

National Agromet Advisory Service Bulletin

Friday 27th September, 2013

(For the period 27th to 30th September 2013)



Issued by

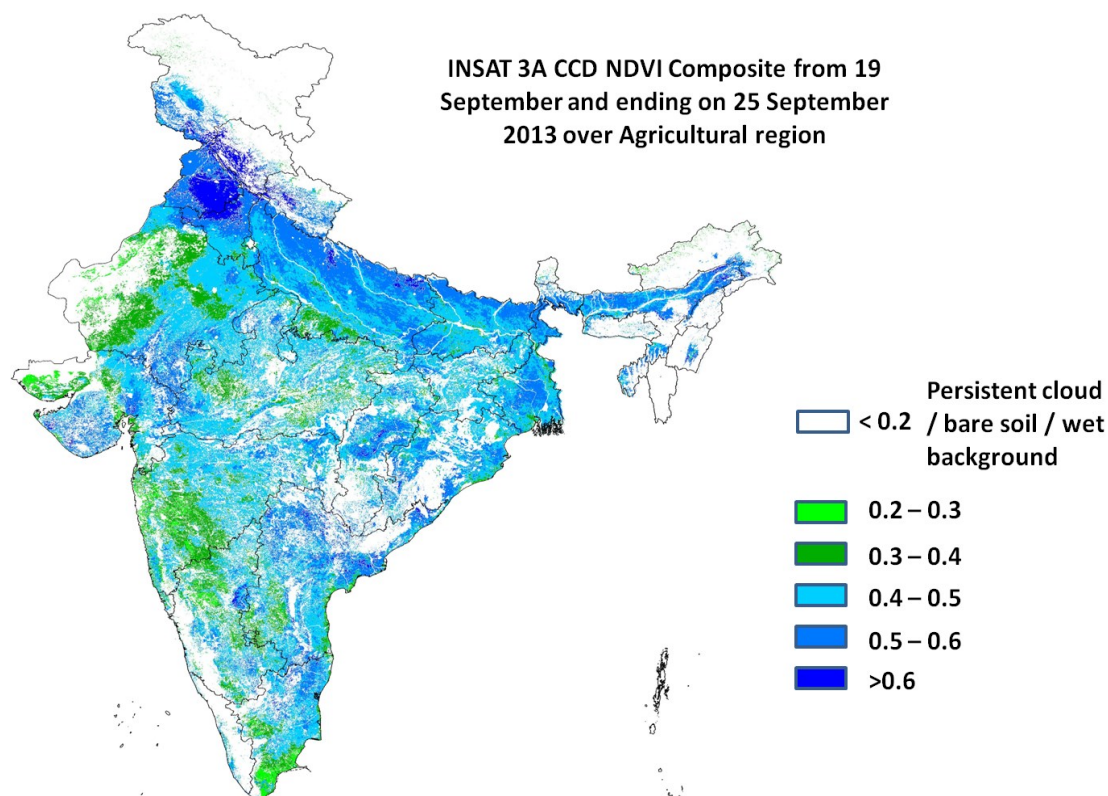
National Agrometeorological Advisory Service Centre,

Agricultural Meteorology Division,

India Meteorological Department, Shivajinagar, Pune.



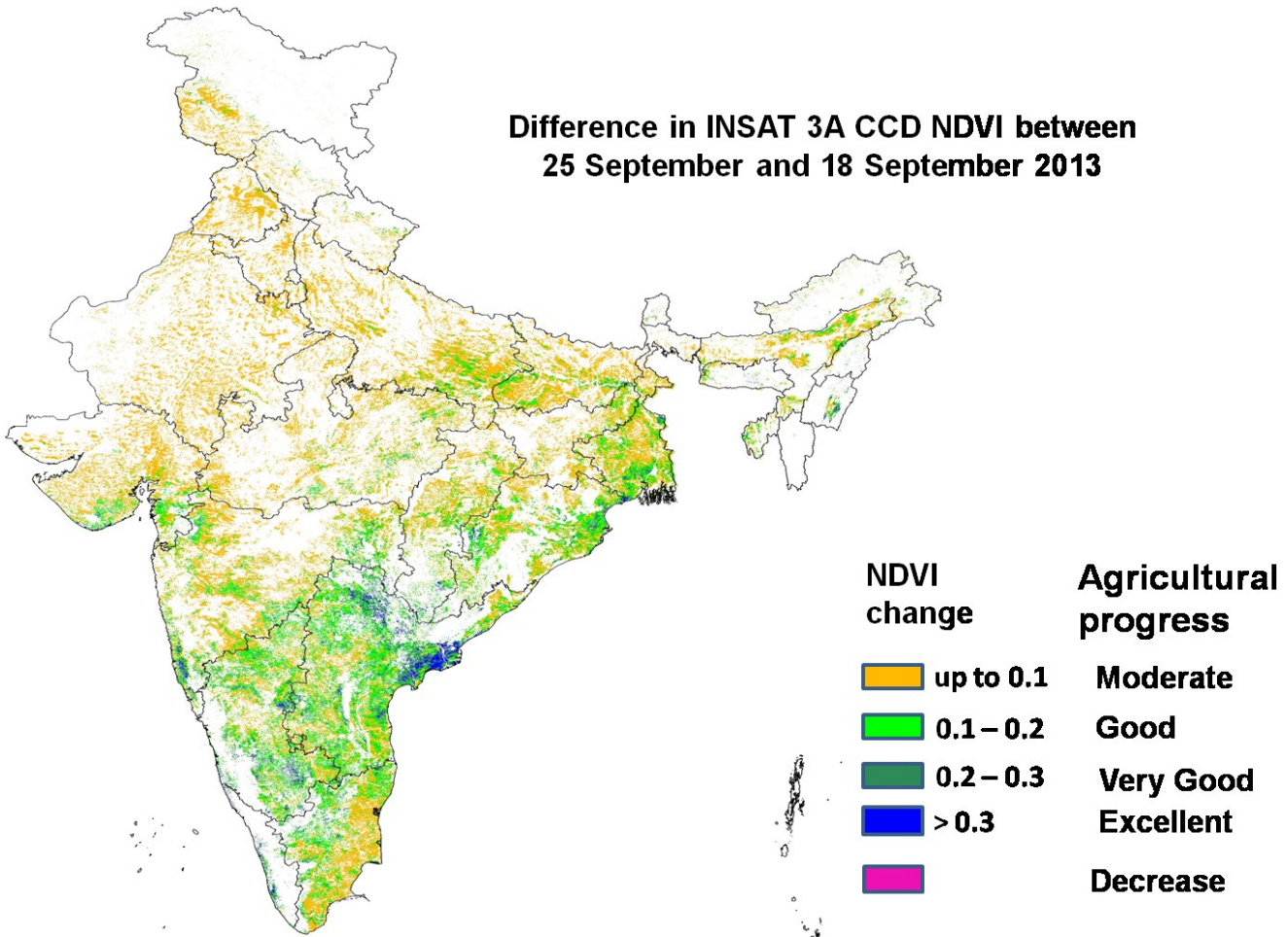
Crop condition based on Rainfall and INSAT 3A CCD NDVI **



Source: SAC, Ahmedabad

Overall Agricultural Situation: Agricultural conditions are in general good to very good over Punjab, Haryana, pockets of eastern Rajasthan, Major part of UP, some pockets of north and south Bihar, part of M.P., eastern and central part of Maharashtra, central part of West Bengal, coastal Orissa, majority of Saurashtra and central Gujarat and in coastal Tamil Nadu and A.P. as NDVI vigour showed the range from 0.4 to 0.6 upto 25th September. The crop conditions are moderate over large part of Rajasthan, central and southern part of UP (Bundelkhand region), central M.P, western Maharashtra, part of Karnataka, southern part of Andhra Pradesh.

**Difference in INSAT 3A CCD NDVI between
25 September and 18 September 2013**



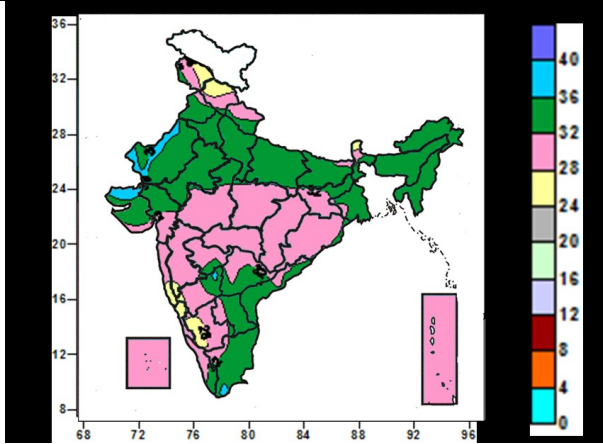
Source: SAC Ahmedabad

Progress of crop performance during last week: Agricultural progress between 25th September and 18th September 2013 was found to be moderate over north India as Punjab, Haryana, UP, Bihar, M.P., Saurashtra, central Gujarat, adjoining Rajasthan and M.P., major part of Maharashtra and coastal Tamil Nadu. The good progress was found over A.P., few pockets of coastal Orissa, Karnataka and pockets of south Gujarat.

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

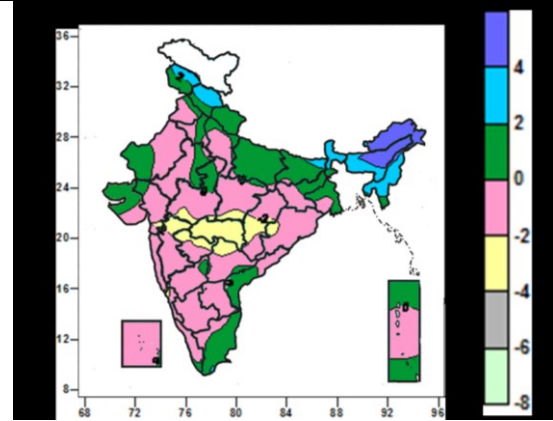
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 25.09.2013

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 25.09.2013



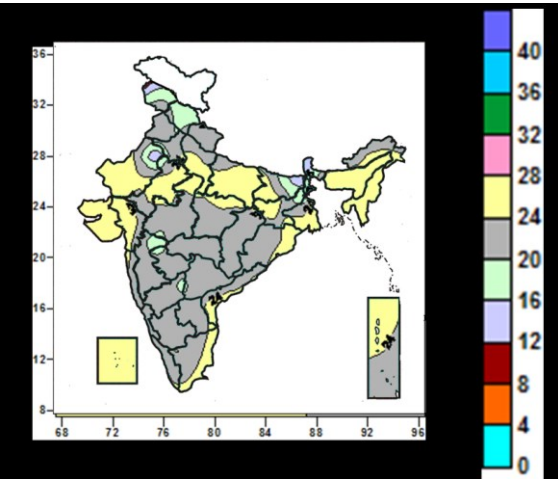
- 36 to 40 $^{\circ}\text{C}$ over some parts of West Rajasthan, Kutch.
- 28 to 36 $^{\circ}\text{C}$ over many parts of the country (except West Rajasthan, Kutch, some parts of Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, East Rajasthan, Saurashtra, Gujarat, North Interior Karnataka).
- 24 to 28 $^{\circ}\text{C}$ over many parts of Sikkim, Goa, some parts of Jammu & Kashmir, Himachal Pradesh, Konkan, North & South Interior Karnataka.

Mean Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 25.09.2013



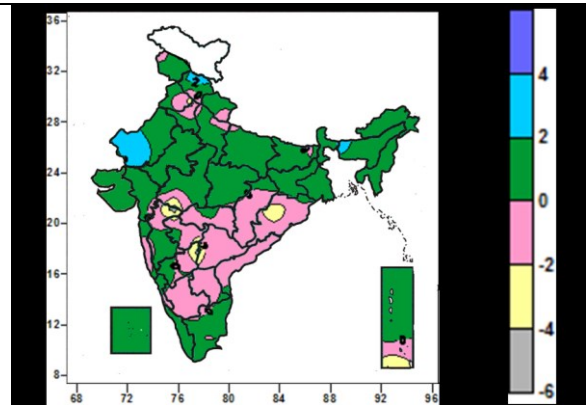
- 2 to 4 $^{\circ}\text{C}$ over many parts of Sub-Himalayan West Bengal & Sikkim, North East India, some parts of Jammu & Kashmir, Himachal Pradesh, Bihar.
- -2 to 2 $^{\circ}\text{C}$ over many parts of the country (except many parts of Sub-Himalayan West Bengal & Sikkim, North East India, Vidarbha, some parts of Jammu & Kashmir, Himachal Pradesh, Bihar, Madhya Pradesh, Madhya Maharashtra, Gujarat, Chattisgarh, Orissa, Telangana).
- -4 to -2 $^{\circ}\text{C}$ over many parts of Vidarbha, some parts of Madhya Pradesh, Madhya Maharashtra, Gujarat, Chattisgarh, Orissa, Telangana.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 25.09.2013



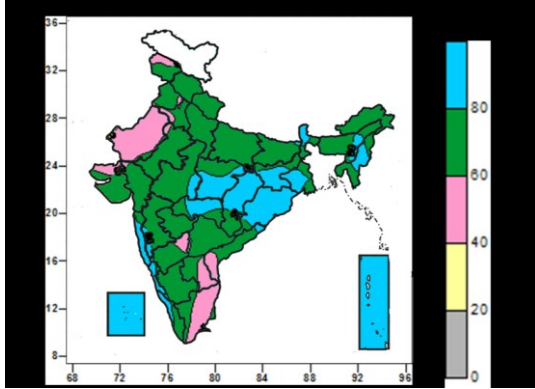
- 20 to 28 $^{\circ}\text{C}$ over many parts of country (except many parts of Jammu & Kashmir, Himachal Pradesh, Sub-Himalayan West Bengal & Sikkim some parts of Rajasthan, Haryana, Bihar, Jharkhand).
- 12 to 20 $^{\circ}\text{C}$ over many parts of Jammu & Kashmir, Himachal Pradesh, Sub-Himalayan West Bengal & Sikkim some parts of Rajasthan, Haryana, Bihar, Jharkhand.

Mean Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 25.09.2013



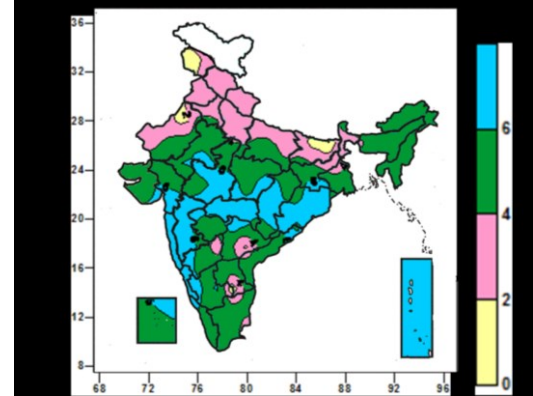
- 2 to 4 $^{\circ}\text{C}$ over some parts of Himachal Pradesh, West Rajasthan.
- -2 to 2 $^{\circ}\text{C}$ over all the parts of country (except Himachal Pradesh, West Rajasthan, West Madhya Pradesh, Madhya Maharashtra, Orissa, North Interior Karnataka, Andaman & Nicobar Islands.)
- -4 to -2 $^{\circ}\text{C}$ over some parts of West Madhya Pradesh, Madhya Maharashtra, Orissa, North Interior Karnataka, Andaman & Nicobar Islands.

**Relative Humidity (%) over India for the week ending
25.09.2013**



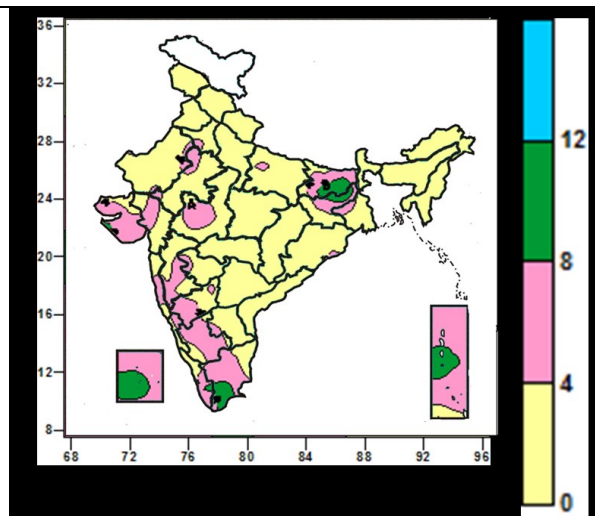
- 60 to 100% over entire country (except many parts of West Rajasthan, Tamil Nadu, some parts of Jammu & Kashmir, Haryana, East Rajasthan, Saurashtra & Kutch, Gujrat, North Interior Karnataka, Coastal Andhra Pradesh).
- 40 to 60% over many parts of West Rajasthan, Tamil Nadu, some parts of Jammu & Kashmir, Haryana, East Rajasthan, Saurashtra & Kutch, Gujrat, North Interior Karnataka, Coastal Andhra Pradesh.

