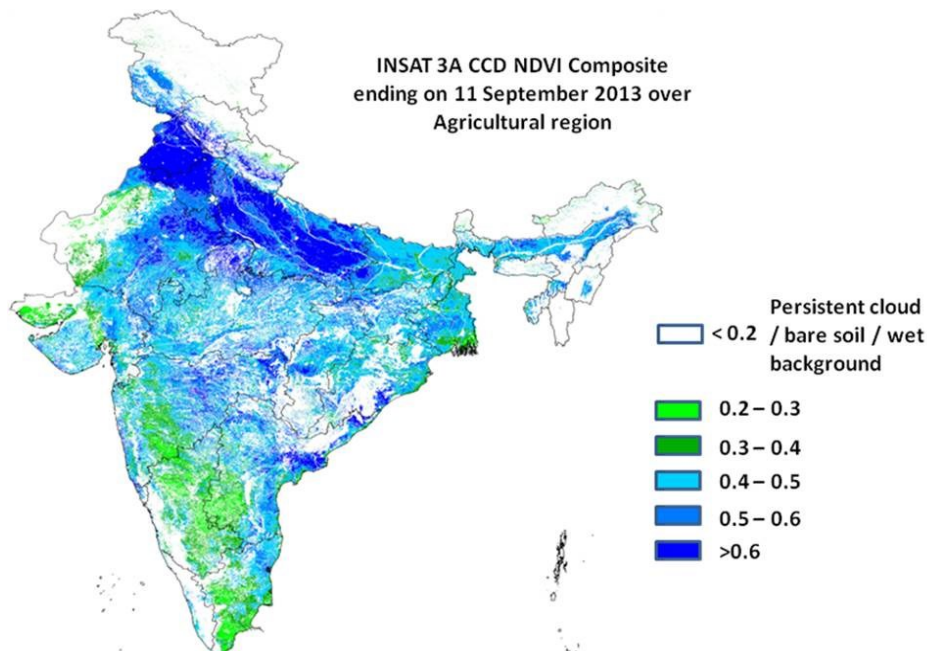


National Agromet Advisory Service Bulletin
Friday 13th September, 2013
(For the period 13th to 16th September 2013)



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

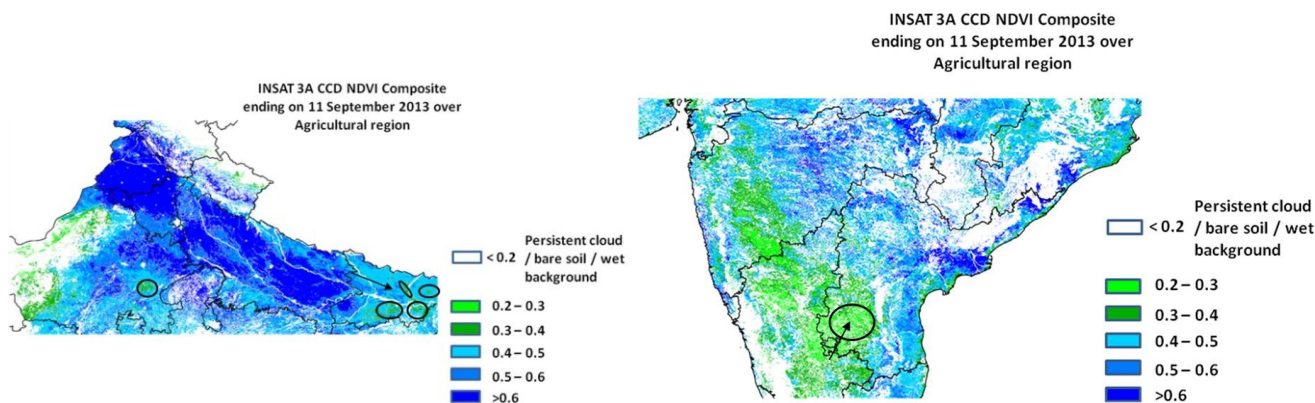
Crop condition based on Rainfall and INSAT 3A CCD NDVI **

