	-10	25.1	-15	50.7	99	101.0	186	4.2	-88	42.2	72	22.2	-31	21.0	-31
Hingoli	31.8	-49	75.0	52	117.2	131	179.9	213	21.2	-65	108.2	83	45.5	-20	25.7	-59
Jalna	24.4	-29	27.6	-22	65.5	97	115.9	203	13.8	-69	72.5	107	32.4	-6	5.5	-84
Latur	41.7	7	32.6	-29	90.4	132	150.7	194	19.9	-70	44.9	-5	55.0	21	35.9	-32
Nanded	42.3	-16	81.8	69	115.2	130	171.1	169	47.2	-29	88.0	75	46.5	-18	49.5	-16
Usmanabad	16.1	-40	48.6	55	68.1	152	97.5	161	8.6	-81	36.6	15	19.9	-32	11.2	-68
Parbhani	48.4	1	65.8	56	92.8	123	143.7	193	24.3	-61	61.3	41	61.4	47	15.8	-72
Vidarbha																
Akola	15.1	-68	48.9	11	110.3	105	89.2	45	72.2	47	103.7	90	84.2	75	13.0	-69
Amraoti	23.8	-50	66.8	29	118.2	93	74.1	21	42.9	-28	101.8	49	33.4	-42	28.2	-48
Bhandara	60.6	-23	80.6	-2	153.2	64	153.4	103	174.6	101	260.8	149	113.1	17	99.8	23
Buldhana	6.8	-85	59.2	51	57.7	40	133.2	191	28.8	-38	89.0	66	34.1	-20	8.0	-81
Chandrapur	58.1	-31	50.6	-40	204.8	126	289.8	257	178.1	112	142.0	43	38.8	-55	138.7	83
Gadchiroli	63.3	-29	66.6	-31	193.7	81	295.2	169	251.7	141	207.2	81	73.7	-33	178.2	95
Gondia	84.5	-2	72.7	-27	318.8	223	153.0	70	240.9	160	131.7	24	99.5	0	152.1	67
Nagpur	49.3	-21	58.7	-19	140.3	83	155.9	139	80.9	23	157.9	99	45.2	-21	59.8	-3
Wardha	21.4	-60	59.4	5	205.9	194	180.3	193	48.7	-22	63.5	-13	24.2	-62	44.9	-20
Washim	13.6	-79	39.1	-19	103.4	65	109.5	85	40.9	-19	157.1	135	64.9	-3	6.6	-88
Yeotmal	30.7	-47	54.3	-6	185.0	191	130.6	94	79.1	38	147.6	128	34.5	-45	33.9	-41
Odisha																
Angul	27.8	-48	21.7	-71	116.7	68	75.5	-15	140.3	119	26.8	-69	60.6	-24	111.7	31
Balasore	7.2	-90	0.6	-99	76.0	45	45.4	-48	116.6	66	38.6	-55	47.3	-34	178.6	136
Bargarh	50.1	-33	19.6	-76	57.3	-30	88.9	10	182.9	108	33.3	-60	55.8	-36	63.8	-29
Bhadrak	48.3	-16	13.4	-75	62.6	-8	66.9	1	86.3	52	25.8	-73	64.8	-15	73.6	-9
Bolangir	11.9	-84	99.3	20	35.2	-64	143.6	70	176.0	107	44.9	-46	68.9	-17	91.9	8
Boudh	14.9	-77	35.2	-54	33.0	-54	93.0	30	83.8	13	26.5	-70	50.0	-44	80.4	-3
Cuttack	42.1	-39	11.8	-83	97.9	36	115.8	44	78.7	-9	19.9	-74	19.8	-75	52.7	-44
Deogarh	31.2	-64	19.4	-81	137.8	61	97.1	2	123.2	26	81.0	-29	47.1	-61	256.1	115
Dhenkanal	48.8	-26	50.1	-17	102.2	50	102.5	12	151.6	117	24.2	-72	45.4	-49	54.4	-35
Gajapati	3.1	-92	64.5	70	52.0	-1	85.4	19	28.3	-57	64.7	36	26.9	-57	65.4	-2
Ganjam	0.6	-99	37.3	17	67.7	26	126.2	145	68.9	13	11.9	-75	70.7	39	42.6	-34
Jagatsingpur	17.3	-70	7.6	-83	65.9	7	81.6	6	56.4	-32	33.6	-68	41.7	-31	39.8	-62
Jajpur	34.4	-47	14.2	-70	36.2	-47	73.5	7	117.1	58	23.7	-73	33.8	-56	89.7	5
Jharsuguda	50.7	-25	11.9	-88	90.5	-7	60.3	-35	213.5	156	42.3	-59	98.6	-9	106.8	11
Kalahandi	8.3	-90	72.4	-6	43.3	-50	93.9	11	147.6	70	52.4	-37	63.9	-35	101.7	13
Kandhamal	14.3	-78	82.7	8	48.1	-33	132.6	86	123.1	67	41.1	-53	59.9	-32	103.7	26
Kendrapara	38.0	-39	22.4	-58	43.4	-26	91.2	50	101.7	84	57.3	-39	55.2	-32	26.8	-70
Keonjhar	20.9	-66	22.0	-59	65.6	10	67.9	-13	199.8	217	65.6	-26	55.3	-23	101.5	40
Khurda	6.6	-88	30.9	-45	111.5	47	122.2	50	48.9	-32	41.4	-49	36.8	-52	55.8	-35