**Cloud amount (okta) over India for the week ending
25.09.2013**



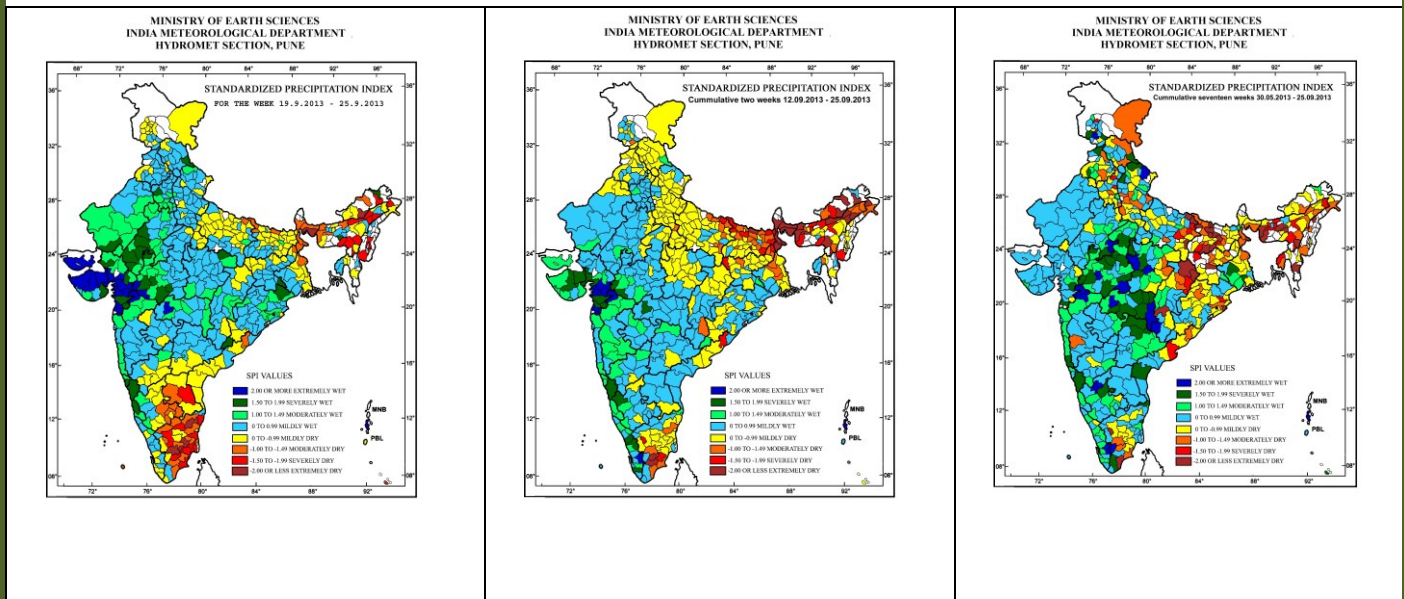
- 4 to 8 okta over entire country (except many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, some parts of Jharkhand, Gangetic West Bengal, North & South Interior Karnataka, Andhra Pradesh, Tamil Nadu).
- 0 to 4 okta over many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, some parts of Jharkhand, Gangetic West Bengal, North & South Interior Karnataka, Andhra Pradesh, Tamil Nadu.

Wind speed (knots) over India for the week ending 25.09.2013



- 8 to 12 knots over some parts of Bihar, Jharkhand, Kerala, Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands.
- 4 to 8 knots over many parts of Saurashtra & Kutch, Konkan, North & South Interior Karnataka, Tamil Nadu, Kerala, Lakshadweep, Andaman & Nicobar Islands, some parts of Rajasthan, Haryana, East Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, Gujarat, West Madhya Pradesh, Madhya Maharashtra, Marathwada, Raylaseema, Kerala, Tamil Nadu.
- 0 to 4 knots over many parts of the country (except Saurashtra & Kutch, Konkan, North & South Interior Karnataka, Tamil Nadu, Kerala, Lakshadweep, Andaman & Nicobar Islands, some parts of Rajasthan, Haryana, East Uttar Pradesh, Bihar, Jharkhand, Gangetic West Bengal, Gujarat, West Madhya Pradesh, Madhya Maharashtra, Marathwada, Raylaseema, Kerala, Tamil Nadu).

Standard Precipitation Index weekly, fortnightly and seasonal



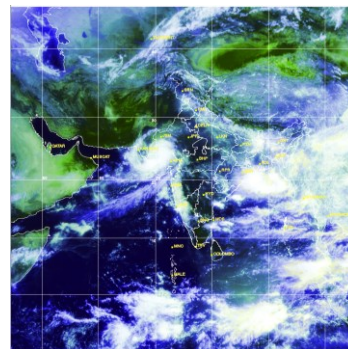
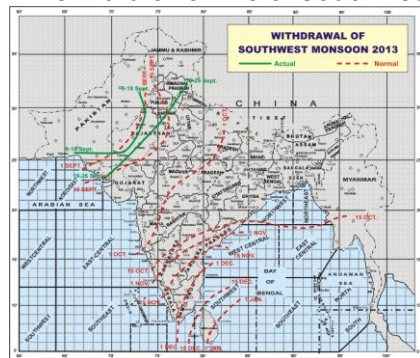
Weekly SPI values indicate, extremely wet/severely wet conditions over parts of Gujarat, Saurashtra & Kutch, Coastal Karnataka, Goa and some parts of East Rajasthan, Haryana, Himachal Pradesh, East Madhya Pradesh, Gangetic West Bengal, Orissa, Chattisgarh, while extremely dry/ severely dry conditions were observed over most parts of Assam & Meghalaya, Tamil Nadu, and some parts of Arunachal Pradesh, Nagaland, Mizoram, Sub-Himalayan West Bengal, Raylaseema.

Cumulative SPI values of the past two weeks indicate extremely wet/severely wet conditions over many parts of Gujarat, Saurashtra & Kutch, Coastal Karnataka, Kerala and some parts of West Madhya Pradesh, Madhya Maharashtra, Vidarbha, North Interior Karnataka while extremely dry/severely dry conditions were observed over many parts of Sub-Himalayan West Bengal, Assam & Meghalaya, some parts of Bihar, Jharkhand, East Uttar Pradesh, Arunachal Pradesh, Mizoram, Coastal Andhra Pradesh, Tamil Nadu.

Cumulative SPI values of the past seventeen weeks (i.e. since the beginning of southwest monsoon) indicate extremely wet/severely wet conditions over most parts of West Madhya Pradesh, Vidarbha, Coastal Karnataka, Uttarakhand, some parts of Jammu and Kashmir, Himachal Pradesh, Punjab, West Uttar Pradesh, Gangetic West Bengal, Chattisgarh, Madhya Maharashtra, Konkan, Andhra Pradesh, South Interior Karnataka, Kerala, Tamil Nadu, while extremely dry/severely dry conditions were observed over parts of Bihar, Jharkhand, Assam & Meghalaya, and some parts of Jammu & Kashmir, Arunachal Pradesh, Haryana, East Uttar Pradesh, Tripura, East Madhya Pradesh, Orissa, Coastal Andhra Pradesh, Madhya Maharashtra.

Withdrawal of Southwest Monsoon 2013

♦The withdrawal line of southwest monsoon continue to pass through Kalpa, Hissar, Jodhpur and Nalia.



Withdrawal of Southwest Monsoon 2013

Satellite image dated 27.09.2013, 0500 UTC

Weather Forecast

Weather Forecast for next 3 days (upto 0830 hours IST of 30th September, 2013)

- Rain/thundershowers would occur at most places over Gujarat state during next 48 hours and at many places thereafter.
- Rain/thundershowers would occur at many places over Konkan & Goa and Andaman & Nicobar Islands.
- Rain/thundershowers would occur at a few places over Rajasthan during next 24 hours and at many places thereafter.
- Rain/thundershowers would occur at a few places over eastern & northeastern states, east Uttar Pradesh, north Madhya Maharashtra and coastal Karnataka.
- Isolated rain/thundershowers would occur over rest parts of the country outside Jammu & Kashmir, where it would be mainly dry.

Weather Warning during next 3 days

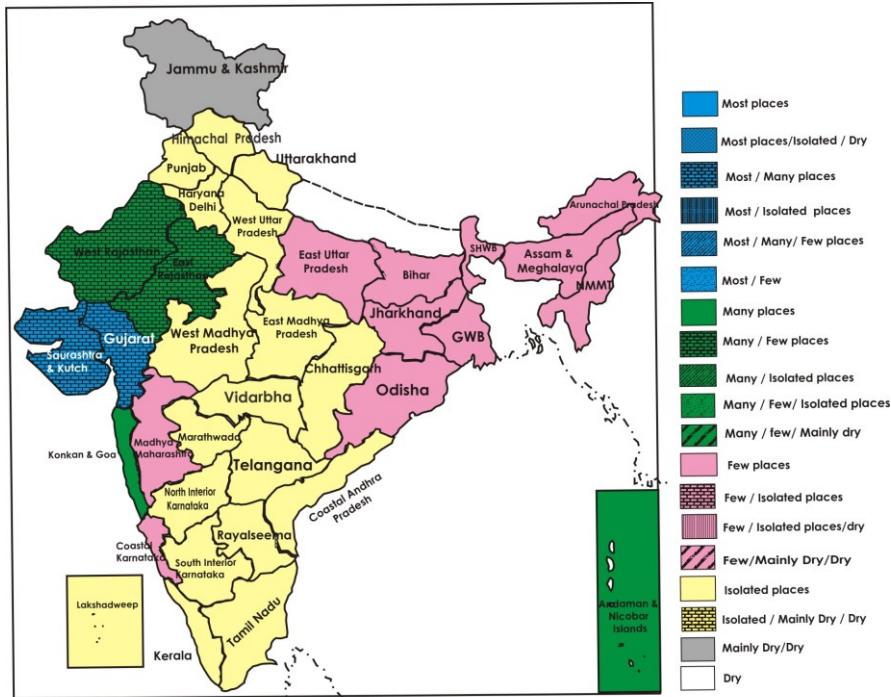
- 27 SEPTEMBER:** Heavy to very heavy rainfall would occur at a few places with isolated extremely heavy falls over Saurashtra. Heavy rainfall at a few places would occur over Gujarat region & Kutch.
- 28 September:** Heavy to very heavy rainfall would occur at isolated places over Gujarat Region and Saurashtra & Kutch. Heavy rainfall would occur at isolated places over southwest Rajasthan
- 29 September:** Heavy rainfall would occur at isolated places over southwest Rajasthan, Gujarat region and Saurashtra & Kutch.

Weather Outlook for subsequent 4 days from 30th September to 4th October, 2013

- Decrease in rainfall activity over Gujarat and Konkan.
- Rain/thundershower would occur at a few places along west coast and over eastern & northeastern states.
- Isolated rainfall would occur over Himachal Pradesh, Uttarakhand and Uttar Pradesh and weather would be mainly dry over rest parts of the country.

Weather Forecast Map

(Valid upto 0830 hours of 30th September, 2013)



Salient Advisories

Northeast Region

- Maintain standing water in *sali* rice in Assam and Meghalaya, regular WRC rice in Arunachal Pradesh, *kharif* rice in Manipur and Nagaland and *aman* rice in Tripura.
- In Sub Tropical Hill Zone of Arunachal Pradesh, prepare nursery bed of cauliflower, cabbage and continue sowing of carrot and radish. Continue field preparation and sowing of pea and maize. Undertake field preparation for planting of potato. Continue harvesting of matured *jhum* rice and early WRC rice on a non-rainy day.
- In Temperate Sub Alpine Zone of Meghalaya, continue sowing of green gram and black gram, where sowing of rice could not be done earlier due to long dry spell. Also continue nursery raising of early cauliflower and winter vegetables.
- In Mild Tropical Hill Zone of Nagaland, continue nursery raising of cabbage and tomato. Continue land preparation for sowing of rajma and potato.
- In Central Bramhaputra Valley Zone of Assam, there is a chance of infestation stem borer and caseworm in *sali* rice; drain out excess water from the field and spray Chloropyrifos (20%) @ 2 ml / litre of water on a non rainy day to control the infestation.

South Region

- Undertake harvesting of rice in Southern Zone of Kerala.
- Continue sowing of cotton and undertake plant protection measures to control incidence of basal rot and purple blotch in onions in the Hill Zone of Karnataka.
- In North East Dry Zone of Karnataka, undertake land preparation for sowing *rabi* crops like sorghum, Bengal gram, horse gram and safflower.
- In North East Dry Zone of Karnataka, undertake land preparation for sowing *rabi* crops like sorghum, Bengal gram, horse gram and safflower. Undertake transplanting of vegetables in Southern Transition Zone of Karnataka.
- In Anantapur district of Rayalaseema, undertake land preparation for sowing of Bengal gram in Anantapur district and Bengal gram and jowar in Kurnool district by utilizing the realized rainfall.
- Continue transplanting of *samba* rice, prepare late *samba* nursery and undertake direct wet seeding of *samba* rice by using paddy seed drill adopting seed rate of 15 kg/acre in the Cauvery Delta Zone of Tamil Nadu.
- Undertake land preparation and sowing of maize, cotton and rainfed crops in the Southern Zone of Tamil Nadu.

West Region

- Maintain water level upto 8-10 cm in rice fields at flowering / grain filling stage in Konkan and Madhya Maharashtra.
- In Madhya Maharashtra, continue harvesting of already matured soybean on a non rainy day. Undertake sowing of *rabi* jowar and safflower in the harvested fields of green gram and black gram under optimum moisture condition.
- Undertake sowing of *rabi* jowar, safflower and rainfed gram in Marathwada. Also undertake intercultural operations, application of fertilizers and plant protection measures in cotton, red gram, vegetables, orchards and sugarcane. Continue the harvesting of already matured bajra and soybean.
- The prevailing weather (Temperature around 28°C and humidity around 80%) is congenial for the incidence of leaf scald in *kharif* rice in Western Ghat region of Maharashtra; spray Chlorpyrifos @ 15 ml per 10 litres of water on a non rainy day.
- In Gujarat, due to heavy rainfall and subsequent occurrence of flood and submergence in some areas in the districts of Bharuch, Tapi, Surat and Narmada, crops like cotton, Arhar, vegetables and banana were affected. Crops like pigeon pea, maize, pearl millet, cotton and Tobacco were also affected in the districts of Anand, Kheda, Vadodara, Panchmahal and Dahod due to heavy rainfall. Drain out excess water immediately from the fields to save the crops.

Central Region

- In Central Narmada Valley Zone, Jhabua Hill Zone and Nimar Valley Zone of Madhya Pradesh, continue harvesting of matured green gram, black gram and soybean.
- In Gird Zone of Madhya Pradesh, undertake land preparation and sowing of toria.
- In Bundelkhand Zone of Madhya Pradesh, undertake nursery raising of tomato, chilli, brinjal, cabbage and cauliflower.
- In Chhattisgarh Plain Zone and North Hill Plain Zone, apply last dose of nitrogen in rice at panicle initiation stage. Before applying urea decrease the water level in the field.
- In Jhabua Hill Zone of Madhya Pradesh, present weather is congenial for attack of sucking pests in cotton, okra and chilli, spray Thiomithaxim / Acetameprid @ 0.3 gm/litre of water for control.

East Region

- In Laterite and Red Soil Zone of West Bengal, undertake hand weeding or apply Pretilachlor 50% EC@1-2 litre/500 litre of water/ha to keep the field of aman rice weed free at panicle initiation stage. Prepare the seedbed for sowing of early cabbage and cauliflower.
- In Coastal Saline Zone of West Bengal in aman rice, apply 4th top dressing @urea 15kg/acre +MOP @12kg/ acre for early variety and for medium duration variety the dose should be urea 17kg/acre +MOP 13kg/acre.
- Complete planting of banana, cashew nut, marigold and sowing of sesame in East and South Eastern Coastal Plain Zone of Odisha. Continue sowing of moong, black gram, horse gram and cow pea in the uplands/medium lands using @ 8-10kg seeds/acre after seed treatment.
- In North West Alluvial Plain Zone of Bihar, apply irrigation in rice crop which is in the booting stage. Undertake land preparation for sowing of rapeseed in the upland areas.
- In South Bihar Alluvial Zone of Bihar, in fallow land continue sowing of barja, toria and vegetables. Also continue planting of banana, papaya, chilli and sweet potato.
- In Western Plateau Zone of Jharkhand, undertake weeding in transplanted rice, continue sowing of toria. Prepare field for early potato and green peas and mustard.
- In Central & North Eastern Plateau Zone of Jharkhand, continue sowing of niger, horse gram and green peas, planting of potato and marigold. In rice crop, undertake intercultural operations and top dressing of urea. Continue nursery sowing of tomato, cabbage and cauliflower.

North Region

- In Sub Tropical Zone of Jammu & Kashmir, continue sowing of toria intercropped with gobi sarson, winter vegetables like potato, radish, carrot, turnip, garlic, spinach. Also continue sowing of onion in Valley Temperate Zone.
- In High Hill Temperate Dry Zone of Himachal Pradesh undertake harvesting of matured pods of peas.
- In Delhi, continue transplanting of brinjal, tomato, chilli, cauliflower and cabbage on raised beds if seedlings are ready. Continue sowing of carrot, sarson saag, radish, spinach and coriander on raised beds and sowing of early pea. Undertake field preparation for planting of early potato.
- In Central Plain Zone of Uttar Pradesh, undertake sowing of toria, potato, coriander and nursery sowing of tomato and cabbage. Complete the transplanting of cabbage, brinjal and chilli.
- In Bhabar and Tarai Zone of Uttarakhand, undertake field preparation and sowing of toria, mustard and also continue sowing of garlic under optimum soil moisture conditions. Weather is congenial for planting of tomato seeds in nursery and planting of potato.
- In West Rajasthan, postpone sowing of early varieties of radish and nursery sowing of early varieties cabbage and cauliflower. Also postpone sowing of rainfed taramira, toria and sowing of radish, carrot. Provide adequate drainage in crop fields.