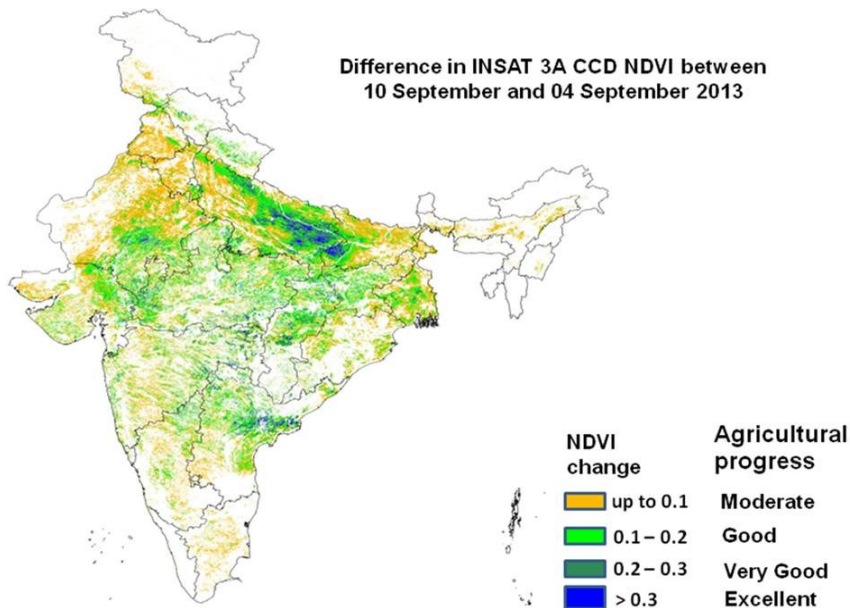


Source: SAC, Ahmedabad

Overall Agricultural Situation: Agricultural growth is in general very good over Punjab, Haryana, pockets of eastern Rajasthan and central Rajasthan, south-west UP and adjoining areas of MP, eastern and central part of Maharashtra, large patches in West Bengal, pockets of coastal Orissa, majority of Saurashtra and central Gujarat, coastal AP and few pockets in coastal Tamil Nadu as NDVI vigour showed more than 0.5 upto 11th September. The crop vigour reached its peak in whole of Punjab, northern Haryana (except few districts of southern Haryana), pockets of eastern Rajasthan (Alwar, Bharatpur and Kota) and western UP. The growth is good over rest part of Haryana, UP, Bihar, MP, eastern Rajasthan, Central and Southern Gujarat, Maharashtra, West Bengal, Orissa, interior AP and Tamil Nadu as NDVI vigour showed the range from 0.4 to 0.5.

Some pockets (shown by black circles below in Figure below) showed stressed growth in parts of Bihar, Rajasthan and south-western part of Andhra Pradesh around Anantpur. Rest of India showed moderate vigour.



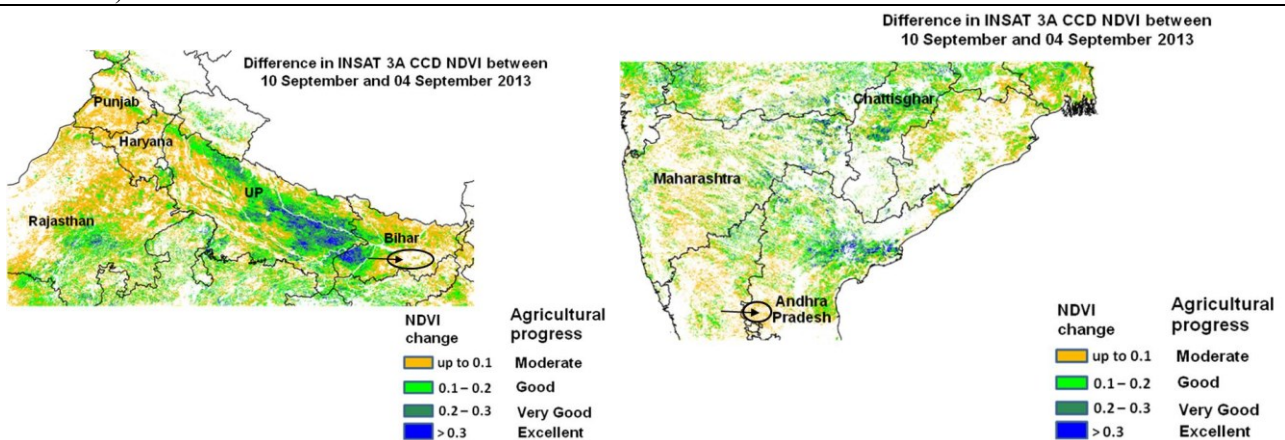


Source: SAC, Ahmedabad

Progress of crop performance during last week: Agricultural progress between 11th September and 4th September 2013 was found to be excellent and very good over northern to eastern UP, southern part of Rajasthan and adjoining part of Gujarat, major patches of Maharashtra, northern Karnataka, Chattisgarh, M.P., Coastal AP, coastal Orissa, some pockets of West Bengal. Good progress was noticed over part of northern UP, part of southern Rajasthan, northern A.P., major part of W.B. and Jharkhand. Little change was noticed over almost whole of Punjab, major part of Haryana and adjoining patches of UP, north-eastern Rajasthan, major part of Tamil Nadu, some pockets of Karnataka and A.P., north-eastern states. These regions have reached the peak growth.

But significant patches (shown by black circles in Figure below) of middle portion of Bihar and southern part of A.P. showed no or very little progress which could be due to stress situation arising either due to water logging or water shortage.

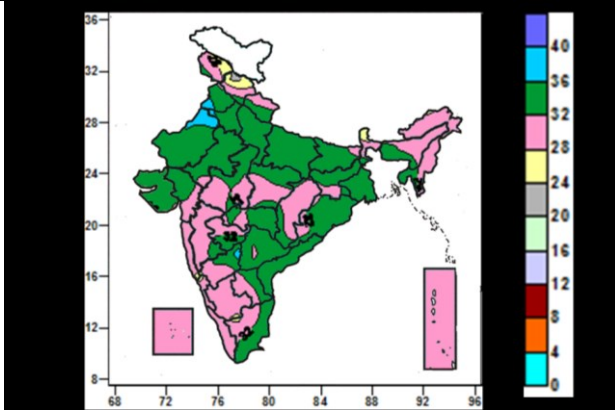
This information is in consistence with the good amount of rainfall received in the above-mentioned areas (Annexure II).