Koraput	38.4	-45	51.5	-35	135.0	57	84.7	-6	42.9	-53	114.1	17	71.7	-34	103.7	10
Malkangiri	48.6	-33	91.3	3	116.6	36	126.0	3	57.5	-48	69.5	-31	100.3	-13	139.0	28
Mayurbhanj	17.2	-78	18.0	-72	74.5	7	67.0	-33	277.6	336	26.6	-73	40.6	-53	228.3	171
Nawapara	31.8	-56	20.5	-77	59.8	-22	121.1	55	257.2	243	49.7	-20	94.6	38	105.3	39
Nawarangpur	35.2	-55	51.2	-48	75.3	-4	105.5	-15	113.9	29	135.6	61	56.0	-54	53.7	-45
Nayagarh	8.4	-82	40.9	-41	94.5	26	211.3	180	60.7	-17	31.3	-56	53.7	-29	69.2	-19
Puri	10.3	-79	6.3	-89	80.1	44	112.6	100	44.9	-40	42.8	-37	59.5	-26	33.9	-61
Rayagada	6.6	-86	37.9	-27	77.7	3	79.4	-10	55.1	-29	89.5	68	73.5	21	66.3	-1
Sambalpur	37.5	-56	6.5	-94	97.3	14	127.8	35	194.2	99	53.1	-53	63.8	-48	115.1	-3
Sonepur	34.3	-57	37.3	-52	81.9	3	153.0	85	134.3	37	47.0	-56	93.1	-8	54.4	-49
Sundargarh	32.7	-56	15.6	-81	127.4	42	59.5	-27	231.2	178	50.2	-47	79.4	-4	197.2	112
West Bengal																
GWB																
Bankura	164.0	131	29.9	-59	19.8	-70	45.9	-33	198.9	198	28.2	-58	76.1	3	153.5	146
Birbhum	61.7	-12	11.8	-83	18.1	-78	38.2	-45	84.1	34	61.4	-20	102.0	33	92.1	49
Burdwan	55.0	-14	1.6	-97	9.6	-87	46.1	-38	80.4	37	49.4	-40	44.6	-31	121.4	106
East Midnapore	40.8	-40	4.0	-95	39.6	-19	61.3	-3	162.8	128	63.7	-25	114.1	99	182.7	127
Hooghly	131.4	75	11.4	-84	21.2	-66	37.6	-53	137.2	99	57.4	-20	46.6	-14	193.6	221
Howrah	85.0	-1	4.1	-94	16.7	-77	60.2	-27	103.0	33	20.0	-82	60.5	-4	219.7	189
Kolkata	95.3	21	0.0	-100	68.8	-11	99.8	18	151.1	81	73.5	-20	127.9	79	327.3	395
Murshidabad	97.0	12	15.3	-79	7.9	-90	18.6	-74	43.0	-33	18.7	-72	73.8	38	93.0	55
Nadia	71.6	6	15.7	-76	21.6	-64	17.0	-75	62.0	22	38.0	-38	56.3	20	134.6	105
24 Pargana (N)	124.2	73	30.4	-60	46.5	-34	61.9	-19	142.8	112	50.6	-43	79.6	36	161.9	120
Purulia	57.7	-19	4.2	-95	19.4	-72	44.6	-29	190.4	232	19.3	-77	29.1	-58	183.9	202
24 Pargana (S)	93.4	-7	14.5	-87	74.1	-18	56.4	-47	162.7	45	44.5	-58	162.1	76	312.4	262