Detailed Zonewise Agromet Advisories

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

- **Realised Rainfall:** Significant rainfall occurred in Kinnaur district of Himachal Pradesh, Chandigarh, Faridabad, Hissar, Karnal, Mahendragarh, Mewat, Rewari, Sonapat districts of Haryana, Deoria, Gazipur, Shahuji Maharajnagar, Shrawasti districts of East Uttar Pradesh, Baghpat, Bareilly, Lalitpur, Meerut, Muzzafarnagar districts of West Uttar Pradesh, Chamoli, Dehradun, Uttarkashi districts of Uttarakhand and Ajmer, Alwar, Banswara, Bhilwara, Bundi, Chittorgarh, Dungarpur, Jhalwar, Kota, Pratapgarh, Rajsamund, Sirohi and Udaipur districts of East Rajasthan during the week.
- **Weather Forecast:** Rain/thundershowers would occur at a few places over Rajasthan during next 24 hours and at many places thereafter. At few places over east Uttar Pradesh. Weather would be mainly dry over Jammu & Kashmir and at isolated places over rest parts of the region.
- **Weather Warning:** Heavy rainfall would occur at isolated places over southwest Rajasthan on 28th and 29th September.
- **Weather Outlook:** Rain/thundershowers would occur at isolated places over Himachal Pradesh, Uttar Pradesh and Uttarakhand.
- **Advisory :**
 - In Sub Tropical Zone of Jammu & Kashmir, continue sowing of toria intercropped with gobi sarson, winter vegetables like potato, radish, carrot, turnip, garlic, spinach. Also continue sowing of onion in Valley Temperate Zone.
 - In Cold Arid Zone of Jammu & Kashmir, harvest potato, onion, tomatoes, *capsicum*, chilli, brinjal, cabbage, bottle gourd, cucumber and start sowing of spinach in green houses and trenches.
 - In Mid Hills Sub Humid Zone, Sub-Montane Zone & Low Hills Sub-Tropical Zone of Himachal Pradesh undertake direct sowing of radish, turnip, carrot, fenugreek, sowing of cole crops and transplanting of cauliflower. Also continue land preparation for winter leafy vegetable crops like palak, methi, sarson, carrot, onion, garlic and early varieties of pea.
 - In High Hill Temperate Dry Zone of Himachal Pradesh undertake harvesting of matured pods of peas.
 - In East Uttar Pradesh, continue transplanting of cabbage, cauliflower, brinjal and tomato and sowing of toria. Undertake land preparation for planting of potato. In West Uttar Pradesh, continue sowing of toria.
 - In Central Plain Zone of Uttar Pradesh, undertake sowing of toria, potato, coriander and nursery sowing of tomato and cabbage. Complete the transplanting of cabbage, brinjal and chilli.
 - In Bhabar and Tarai Zone of Uttarakhand, undertake field preparation and sowing of toria, mustard and also continue sowing of garlic under optimum soil moisture conditions. Weather is congenial for planting of tomato seeds in nursery and planting of potato.
 - In Hill zone of Uttarakhand, undertake field preparation for sowing of toria, pea.
 - In Delhi, continue transplanting of brinjal, tomato, chilli, cauliflower and cabbage on raised beds if seedlings are ready. Continue sowing of carrot, sarson saag, radish, spinach and coriander on raised beds and sowing of early pea. Undertake field preparation for planting of early potato.
 - In Eastern zone of Haryana, continue transplanting of the fruit plants. As there is possibility of dry weather, apply irrigation to vegetable crops. Undertake sowing of palak, methi, brinjal, chilli, onion and early cauliflower on ridge.
 - In Semi-arid Eastern Plain Zone of east Rajasthan, undertake field preparation for sowing of rainfed taramira and mustard.
 - In Flood Prone Eastern Plain Zone of east Rajasthan, undertake nursery raising of onion of good varieties and field preparation for planting of potato for rabi season, continue harvesting of fully matured crops like bajra, jowar, moong, cluster bean and til.
 - In Sub Humid Southern Plain Zone and Aravali Hill Zone of east Rajasthan, complete



Rice



Groundnut



Sugarcane



Maize

picking of matured pods of pulse crops like green gram and pulses and undertake preparation of seed bed for raising nursery of chilli, brinjal and tomato after current spells of heavy rain.

- In West Rajasthan, postpone sowing of early varieties of radish and nursery sowing of early varieties cabbage and cauliflower. Also postpone sowing of rainfed taramira, toria and sowing of radish, carrot. Provide adequate drainage in crop fields.
 - In Arid Western Plain Zone of West Rajasthan, undertake sowing of mustard up to 25th October, after spells of heavy rain.
 - In Mid Hills Sub Humid Zone and Sub Montane & Low Hills Sub Tropical Zone of Himachal Pradesh, weather is congenial for spread of fruit rot in tomato, chilli and capsicum, for control; apply Dithane M-45 @ 2-3 g per litre of water in 10-15 days interval, fruit and shoot borer attack is seen in brinjal, spray fenbalerate or cypermethrin @0.01 % for control. Weather is also conducive for attack of tomato borer, spray endosulphon@0.07%.
 - In Arid Western Plain Zone of West Rajasthan, incidence of fruit borer in tomato is observed, spray Malthion 50 EC 1ml per litre of water for its control.
 - In Irrigated North Western Plain Zone of west Rajasthan, weather is conducive for the attack of spotted bollworm in desi cotton, spray 1 ml Endoscarb 14.5 SC in water.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure III.
- **Floriculture**
 - In Delhi, undertake marigold plantation in this weather conditions.
 - **Animal Husbandry**
 - In Mid Hills Sub-Humid Zone of Himachal Pradesh, there are chances of endoparasites infestation. Deworming of animals must be done with bolus oxcyclozanide @ 10mg/ kg body weight and should be repeated after 21 days with same dose rate. Due to diurnal variation in temperature occurrence of respiratory diseases (Pneumonia) increases, protect the animals during night hours from reducing temperature. New born and young calves may be covered with dry gunny bags during night hours. In grazing animals occurrence of tick infestation is observed, apply ectoparasiticide like Cypermethrin (10%w/v) @2-3ml per litre of water on animal body.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Significant rainfall occurred in all the districts of Madhya Pradesh except Chhatarpur, Damoh, Dindori, Katni, Jabalpur, Mandla, Narsingpur, Panna, Sagar, Tikamgarh districts of East Madhya Pradesh, Bhind, Datia, Gwalior, Sheopur and Kalani districts of west Madhya Pradesh and in all the districts of Chhattisgarh except Bastar, Bilaspur, Korba and Surguja districts during the week.
- **Weather forecast:** Rain/thundershowers would occur at isolated places over the region.
- **Weather Warning:** nil
- **Weather Outlook:** Weather would be mainly dry over the region.
- **Advisories:**
 - In Central Narmada Valley Zone, Jhabua Hill Zone and Nimar Valley Zone of Madhya Pradesh, continue harvesting of matured green gram, black gram and soybean.
 - In Gird Zone of Madhya Pradesh, undertake land preparation and sowing of toria.
 - In Bundelkhand Zone of Madhya Pradesh, undertake nursery raising of tomato, chilli, brinjal, cabbage and cauliflower.
 - In Chhattisgarh Plain Zone and North Hill Plain Zone, apply last dose of nitrogen in rice at panicle initiation stage. Before applying urea decrease the water level in the field.
 - In Jhabua Hill Zone of Madhya Pradesh, present weather is congenial for attack of sucking pests in cotton, okra and chilli, spray Thiomithaxim / Acetameprid @ 0.3 gm/litre of water for control.
 - In North Hill Plain Zone of Chhattisgarh, present weather is congenial for infestation of rice leaf folder. When the leaf damage reaches 10 per cent then spray either 350 ml of Sutathion 40 EC or 560 ml Monocrotophos 36 SL in 100 litres of water per acre.
 - In North Hill Plain Zone of Chhattisgarh, there is chance of occurrence of yellow Mosaic Virus in pulses, spray Dimethoate @ 2 ml/liter of water.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure III
- **ANIMAL HUSBANDRY & POULTRY**
 - In Madhya Pradesh, vaccinate the catles against H.S., B.Q. and FMD diseases and also deworming in cattles and goats.



Rice



Soybean



Sugarcane



Maize

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

- **Realised Rainfall:** Significant rainfall occurred in all districts of Odisha, Sikkim; in most of the districts of Gangetic West Bengal except Birbhum, Burdwan, Hooghly, Nadia and North 24 Parganas, in Cooch Behar, Malda, North Dinajpur and South Dinajpur district in Sub-Himalayan West Bengal; in Aurangabad, Bhojpur, Gaya, Khagaria, Lakhisarai, Nawada, Rohtas, Saharsa and Siwan districts of Bihar and in many districts of Jharkhand except Chatra, Deogarh, Garhwa, Godda, Koderma, Latehar, Pakur, Palamau and Sahibganj.
- **Weather Forecast:** Rain/thundershowers would occur at a few places over the region.
- **Weather Warning:** Nil.
- **Weather Outlook:** Rain/thundershowers would occur at a few places over the region.
- **Advisories:**
 - In Laterite and Red Soil Zone of West Bengal, undertake hand weeding or apply Pretilachlor 50% EC@1-2 litre/500 litre of water/ha to keep the field of *aman* rice weed free at panicle initiation stage. Prepare the seedbed for sowing of early cabbage and cauliflower.
 - In New alluvial Zone of West Bengal, undertake sowing seed of winter vegetables, nursery bed of onion and also cultivate radish, broccoli etc. Start sowing of early variety of cabbage and cauliflower @ 4gm / katha. Keep 2-3cm standing water in the fields during panicle initiation stage of *aman* rice.
 - In Coastal Saline Zone of West Bengal in *aman* rice, apply 4th top dressing @urea 15kg/acre +MOP @12kg/ acre for early variety and for medium duration variety the dose should be urea 17kg/acre +MOP 13kg/acre.
 - In Terai Zone of West Bengal, undertake seedbed preparation for planting winter seasonal flowers.



Rice



Sugarcane



Maize

- Complete planting of banana, cashew nut, marigold and sowing of sesame in East and South Eastern Coastal Plain Zone of Odisha. Continue sowing of moong, black gram, horse gram and cow pea in the uplands/medium lands using @ 8-10kg seeds/acre after seed treatment.
- In North West Alluvial Plain Zone of Bihar, apply irrigation in rice crop which is in the booting stage. Undertake land preparation for sowing of rapeseed in the upland areas.
- In South Bihar Alluvial Zone of Bihar, in fallow land continue sowing of barja, toria and vegetables. Also continue planting of banana, papaya, chilli and sweet potato. Undertake intercultural operation in *kharif* vegetables, *kharif* fodder and apply nitrogenous fertilizer.
- In North East Alluvial Zone of Bihar, apply irrigation to rice crop. Undertake nursery sowing of early autumn vegetables and weeding in pigeon pea and yam bean.
- In Central & North Eastern Plateau Zone of Jharkhand, continue sowing of niger, horse gram and green peas, planting of potato and marigold. In rice crop, undertake intercultural operations and top dressing of urea. Continue nursery sowing of tomato, cabbage and cauliflower. Undertake sowing of bell pepper.
- In Western Plateau Zone of Jharkhand, undertake weeding in transplanted rice crop, continue sowing of toria. Prepare field for early potato and green peas and mustard. Undertake sowing of green fodder like maize and lobia.
- In South Eastern Plateau Zone of Jharkhand, undertake sowing of niger, cow pea, rice bean, lobia and safflower.
- Due to humid weather conditions in Laterite and Red Soil Zone of West Bengal sheath blight can be seen in *aman* rice, apply Validamycin (sheath mar) @2ml or Propiconazol 25% @ 0.75ml per litre of water and to protect the crop from stem borer or leaf hopper, apply Chlorpyrifos 2.5ml or Triazophos 2ml per litre of water on a non rainy day.
- Present temperature and humidity conditions in New Alluvial Zone, Laterite and Red Soil Zone of West Bengal are congenial for the rapid spread of thrips and mites leading to the leaf curling in chilli and in okra, white fly attack may cause yellow mosaic virus disease, spray Difenthiuron @ 0.75g per litre of water at 7-10 days interval on a non rainy day.
- Due to high humidity and cloudy sky in Laterite and Red Soil Zone of West Bengal, Fungal and bacterial diseases may be seen in *kharif* maize. Apply 2.5g Mancozeb for fungal attack and 0.1g Streptocycline per litre of water in case of bacterial rot on a non rainy day.
- In South Eastern Plateau Zone of Jharkhand, present weather condition is congenial for occurrence of mealy bug and hoppers in rice crop, apply Monochrotophos @ 1ml per liter of water on a non rainy day.
- In Western Plateau Zone of Jharkhand, timely sown rice crops (direct seeded in last week of June) are at flowering stage and this stage is susceptible to the attack of the Gandhi bug. To control the insects, dusting of Chlorpyrifos / Quinolphos /Methyl parathion dust @ 10 kg per acre may be done on a non rainy day.
- In Western Undulating Zone in Odhisha, stem borer attack has been noticed in paddy. Apply Fipronil granule @5kg/acre for their control on a non rainy day and repeat one spray with Monocrotophos @2ml/litre water after 15days on a non rainy day.
- White ant attack in groundnut has been found in dry areas of East and South Eastern Coastal Plain Zone, undertake soil drenching with 2 ml Chloropyrifos per litre of water thoroughly. Wilt has been found due to high humidity and leaf miner has occurred, spray 2 ml Chloropyrifos /litre water to control leaf miner. Apply plant protection measures on a non rainy day.
- Fruit and shoot borer in brinjal has been found in Kendrapara district of East and South Eastern Coastal Plain Zone of Odisha. Install pheromone trap and spray 4 g Sevin WP or 2 ml Malathion in 1 litre water alternatively. Thrips in chilli has been found, spray 300 ml Ethion or 400 ml Carbosulphan/ acre on a non rainy day.
- Infestation of stem borer and *Helicoverpa* in maize crop in Nayagarh district of East and South Eastern Coastal Plain Zone of Odisha, apply 1 g Furadan in the leaf whorl or spray 2 ml Chloropyrifos or 1.5 ml Phosphamidon in 1 litre water on a non rainy

day and repeat again after 15 days of first spraying. For *Helicoverpa* spray 100 L.E. NPV during morning and evening.

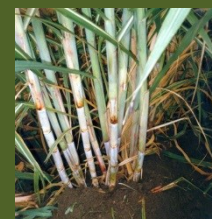
- Occurrence of hairy caterpillar in groundnut in Nayagarh district of East and South Eastern Coastal Plain Zone of Odisha. Apply 10-12 kg Chloropyriphs or spray 400 ml Quinalphos or Endosulphan in 200 litre water on a non rainy day.
- Infestation of early shoot borer in sugarcane in Nayagarh district of East and South Eastern Coastal Plain Zone of Odisha, spray 2.5 ml Monocrotophos per of litre water and, spray 2 g Bentan or Crilton in each litre of water to control red rot in sugarcane on a non rainy day.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.

Animal Husbandry

- In North West Alluvial Plain Zone of Bihar, provide concentrate feed to milch animals mix with dry and green fodder and insure for enrich diet having protein, carbohydrate, fat, vitamins etc.

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

- **Realised Rainfall:** Significant rainfall occurred in Tawang, Tirap and Upper Siang districts of Arunachal Pradesh, Barpeta, Bongaigaon, Cachar, Chirang, Dibrugarh, Golghat, Kamrup (Rural), Karimganj and Morigaon districts of Assam, Ribhoi, South Garo Hills and West Garo Hills districts of Meghalaya, Aizwal, Lunglei, Mamit and Saiha districts of Mizoram, Kohima, Mokokchung and Wokha districts of Nagaland, all districts of Tripura.
- **Weather Forecast:** Rain / thundershowers would occur at a few places over the States of the region during the period.
- **Weather Warning:** Nil.
- **Weather Outlook:** Rain / thundershower would occur at a few places over the States of the region.
- **Advisories:**
 - Maintain standing water in *sali* rice in Assam and Meghalaya, regular WRC rice in Arunachal Pradesh, *kharif* rice in Manipur and Nagaland and *aman* rice in Tripura.
 - In Hill Zone of Assam, continue transplanting of early cauliflower and nursery raising of winter vegetables.
 - In Lower Bramhaputra Valley Zone of Assam, continue sowing of niger and nursery raising of brijal, mid cauliflower, early cabbage and kholkhol. Undertake intercultural operations and thinning in 20 days old *kharif* sesame.
 - In Barak Valley Zone of Assam, continue transplanting of early varieties of cabbage, cauliflower, knolkhol and brinjal.
 - In Central Bramhaputra Valley Zone of Assam, continue nursery sowing of early cole crops, brinjal and radish.
 - In Sub Tropical Hill Zone of Arunachal Pradesh, prepare nursery bed of cauliflower, cabbage and continue sowing of carrot and radish. Continue field preparation and sowing of pea and maize. Undertake field preparation for planting of potato. Continue harvesting of matured *jhum* rice and early WRC rice on a non-rainy day. Undertake mulching in the fields of carrot and spinach to conserve soil moisture.
 - In Temperate Sub Alpine Zone of Meghalaya, continue sowing of green gram and black gram, where sowing of rice could not be done earlier due to long dry spell. Also continue nursery raising of early cauliflower and winter vegetables.
 - Undertake land preparation for *rabi* vegetables like carrot, radish, coriander, cauliflower, cabbage, broccoli, etc. in Sub Tropical Plain Zone of Manipur. Also undertake nursery raising of onion. Sowing of pea, French bean and broad bean may be done in upland areas.
 - In Mild Tropical Hill Zone of Nagaland, continue nursery raising of cabbage and tomato. Continue land preparation for sowing of rajma and potato.
 - Continue transplanting of early cauliflower, radish and brinjal in Mid Tropical Plain Zone of Tripura.
 - In Central Bramhaputra Valley Zone of Assam, there is a chance of infestation stem



Sugarcane



Rice



Groundnut



Maize

borer and caseworm in *sali* rice; drain out excess water from the field and spray Chloropyriphos (20%) @ 2 ml / litre of water on a non rainy day to control the infestation.