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

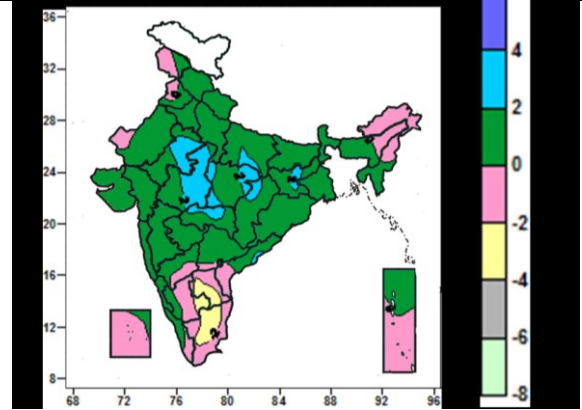
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 11.09.2013

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 11.09.2013



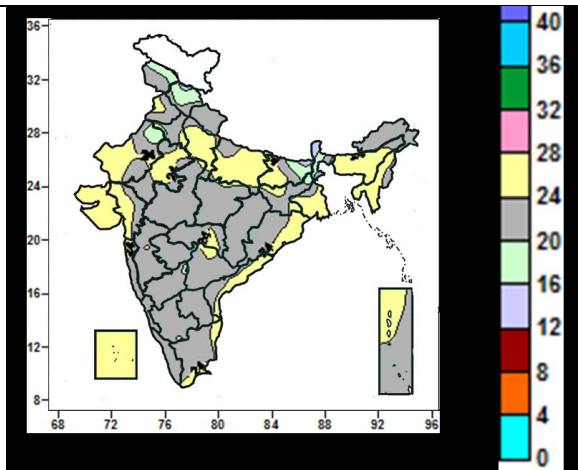
- 36 to 40 $^{\circ}\text{C}$ over some parts of Punjab, Haryana, West Rajasthan, North Interior Karnataka.
- 28 to 36 $^{\circ}\text{C}$ over many parts of the country (except many parts of Sikkim, some parts of Jammu & Kashmir, Himachal Pradesh, South Interior Karnataka, Tamil Nadu).
- 24 to 28 $^{\circ}\text{C}$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

Mean Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 11.09.2013



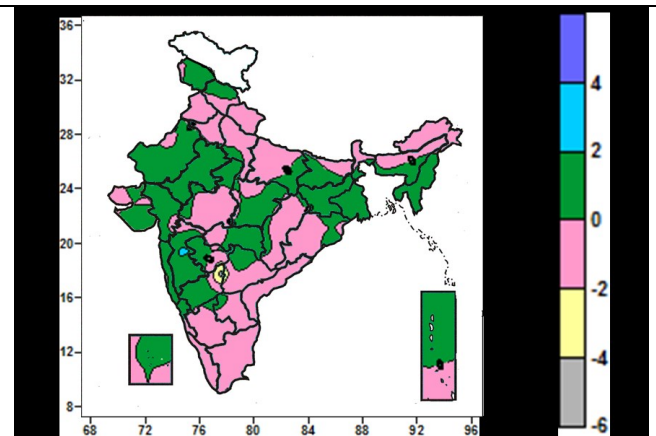
- 2 to 4 $^{\circ}\text{C}$ over many parts of East Rajasthan, Madhya Pradesh, some parts of East Uttar Pradesh, Jharkhand, Chhattisgarh, Vidarbha.
- -2 to 2 $^{\circ}\text{C}$ over many parts of the country (except many parts of East Rajasthan, Madhya Pradesh, some parts of East Uttar Pradesh, Jharkhand, Chhattisgarh, Vidarbha, Rayalaseema, South Interior Karnataka, Tamil Nadu).
- -4 to -2 $^{\circ}\text{C}$ over some parts of Rayalaseema, South Interior Karnataka, Tamil Nadu.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 11.09.2013



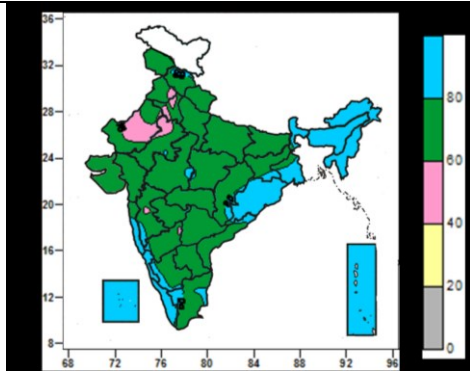
- 20 to 28 $^{\circ}\text{C}$ over many parts of country (except many parts Himachal Pradesh, some parts of Jammu & Kashmir, West Rajasthan, Haryana, Bihar, Jharkhand and Sub-Himalayan West Bengal).
- 16 to 20 $^{\circ}\text{C}$ over many parts Himachal Pradesh, some parts of Jammu & Kashmir, West Rajasthan,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