West Midnapore	51.6	-29	2.0	-97	21.8	-68	25.9	-66	366.0	348	29.3	-65	22.8	-67	209.6	197
SHWB																
Cooch Behar	130.0	-36	621.2	161	29.6	-85	14.5	-91	19.3	-88	69.1	-60	147.9	-32	35.2	-72
Darjeeling	190.2	17	221.9	50	159.6	-10	138.2	-24	99.5	-45	156.6	10	82.5	-47	141.1	0
East Sikkim	103.2	-7	139.4	29	68.5	-38	69.0	-39	98.2	-24	85.2	-27	46.9	-49	65.6	-31
Jalpaiguri	139.3	-39	608.5	154	154.0	-24	256.3	23	51.9	-69	174.6	23	135.8	-16	129.4	-12
Malda	148.6	102	17.4	-77	27.2	-64	26.8	-62	48.5	-35	55.4	-12	101.0	63	67.1	8
North Dinajpur	119.9	44	138.1	54	50.4	-46	4.0	-95	13.0	-81	129.9	134	142.5	82	43.0	-25
North Sikkim	90.9	-29	299.8	227	86.1	-10	53.3	-54	48.1	-60	67.0	-21	21.6	-76	119.1	11
South Dinajpur	116.7	42	16.1	-81	28.0	-69	18.2	-76	58.9	-27	35.0	-32	91.1	85	58.5	-9
South Sikkim	70.4	-37	94.6	-13	39.9	-64	65.1	-42	82.1	-37	102.8	-12	44.3	-52	69.1	-27
West Sikkim	77.0	-40	308.0	236	34.0	-65	96.0	-17	101.0	-16	102.7	22	57.7	-37	102.2	-5
Tamil Nadu																
Ariyalur	0.0	-100	6.3	-52	0.0	-100	1.3	-95	0.0	-100	9.8	-51	53.5	112	47.4	82
Chennai	22.8	37	44.4	128	48.0	64	52.8	131	8.9	-67	27.0	-11	16.5	-39	98.8	155
Coimbatore	42.6	353	46.4	296	22.8	132	41.1	277	26.0	157	51.1	494	11.9	68	8.2	-15
Cuddalore	25.3	167	14.6	3	2.6	-83	8.4	-64	1.6	-91	32.5	42	91.0	242	44.8	65
Dharmapuri	1.9	-72	5.2	-71	4.8	-73	7.7	-63	0.3	-99	2.8	-83	9.8	-46	14.9	-35
Dindigul	7.6	18	1.7	-88	2.6	-78	3.8	-75	0.4	-97	4.6	-66	10.2	-16	11.9	-26
Erode	9.3	150	0.3	-97	0.8	-91	4.1	-63	1.3	-85	4.9	-50	23.5	137	9.0	-27
Kanchipuram	30.2	108	22.4	24	57.3	105	43.8	62	4.8	-83	7.8	-73	48.2	37	80.6	89
Kanyakumari	9.3	-75	22.7	-26	9.3	-60	46.9	104	28.2	46	36.8	93	0.0	-100	0.6	-97
Karikal	4.6	24	33.1	285	0.0	-100	0.0	-100	0.0	-100	27.3	48	28.6	125	26.5	39
Karur	0.0	-100	0.0	-100	0.0	-100	0.1	-99	0.0	-100	4.2	-28	27.0	196	6.0	-50
Krishnagiri	3.8	-37	6.6	-63	5.7	-67	7.0	-65	2.1	-88	10.6	-42	10.4	-42	26.7	11