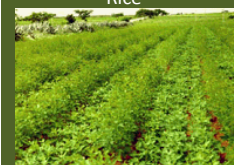
- Due to favourable weather conditions, there is chance of attack of leaf folder and rice hispa in *sali* rice in Temperate Sub Alpine Zone of Meghalaya. Farmers are advised to spray Chloropyriphos 20 EC @ 1 ml per liter of water or Monocrotophos 40 EC @ 1.5 ml per liter of water a non rainy day.
- In Mild Tropical Plain Zone of Tripura, high temperature and humidity is conducive for the attack of stem borer and sheath blight in *aman* rice. Apply Novacron @ 2 ml per liter of water for stem borer and spray Bavistin 50 WP @ 200 g or Tilt 25 EC or Monceren 250 SC @ 200 ml in 200 liters of water for sheath blight on a non rainy day.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
 - In Mild Tropical Plain Zone of Tripura, prevailing high humidity may cause ammonia fumes which irritate the respiratory tract and eyes in poultry. Provide good ventilation in poultry sheds. Carry out vaccination and deworming to protect the pigs from swine fever and internal parasite disease. Also undertake vaccination against Foot & Mouth Disease (FMD) in cattle.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

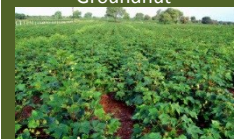
- **Realised Rainfall:** Significant rainfall occurred in all the districts of Gujarat State except Banaskantha and Porbandar districts and in all the districts of Maharashtra except Aurangabad and Latur districts.
 - **Weather Forecast:** Rain / thundershowers would occur at most places over Gujarat state during next 48 hours and at many places thereafter. Rain / thundershowers would occur at many places over Konkan, at a few places over north Madhya Maharashtra and at isolated places over rest part of the region.
 - **Weather Warning:** Heavy to very heavy rainfall would occur at a few places with isolated extremely heavy falls over Saurashtra and heavy rainfall at a few places would occur over Gujarat region & Kutch on 27th September. Heavy to very heavy rainfall at isolated places on 28th September and heavy rainfall at isolated places on 29th September would occur over Gujarat State.
 - **Weather Outlook:** Significant decrease in rainfall activity over Gujarat and Konkan.
- Advisories:**
- Due to heavy rainfall and subsequent occurrence of flood and submergence in some areas in the districts of Bharuch, Tapi, Surat and Narmada, crops like cotton, Arhar, vegetables and banana were affected. Crops like pigeon pea, maize, pearl millet, cotton and Tobacco were also affected in the districts of Anand, Kheda, Vadodara, Panchmahal and Dahod due heavy rainfall. Drain out excess water immediately from the fields to save the crops.
 - In Konkan, postpone intercultural operations, application of fertilizers and plant protection measures in rice, finger millets, vegetable crops and mango, cashew and sapota orchards.
 - Maintain water level upto 8-10 cm in rice fields at flowering / grain filling stage in Konkan and Madhya Maharashtra.
 - In Madhya Maharashtra, continue harvesting of already matured soybean on a non-rainy day. Undertake sowing of *rabi* jowar and safflower in the harvested fields of green gram and black gram on vapsa condition.
 - Undertake sowing of *rabi* jowar, safflower and rainfed gram in Marathwada. Also undertake intercultural operations, application of fertilizers and plant protection measures in cotton, red gram, vegetables, orchards and sugarcane. Continue harvesting of already matured bajra and soybean.
 - Maintain 7 cm water level in rice field in Bhandara, Gondia, Gadchiroli and Chandrapur districts in Vidarbha. Undertake intercultural operation, application of fertilizers and plant protection measures in rice, cotton, red gram and vegetables.



Rice



Groundnut



Cotton



Sugarcane

- In Gujarat, postpone irrigation, intercultural operation, application of fertilizers and plant protection measures in standing crops. Drain out excess water from the fields of maize, sugarcane, green gram, black gram, ginger, turmeric and vegetable crops. Postpone harvesting of bajra and pulses, keep already harvested produce at safe place, postpone harvesting of groundnut and avoid water logging condition in groundnut and cotton in North Gujarat Zone.
- Postpone transplanting of sapling of horticultural crops like aonla, custard apple, pomegranate, mango, sapota and papaya and transplanting of chilies, tomato and brinjal in Bhal and Coastal Zone of Gujarat and.
- Due to continuous rain during last week in Marathwada region, there may be wilting in cotton and red gram in lowland areas. To minimize wilting, drenching of Copper Oxychloride solution @ 250 – 300 ml per plant prepared by mixing 25 g per 10 litres of water, may be done in cotton.
- The prevailing weather (Temperature around 28°C and humidity around 80%) is congenial for the incidence of leaf scald in *kharif* rice in Western Ghat region; spray Chlorpyrifos @ 15 ml per 10 litres of water after current spells of rain.
- Humid and rainy weather is favourable for infestation of powdery mildew on the lower side of leaves in okra and guar in Pune region; spray Sulphur 80% WS @ 20 g per 10 litres of water on a non-rainy day.
- In south Konkan, there may be attack of blue beetle and ear head bug in rice; spray Monochrotophos 36 % @ 12 ml per 10 litres of water after current spells of rain.
- Decrease in temperature, high cloud cover and humidity in the coming days in South Gujarat Zone are conducive for the incidence of Sigatoka leaf spot in banana; spray Carbendazim at 1 g / liter of water after current spells of rain.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- In Gujarat, keep the animals in proper cattle shed during rainfall.

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

- **Realized rainfall:** Significant rainfall occurred in East Godavari, Srikakulam and Vishakapatnam districts in Coastal Andhra Pradesh; most of the districts in Telangana except Mehbubnagar and Nalgonda; most of the districts in Kerala except Thiruvananthapuram; all the districts in Coastal Karnataka; Bidar, Bijapur, Gulbarga and Yadgir in North Interior Karnataka and Chickmagalur, Kodagu and Shimoga in South Interior Karnataka. No significant rainfall occurred in the remaining parts of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at many places over Andaman & Nicobar Islands and few places over Coastal Karnataka. Isolated rain/thundershowers would occur over rest parts of the region.
- **Weather Warning:** Nil.
- **Weather Outlook:** Rain/thundershower would occur at a few places along Coastal Karnataka and Kerala and mainly dry over rest parts of the region.
- **Advisories:**
- Complete sowing of contingency crops like horse gram and fodder jowar and undertake land preparation for sowing of Bengal gram in Anantapur and Kurnool districts and jowar in black soils in Kurnool by utilizing the realized rainfall.
- Undertake nursery sowing of chillies in the Krishna Godavari Zone of Andhra Pradesh.
- Continue sowing of cotton and undertake plant protection measures to control incidence of basal rot and purple blotch in onions in the Hill Zone of Karnataka.
- Continue sowing of sunflower and undertake sowing of Desi cotton, safflower and rabi jowar; undertake land preparation for sowing of chickpea and wheat; undertake harvesting of matured groundnut in North Dry Zone of Karnataka.
- Continue transplanting of vegetables in Southern Transition Zone of Karnataka.
- In North East Dry Zone of Karnataka, undertake land preparation for rabi crops like sorghum, Bengal gram, horse gram and safflower. Drain out excess water from cotton and pigeon pea fields in Yadgir district.



Sugarcane



Cotton



Groundnut



Rice

- Undertake planting of banana in the Southern Dry Zone of Karnataka.
- Undertake harvesting of soybean in the North East Transition Zone of Karnataka.
- Undertake harvesting of rice in the Southern Zone of Kerala. Drain the rice field 10 days before harvesting.
- In Kerala, undertake land preparation for new planting of Nendran banana in the Problem Area Zone, undertake harvesting of Nendran banana in the Problem Area and Southern Zone and planting of vegetables in the Southern Zone.
- Continue transplanting of samba rice, prepare late samba nursery and undertake direct wet seeding of samba paddy by using paddy seed drill adopting seed rate of 15 kg/acre in the Cauvery Delta Zone of Tamil Nadu.
- Undertake land preparation and sowing of maize, cotton and rainfed crops in the Southern Zone of Tamil Nadu.
- Undertake nursery sowing of chilli and adopt soil and moisture conservation practices like broad bed and furrow, compartmental bunding and ridges and furrows for conservation of moisture under rainfed conditions in South Zone of Tamil Nadu.
- Spray Chlorpyrifos @2ml per litre or Dichlorvas @ 2 ml per litre to control leaf folder attack on rice crops and undertake suitable control measures, if needed, to prevent multiplication of sucking pest in cotton and stem borer incidence on maize crop, since prevailing dry weather condition is congenial for the attack of pests in the Western Zone of Tamil Nadu.
- Undertake strict field surveillance to prevent incidences of brown plant hopper (BPH), leaf roller, brown spot and bacterial leaf blight diseases in paddy, anthracnose in cowpea, bud rot and leaf rot in coconut and attack of pseudostem weevil and banana sigatoka in banana in the Problem Area Zone of Kerala. Undertake plant protection measures if noticed.
- Undertake strict field surveillance to prevent incidences of leaf rot, red palm weevil, rhinoceros etc. in coconut in the Southern Zone of Kerala. Undertake all prophylactic measures if noticed.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.

• **Animal Husbandry**

- Vaccinate cattle and poultry, since prevailing weather condition is favorable for foot and mouth disease in cattle and Ranikhet disease in poultry in the Western Zone of Tamil Nadu.
- Vaccinate dairy animals for foot and mouth disease before the rainy season and pigs against swine fever or swine cholera to prevent the disease and pig mortality in the North Western Zone of Tamil Nadu. The young ones are more susceptible to the disease than adult animals and hence young ones should be vaccinated immediately after weaning. Subsequent vaccination may be done on yearly basis. Avoid feed ingredient having more than 11 % moisture, since feed and water may have high E.coli load due to rainfall.
- Foot and Mouth disease was noticed in different taluks of Mysore District of Southern Dry Zone of Karnataka. This disease was caused by 'O' virus and spread through wind. To manage this disease following medicines are prescribed. 1) Oxytetracycline - 40ml/ adult animal & 10ml/ small animal 2) Melaxycum - 10ml/animal 3) Belamyl - 10ml/animal

Annexure I

Stages of Major Crops

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

- Tomato, brinjal, chilli (vegetative / flowering / fruiting), French bean, okra (flowering / fruiting), rice (tillering / panicle initiation), maize (cob formation/ cob maturity), soybean (vegetative / flowering), peas (flowering / pod formation / pod maturity), cauliflower (nursery sowing), cucurbits *viz.* khira, bitter gourd, tori (vegetative / flowering / fruiting), potato (early tuberization / tuber formation/tuber elongation) in Himachal Pradesh.
- Rice (flowering / maturity / harvesting), ginger (vegetative), sugarcane (vegetative / active vegetative), urad, moong, soybean (pod maturity / harvesting), pigeon pea, cowpea, horse gram, rice bean (flowering / maturity/harvesting), sesame in low land area (early vegetative / vegetative), pearl millet (vegetative / panicle initiation), vegetable pea (sowing / germination), toria (land preparation / sowing), tomato, mustard(nursery sowing), potato(planting) in Uttarakhand.
- Rice (grain maturity/ harvesting), *Kharif* maize (vegetative / flower initiation), fodder maize, bajra, sorghum and other fodder crops(vegetative / cutting), Lady's finger, chilli and cucurbits crop (flowering / fruiting / picking), brinjal, tomato, chilli, cauliflower and cabbage(vegetative / flowering), soybean (flower initiation/maturity), radish, spinach and coriander (vegetative), guar, bajra (flowering / grain filling), onion (vegetative), Cucurbitaceous crops (flowering / fruiting / picking), mustard, pea, carrot(land preparation / sowing) in Delhi.
- Rice (flowering/dough/maturity), maize (cob formation/ maturity/harvesting), pole type beans (vegetative), cowpea (vegetative/flowering/pod formation), sunflower (vegetative / flowering), radish, spinach (transplanting / early vegetative), carrot, turnip (sowing), onion, cole crops (nursery sowing / transplanting), fruit crops (planting), *Kharif* pulses (moong, mash) (pod maturity/harvesting), beans, moong, rajmash (Valley Temperate Zone) (pod maturity / picking), groundnut (flowering / pegging initiation), radish, carrot, cucurbits, (nursery sowing), toria (sowing /emergence), potato, palak (sowing / planting) in Jammu & Kashmir.
- *Kharif* maize (knee high/tasseling/silking/cob formation), jowar, bajra, pearl millet (early vegetative / vegetative/booting/heading), rice (booting/heading/flowering/milk), groundnut, arhar, moong and urad (early vegetative / vegetative/branching/branching), tomato, brinjal (vegetative / flowering/ fruiting/picking), and cucurbitaceous vegetables (flowering / fruiting), spring sugarcane (vegetative/active vegetative/grand growth), toria, potato (land preparation / sowing) in Uttar Pradesh.
- New sugarcane (tillering / vegetative), cotton (vegetative), cucurbits, cowpea (sowing), rice (booting/ panicle initiation), pearl millet, black gram, green gram, soybean, arhar (vegetative/pod formation), moong, mash (vegetative) maize (cob formation / cob maturity) sesamum (vegetative), cauliflower (transplanting), potato(land preparation / sowing) in Punjab.
- New sugarcane (vegetative), cotton (vegetative), rice (panicle initiation/flowering/dough formation) in Haryana.
- Rice (panicle initiation/flowering), cotton (flowering / boll formation), tomato, brinjal, chilli (nursery sowing / transplanting), shimla mirch (early vegetative / vegetative), groundnut (early vegetative / vegetative), new sugarcane (early vegetative / vegetative), soybean, sesame, maize, castor (vegetative / active vegetative), moong, guar, moth, cowpea, cluster bean(flowering / pod maturity/harvesting), bajra, sorghum (flowering /pod maturity/ harvesting), rainfed taramira, toria and mustard, potato (field preparation / sowing), cucurbits (sowing), radish, Deshi carrot –sowing, cabbage and cauliflower (nursery sowing), onion(nursery raising) and fruit crops (ber, aonla, pomegranate, phalsa) (transplanting) in Rajasthan.

CENTRAL INDIA [M.P., CHHATTISGARH]

- *Kharif* rice (active tillering/panicle initiation/flowering), soybean, green gram, black gram (pod maturity/harvesting), onion (vegetative), maize (silking/tasseling/cob formation), jowar, arhar, sesame, groundnut (vegetative/flowering), sugarcane (grand growth), vegetables (flowering/fruiting) in Madhya Pradesh.
- Sugarcane (tillering/elongation), *kharif* rice (tillering/ panicle initiation), maize, jowar, groundnut (vegetative), arhar, soybean, green gram (flowering/pod formation), ragi and kodomillet (early vegetative), ginger, turmeric, papaya (vegetative), onion (vegetative), vegetable crops (vegetative/flowering/ fruiting) in Chhattisgarh.