Mean Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 11.09.2013



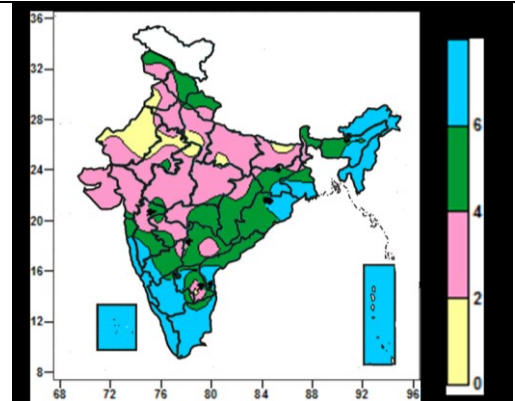
- 2 to 4 $^{\circ}\text{C}$ over some parts of Madhya Maharashtra.
- -2 to 2 $^{\circ}\text{C}$ over all the parts of country (except some parts of Madhya Maharashtra).

**Relative Humidity (%) over India for the week ending
11.09.2013**



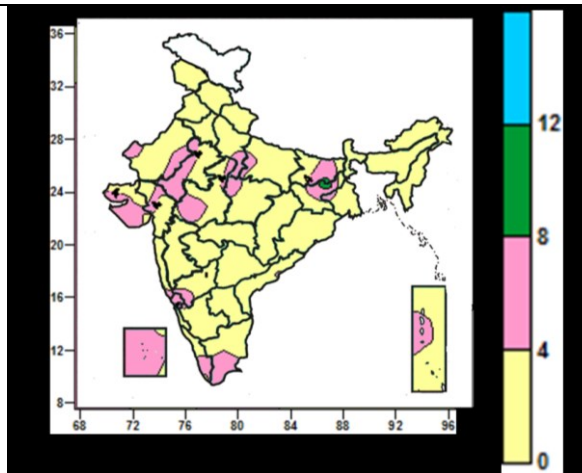
- 60 to 100% over entire country (except many parts of West Rajasthan, some parts of Punjab, Haryana, East Rajasthan, Madhya Maharashtra, North Interior Karnataka).
- 40 to 60% over many parts of West Rajasthan, some parts of Punjab, Haryana, East Rajasthan, Madhya Maharashtra, North Interior Karnataka.

**Cloud amount (okta) over India for the week ending
11.09.2013**



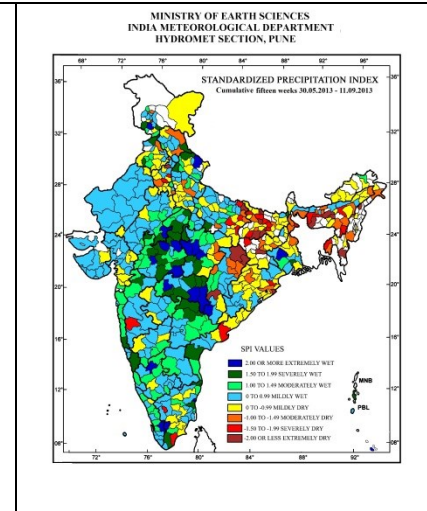
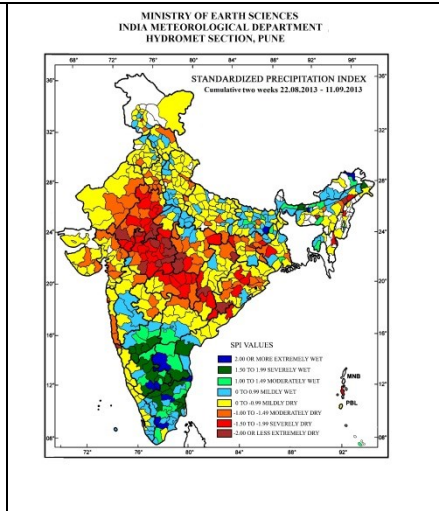
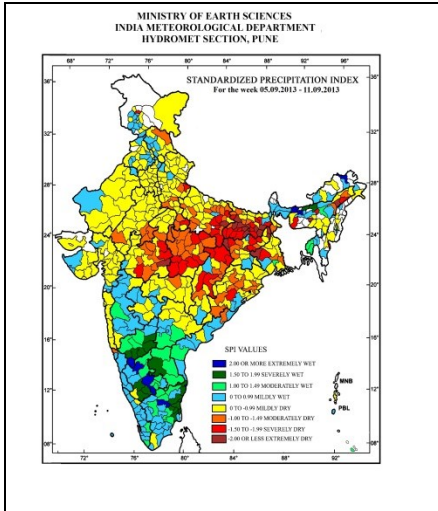
- 4 to 8 okta over many parts of the country (except many parts of Uttar Pradesh, Punjab, Haryana, Rajasthan, Bihar, Gujarat, Saurashtra & Kutch, Madhya Pradesh, some parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Madhya Maharashtra, Marathwada, Vidarbha, Telengana, Rayalaseema, North Interior Karnataka).
- 0 to 4 okta over many parts of Uttar Pradesh, Bihar, Punjab, Haryana, Rajasthan, Gujarat, Saurashtra & Kutch, Madhya Pradesh, some parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Madhya Maharashtra, Marathwada, Vidarbha, Telengana, Rayalaseema, North Interior Karnataka.