Madurai	6.4	-31	3.9	-71	0.1	-99	0.3	-98	0.0	-100	13.3	-8	26.9	58	12.7	-36
Nagapattinam	24.8	235	14.7	34	0.0	-100	10.9	-36	1.9	-87	22.3	43	45.7	138	45.5	124
Namakkal	13.6	156	8.0	-47	3.6	-74	4.1	-80	0.0	-100	22.0	20	53.2	139	24.0	17
Nilgiris	40.5	-36	55.9	-12	45.0	-16	113.4	86	83.1	58	93.0	102	18.4	-56	22.8	-50
Perambalur	2.5	-31	0.5	-94	0.0	-100	4.3	-72	0.8	-95	0.0	-100	65.3	410	48.8	122
Puducherry	44.7	645	27.4	117	2.0	-81	8.2	-72	0.0	-100	15.7	-37	229.8	798	30.9	-13
Pudukottai	4.8	-41	2.0	-89	6.7	-70	6.7	-64	2.5	-85	6.6	-57	65.8	202	37.4	59
Ramanathapuram	3.8	37	6.3	51	0.4	-93	0.0	-99	0.0	-100	15.5	182	15.3	74	6.0	-40
Salem	19.4	40	4.4	-80	13.7	-38	23.2	-6	2.3	-89	24.5	22	36.1	45	23.7	-14
Sivaganga	20.3	183	18.1	6	0.7	-95	1.6	-91	0.0	-100	23.3	18	45.8	159	38.3	132
Thanjavur	2.5	-41	8.8	-50	1.8	-86	0.6	-97	0.2	-99	25.8	68	36.8	70	49.2	124
Theni	14.3	155	15.4	93	20.2	236	28.6	201	19.1	198	46.6	522	3.4	-46	5.8	-31
Tirunelveli	6.1	-43	9.4	-12	8.2	-1	16.4	86	13.0	78	16.3	130	0.0	-100	2.3	-69
Tirupur	0.0	-100	0.0	-100	0.5	-91	0.2	-97	0.0	-100	0.0	-100	0.0	-100	2.0	-74
Tiruvallur	27.3	53	16.4	-17	54.5	97	54.4	104	2.4	-90	11.7	-55	21.8	-25	79.8	148
Tiruvannamalai	10.6	9	15.8	-10	14.6	-36	18.0	-40	3.6	-82	7.9	-71	89.0	231	38.6	18
Tiruvarur	0.0	-100	20.5	44	0.0	-100	0.0	-100	0.0	-100	21.5	43	46.7	133	54.2	141
Toothukudi	0.0	-100	0.0	-100	0.0	-100	0.4	-91	0.0	-100	0.0	-100	1.1	-59	1.0	-73
Trichy	1.4	-55	1.3	-91	0.0	-100	0.0	-100	0.0	-100	5.0	-55	34.8	179	15.5	-1
Vellore	13.2	13	16.7	-20	19.2	-18	14.5	-55	1.2	-95	7.9	-70	24.2	-1	41.9	26
Villupuram	12.8	15	18.0	37	18.8	15	9.5	-63	0.7	-97	6.4	-71	110.7	410	43.7	35
Virudhunagar	5.8	164	0.0	-100	0.5	-94	0.0	-100	0.0	-100	12.9	58	22.3	111	4.1	-63
Andhra Pradesh																
Coastal Andhra Pradesh																
East Godavari	13.1	-70	89.1	97	37.6	-14	13.2	-74	23.3	-50	11.6	-69	18.2	-64	35.9	-12
Guntur	4.8	-82	25.4	-22	70.0	138	54.2	40	1.6	-96	41.5	43	39.3	7	76.2	115
Krishna	7.3	-84	72.5	49	118.4	189	54.9	0	3.0	-94	17.6	-54	36.6	-31	82.8	103
Nellore	1.1	-93	50.0	203	38.8	81	39.6	70	10.9	-48	20.1	5	19.7	-8	57.5	128
Prakasam	7.0	-61	25.8	25	53.2	184	45.3	61	4.1	-82	46.4	162	23.0	29	76.0	262
Sirkakulam	7.6	-83	16.4	-48	65.7	44	81.4	69	9.7	-77	28.2	-36	21.8	-51	23.6	-50
Visakhapatnam	11.4	-69	27.5	-16	39.8	7	21.2	-57	9.9	-76	27.2	-23	39.4	-7	62.2	55
Vizianagram	2.2	-95	37.3	5	65.6	85	48.7	1	6.8	-83	36.1	-1	35.4	-16	35.6	-23
West Godavari	13.3	-72	94.9	77	73.1	43	43.5	-28	6.3	-88	17.7	-61	16.4	-75	58.1	19
Telangana																
Adilabad	18.4	-68	72.4	10	114.1	66	308.3	275	81.5	6	131.8	99	31.6	-57	66.4	2
Hyderabad	5.0	-86	12.8	-63	124.5	258	74.7	49	11.3	-75	47.1	7	33.4	-27	45.8	-1
Karimnagar	16.5	-69	43.1	-23	91.7	70	302.3	366	46.2	-23	67.9	29	24.5	-57	75.8	42
Khammam	21.0	-57	74.1	23	150.2	162	231.9	229	36.2	-51	76.3	26	65.7	-8	125.0	156
Mehabubnagar	7.8	-72	27.7	-14	62.9	98	48.8	18	2.7	-94	38.3	11	12.9	-64	100.4	150
Medak	31.5	-27	43.7	-4	104.9	117	139.6	123	35.0	-38	41.0	-20	30.5	-37	42.5	-22
Nalgonda	2.7	-91	26.4	-11	81.4	152	65.5	51	3.7	-90	18.6	-35	7.1	-81	167.8	412
Nizamabad	51.7	-11	66.5	12	158.5	166	224.0	190	57.6	-15	74.5	10	31.5	-57	61.4	-16
Rangareddy	9.8	-71	24.2	-40	96.1	140	90.0	90	4.0	-92	50.9	40	14.2	-65	56.1	15
Warangal	23.5	-53	94.8	64	124.1	124	218.2	203	27.5	-57	73.3	48	53.8	-14	113.4	141
Rayalaseema																
Anantapur	2.3	-72	10.8	-20	10.6	-32	11.9	-21	2.6	-85	12.6	-14	23.6	69	13.8	-26
Chittoor	8.1	-32	11.9	-37	38.1	54	25.9	-9	3.8	-81	17.1	-33	32.0	33	36.4	46
Cuddapah	1.1	-92	41.4	126	23.8	1	20.5	-23	3.1	-88	21.3	-6	24.2	-2	45.5	72
Kurnool	4.0	-77	52.7	117	42.7	74	27.8	2	3.4	-90	29.7	17	15.6	-44	58.3	89