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

- *Kharif* rice, (vegetative/ panicle initiation), maize (vegetative/ silking), sugarcane (tillering/grand growth), onion(transplanting), urad (early vegetative), yam (vegetative), arhar (sowing/ early vegetative) in Bihar.
- *Kharif* rice (tillering), maize, urad, marua (sowing/ early vegetative), arhar, groundnut (early vegetative), onion (vegetative), ginger and turmeric (vegetative), *kharif* vegetables viz. bhindi, bean, French bean (sowing/vegetative), tomato, cauliflower, cabbage (nursery sowing/transplanting), niger, potato, green peas, horse gram, sweet potato(sowing) in Jharkhand.
- Rice (tillering), pigeon pea, groundnut, arhar, maize, cotton and *kharif* vegetables (early vegetative /vegetative), fruit crops (planting), green gram, black gram, cowpea, sesame, ragi, castor, soybean (sowing/germination), Jute (active vegetative), turmeric, ginger, yam (vegetative), sugarcane (tillering), banana (planting/vegetative), tomato (fruiting / harvesting), marigold(Planting), in Odisha.
- *Aman* rice (booting to panicle initiation stage), *kharif* maize (cob filling to maturity stage), ginger, turmeric (tuber formation), pigeon pea (early vegetative), *kharif* vegetables (vegetative), brinjal, okra, tomato and chilli (flowering/fruiting), pointed gourd, banana (fruiting), tomato (nursery sowing), early cabbage & cauliflower (seedbed preparation/sowing), Winter flower(seedbed preparation) in West Bengal.
- Ginger (vegetative), large cardamom (secondary flowering), *kharif* vegetables (vegetative) in Sikkim

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

- Sugarcane (elongation), *sali* rice (panicle initiation / flowering), maize (vegetative), sesame (vegetative / flowering / capsule formation), green gram and black gram (early vegetative / vegetative), ginger, turmeric (vegetative), early cauliflower, cabbage, knol-khol, brinjal (transplanting /early vegetative), winter vegetables (nursery raising), radish, carrot, spinach, beet (seedling) in Assam.
- *Jhum* rice (harvesting), WRC rice (early sown) (harvesting), regular WRC rice (flowering / grain formation), turmeric, ginger (vegetative), cauliflower and cabbage (nursery preparation / transplanting / early vegetative), radish, spinach, carrot (sowing), maize and pea (sowing) in Arunachal Pradesh.
- *Kharif* rice (panicle initiation / flowering), groundnut (flowering / pegging), soybean (flowering / pod formation), early *rabi* vegetables (nursery preparation), mango, litchi and guava (planting / early vegetative), black gram and rice bean (vegetative / flowering), ginger, turmeric (rhizome formation), onion (nursery raising), brinjal (flowering / fruiting) and tomato (fruiting) in Manipur.
- *Sali* rice (tillering / panicle initiation), turmeric and ginger (rhizome formation / rhizome maturity), cucurbits (flowering / fruiting), green gram and black gram (sowing / germination), early cauliflower and other winter vegetables (nursery sowing) in Meghalaya.
- *Jhum* rice (panicle initiation / flowering), cucurbits (flowering / fruiting), ginger and turmeric (vegetative) in Mizoram.
- Upland rice (grain maturity), lowland rice (flowering / grain filling), ginger (vegetative), cabbage and tomato (nursery raising) and cucurbits (fruiting / harvesting) in Nagaland.
- *Jhum* rice (grain maturity / harvesting), *aman* rice (long duration) (active tillering / panicle initiation), *aman* rice (short duration) (flowering / grain filling), groundnut (pod maturity / harvesting), maize (cob formation), banana (vegetative), *kharif* vegetables like okra, cucurbits etc. (active vegetative / flowering), early cauliflower, brinjal and radish (transplanting) in Tripura.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- *Kharif* rice (grain formation in early maturing variety and panicle initiation / flowering in mid late and late maturing varieties in Konkan and flowering / grain formation in Kolhapur, Nasik (ghat), Pune (west) region and East Vidarbha), Cotton (flowering / boll formation in Madhya Maharashtra, Marathwada and Vidarbha), jowar (grain formation in Madhya Maharashtra, Marathwada and Vidarbha), red gram (secondary branching in Madhya Maharashtra, Vidarbha and Marathwada), bajra (harvesting in Madhya Maharashtra and Marathwada), soybean (pod maturity / harvesting in Madhya Maharashtra, Marathwada and Vidarbha), groundnut (pod development / pod maturity in Madhya Maharashtra, Marathwada and Vidarbha), *adsali* and pre seasonal (active tillering / elongation), *suru* (active tillering / elongation), New *adsali* (early tillering in Marathwada and Madhya Maharashtra).
- *Kharif* rice (milk / dough), castor (capsule formation), pearl millet (grain filling / maturity / harvesting), sesame (maturity / harvesting), groundnut (pegging / pod development), cotton (flowering / boll formation), pulses (pod development / maturity / harvesting), vegetables (flowering / fruiting), sugarcane (vegetative) in Gujarat.

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

- *Kharif* crops: early sown groundnut (pod maturation), maize (dough/cob development), Bt.cotton (boll formation), late sown groundnut (pod formation to development), cotton (boll initiation/development), red gram (vegetative), sugarcane(Jan-March planted) (grand growth), rainfed sugarcane (tillering), rice (transplanting/tillering), castor(flowering), banana (vegetative), direct sown rice (tillering), onion (vegetative), pulses (sowing to seedling/harvesting), and vegetables (vegetative) in Andhra Pradesh.
- *Kharif* crops: sugarcane (grand growth), kuruvai rice (maturity), samba rice (nursery sowing to transplanting/vegetative), direct sown rice (seedling), rainfed cotton and maize (seedling), rice (vegetative),maize (flowering/maturity), onion (vegetative), sunflower (flowering), black gram (flowering), winter cotton (vegetative), groundnut (pod development) and vegetables (vegetative) in Tamil Nadu.
- *Virippu* rice (tillering to grain development/harvesting), arecanut (nut formation), sugarcane (grand growth), Nendran banana (planting in Problem Area Zone), Nendran (harvesting in High Altitude, Problem Area and Southern Zone), rubber (tapping/planting), kharif vegetables (fruiting), pepper (berry development), cardamom (harvesting), ginger (vegetative) in Kerala.
- Sugarcane (grand growth), new arecanut (planting), kharif crops:, sunflower(sowing) sorghum (grain filling), sugarcane(vegetative) ragi (tillering/head emergence), maize(cob formation), red gram(flowering), groundnut (pod formation/maturity), green gram, black gram (maturity) and soybean (maturity), rice (tillering), cotton (square formation stage/flowering), vegetable crops (transplanting/early vegetative) in Karnataka.

Annexure II
Week by Week Rainfall Distribution

State/Districts	28.08.13		04.09.13		11.09.13		18.09.13		25.09.13	
	Actual	% dep.	Actual	% dep.	Actual	% dep.	Actual	% dep.	Actual	% dep.
Arunachal Pradesh										
Anjaw	**	**	**	**	**	**	**	**	**	**
Changlang	69.6	30	114.6	151	56.7	-4	28.9	-81	23.9	-64
Dibang Valley	14.0	-69	111.0	200	163.0	274	18.0	-82	1.0	-98
East Kameng	27.1	-59	95.7	55	52.6	-13	22.8	-72	20.6	-64
East Siang	21.0	-86	416.9	195	172.0	36	0.0	-100	1.5	-99
Kurung Kumey	**	**	**	**	**	**	**	**	**	**
Lohit	49.7	-49	194.9	139	101.0	44	2.9	-97	5.7	-91
Lower Dibang Valley	**	**	259.6	602	166.3	281	4.5	-95	0.0	-100
Lower Subansari	24.8	-48	8.0	-81	0.2	-99	**	**	**	**
Papumpara	131.6	9	171.4	29	80.2	-34	1.8	-98	0.4	-99
Tawang	78.0	-33	52.0	-48	36.0	-68	65.0	-57	71.0	-30
Tirap	142.8	16	50.9	-53	28.5	-74	22.7	-83	40.3	-46
Upper Siang	39.2	-59	242.0	163	318.2	99	12.2	-94	162.0	-14
Upper Subansari	0.0	-100	51.8	30	16.6	-32	0.0	-100	11.8	-66
West Kameng	172.3	49	130.4	29	110.5	-2	26.1	-83	24.3	-76
West Siang	28.1	-70	151.1	151	172.5	200	2.8	-97	0.0	-100
Assam										
Baksa	25.0	-83	10.6	-89	192.6	99	2.0	-99	4.6	-95
Barpeta	61.4	-59	55.0	-41	370.6	284	5.7	-97	55.3	-40
Bongaigaon	83.4	-46	59.4	-32	363.0	289	0.0	-100	60.4	-32
Cachar	91.9	-6	47.1	-51	87.4	-16	24.4	-73	40.7	-33
Chirang	78.2	-50	97.3	11	350.9	277	12.5	-89	44.1	-50
Darrang	116.0	82	56.0	9	38.0	-31	1.0	-99	5.0	-86
Dhemaji	74.0	-28	179.0	79	24.0	-77	0.0	-100	14.0	-84
Dhubri	67.5	-42	82.7	11	44.6	-26	0.0	-100	1.5	-97
Dibrugarh	82.9	-6	81.6	7	26.2	-72	18.0	-80	47.6	-18
Goalpara	100.0	1	52.8	-20	93.5	95	0.0	-100	17.2	-74
Golghat	102.9	62	39.8	-32	12.3	-79	1.5	-97	47.8	17
Hailakandi	63.3	-7	10.9	-87	113.9	24	20.5	-72	4.1	-93
Jorhat	107.4	42	32.1	-50	6.1	-93	0.0	-100	6.2	-89
Kamrup(Rural)	86.9	47	33.7	-17	68.9	36	28.2	-41	62.3	95
Kamrup(Metro)	41.0	-31	39.5	-3	17.7	-65	5.5	-89	22.8	-29
Karbi Anglong	61.3	30	14.1	-64	59.3	-2	30.0	-29	28.4	-3
Karimganj	80.4	-29	74.1	-19	89.9	-20	87.0	-30	33.3	-51
Kokrajhar	109.3	-37	188.0	45	339.0	227	0.0	-100	12.9	-88
Lakhimpur	113.1	10	189.5	90	46.0	-55	0.2	-99	10.5	-88
Morigaon	16.8	-74	37.8	-38	14.6	-74	14.4	-76	51.8	25
N.C.Hills	7.3	-87	34.5	-43	51.5	135	56.4	53	0.0	-100
Nowgong	16.5	-77	20.2	-66	93.7	48	3.9	-92	23.6	-46
Nalbari	74.7	-8	36.5	-36	110.0	157	4.5	-94	15.7	-62

Sonitpur	70.2	-17	80.6	44	71.8	24	2.9	-96	3.4	-92
Sibsagar	49.5	-34	39.9	-33	11.5	-80	0.0	-100	8.7	-77
Tinsukia	83.5	10	133.3	51	27.8	-70	20.7	-76	29.6	-53
Udalgiri	86.5	36	41.8	-19	139.6	152	18.8	-77	8.3	-77
Meghalaya										
East Garo Hills	0.0	-100	**	**	**	**	**	**	**	**
East Khasi Hills	100.7	-60	593.8	268	71.8	-50	34.4	-83	15.0	-82
Jaintia Hills	51.0	-80	171.0	-6	33.0	-86	11.0	-95	5.0	-96
Ribhoi	89.2	11	25.7	-69	11.3	-82	59.4	-37	161.5	152
South Garo Hills	8.0	-91	140.0	103	154.0	81	1.0	-99	47.0	-25
West Garo Hills	46.4	-49	115.4	68	13.8	-84	16.0	-84	38.6	-39
West Khasi Hills	80.0	-50	5.0	-96	5.0	-96	25.0	-77	4.0	-96
Mizoram										
Aizwal	161.3	44	11.7	-88	70.1	-31	57.8	-43	127.1	79
Champhai	44.0	-44	22.0	-67	11.0	-86	9.0	-88	18.0	-72
Chhimituipui	**	**	**	**	**	**	**	**	**	**
Kolasib	**	**	**	**	**	**	**	**	**	**
Lawngtlai	49.0	-52	58.0	-28	145.0	61	207.0	139	29.0	-68
Lunglei	79.0	-25	33.0	-62	138.0	30	153.0	80	45.0	-59
Mamit	11.0	-90	5.0	-95	178.0	75	68.0	-33	111.0	56
Saiha	53.0	-52	81.0	-3	172.0	79	268.0	194	76.0	-27
Serchhip	69.0	-29	14.0	-83	15.0	-81	20.0	-74	29.0	-65
Manipur										
Bishnupur	**	**	**	**	**	**	11.0	-66	1.0	-97
Chandel	**	**	**	**	**	**	1.0	-99	0.0	-100
Churachandpur	31.0	-57	77.0	1	23.0	-73	10.0	-89	5.0	-94
Imphal east	51.7	-11	18.3	-71	134.7	227	54.0	11	0.0	-100
Imphal west	**	**	**	**	**	**	**	**	**	**
Senapati	30.0	-48	21.0	-68	43.0	-12	49.0	-10	0.0	-100
Tamenglong	**	**	**	**	**	**	**	**	**	**
Thoubal	48.0	41	14.0	-65	39.0	68	13.0	-47	1.0	-96
Ukhrul	**	**	**	**	**	**	60.0	87	25.0	-40
Nagaland										
Dimapur	28.5	-61	23.0	-52	68.0	109	29.9	-42	26.7	-2
Kephire	39.0	-45	56.0	-3	32.0	-41	6.0	-92	5.0	-89
Kohima	30.2	-62	19.3	-74	36.2	-52	33.9	-43	53.2	13
Longleng	**	**	**	**	**	**	**	**	**	**
Mokokchung	6.0	-93	23.0	-72	104.0	39	10.0	-86	63.0	142
Mon	**	**	**	**	**	**	**	**	**	**
Paran	**	**	**	**	**	**	**	**	**	**
Phek	14.9	-81	85.5	14	40.7	-47	16.5	-72	0.0	-100
Tuensang	**	**	**	**	**	**	**	**	**	**
Wokha	**	**	65.0	-18	43.0	-55	37.0	-54	32.0	-24
Zunheboto	**	**	**	**	**	**	**	**	**	**
Tripura										
Dhalai	90.9	38	32.0	-47	91.5	51	3.5	-95	35.8	-19
North tripura	167.6	120	14.0	-81	87.4	26	54.2	-28	31.3	-37
South tripura	38.1	-57	105.5	65	102.3	69	50.2	-14	68.5	18
West tripura	22.0	-70	29.4	-56	125.2	110	37.7	-41	64.0	27

Himachal Pradesh										
Bilaspur	8.3	-86	40.7	3	29.2	-44	16.6	-47	2.6	-92
Chamba	8.7	-90	8.4	-90	17.2	-74	10.4	-73	12.5	-73
Hamirpur	16.7	-81	41.0	-33	40.7	2	17.0	-38	2.6	-91
Kangra	80.3	-28	79.0	-8	67.1	-10	17.9	-62	27.9	-18
Kinnaur	0.6	-97	11.8	-33	0.8	-95	3.2	-80	61.7	204
Kullu	12.0	-64	28.7	21	8.6	-68	10.3	-39	9.5	-54
Lahaul and Spiti	0.0	-100	0.7	-98	0.0	-100	5.3	-74	8.8	-68
Mandi	29.9	-51	27.3	-48	42.7	-13	19.5	-37	19.9	-29
Shimla	15.2	-60	25.7	-16	14.8	-57	9.7	-58	23.3	-7
Sirmaur	30.0	-71	52.3	-17	14.2	-77	10.8	-73	22.1	-30
Solan	38.9	-38	34.3	-27	42.8	-20	7.3	-78	21.5	-36
Una	29.9	-51	66.4	47	47.5	10	20.2	-20	4.2	-87
Punjab										
Amritsar	0.9	-98	4.1	-86	7.3	-72	4.4	-60	1.3	-93
Barnala	4.3	-81	0.0	-100	0.0	-100	1.8	-88	4.5	-73
Bhatinda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Faridkot	0.0	-100	0.0	-100	0.0	-100	20.0	144	0.5	-96
Fatehgarh Saheb	10.0	-60	20.9	-30	30.0	11	1.0	-94	9.0	-72
Ferozpur	0.0	-100	0.0	-100	0.5	-97	4.7	-56	0.0	-100
Gurdaspur	37.6	-31	44.8	11	39.2	2	6.3	-71	9.1	-57
Hoshiarpur	11.9	-71	21.7	-29	11.6	-69	5.9	-68	9.2	-72
Jalandhar	1.4	-96	10.8	-69	7.0	-80	2.2	-86	5.7	-74
Kapurthala	2.7	-90	25.1	9	2.8	-86	3.2	-79	7.6	-58
Ludhiana	14.8	-59	4.1	-84	14.9	-52	2.3	-86	7.9	-67
Mansa	0.0	-100	0.0	-100	0.0	-100	10.2	-32	11.1	-36
Moga	0.0	-100	0.0	-100	0.0	-100	4.5	-64	1.0	-92
Muktesar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nawashahar	11.5	-79	30.6	-23	55.2	42	6.9	-67	3.7	-91
Patiala	12.2	-72	6.0	-81	11.7	-60	0.8	-95	17.6	-33
Ropar	24.7	-49	37.7	11	11.2	-69	10.6	-41	3.2	-90
Sangrur	0.2	-99	0.8	-96	0.4	-99	2.1	-76	11.3	-52
Mohali	18.0	-54	14.0	-51	8.0	-81	0.0	-100	1.0	-95
TarnTaran	0.0	-100	0.0	-100	0.0	-100	4.2	-35	0.0	-100
Haryana										
Ambala	21.0	-68	32.9	-22	10.7	-80	0.0	-99	24.2	-26
Bhiwani	0.0	-100	1.2	-94	0.0	-100	0.0	-100	24.7	120
Chandigarh	27.2	-47	18.7	-34	30.6	-34	3.8	-89	37.7	18
Faridabad	26.9	-53	6.8	-86	0.0	-100	0.0	-100	39.3	160
Fatehabad	2.8	-84	0.0	-100	0.0	-100	3.7	-60	10.3	-24
Gurgaon	17.5	-55	5.0	-81	1.6	-95	0.0	-100	9.0	5
Hissar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	93.3	647
Jhajar	27.1	-19	1.9	-91	0.0	-100	0.0	-100	25.6	137
Jind	14.2	-58	0.0	-100	0.0	-100	0.0	-100	3.4	-86
Katihah	6.6	-79	4.4	-80	0.6	-97	0.0	-100	24.2	89
Karnal	19.2	-69	6.7	-68	3.6	-88	0.0	-100	31.6	53
Kurukshetra	10.0	-79	3.6	-85	0.8	-97	0.0	-100	20.5	15
Mahendragarh	0.1	-99	0.0	-100	0.0	-100	1.8	-86	35.9	428
Mewat	7.0	-83	2.1	-94	0.0	-100	0.0	-100	31.0	230