Wind speed (knots) over India for the week ending 11.09.2013



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

Standard Precipitation Index weekly, fortnightly and seasonal

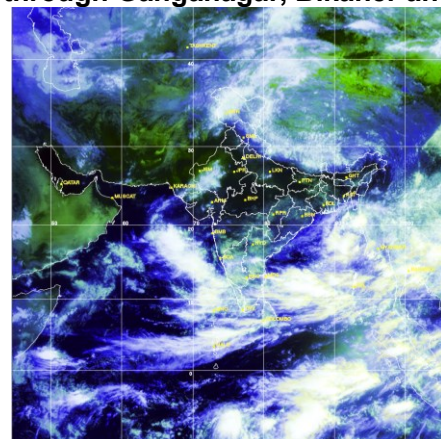
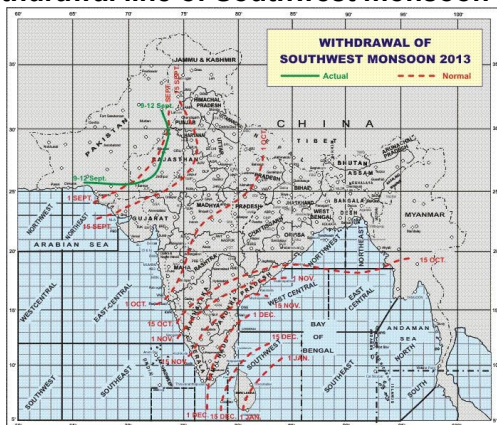


Weekly SPI values indicate, extremely wet/severely wet conditions over parts of North Interior Karnataka, South Interior Karnataka, Rayalaseema, adjoining parts of Tamilnadu and some parts of Assam, Arunachal Pradesh while extremely dry/severely dry conditions were observed over most parts of East Madhya Pradesh, Chhattisgarh, Jharkhand and some parts of Bihar, east Uttar Pradesh.

Cumulative SPI values of the past two weeks indicate extremely wet/severely wet conditions over many parts of South Interior Karnataka, Tamil Nadu and some parts of North Interior Karnataka, Assam, Arunachal Pradesh, Bihar, Coastal Andhra Pradesh while extremely dry/severely dry conditions were observed over many parts of Vidarbha, entire Madhya Pradesh, parts of Telangana, east Rajasthan, northern parts of coastal Andhra Pradesh, interior Orissa, Chhattisgarh, Gangetic West Bengal, Assam, Mizoram and Nagaland.

Cumulative SPI values of the past fifteen weeks (i.e. since the beginning of southwest monsoon) indicate extremely wet/severely wet conditions over most parts of East Madhya Pradesh, Vidarbha, Telangana, Coastal Maharashtra, some parts of Rajasthan, Jammu and Kashmir, Gangetic West Bengal, while extremely dry/severely dry conditions were observed over parts of Bihar, East Uttar Pradesh, Haryana, Jharkhand, Chhattisgarh and some parts of Coastal Andhra Pradesh, Madhya Maharashtra, Himachal Pradesh, Assam and Meghalaya, Mizoram.

The withdrawal line of Southwest monsoon continue to pass through Ganganagar, Bikaner and Barmer.



Withdrawal of Southwest Monsoon 2013

Satellite image dated 13.09.2013, 0400 UTC

Weather Forecast

Weather Forecast for next 3 days (upto 0830 hours IST of 16th September, 2013)

- Rain/thundershowers would occur at many places over Konkan & Goa, Madhya Maharashtra, Marathwada, Andhra Pradesh, Karnataka, Kerala, Tamilnadu, Lakshadweep and Andaman & Nicobar Islands.
- Rain/thundershowers would occur at many places over Jammu & Kashmir during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at few places over Odisha and Chhattisgarh during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at a few places over Vidarbha, Jharkhand, West Bengal & Sikkim and northeastern states.
- Rain/thundershowers would occur at a few places over Himachal Pradesh, Uttarakhand and Gujarat state during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at isolated places over East Uttar Pradesh, East Madhya Pradesh and Bihar.
- Rain/thundershowers would occur at isolated places over Punjab, Haryana, West Uttar Pradesh during next 24 hours and mainly dry thereafter.
- Weather would be mainly dry over rest parts of the country.

Weather Warning during next 3 days

13 September: Heavy rainfall would occur at isolated places over Andaman & Nicobar Islands, Coastal Andhra Pradesh, Rayalaseema, Tamilnadu, Coastal Karnataka, south interior Karnataka, Kerala and Lakshadweep.