	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

Annexure III List of Varieties

Delhi

Sweet corn: Madhuri, Vin orange.

Baby corn : H.M-4.

Sarson saag: Pusa saag-1;

Jammu & Kashmir

Maize : GS-2, Mansar, Trikuta, C-5 and C-8, Super Composite (Mansar), C-6, Vijay, Him-123 and Local Tall

Rice : in Intermediate lower zone Basmati-370, Ranbir Basmati and Local Basmati

Radish: Pusa Chetki, cv. Japanese white and Minnowase,

Cabbage : Golden Acre, Pride of India and Pusa Mukta,

Cauliflower: cv. Giant Snow Ball and Pusa Synthetic.

Knolkhol : cv. White Vienna and Purple Vienna and Kale cv. Local

Carrot : Nantes and turnip : Purple Top White Globe,

Turnip: cv. Purple Top White Globe.

Punjab

Moong: PAU 911, SL 818 and Mash 338 , Mash 114.

Sesamum: Pb Til 1, T C 289, RT 346.

Rajasthan

Cucurbits: bottle guard : Pusa Naveen, Arka Bahar, pumpkin - Pusa Vishwas, Arka Chandan, Pusa Alankar, Arka Suryamukhi, **bitter guard** - Arka Harit Pusa Vishesh, Priya and **round gourd**- Arka tinda, Bikaneri green, Punjab-48.

Fruit crops : Guava: Allahabad safeda and Lucknow 49

Pomegrante: Ganesh, Jhalore and Seedless

Orange: Nagpur, Kinnoo and Kurg khasi

Lime: Kagzi, Baramasi, Pramalini and Pant lemon-1

Aonla: Banarshi, Krishana, NA9, NA10 and Chakaiya

Ber: Sonor, Thornless, Katha Alwar, Gola and Seb

short duration varieties of **Moong** – RMG-268, 344, 492, **Cow pea**– RC-19, 101, **Moth** – RMO-40, 225,

Radish: Pusa Chetki

Mid-Season cauliflower: Improved Japanese, Pusa hybrid-2 and Himjoyti

Papaya: Red lady 786, Taiwan, Kurg Honey Dew are improved varieties.

Himachal Pradesh

Finger millet as VL- Mandua-124 and VL-149 and short duration (95 to 100 days) varieties like VL- Mandua-204, Pant Mandua-3, PES-176, PES-110, VLMandua-146.

Cauliflower : Patna snowball and joint snowball.

Uttarakhand

Maize: Hima-129, Navin, Sartaj, VL16, Surya, Him, Ganga Makka-9, 11.

Cow pea- PRA-1, 2, 3 and VL-44.

Grain sorghum : CSH-13 or CSH-15

Pearl millets: MH-179, HHB-60, HHB-67 or composite varieties like HC-4, ICMB-8440, WCC-75.