Palwal	21.8	-47	11.2	-46	0.0	-100	0.0	-100	24.0	97
Panchkkula	21.1	-70	28.1	-46	32.5	-46	11.8	-70	16.5	-41
Panipat	23.5	-51	2.1	-89	0.4	-99	0.0	-100	11.7	-30
Rewari	8.0	-78	0.5	-98	0.0	-100	0.0	-100	45.4	399
Rohtak	10.2	-79	0.4	-99	0.0	-100	0.0	-100	20.9	92
Sirsa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sonepat	20.5	-59	0.0	-100	0.1	-99	0.1	-99	44.0	276
Yamunanagar	26.8	-62	43.7	-19	41.2	-17	4.5	-84	13.3	-35
Delhi	12.3	-75	7.7	-81	0.7	-98	0.2	-99	47.1	187
Jammu & Kashmir										
Anantnag	4.5	-65	13.0	-19	2.7	-82	19.2	88	0.3	-98
Badgam	0.0	-100	4.4	-59	4.5	-77	10.5	83	0.0	-100
Bandipore	**	**	**	**	**	**	**	**	**	**
Baramula	3.0	-79	7.8	-49	6.3	-54	26.9	175	1.0	-93
Doda	6.4	-59	47.2	205	4.4	-82	21.6	143	4.2	-87
Ganderwal	4.5	-60	14.0	51	0.0	-100	20.8	285	0.5	-95
Jammu	65.4	12	34.9	-25	33.7	-22	5.3	-85	0.0	-100
Kargil	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kathua	15.3	-76	33.0	-54	20.7	-54	1.1	-98	1.2	-97
Kistwar	**	**	**	**	**	**	**	**	**	**
Kulgam	3.6	-72	0.7	-96	1.8	-88	4.5	-56	0.0	-100
Kupwara	0.0	-100	4.5	-27	0.0	-100	25.6	320	0.0	-100
Ladakh(Leh)	0.0	-100	0.0	-100	0.0	-100	0.2	-83	0.0	-100
Poonch	9.0	-75	11.0	-65	8.0	-85	22.0	-44	1.0	-96
Pulwama	0.0	-100	1.5	-87	2.6	-79	3.8	-37	0.0	-100
Rajouri	5.5	-88	6.5	-83	19.9	-1	28.9	-17	0.0	-100
Ramban	0.3	-98	4.2	-73	9.2	-63	8.2	-8	0.9	-97
Reasi	83.6	0	40.8	-42	41.6	-15	58.7	44	0.0	-100
Samba	32.8	-44	3.2	-93	73.7	71	14.5	-59	0.0	-100
Shopian	0.0	-100	3.0	-73	4.0	-67	12.0	100	0.0	-100
Srinagar	0.0	-100	4.2	-55	10.6	21	20.1	273	0.0	-100
Udhampur	3.1	-96	2.5	-96	16.2	-67	1.5	-96	0.0	-100
East Madhya Pradesh										
Anuppur	45.5	-42	32.1	-54	6.2	-91	51.1	-26	44.0	50
Balaghat	61.5	-27	19.0	-78	23.1	-64	32.9	-36	94.4	162
Chhatarpur	136.2	93	103.8	26	0.0	-100	9.6	-82	11.7	-48
Chindwara	118.3	115	0.0	-100	1.6	-97	25.7	-43	78.5	155
Damoh	183.1	163	21.4	-70	0.5	-99	1.0	-98	25.0	-5
Dindori	88.2	21	59.3	-12	0.9	-98	7.0	-84	20.0	-32
Jabalpur	185.7	132	60.9	-25	6.6	-90	12.3	-77	27.5	-1
Katni	94.9	23	20.3	-69	1.6	-98	14.7	-73	19.8	-17
Mandla	65.4	-14	33.9	-59	1.6	-97	23.3	-60	22.5	-29
Narsingpur	168.7	186	1.0	-99	1.4	-98	4.4	-93	28.0	-17
Panna	92.0	17	229.1	216	0.0	-100	0.0	-100	13.3	-54
Rewa	91.2	41	30.6	-59	0.0	-100	8.2	-85	100.6	259
Sagar	152.2	104	16.5	-76	0.6	-99	4.3	-93	26.0	-10
Satna	111.2	82	65.0	9	0.1	-99	12.7	-76	51.1	73
Seoni	173.3	188	14.9	-76	0.6	-99	45.4	-19	32.5	-4

Shahdol	107.0	68	26.0	-65	1.1	-98	7.8	-85	48.1	105
Sidhi	115.2	85	55.6	-30	0.0	-100	1.0	-98	43.0	34
Singrauli	32.4	-28	15.0	-76	0.0	-100	4.0	-92	82.0	228
Tikamgarh	89.0	44	63.5	3	0.0	-100	0.0	-100	15.0	-26
Umaria	78.3	-6	38.2	-51	35.6	-48	14.3	-77	38.8	40
West Madhya Pradesh										
Alirajpur	98.4	48	5.3	-90	68.5	33	77.4	155	197.2	597
Asoknagar	80.5	30	3.3	-94	0.0	-100	0.0	-100	53.0	93
Badwani	91.6	105	9.1	-79	10.7	-71	23.4	-11	188.7	515
Betul	299.8	471	1.1	-98	8.1	-87	20.3	-66	58.4	88
Bhind	77.0	62	111.9	128	0.6	-99	2.3	-94	2.0	-91
Bhopal	175.0	172	0.0	-100	2.3	-96	0.0	-100	36.3	23
Burhanpur	94.8	49	4.5	-91	0.3	-99	56.3	49	108.3	344
Datia	48.3	1	127.1	110	0.0	-100	0.0	-100	27.7	9
Dewas	227.3	276	3.3	-96	4.7	-91	0.0	-100	100.8	223
Dhar	123.3	136	7.1	-88	2.9	-94	48.1	29	149.7	351
Guna	61.2	-25	3.3	-95	0.0	-100	0.0	-100	51.5	89
Gwalior	49.7	-3	42.1	-30	0.0	-100	0.0	-100	24.9	4
Harda	208.0	219	0.0	-100	0.0	-100	17.1	-61	123.2	253
Hosangabad	302.3	246	0.0	-100	0.0	-100	18.5	-75	64.4	69
Indore	188.8	264	6.3	-90	1.0	-98	36.4	-9	141.1	264
Jhabua	135.0	164	5.0	-92	4.5	-91	40.3	47	93.2	252
Khandwa	142.3	168	6.0	-91	0.0	-100	28.0	-33	168.0	364
Khargone	120.1	138	0.0	-100	0.0	-100	6.0	-79	103.1	204
Mandsaur	71.7	57	0.0	-100	0.0	-100	5.9	-79	69.5	207
Morena	73.0	43	62.0	26	0.0	-100	2.5	-94	29.8	93
Neemuch	95.3	88	0.0	-100	0.0	-100	1.1	-96	71.6	324
Raisen	82.9	11	0.6	-99	1.0	-99	12.6	-77	43.1	35
Rajgarh	111.8	85	0.0	-100	0.0	-100	0.5	-98	55.0	117
Ratlam	123.4	110	1.3	-98	1.0	-98	5.9	-81	101.3	200
Sehore	204.4	183	3.8	-96	4.6	-93	1.8	-96	62.4	94
Shajapur	184.5	274	1.2	-98	0.0	-100	0.0	-100	64.3	105
Sheopur Kalani	112.1	137	0.0	-100	0.0	-100	0.0	-100	6.7	-54
Shivpuri	34.8	-36	51.0	-6	0.0	-100	7.0	-83	32.3	64
Ujjain	158.5	185	2.0	-97	3.2	-93	6.1	-82	80.7	173
Vidisha	107.1	39	0.0	-100	0.0	-100	1.0	-98	49.4	132
Chattisgarh										
Bastar	25.2	-67	11.8	-85	34.5	-47	27.4	-52	23.2	-47
Bijapur	48.7	-47	9.7	-89	35.8	-47	78.4	51	62.2	51
Bilaspur	72.1	19	126.2	89	42.4	-26	33.9	-38	24.1	-29
Dantewara	12.1	-84	28.3	-63	55.7	-7	24.0	-50	66.9	74
Dhamtari	50.0	-20	56.0	-15	13.8	-77	33.8	-42	39.4	-10
Durg	55.1	-16	51.2	-13	2.4	-95	44.5	-18	52.8	15
Janjgir	56.9	-28	116.4	61	9.3	-88	23.2	-51	42.6	-2
Jashpurnagar	55.0	-35	7.5	-91	13.0	-85	23.5	-63	33.1	-22
Kanker	46.0	-47	15.4	-80	3.2	-94	72.3	9	34.6	-17
Korba	115.3	52	84.0	31	35.5	-53	9.0	-84	18.5	-39
Koriya	143.1	106	57.3	-11	2.7	-96	62.5	9	47.5	100

Kawardha	32.0	-46	27.0	-58	13.0	-70	3.0	-92	107.0	194
Mahasumund	45.8	-28	91.2	29	8.6	-86	44.9	-13	93.7	165
Narayanpur	18.8	-78	4.1	-95	24.4	-62	91.8	69	38.6	-6
Raigarh	36.6	-39	105.4	47	21.7	-72	23.4	-60	50.4	39
Raipur	56.8	-6	87.8	32	6.5	-88	27.1	-47	75.5	107
Rajandgaon	32.4	-55	11.0	-86	18.4	-69	22.2	-55	48.5	11
Surguja	26.0	-66	51.9	-28	1.3	-98	23.4	-54	9.3	-71
East Uttar Pradesh										
Allahabad	49.6	-17	54.6	15	0.5	-99	19.2	-66	22.6	-19
Ambedkar Nagar	36.0	-39	109.4	130	45.0	-44	65.4	41	2.0	-93
Azamgarh	85.1	33	77.2	49	0.7	-99	0.0	-100	20.7	-48
Bahraich	37.6	-47	76.5	39	24.9	-61	46.5	-13	3.3	-89
Ballia	32.7	-44	65.8	56	13.6	-72	19.5	-60	25.5	-23
Balrampur	58.0	-21	47.1	-35	29.9	-36	3.7	-94	0.0	-100
Banda	38.2	-38	67.3	13	0.0	-100	12.1	-75	16.4	-25
Barabanki	38.6	-37	38.6	-27	12.7	-82	2.5	-96	6.1	-82
Basti	93.4	47	47.7	-14	1.4	-98	2.8	-95	9.1	-75
Chandauli	30.2	-47	56.2	11	0.0	-100	0.1	-99	5.2	-79
Deoria	5.5	-92	65.0	16	0.0	-100	0.0	-100	38.0	-6
Faizabad	23.4	-65	38.3	-23	4.8	-93	20.4	-64	2.8	-91
Farrukhabad	59.6	-6	17.9	-53	5.8	-88	12.8	-71	11.7	-29
Fatehpur	11.6	-81	56.0	35	0.0	-100	0.0	-100	14.8	-44
Gazipur	28.2	-49	106.1	124	0.6	-99	3.2	-96	88.2	161
Gonda	41.0	-45	48.9	-8	14.2	-79	46.9	-28	9.7	-74
Gorakhpur	61.2	-20	90.9	46	7.2	-90	4.2	-95	5.7	-84
Hardoi	52.9	-23	36.3	-28	20.9	-59	2.8	-94	5.4	-77
Jaunpur	39.5	-38	45.9	-5	0.9	-99	23.4	-67	16.0	-55
Kannauj	68.8	-1	20.4	-53	0.0	-100	12.4	-76	4.4	-78
Kanpur City	9.9	-82	67.4	76	3.2	-92	17.3	-64	6.6	-67
Kanpur Dehat	12.6	-80	31.7	-35	4.5	-91	0.8	-98	0.7	-97
Kaushambi	24.8	-58	19.9	-54	5.1	-89	6.8	-86	12.3	-59
Kheri	73.3	3	43.7	-21	31.7	-51	7.2	-82	21.7	-48
Kushi nagar	27.5	-69	31.0	-38	8.5	-85	0.0	-100	10.0	-74
Lucknow	18.2	-68	45.5	-1	9.5	-79	2.2	-96	6.1	-78
Maharajganj	107.0	28	62.3	13	15.5	-72	2.5	-97	0.0	-100
Mau	31.0	-60	65.5	23	5.0	-92	0.0	-100	12.5	-62
Mirzapur	101.3	79	43.4	-21	0.0	-100	20.5	-73	28.4	-14
Pratapgarh	44.0	-39	73.7	49	15.7	-74	38.3	-38	17.7	-36
RaiBareilly	5.0	-91	45.3	3	8.5	-82	9.7	-82	2.4	-91
Sahuji Maharajnagar	79.8	10	39.3	-37	2.8	-96	37.8	-44	47.8	88
Sant Kabirnagar	78.0	23	87.0	78	2.0	-97	11.0	-82	16.0	-48
Sant Ravidas Nagar	62.0	8	43.0	-15	0.0	-100	0.0	-100	7.0	-71
Shrawasti	34.7	-51	90.5	65	60.3	-6	7.3	-86	57.3	88
Sidharthnagar	202.9	172	84.7	53	27.1	-48	7.9	-88	0.0	-100
Sitapur	19.8	-71	44.0	-28	7.8	-88	4.7	-91	4.7	-84
Sonbhadra	42.1	-27	51.2	-10	0.0	-100	12.5	-79	22.3	-27
Sultanpur	15.0	-77	44.7	-12	7.2	-86	67.9	24	16.5	-45
Unnao	27.8	-56	78.8	85	1.3	-98	0.8	-98	7.3	-73
Varanasi	22.5	-67	114.2	104	0.5	-99	3.5	-95	5.1	-87

West Uttar Pradesh										
Agra	13.3	-76	98.8	124	0.0	-100	0.1	-99	6.7	-55
Aligarh	12.4	-80	65.4	86	0.1	-99	0.0	-100	4.9	-71
Auraiya	94.9	63	65.1	47	0.0	-100	0.0	-100	0.0	-100
Badaun	32.8	-56	23.0	-53	5.0	-88	0.2	-99	10.0	-59
Baghpat	6.0	-89	2.1	-88	2.0	-92	0.0	-100	64.2	468
Bareilly	71.1	-8	46.3	-17	1.2	-97	6.1	-87	34.2	8
Bijnor	125.6	66	32.1	-21	24.8	-50	4.5	-90	14.3	-33
Bulandsahar	19.0	-71	26.7	-23	4.5	-87	0.0	-100	1.4	-93
Etah	41.3	-29	38.5	17	0.0	-100	0.0	-100	15.3	2
Etawah	24.0	-53	34.8	-23	0.0	-100	9.7	-79	9.0	-52
Firozabad	29.5	-47	62.7	54	0.0	-100	0.0	-100	10.2	-50
GBNagar	33.0	-34	27.0	7	0.0	-100	0.0	-100	17.0	-4
Ghaziabad	15.2	-76	4.3	-88	0.0	-100	0.0	-100	16.1	14
Hamirpur	49.1	-19	160.9	235	0.0	-100	13.9	-75	1.5	-92
Jalaun	68.0	25	122.6	148	0.5	-99	7.1	-88	4.5	-76
Jhansi	54.1	-5	164.4	183	0.0	-100	1.8	-97	12.5	-39
Jotirba Phule Nagar	46.0	-40	23.5	-41	0.0	-100	6.5	-86	27.0	0
Kanshiramnagar	70.0	-3	51.0	4	0.0	-100	0.0	-100	11.5	-29
Lalitpur	99.0	41	17.0	-77	0.0	-100	0.0	-100	33.0	57
Mahamaya Nagar	10.0	-80	64.5	109	0.0	-100	0.0	-100	0.0	-100
Mahoba	74.2	25	107.6	137	0.0	-100	15.4	-69	4.4	-73
Mainpuri	42.6	-8	26.4	-35	0.0	-100	0.0	-100	26.3	63
Mathura	28.0	-46	50.0	42	0.0	-100	0.0	-100	5.0	-61
Meerut	40.8	-43	45.7	17	5.8	-87	21.1	-53	42.4	104
Moradabad	116.8	58	35.3	-17	5.1	-90	2.1	-95	29.0	-11
Muzzaffarnagar	40.1	-29	74.2	126	4.8	-88	6.2	-84	42.1	109
Pilibhit	67.1	-20	18.9	-71	0.9	-98	2.2	-96	28.0	-32
Rampur	77.9	1	16.3	-65	1.5	-96	2.2	-95	23.1	-44
Saharanpur	21.3	-65	63.0	79	43.0	9	6.3	-85	14.3	-9
Shahjahanpur	57.8	-27	15.3	-68	18.3	-65	36.0	-29	2.1	-90
Uttarakhand										
Almora	14.7	-73	14.3	-63	18.7	-52	10.0	-77	17.3	-45
Bageshwar	30.5	-43	11.6	-70	41.4	6	9.1	-79	15.0	-53
Chamoli	50.6	-16	26.2	-42	10.7	-76	18.6	-37	37.4	63
Champawat	66.5	-21	10.0	-86	25.0	-62	6.0	-90	14.5	-70
Dehradun	44.1	-69	130.7	50	46.4	-48	23.8	-65	30.2	-19
Garhwal Pauri	28.8	-68	47.8	-28	8.7	-86	5.7	-89	19.1	-28
Garhwal Tehri	0.3	-99	40.0	-37	24.3	-54	0.3	-99	22.2	-1
Haridwar	96.4	19	21.2	-59	22.3	-55	3.2	-91	6.0	-71
Nainital	66.9	-41	76.3	3	24.2	-65	29.1	-60	11.6	-79
Pithorgarh	40.1	-62	24.2	-76	57.3	-37	20.9	-70	18.7	-64
Rudraprayag	22.4	-81	75.1	-14	28.0	-65	11.4	-81	27.6	-8
Udham Sing Nagar	58.7	-34	6.7	-88	25.9	-53	3.3	-95	12.9	-68
Uttarkashi	35.5	-54	52.7	-26	29.5	-49	26.2	-62	54.4	70
Bihar										
Araria	28.5	-68	34.2	-47	43.2	-38	8.3	-89	11.7	-76
Arwal	15.6	-73	144.0	265	0.0	-100	0.0	-100	24.6	-27