14 September: Heavy rainfall would occur at isolated places over Andaman & Nicobar islands, Odisha, Chhattisgarh, Coastal Andhra Pradesh, Rayalaseema, Tamilnadu, Coastal Karnataka, South Interior Karnataka, Kerala and Lakshadweep.

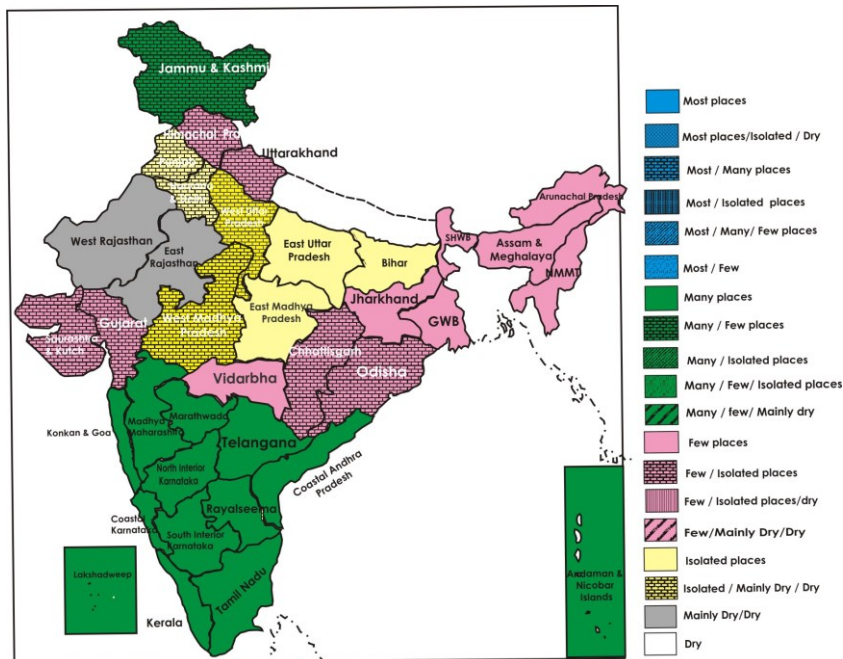
15 September: Heavy rainfall would occur at isolated places over Coastal Andhra Pradesh, Odisha, Chhattisgarh, Rayalaseema, Tamilnadu, Coastal Karnataka, South Interior Karnataka, Kerala and Lakshadweep.

Weather Outlook for subsequent 4 days from 16th to 20th September, 2013

- Rain/thundershower would occur at many places over peninsular India and Andaman & Nicobar Islands.
- Rain/thundershower would occur at a few places over and eastern & northeastern states and isolated over western Himalayan region, East Madhya Pradesh, Chhattisgarh and Vidarbha.
- Weather would be mainly dry over rest parts of the country.

Weather Forecast Map

(Valid upto 0830 hours of 16th September, 2013)



Salient Advisories

Northeast Region

- In Hill Zone of Assam, continue sowing of green gram and black gram, transplanting of early cauliflower and continue nursery raising of winter vegetables.
- In Lower Brahmaputra Valley Zone of Assam, in flood affected districts of Goalpara, Nalbari, Barpeta, Bongaigaon and Kokrajhar, field should be prepared just after recession of flood, puddle the fields and undertake direct seeding of germinated seeds of extra early varieties of *sali* rice such as Luit, Kapilee, Culture-1 and Heera or any short durational local/ traditional varieties of *sali* rice. Germinated seeds should be sown in lines 20 cm apart with a seed rate of 75 kg/ha.
- In Central Brahmaputra Valley Zone and North Blank Plain Zone of Assam, continue nursery sowing of early cole crops, brinjal and sowing of green gram, black gram and radish.
- In Sub Tropical Hill Zone of Arunachal Pradesh, prepare nursery bed of cauliflower, cabbage and continue sowing of radish. Undertake field preparation for sowing of maize and sesame. In view clear/partially cloudy weather for the next 2/3 days, farmers are advised to immediately harvest matured *jhum* rice and early WRC rice.
- In the upland areas of Sub Tropical Plain Zone of Manipur, complete sowing of black gram and rice bean.
- In Temperate Sub Alpine Zone of Meghalaya, continue sowing of green gram and black gram, where sowing of rice could not be continued due to long dry spell.
- Continue nursery sowing for early cauliflower, radish and brinjal in Mid Tropical Plain Zone of Tripura.
- In Mild Tropical Hill Zone of Mizoram, avoid water stagnation in the field of ginger and turmeric.