Uttar Pradesh

Jowar: Mauta-1, Mauta-2, Varsha, C.S.B.-15 and C.S.H.-5, C.S.H-9, C.S.H.-14, C.S.H.-16.

Late sown varieties of rice: Sambha Masoori, Swarna sub-1, Jal-Lahari, Jal-Priya

Medium Late sown varieties of rice: Narendra- 359, Malviya-36, Pant Dhan-4, 10 Narendra Dhan-3112 , Narendra Dhan-2064, Swarna, Suraj-52, Pusa Basmati-1, Haryana Basmati

Early sown varieties of rice: Manhar Pant Dhan- 12, I.R- 50, Narendra- 118, Narendra Dhan- 2026.

Arhar: Paras, U.P.A.S-120, Pusa- 992

Groundnut- Moongfali-1, 13, Girnar-2, Ta-64, Kaushal guchedar, Chandra, Ta- 28

Til- Haryana Til-1, Punjab Til-2

Moong- Pusa Baishakhi

Urad- T-9.

Cabbage- Patgobhi-3, Early Kuwari, Pusa early synthetic, pusa deepali

Bhindi- Varsha Uphar, Arka Anamika, V.R.O-5, R.O-6

Tomato- pusa early, pusa ruby, H.S. 101

Kharif onion- N.- 53, agrifound darkred

Madhya Pradesh

Rice:

a. Medium: IR-36, IR-64, Pusa sugandha-5, MTU-1001

b. Late: Mahsuri, Safari-17, Syamla, Swarna

Maize:

a. Medium: navjot, Arun, H-216, Jm-13, Sartaj, Daccan 107

b. Late: Ganga-11, Prabhat, Trisulta, Daccan 103, Daccan 105

Chhattisgarh

Ragi: PR-202, HR-374, VR-708, RU-08, GPU-45, VC-149 etc.

Kodomillet: GPUK-03, RBK-155 etc.

Odisha

Ginger: Suprava, Suruchi, Surabhi.

Turmeric: Roma, Surama, Rang, Rashm.

Maize: Navjot, Shakti, Decan-107, Decan-109.

Yam: Local Yam: Shreekirti, Shreerupa, Hatikhoj, Shreeshilpi.

Small yam: Shreelata, Shreekala.

White Yam: Shreesubhra, Shreepriya, Shreedhanya.

Rice:

Early- Khandagiri, Bandana, Pathara, Parijat, Annada.

Medium-MTU- 1001, MTU-1010, Konark, Gajapati, Surendra, Lalat.

Late- CR-1009, CR-1018, Swarna (MTU-7029), Indravati, Mahanadi, Puja, Ramachandi, Kanchana, Sarala, Lunishree and **Fine-**CR-1014, BPT-5204.

Arhar: Early-duration- Prabhat, Upas-120, ICPL-86012., Medium duration- Asha, Visakha.

Cotton: Tulasi, Sigma, Chiruta, Diana, Bunny

Ragi: Divyasinha, AKP-2, AKP-3, AKP-7, Godavari, Neelachal, Bhairavi, Shubhra, and Chilika.

Groundnut: Smruti, AK12-24, TAG-38, Devi

Castor: Jyoti, Kranti, Aruna, Bhagya, and hybrids like GCH-4, . GCH- 5, GCH-177 and GCH-32.

Soyabean: Ankur, Gourav, P. K. 73-163 and T-49.

Sesame: Prachi, Kalika, Kanak, Vinayak.

Ragi: Divyasingh, AKP-2, AKP-3, AKP-7, Godavari, Neelachal, Bhairavi, Shubhra, and Chilika.

Greengram: K-851, PDM-11, PDM-54, OUM-11-5.

Blackgram: T-9, Pant U-11, Pant U-19, Pant U-30.

Cowpea: Cowpea-,SEB-2, Pusa Barsati.

Marigold: Giant Ball, African Yellow, Giant Ball African orange, Early yellow, Early orange, Serakola, Africut, Sungiant, Crown of gold, Spun gold and Cuprid yellow etc.

Banana: Hampa, Patakpara, Bantal, Robusta and Kabuli etc

West Bengal

Pigeon pea: Sweta, Chumi.

Aman rice : IET-4094, 2233, Ratna, Bikash, Kitish, Sasya-shree, IR-42, Swarna, Mashuri, IET-8002.