Aurangabad	49.6	-16	96.4	71	0.8	-99	18.1	-69	40.2	52
Banka	132.0	165	256.0	493	2.2	-95	0.0	-100	15.4	-67
Begusarai	17.8	-74	41.2	-29	1.2	-98	1.0	-98	23.2	-56
Bhabua	35.2	-52	121.3	103	0.0	-100	8.8	-89	25.0	-36
Bhagalpur	66.0	15	146.2	197	0.5	-99	0.1	-99	20.5	-61
Bhojpur	36.0	-46	123.2	138	0.0	-100	0.0	-100	43.1	17
Buxar	42.2	-28	39.6	-28	2.4	-96	7.0	-90	27.6	16
Darbhanga	9.2	-87	92.4	103	14.7	-70	10.8	-74	3.0	-92
East Champaran	57.2	-27	90.4	80	12.4	-78	4.6	-92	19.5	-47
Gaya	50.8	-16	91.0	82	0.0	-100	19.4	-55	34.5	9
Gopalganj	73.7	-7	48.2	3	13.4	-79	6.1	-92	0.0	-100
Jahanabad	32.4	-31	148.3	227	0.0	-100	4.0	-93	12.4	-70
Jamui	74.2	24	101.5	102	6.0	-89	11.7	-76	26.2	-47
Kathihar	121.9	100	94.7	103	4.7	-93	2.8	-96	10.9	-78
Khagadia	52.9	-21	75.6	61	14.3	-77	2.7	-96	111.2	61
Kishanganj	56.0	-48	128.9	37	124.7	37	4.4	-95	17.3	-73
Lakhisarai	30.0	-55	77.0	51	0.0	-100	0.0	-100	35.0	-38
Madhepura	29.7	-65	152.1	127	2.5	-96	4.9	-93	17.3	-57
Madhubani	21.2	-75	56.3	2	26.7	-50	0.6	-99	4.6	-87
Monghyar	29.5	-56	146.0	186	0.2	-99	0.0	-100	24.2	-57
Muzaffarpur	33.2	-58	61.8	36	16.7	-66	4.7	-93	4.4	-89
Nalanda	58.3	-1	122.0	152	0.0	-100	20.3	-62	28.4	-35
Nawada	57.4	-4	107.8	157	0.0	-100	2.0	-95	56.8	89
Patna	30.3	-58	186.0	357	0.4	-99	15.3	-74	14.6	-65
Purnea	54.6	-36	58.4	-12	66.5	-13	2.4	-97	25.6	-49
Rohtas	51.7	-14	102.0	76	0.0	-100	41.1	-34	32.9	17
Saharsha	45.7	-46	237.1	343	6.2	-92	7.2	-91	32.0	-35
Samstipur	6.8	-89	119.7	149	8.7	-84	7.5	-88	11.8	-80
Saran	20.0	-73	100.4	116	0.0	-100	0.0	-100	25.7	-29
Sheikpura	10.8	-83	39.3	-8	0.0	-100	0.0	-100	5.3	-87
Sheohar	0.0	-100	47.6	9	14.8	-69	6.0	-87	20.6	-42
Sitamarhi	35.9	-62	68.0	55	31.0	-35	8.4	-82	8.2	-77
Siwan	92.5	37	146.4	225	3.9	-95	0.9	-99	37.1	-10
Supaul	18.0	-78	144.7	191	21.2	-57	0.4	-99	23.4	-38
Vaishali	38.9	-47	52.3	31	8.4	-87	15.4	-72	21.6	-53
West Champaran	61.1	-45	80.5	55	25.5	-54	6.6	-93	0.0	-100
Jharkhand										
Bokaro	50.7	-21	39.0	-46	5.7	-92	3.3	-94	46.9	35
Chatra	61.3	4	32.9	-47	7.9	-87	3.6	-94	9.7	-74
Deoghar	38.6	-36	93.4	110	7.4	-86	2.7	-95	27.0	-54
Dhanbad	93.1	39	35.6	-46	14.3	-80	20.4	-67	46.4	-4
Dumka	38.5	-37	75.7	31	25.0	-63	19.5	-65	44.1	-9
East Singbhum	147.6	138	37.5	-43	31.7	-50	74.7	62	113.2	185
Garhwa	50.4	-6	29.0	-59	0.0	-100	6.5	-89	2.0	-93
Giridih	112.6	80	35.8	-37	8.2	-87	36.4	-30	32.1	-23
Godda	102.5	60	161.5	275	16.0	-68	10.5	-83	22.8	-42
Gumla	35.0	-46	95.0	40	23.2	-69	15.2	-76	57.3	30
Hazaribagh	78.3	19	69.2	26	22.6	-66	12.2	-79	36.9	14
Jamtara	95.6	26	86.4	24	44.7	-39	6.9	-91	65.2	32

Khunti	26.5	-64	75.0	-2	27.0	-69	28.5	-54	74.2	77
Koderrna	88.0	59	109.4	84	54.5	-13	14.1	-70	22.6	-49
Latehar	76.4	20	57.7	1	11.5	-86	49.8	9	15.6	-49
Lohardagga	80.5	29	55.8	4	24.0	-61	21.2	-63	61.2	58
Pakur	35.6	-53	141.3	100	3.5	-95	11.1	-86	27.0	-69
Palamau	57.3	-8	52.3	-13	6.3	-91	42.2	-29	24.3	-31
Ramgarh	47.0	-22	7.2	-89	0.0	-100	28.8	-52	50.4	38
Ranchi	67.8	6	22.3	-68	30.3	-58	7.3	-87	33.4	-19
Sahebganj	25.0	-58	77.4	18	3.0	-96	9.8	-86	0.0	-100
Saraikela	64.9	-6	35.3	-50	53.2	-27	23.4	-58	55.0	42
Simdega	37.4	-52	57.4	-32	30.8	-66	54.2	-25	56.8	35
West Singbhum	37.9	-44	82.1	19	75.5	10	16.9	-61	40.1	1
East Rajasthan										
Ajmer	17.8	-43	0.0	-100	0.3	-99	8.3	0	37.1	370
Alwar	15.2	-65	1.2	-97	0.8	-98	11.6	-37	48.0	281
Banswara	93.0	57	1.0	-98	0.0	-100	23.5	-10	79.2	279
Baran	60.3	10	0.3	-99	0.0	-100	0.0	-100	21.6	21
Bharatpur	27.7	-45	15.8	-62	6.1	-83	2.0	-91	10.5	3
Bhilwara	34.3	-19	0.0	-100	0.0	-100	1.8	-86	59.1	373
Bundi	36.7	-13	0.0	-100	0.0	-100	2.3	-84	35.0	157
Chittorgarh	55.8	-4	0.0	-100	0.9	-98	3.6	-79	76.7	440
Dausa	8.0	-81	0.0	-100	0.0	-100	21.4	20	21.0	52
Dholpur	60.3	25	50.8	25	0.0	-100	1.8	-95	18.3	38
Dungarpur	40.6	-11	0.4	-99	0.0	-100	12.8	-36	71.7	451
Jaipur	21.4	-51	0.0	-100	0.0	-100	11.6	-17	16.1	76
Jhalawar	77.2	21	2.0	-97	0.0	-100	0.0	-100	61.5	167
Jhunjhunu	0.9	-97	0.0	-100	0.0	-100	15.6	27	28.3	167
Karauli	33.8	-16	1.8	-96	0.0	-100	7.8	-65	10.2	-9
Kota	25.6	-48	2.1	-96	0.0	-100	0.6	-97	55.2	219
Pratapgarh	92.6	72	0.0	-100	0.0	-100	10.4	-59	66.2	178
Rajsamand	12.6	-68	0.0	-100	1.6	-95	8.0	-19	40.1	164
Sawai Madhopur	24.3	-48	0.0	-100	1.3	-96	7.6	-63	29.0	146
Sikar	7.9	-75	0.0	-100	0.0	-100	4.4	-60	27.9	342
Sirohi	1.7	-97	0.7	-99	0.5	-99	17.5	-29	39.8	213
Tonk	39.9	3	0.0	-100	0.3	-99	13.0	-10	13.6	23
Udaipur	22.2	-49	0.0	-100	0.0	-100	8.4	-50	59.6	287
West Rajasthan										
Barmer	0.0	-100	0.0	-100	0.0	-100	3.3	-46	8.8	108
Bikaner	2.7	-83	0.0	-100	0.0	-100	0.0	-100	6.7	-5
Churu	3.4	-87	0.0	-100	0.0	-100	0.1	-99	29.8	260
Hanumangarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	3.0	-53
Jaisalmer	0.0	-100	0.0	-100	0.0	-100	0.0	-100	5.1	199
Jalore	0.0	-100	0.0	-100	0.1	-99	10.7	30	23.4	388
Jodhpur	3.1	-85	0.0	-100	0.0	-100	6.2	-4	14.2	150
Nagaur	7.1	-76	0.0	-100	0.0	-100	2.7	-65	15.6	108
Pali	3.9	-87	0.0	-100	0.5	-98	0.2	-98	16.8	95
Sri Ganganagar	2.1	-81	0.0	-100	0.0	-100	0.0	-100	0.2	-97
Gujarat Region										
Ahmedabad	4.3	-87	0.8	-98	12.9	-68	11.6	-43	116.8	668

Anand	20.0	-58	1.1	-98	12.2	-80	13.4	-22	186.8	915
Banaskantha	0.0	-99	0.0	-100	0.5	-99	3.6	-84	28.3	233
Baroda	63.8	10	3.7	-94	14.7	-77	36.6	23	414.5	1488
Broach	7.0	-82	2.3	-95	4.6	-91	24.1	5	334.6	1078
DNH	40.1	-67	10.9	-94	56.0	-47	62.1	106	552.5	459
Dahod	75.8	35	4.5	-94	3.0	-95	20.5	-32	79.4	245
Daman	29.2	-76	15.6	-91	87.0	-17	44.8	48	191.4	94
Dangs	73.8	-38	11.1	-92	56.9	-45	85.3	61	308.5	415
Gandhinagar	6.6	-82	0.0	-100	14.7	-76	5.8	-65	125.8	717
Kheda	19.3	-59	0.0	-100	11.9	-82	4.6	-78	151.1	652
Mehsana	0.2	-99	0.0	-100	3.0	-94	3.8	-88	50.7	284
Narmada	24.3	-61	28.3	-63	17.2	-70	35.7	14	608.8	2059
Navsari	29.8	-66	21.7	-80	36.2	-58	91.6	100	319.2	681
Panchmahal	84.0	40	3.1	-96	1.5	-98	15.8	-49	135.5	469
Patan	1.0	-97	0.1	-99	3.5	-89	5.9	-74	37.2	389
Sabarkantha	19.2	-59	0.0	-100	0.2	-99	6.4	-75	71.8	304
Surat	27.5	-55	4.8	-94	20.4	-69	69.4	130	319.9	824
Tapi	29.6	-66	7.2	-92	11.3	-85	160.0	369	248.2	611
Valsad	32.5	-66	10.2	-92	68.6	-26	85.8	95	360.1	606
S K & Diu region										
Amreli	3.1	-88	1.8	-94	4.0	-81	31.6	73	51.7	104
Bhavnagar	5.9	-81	3.8	-88	3.7	-89	19.1	21	110.3	350
Diu	0.6	-95	2.2	-90	0.2	-99	27.2	164	73.0	668
Jamnagar	0.0	-100	3.4	-88	9.0	-53	3.9	-72	39.4	463
Junagarh	0.8	-97	5.1	-87	3.6	-85	44.8	115	60.3	233
Kutch	0.2	-99	0.7	-97	1.2	-95	0.6	-97	45.5	828
Porbandar	0.2	-99	2.4	-94	4.1	-75	40.3	78	14.0	-1
Rajkot	0.1	-99	1.4	-95	1.3	-94	28.3	37	99.3	488
Surendranagar	1.2	-96	0.6	-98	5.2	-84	5.3	-61	106.8	593
Maharashtra										
Konkan & Goa										
Goa	61.3	-44	8.2	-91	38.7	-47	101.5	82	143.4	188
Mumbai	42.0	-62	0.4	-99	19.2	-72	91.5	70	119.1	83
Raigad	70.1	-58	24.5	-84	72.9	-27	122.2	81	68.9	-9
Ratnagiri	89.9	-43	24.4	-82	53.9	-42	79.3	34	133.1	99
Sindhudurg	65.8	-53	9.3	-91	44.6	-36	134.7	109	113.4	88
Thane	55.2	-56	20.0	-84	46.3	-48	109.8	97	168.3	157
Madhya Maharashtra										
Ahmednagar	7.9	-68	0.1	-99	60.1	133	82.2	176	36.4	-1
Dhule	40.1	51	0.8	-97	17.0	-21	56.2	200	68.2	131
Jalgaon	67.1	70	1.7	-96	7.7	-74	84.6	240	75.3	180
Kolhapur	46.0	-42	7.8	-88	19.7	-51	61.1	94	47.2	9
Nandurbar	33.2	-30	1.3	-97	28.7	-31	86.2	262	306.8	980
Nasik	37.4	-23	9.1	-83	38.2	-22	73.7	127	104.7	167
Pune	14.1	-64	3.7	-91	78.7	169	89.8	192	56.2	29
Sangli	3.7	-83	4.3	-78	28.3	24	91.9	233	40.0	1
Satara	9.5	-68	3.1	-89	37.4	47	112.7	324	56.1	36
Solapur	4.0	-85	2.5	-91	51.4	69	116.1	185	51.8	13

Marathwada										
Aurangabad	34.0	-7	0.4	-99	26.4	0	95.0	222	23.6	-39
Beed	5.5	-83	2.1	-95	24.0	-28	77.1	111	42.5	-2
Hingoli	27.3	-49	0.4	-99	20.3	-43	84.5	214	33.5	-8
Jalna	14.9	-60	0.3	-99	20.5	-21	93.9	205	32.4	-8
Latur	11.7	-78	9.7	-82	11.9	-73	67.0	93	22.2	-35
Nanded	14.3	-74	2.2	-96	44.0	11	40.7	33	44.0	3
Usmanabad	9.9	-77	3.6	-91	51.0	38	82.4	78	68.2	52
Parbhani	12.0	-79	0.8	-99	18.8	-52	93.7	208	64.9	62
Vidarbha										
Akola	72.1	82	3.0	-93	18.5	-39	92.8	218	124.4	315
Amraoti	88.6	107	1.3	-97	11.5	-71	31.8	-4	85.5	165
Bhandara	69.4	-4	7.0	-91	15.6	-75	19.8	-56	52.8	73
Buldhana	42.4	3	3.0	-92	13.5	-53	66.4	147	49.7	78
Chandrapur	21.3	-73	7.8	-90	14.1	-76	18.7	-57	69.3	92
Gadchiroli	44.9	-50	9.8	-88	40.3	-33	30.2	-22	99.1	202
Gondia	87.3	-3	11.1	-87	13.3	-79	26.1	-49	81.8	161
Nagpur	67.8	30	9.0	-87	7.6	-85	43.9	23	49.5	51
Wardha	31.6	-41	1.1	-98	7.0	-85	21.9	-24	66.4	96
Washim	35.4	-23	0.0	-100	30.9	-21	49.7	35	66.2	109
Yeotmal	25.7	-53	0.3	-99	18.4	-54	43.9	81	42.1	28
Odisha										
Angul	4.3	-94	27.0	-65	20.8	-69	25.2	-47	70.6	58
Balasore	72.3	-1	61.2	3	61.4	-28	19.3	-70	119.8	79
Bargarh	20.4	-69	77.5	10	29.1	-61	18.8	-66	68.8	101
Bhadrak	29.7	-59	58.7	-5	30.1	-51	15.6	-71	81.7	77
Bolangir	24.3	-64	33.0	-64	25.1	-62	19.8	-64	30.3	-13
Boudh	2.7	-97	28.4	-58	13.7	-79	15.0	-74	44.3	-6
Cuttack	7.0	-91	32.3	-46	25.2	-71	17.4	-66	82.8	82
Deogarh	4.3	-95	55.9	-33	28.9	-66	6.3	-88	45.1	17
Dhenkanal	14.1	-83	32.9	-51	38.0	-47	6.1	-86	81.3	76
Gajapati	5.0	-91	26.6	-55	59.1	19	49.4	-24	51.1	-11
Ganjam	32.2	-40	33.7	-38	87.2	59	25.0	-48	92.5	101
Jagatsingpur	22.5	-67	45.2	-14	44.2	-37	39.3	-34	34.8	-23
Jajpur	12.1	-86	45.2	-29	21.6	-65	28.4	-52	72.7	15
Jharsuguda	13.7	-82	50.0	-36	18.3	-77	24.0	-59	42.7	28
Kalahandi	9.3	-87	29.1	-53	18.6	-74	19.3	-68	52.4	42
Kandhamal	15.9	-80	21.9	-68	11.4	-83	57.9	-1	67.7	43
Kendrapara	46.7	-39	50.3	-20	37.2	-48	17.2	-68	49.0	-14
Keonjhar	38.9	-38	48.5	-28	42.1	-21	16.3	-68	90.5	81
Khurda	46.6	-33	35.4	-38	47.3	-39	32.3	-43	109.6	108
Koraput	20.9	-74	14.3	-81	26.5	-65	44.4	-27	23.5	-60
Malkangiri	6.8	-93	7.0	-91	35.5	-55	69.0	55	130.0	211
Mayurbhanj	68.5	-5	44.8	-47	48.7	-30	17.9	-70	130.1	131
Nawapara	12.0	-82	44.3	-30	29.9	-40	31.9	-31	43.5	19
Nawarangpur	6.2	-94	69.0	-22	43.1	-30	38.4	-34	33.4	-31
Nayagarh	29.6	-55	39.4	-40	34.0	-51	41.4	-7	90.5	47
Puri	60.6	-5	36.0	-45	41.7	-46	42.4	-20	72.0	56
Rayagada	7.2	-88	39.7	-35	39.4	-31	28.8	-47	52.8	42