South Region

- In Kerala, continue planting of Nendran banana in the Problem Area Zone after spells of heavy rain. Provide adequate drainage in crop fields to remove excess water.
- In Anantapur district of Rayalaseema, complete sowing of contingency crops like horse gram, green gram, cow pea, cluster bean and fodder jowar after spells of heavy rain. Provide adequate drainage in crop fields to remove excess water.
- Undertake sowing of minor millets like bajra, foxtail millet, proso millet, little millet, fodder maize and continue sowing of short duration varieties of pulse like black gram, cowpea, field bean and horse gram in the Eastern Dry Zone of Karnataka after current spells of heavy rain.
- In North East Dry Zone of Karnataka, continue sowing of sunflower, transplanting of chilli after spells of heavy rain and postpone intercultural operations in *kharif* crops like red gram, cotton etc. and harvesting of green gram.
- Continue transplanting of *samba* rice, dry sowing of long duration varieties of rice, prepare late *samba* nursery and undertake thinning, gap filling and application of micro nutrient mixture at 5 kg/acre in rainfed cotton and maize crops utilising the realised rainfall in the Cauvery Delta Zone of Tamil Nadu.
- Continue transplanting of *samba* rice in the Western Zone of Tamil Nadu.

West Region

- In Konkan, Madhya Maharashtra and Marathwada, postpone irrigation, intercultural operations, application of fertilizers and plant protection measures in standing crops. Maintain water level upto 8-10 cm in rice fields in Konkan and 5-7 cm in rice fields in Madhya Maharashtra.
- In Vidarbha, continue intercultural operation, application of fertilizers in rice, cotton, red gram and pulses. Maintain 7-8 cm water level in rice field.
- Apply irrigation in cotton, groundnut, cluster bean and sesame in North Gujarat Zone. Carryout intercultural operations and mulching in castor and pulses to conserve soil moisture. Undertake harvesting of pearl millet.

Central Region

- In Malwa Plateau Zone of Madhya Pradesh, undertake weeding and hoeing in vegetables and apply top dressing of urea.
- In Vindhya Plateau Zone of Madhya Pradesh, undertake nursery raising of cabbage and cauliflower.
- In Kymore Plateau and Satpura Hill Zone of Madhya Pradesh, present weather is congenial for tikka disease in groundnut, spray Mancozeb @ 2-3 g/lit. of water.
- In North Hill Plain Zone of Chhattisgarh, present weather is congenial for chance of occurrence of blast disease in rice, apply Tricyclazole @ 120 grams per acre and repeat the spray after 10-12 days as per requirement after current spells of heavy rain.

East Region

- In Coastal Saline Zone of West Bengal, undertake sowing of pulse (Vadu Kalai) in the upland areas where there is no water stagnation.
- Complete planting of banana, cashew nut, marigold and sowing of sesame in East and South Eastern Coastal Plain Zone of Odisha after current spells of heavy rain. Undertake sowing of moong, black gram and horse gram in the uplands/medium lands using @ 8-10kg seeds/acre after seed treatment.
- In North West Alluvial Plain Zone of Bihar, undertake sowing of September arhar, cabbage, shakarkand and nursery sowing of cabbage and cauliflower. To control khaira disease in rice crop, spray mixture of Zinc Sulphate @ 5.0 kg and 2.5 kg lime sulphate in 1000 litres of water.
- In Sheikhpura, Jahanabad and Gaya districts of South Bihar Alluvial Zone of Bihar, where sowing of normal *Kharif* crops could not be carried out due to deficient rain, undertake sowing of September arhar. In other parts in fallow land undertake sowing of barja, toria and vegetables. In South Bihar Alluvial Zone, continue sowing of urad, sorghum, maize and small millets, planting of banana and papaya. Undertake intercultural operation in *kharif* vegetables, *kharif* fodder and apply nitrogenous fertilizer.
- In Western Plateau Zone of Jharkhand, in fallow land areas, farmers may sow the crop like kulthi, niger, urd and toria. Prepare field for early potato and green peas. Undertake sowing of green fodder like maize and lobia.
- In South Eastern Plateau Zone of Jharkhand, undertake sowing of Pigeon pea, cow pea, Rice bean and safflower.

North Region

- In Intermediate Zone of Jammu & Kashmir, undertake sowing of toria. In Valley Temperate Zone, continue transplanting of cole crops. Start picking of mature pods of beans, moong, rajmash etc. Undertake sowing of onion seeds raised nursery beds. In Sub-Tropical Zone, continue nursery sowing of cauliflower, cabbage and knol khol and prepare field for sowing of toria crop. Also undertake planting of litchi plant.
- In Sub-Montane Zone & Low Hills Sub-Tropical Zone of Himachal Pradesh, continue sowing of toria, planting of onion and transplanting of cauliflower.
- In East Uttar Pradesh, continue nursery sowing of *Capsicum*, knol-khol, cabbage and tomato and also sowing of toria. Apply top dressing of urea in rice crop. In West Uttar Pradesh, continue transplanting of brinjal, chilli and tomato, new planting of mango, guava, amla, banana and litchi.
- In Bhabar and Tarai Zone of Uttarakhand, complete sowing of pea, nursery sowing of cauliflower. Continue land preparation and sowing of toria in the Hill Zone.
- In Western Zone of Punjab, continue sowing of toria and early varieties of radish, turnip, carrot, potato. Continue transplanting of main season varieties of cauliflower and nursery sowing of late season varieties of cauliflower with supplementary irrigation.
- In Delhi, continue sowing of carrot, sarson (for leafy vegetable), radish, spinach and coriander on raised bed, transplanting of brinjal, tomato, chilli, cauliflower, onion and cabbage. Also continue nursery bed preparation for mid-season cauliflower.
- In Western Zone of Haryana, continue sowing of carrot, brinjal, chilli, onion and early cauliflower on ridge with supplementary irrigation.
- In East Rajasthan, continue sowing of radish and nursery raising for mid-season cauliflower, early cauliflower and continue transplanting of brinjal and chilli and undertake sowing of radish and carrot. In Transitional Plain Zone, undertake planting of fruit plants like ber, aonla, pomegranate. Start field preparation for sowing of rainfed taramira and toria. Also undertake picking of matured pods of pulse crops like green gram, moth bean and cowpea.
- In West Rajasthan, continue sowing of early varieties of radish and nursery sowing of early varieties cabbage and cauliflower. Also start picking matured pods of pulses viz. green gram, moth bean and cow pea etc. and harvesting of mature bajra.