Banana : Mortoman, Chapa, Kathali, Singapuri,

Tomato & brinjal : P Avinash-2, 448

Maize : Suwan, Deoki

Jharkhand

Rice(Upland): Birsa Dhan- 108, Birsa Vikas Dhan- 109, 110, Vandana etc.

Rice(Medium land): Anjali, Sahbhagi, Naveen, Lalat, Birsamati, Sugandha, BR-10, Pro-Agro 6444, IR-36, IR-64etc.

Rice(Low land): Swarna (MTU-7029), Rajshree, Sambha Mahsuri (BPT- 5204), Birsa Dhan- 202, Birsamati, Pro-Agro 6444, etc.

Arhar: Birsa Arhar-1, Narendra Arhar-1, Bahar, ICPH-2671.

Maize: Birsa Makka -1, Birsa Makka-2, Suwan-1 etc.

Ginger: Vardhaman, Nadia etc.

Turmeric: Rajendra Sona.

Okra: Pusa A-4, Prabhani Kranti, Arka Anamika, Varsa Uphar, Sonal and Sarika.

Marua: A-404, HR-374, Birsa Marua-1 and Birsa Marua-2.

Urd: Pant urd -19, Birsa urd -1

Til: Kanke Safed and Krishna

Kulthi: Madhu, Birsa kulthi-1.

Niger: Birsa niger-1, Birsa niger-2.

Potato: Kufri Ashok, Kufri Kanchan.

Green Peas: Arkel, Kashi Nandini, P.E.-6, Birsa Matar.

Horse Gram: Birsa kulthi-1, G.H.G.-20.

Sweet Potato: Birsa sakarkand-1 and Sri Bhadra.

Bihar

Rice: Rajshree, Rajendra Sweta, Rajendra Mansuri, Swarna, Satyam, Kishori, MTU 7029. Rajendra mehsoori-1, Rajendra bhagwati, MTU-1010, MTU-1001, Hybrid seed-PHB 71, A 6444, PRH 10, Turanta, Prabhat, Saket-4, Richhariya, NDR-97, Pusa 834 and shabhagi

Maize: Deok, Shaktiman 1, Shaktiman 2, Sunkar Makka 3 and Ganga 11

Arhar: Birsa Arhar-1, Narendra Arhar-1, Bahar, ICPH-2671.

Okra: Pusa A-4, Prabhani Kranti, Arka Anamika, Varsa Uphar, Sonal and Sarika.

Marua: A-404, HR-374, Birsa Marua-1 and Birsa Marua-2.

Urad: T-9, Pant U-19, Pant Urd 31, PDU-1.

Radish: Pusa Chetki, Pusa Himani, Pusa Rashmi, Japani Saphed.

Pointed Gourd: Rajendra Parwal-1, Rajendra parwal-2, FP1 and 3.

Onion: N-53, Agrifound Dark Red and Basant- 780.

Assam

Sali rice:

Medium to short duration varieties: Luit, Kapili, Kolong, Dishang.

Flood tolerant varieties: Jalashri, Jalkuwari, Plaban.

Sesame: AST-1, Gauri, Vinayak, Punjab Till No 1, Madhabi, ST – 1683.

Pigeon pea: T-21.

Green gram: T-44, Kopergaon, K-851, ML-56, ML-131, SG1 (Pratap), SG21-5.

Black gram: T-9, T-27, Pant U-19, T-122, Saonia Mah (SB123), KU 301, USJD 113.

Early cauliflower: Early Kunwari, Pusa Katki, Pusa Deepali.

Cauliflower: Improved Japanese.

Radish: Pusa Desi, Pusa Himani, Pusa Chetki.

Cow pea: RC 19 and TVX 644-02.

Cabbage: Golden Acre, Pride of India.

Knolkhol: White Vienna.

Gujarat

Castor: GAUCH-1, GCH-5, and GCH-7.

Tamil Nadu

Samba Rice- long duration rice varieties- CR 1009/Savithri/Ponmani and ADT 50, short duration rice varieties-ADT38,ADT46, BPT-5304,CO-43,CO-48,CO-49,CO-50,Improved white ponna, IR 20, Ambai 19, Paiyur1, Trichy 1, Trichy 3,

Maize hybrid- Co 6

Groundnut- TMV 13

Castor- YRCH 1

Sorghum- Co-30

Red gram- Co-7

Karnataka

Black gram (Rashmi)

Cowpea (TVX-944)

Field bean (H.A-3, 4)

Horse gram (KBH-1 and PHG-9)