Sambalpur	2.3	-97	27.1	-68	20.8	-75	22.9	-57	55.2	43
Sonepur	4.9	-93	57.4	-35	46.3	-51	4.2	-92	42.6	4
Sundargarh	13.8	-80	47.9	-37	33.2	-54	36.0	-33	59.5	79
West Bengal										
GWB										
Bankura	52.2	-17	28.8	-54	11.5	-82	7.3	-84	65.4	26
Birbhum	88.6	54	66.2	21	22.7	-68	10.5	-79	19.6	-71
Burdwan	68.9	16	77.8	41	29.2	-56	9.7	-82	23.9	-53
East Midnapore	136.7	80	61.3	-28	49.1	-51	70.8	29	79.5	0
Hooghly	28.2	-52	47.4	-34	15.7	-70	5.6	-88	28.0	-44
Howrah	121.9	162	77.8	2	35.0	-48	37.5	-40	35.1	-38
Kolkata	126.3	63	66.7	-4	155.4	88	34.3	-42	39.5	-31
Murshidabad	68.8	26	117.0	116	39.0	-39	37.0	-28	2.9	-95
Nadia	116.6	171	43.2	-14	36.6	-32	21.1	-40	12.0	-79
24 Pargana (N)	75.1	19	33.5	-37	20.3	-73	24.3	-55	32.6	-49
Purulia	50.7	-25	44.8	-39	4.0	-94	36.8	-38	53.5	38
24 Pargana (S)	137.9	39	102.1	9	77.8	-12	27.3	-62	36.7	-53
West Midnapore	43.2	-37	88.0	17	59.2	-9	41.1	-31	77.2	66
SHWB										
Cooch Behar	50.8	-69	119.8	-2	203.1	85	11.7	-91	2.3	-97
Darjeeling	82.4	-49	158.2	43	141.1	0	18.0	-85	30.5	-68
East Sikkim	107.6	6	59.4	-43	56.0	-39	39.2	-54	30.3	-53
Jalpaiguri	117.5	-27	235.1	84	220.5	89	16.9	-87	31.7	-65
Malda	42.6	-42	42.5	-22	15.0	-78	0.2	-99	2.3	-96
North Dinajpur	14.0	-80	42.5	-57	47.8	-38	0.0	-100	0.5	-99
North Sikkim	83.7	-20	109.5	-1	72.6	-28	42.9	-53	32.4	-58
South Dinajpur	29.1	-56	43.1	-12	19.3	-72	0.0	-100	0.0	-100
South Sikkim	88.3	-13	63.5	-39	65.9	-28	34.6	-60	50.2	-21
West Sikkim	160.0	53	60.0	-46	130.7	29	51.3	-44	128.2	68
Karnataka										
Coastal Karnataka										
Dakshin Kannada	91.7	-39	31.1	-69	81.4	2	103.5	75	154.1	147
Udupi	108.7	-35	8.9	-92	106.2	-5	102.9	43	183.4	127
Uttar Kannada	77.6	-29	24.8	-69	65.9	1	90.1	75	147.3	176
N I Karnataka										
Bagalkote	0.8	-95	14.8	-19	64.7	276	52.3	52	13.6	-70
Belgaum	8.9	-57	4.9	-73	39.9	168	91.0	264	28.1	-20
Bidar	7.5	-84	11.7	-74	40.6	9	85.8	134	46.1	6
Bijapur	3.3	-84	24.2	-13	67.0	169	65.5	81	38.5	-21
Dharwad	10.1	-45	37.9	135	46.6	233	57.6	111	15.7	-61
Gadag	7.5	-59	29.7	62	76.0	344	53.5	67	11.8	-74
Gulbarga	7.7	-79	37.3	-7	60.9	66	98.0	131	92.6	104
Haveri	17.8	-7	21.2	43	46.5	365	48.0	93	27.3	-6
Koppal	7.7	-62	33.1	41	78.0	273	52.1	36	13.3	-70
Raichur	6.0	-76	49.0	74	81.1	216	71.9	124	29.4	-32
Yadgir	0.4	-99	37.5	5	139.8	316	94.5	151	37.1	-31
S I Karnataka										
Bangalore Rural	8.6	-72	69.5	160	75.4	140	131.9	220	6.6	-88
Bangalore Urban	8.3	-72	58.3	111	70.7	114	120.3	177	6.6	-88

Bellary	9.0	-58	39.9	89	55.1	184	36.0	1	12.3	-70
Chamarajnar	4.2	-75	74.3	416	30.0	96	96.8	184	2.3	-94
Chichballapur	1.3	-95	54.8	124	79.9	227	46.7	21	2.3	-95
Chickmagalur	47.4	-30	41.0	-9	42.1	46	86.9	166	66.3	31
Chitradurga	8.4	-39	30.1	126	37.9	307	95.4	270	4.6	-87
Davangere	16.6	-9	22.5	65	57.7	385	72.1	133	12.5	-66
Hassan	8.7	-63	29.1	51	55.2	360	66.0	178	26.4	-32
Kodagu	42.0	-55	22.7	-67	38.1	-17	81.5	112	98.2	98
Kolar	6.2	-72	101.7	387	33.8	26	62.1	60	3.6	-92
Mandya	3.0	-81	59.5	277	71.8	335	38.0	17	5.5	-88
Mysore	7.3	-50	39.5	188	41.7	239	29.9	15	11.6	-67
Ramnagara	1.3	-96	75.0	172	153.4	468	71.5	45	2.4	-96
Shimoga	65.1	-3	12.2	-71	41.9	55	84.0	254	81.3	127
Tumkur	3.0	-84	53.0	184	86.5	339	112.4	194	2.5	-95
Kerala										
Alappuzha	9.0	-89	13.9	-73	63.0	4	168.2	176	44.1	-35
Kannur	34.7	-66	4.7	-92	71.6	29	160.1	342	77.4	66
Ernakulam	18.4	-76	16.8	-67	82.2	23	164.7	163	44.0	-43
Idukki	28.6	-71	79.3	7	119.1	91	233.3	304	111.7	46
Kasaragod	57.2	-50	0.0	-100	97.6	40	89.7	74	61.7	17
Kollam	12.2	-81	44.0	8	67.2	61	228.3	421	40.1	-37
Kottayam	12.7	-85	14.6	-73	77.5	32	149.9	158	53.8	-14
Kozhikode	32.4	-64	10.8	-82	44.9	-18	146.8	245	37.6	-40
Malappuram	6.9	-91	28.7	-43	55.7	30	226.1	432	34.9	-29
Palakkad	5.5	-91	25.6	-41	46.9	37	155.1	394	54.1	21
Pathanamthitta	10.5	-87	59.7	21	39.0	-32	134.3	142	76.7	15
Thiruvananthapuram	0.2	-99	24.3	15	78.0	141	100.2	242	16.9	-63
Thrissur	10.9	-86	5.4	-91	52.7	-8	158.7	180	50.8	-25
Wyanad	32.7	-70	40.3	-49	36.9	-24	87.9	103	96.4	108
Tamil Nadu										
Ariyalur	9.3	-77	54.7	94	110.3	212	48.7	40	0.0	-100
Chennai	5.6	-85	73.7	176	118.5	374	25.1	-6	0.0	-100
Coimbatore	5.9	-49	38.0	348	23.8	208	29.8	49	0.0	-100
Cuddalore	27.3	-28	39.2	44	76.9	168	41.7	45	0.0	-100
Dharmapuri	0.0	-100	66.0	187	83.0	177	68.2	50	0.0	-100
Dindigul	1.4	-93	54.0	181	38.6	68	13.2	-62	0.0	-100
Erode	7.6	-59	57.0	285	36.3	124	22.4	-26	0.0	-100
Kanchipuram	3.6	-91	31.3	-6	83.0	146	54.7	79	0.0	-100
Kanyakumari	0.0	-100	5.1	-61	15.0	-24	41.6	105	0.0	-100
Karikal	0.0	-100	39.0	264	69.2	204	50.0	88	0.0	-100
Karur	14.7	-22	49.1	207	35.2	101	21.1	-28	0.0	-100
Krishnagiri	3.3	-88	93.6	288	69.6	171	90.7	102	0.0	-100
Madurai	22.3	-13	38.1	59	33.6	19	3.4	-90	0.0	-100
Nagapattinam	3.0	-89	25.0	40	73.2	190	28.6	42	0.0	-100
Namakkal	2.6	-90	26.3	41	26.9	16	28.8	-25	0.0	-100
Nilgiris	18.2	-49	48.6	40	45.9	92	64.7	84	0.2	-96
Perambalur	20.0	-22	31.3	27	112.0	367	33.5	6	0.0	-100
Puducherry	8.4	-75	47.4	103	130.2	283	0.0	-100	0.0	-100
Pudukottai	17.2	-51	8.4	-68	61.1	163	33.1	24	0.0	-100

Ramanathapuram	1.3	-88	5.1	-58	9.6	0	2.9	-79	0.0	-100
Salem	6.6	-81	83.0	222	112.1	283	25.1	-44	0.0	-100
Sivaganga	4.9	-81	32.5	83	27.0	26	3.5	-85	0.0	-100
Thanjavur	13.3	-61	24.1	24	78.2	220	36.9	42	0.0	-100
Theni	0.6	-92	79.8	768	11.8	48	20.4	20	0.0	-100
Tirunelveli	0.8	-85	27.1	488	0.2	-95	21.0	147	0.0	-100
Tirupur	0.0	-100	20.4	132	13.3	65	0.7	-97	0.0	-100
Tiruvallur	4.4	-88	75.3	160	86.2	214	71.8	131	3.1	-56
Tiruvannamalai	1.7	-95	49.6	45	47.3	30	49.6	9	0.0	-100
Tiruvarur	6.2	-78	33.8	85	35.9	42	68.3	245	0.0	-100
Toothukudi	2.0	-62	2.0	-62	4.0	-37	1.3	-84	0.0	-100
Trichy	8.3	-67	28.5	32	64.0	143	35.3	-11	0.0	-100
Vellore	0.7	-98	91.1	210	73.1	127	61.2	44	0.5	-91
Villupuram	4.8	-87	23.4	-9	91.8	182	16.8	-61	0.0	-100
Virudhunagar	5.7	-61	94.1	577	29.5	103	0.1	-99	0.0	-100
Andhra Pradesh										
Coastal Andhra Pradesh										
East Godavari	3.8	-91	23.7	-41	35.7	-4	16.3	-51	51.6	1
Guntur	7.8	-79	32.2	-3	35.2	9	75.3	171	11.3	-73
Krishna	8.5	-81	19.1	-53	38.0	8	50.7	70	22.1	-53
Nellore	0.6	-97	25.8	35	30.2	54	38.8	71	6.4	-79
Prakasam	2.2	-92	42.1	67	52.5	142	43.7	110	13.4	-64
Sirkakulam	8.9	-82	17.7	-60	53.5	1	35.4	-24	50.2	-1
Visakhapatnam	6.1	-86	15.3	-61	35.4	-15	41.2	0	31.4	-34
Vizianagram	4.2	-92	14.1	-68	22.9	-53	19.4	-62	17.7	-65
West Godavari	8.8	-81	16.6	-64	29.8	-27	47.5	35	13.9	-71
Telangana										
Adilabad	24.2	-56	6.9	-90	25.5	-41	66.3	115	63.8	49
Hyderabad	8.1	-79	5.7	-83	61.1	49	33.7	4	93.6	97
Karimnagar	12.1	-71	20.2	-58	23.7	-42	35.4	15	59.4	38
Khammam	26.4	-48	9.4	-81	34.2	-24	22.3	-29	65.9	57
Mehabubnagar	2.5	-93	54.5	69	86.0	189	55.0	80	24.7	-39
Medak	3.7	-90	19.0	-57	39.9	11	57.7	55	71.4	61
Nalgonda	2.4	-93	23.2	-30	86.5	149	37.9	33	14.0	-66
Nizamabad	4.4	-93	12.7	-77	23.2	-51	32.7	2	50.9	33
Rangareddy	0.1	-99	28.8	-19	55.2	33	67.1	74	50.1	-3
Warangal	19.7	-54	31.1	-35	19.7	-47	21.7	-32	53.7	40
Rayalaseema										
Anantapur	3.4	-82	85.0	334	75.7	281	60.9	83	4.0	-90
Chittoor	1.2	-96	76.7	208	65.0	141	46.1	33	9.8	-72
Cuddapah	1.3	-95	28.6	47	54.6	123	50.3	79	1.6	-96
Kurnool	8.1	-72	46.6	69	63.5	141	59.1	111	14.4	-67

Legends

	(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

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 ponni, 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

Chilli - K 1

Karnataka

Black gram (Rashmi)

Cowpea (TVX-944)

Field bean : (H.A-3, 4)

Horse gram (KBH-1 and PHG-9)

Cotton: Jayadhar, Suyodhar, Renuka and DDHC-2

ODISHA

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

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

Vadu Kalai : Kalindi, Sarada.

Cabbage : Pride of India, Pusa early, Kranti.

Cauliflower : Jawhar moti, Bharat Jyoti, Early banaras.

Jharkhand

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

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

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

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

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

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

Sweet potato (Shakarkand): Rajendra Shakarkand 5, Rajendra Shakarkand35, Rajendra Shakarkand 43, Rajendra Shakarkand 47, Kalmegh, shree Bhadra and Rajendra Shakarkand 92.

Delhi

Carrot: Pusa Rudhira and Pusa Kesar.

Mid season cauliflower (Nov.-Dec.): Pusa sharad, Pusa hybrid-2, Pant shubra.

Sarson saag- Pusa saag-1; **Radish**- Versa kee rani, summer long, long chetaki; **Spinach**- All green; **Coriander**- pant Haritama or other hybrids.

Jammu & Kashmir

Toria : local toria, RSPT-1 & RSPT-2

Potato: (Kufri Chandramukhi), K Badshah, K.Sinduri, K.Chipsona & K.Sona.

Palak (All Green), Methi (Pusa Early Bunching, Kasuri Methi)

Mustard :- Pusa Sarson-25, Pusa Sarson-26, Pusa Agrmi, Pusa Taraka, Pusa Mahak

Radish : P.Reshmi, Minowase Japanese White

Cabbage : Golden Acre, Pride of India and PusaMukta,

Carrot : Pusa Kesar,P.Yamdagani.

Turnip : PTWG).

Garlic : yamuna safed agrifound parvati

Methi : pusa early bunching and kasuri methi.

Spinach :all green.

Uttar Pradesh

Toria- T-9, T-36, Bhawani, Pant-303

Potato: Kuphari Chanramukhi, Kuphari ashoka, Kuphari Bahar

Rajasthan

Cucurbits:bottle guard : Pusa Naveen, ArkaBahar, pumpkin - PusaVishwas, ArkaChandan, PusaAlankar, ArkaSuryamukhi, **bitter guard** - ArkaHaritPusaVishesh, Priya and **round gourd**- Arkatinda, Bikaneri green, Punjab-48.

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

Early cauliflower: Pusa hybrid-2, Improved chinese and PusaHimjoyti.

Onion: Pusa Red, Arka Niketan, Pusa White & Local Red

Late sown cauliflower: Pusa snow ball, K-1, Hisar-1, Dania and Selection-7

Deshi carrot: Pusa Keshar:

Raddish : Pusa Rasmi

Himachal Pradesh

Cauliflower : Patna snowball and joint snowball.

Pea: Ageta-6 and Arka Matar.

Raddish: Japanese white, Chinese pink and mino early white

Turnip : PTWG-1

Carrot : Pusa kesar

Fenugreek: I.C. 74, kasoori

Uttarakhand

Pea : VL Ageti Mater-7, Vivel Mater-10, Pant Subjee Mater-3, Azad

Toria : Type -9, Pant Toria-30, Pant Toria-303, Uttara, Pant Toria-507, P.T.-303, P.T.-507,

Garlic : VL-Garlic or DARL-52

Punjab

Toria: PBT 37/ TL 15

Radish: Punjab Pasand & Punjab Safed,

Turnip: L-1 & 4-white

Carrot: PC-34), potato and palak (Punjab Green).

Cauliflower: Pusa Snow ball 1 & Pusa Snow ball K-1.

Assam

Early cauliflower: Early Kunwari, Pusa Katki, Pusa Deepali, CFL- 4048, Pusa Early Synthetic, Kamaya, Suhasihi.

Mid Cauliflower: Improved Japanese, Pusa Synthetic, Pusa Snowball.

Radish:

Early varieties: Pusa Desi, Pusa Himani, Pusa Chetki.

Late varieties: Japanese White, Jaunpuri, Bombay Red.

Carrot: Nantes, Pusa Kesar and Chantenay.

Spinach: Jobner Green, All Green, S-23, Pusa Jyoti.

Tomato: Punjab Chhuhara, S-12, Punjab Kesri, Pusa Early Dwarf, Sioux, Pusa Ruby, VC- 48-1, Arka Abha (BWR-1), Arka Alok (BWR-5), BT-1, Bilahi-1, Bilahi-2, Trishul, Allrounder, T- 1408, T- 1458, Anup.

Cabbage: Golden Acre, Pride of India, BC- 76, Pusa Drum Head, Pusa Synthetic.

Knolkhol: White Vienna, Purple Vienna.

Brinjal: Pusa Kranti, Pusa Purple Long, Pusa Purple Cluster, Pusa Purple Round, Longai, Pusa Bhairav, JC-2, BWR-12.

Tripura

Tomato: Trishul, Allrounder, T- 1408, T- 1458, Anup.

Cauliflower: CFL- 4048, Pusa Early Synthetic, Kamaya.

Cabbage: BC- 76, Pusa Drum Head, Pusa Synthetic.