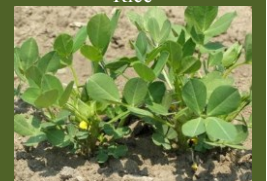
Detailed Zonewise Agromet Advisories

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

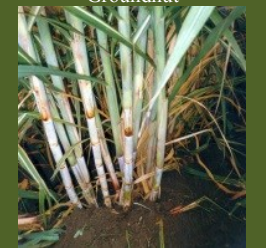
- **Realised Rainfall:** Hamirpur, Kangra, Mandi, Solan, Una districts of Himachal Pradesh, Fatehgarh Sahib, Gurdaspur, Nawashahar districts of Punjab, Panchkula, Yamunanagar, Chandigarh of Haryana, Jammu, Reasi, Samba districts of Jammu & Kashmir, Ambedkar Nagar, Kheri, Shrawasti districts of East Uttar Pradesh, Saharanpur district of West Uttar Pradesh, Bageshwar, Dehradun, Pithorgarh districts of Uttarakhand.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Jammu & Kashmir during next 48 hours and decrease thereafter, at a few places over Himachal Pradesh, Uttarakhand during next 48 hours and decrease thereafter, at isolated places over East Uttar Pradesh during the period, at isolated places over Punjab, Haryana, West Uttar Pradesh during next 24 hours and mainly dry thereafter. Weather would be mainly dry over remaining parts of the region.
- **Weather Warning:** Nil.
- **Weather Outlook:** Rain/thundershower would occur at isolated places over Western Himalayan region and weather would be mainly dry over rest part of the region.
- **Advisory :**
 - In Intermediate Zone of Jammu & Kashmir, continue sowing of toria. Undertake sowing of radish, carrot, garlic, palak, methi, peas and nursery sowing of cauliflower, cabbage, knol- khol and kale in Intermediate Lower Zone, sowing of radish, transplanting of knol-khol in Intermediate Higher Zone.
 - In Valley Temperate Zone of Jammu & Kashmir, continue transplanting of cole crops. Start picking of mature pods of beans, moong, rajmash etc. and harvesting of seeds of *kharif* vegetables (tomato, cucumber, capsicum) from fully ripe fruits. Undertake sowing of turnip, radish, carrot and spinach in open fields and continue sowing of onion seed in well prepared raised nursery beds.
 - In Sub-Tropical Zone of Jammu & Kashmir, continue nursery sowing of cauliflower, cabbage and knol khol, field preparation for sowing of toria crop and planting of Litchi.
 - In Mid Hills Sub Humid Zone of Himachal Pradesh undertake raising saplings of mango, litchi, guava, citrus family fruits and pomegranate. Undertake land preparation for winter leafy vegetable crops like palak, methi, sarson, carrot, onion, garlic and early varieties of pea.
 - In Sub-Montane Zone & Low Hills Sub-Tropical Zone of Himachal Pradesh, continue sowing of toria, planting of onion and transplanting of cauliflower.
 - In East Uttar Pradesh, continue nursery sowing of capsicum, knol-khol, cabbage and tomato and also sowing of toria. Apply top dressing of urea in rice crop.
 - In West Uttar Pradesh, continue transplanting of brinjal, chilli and tomato, new planting of mango, guava, amla, banana and litchi.
 - In Bhabar and Tarai Zone of Uttarakhand, complete sowing of pea, nursery sowing of cauliflower. Continue land preparation and sowing of toria. Also start sowing of garlic under optimum soil moisture conditions from this week. Weather is congenial for planting of tomato seeds in nursery raising of
 - In Undulating Plain Zone and in Western Plain Zone in Punjab transplant fully developed seedlings (4-6 weeks old) of main season varieties of cauliflower.
 - In Western Plain Zone in Punjab, avoid water stress in cotton crop during flowering and fruiting stage, otherwise shedding of flowers and bolls will take place resulting in poor yield. To get higher yield, give four sprays of 2% Potassium Nitrate 13:0:45 (2 kg potassium nitrate in 100 litres of water) at weekly intervals starting at flower initiation in addition to soil applied Potassic fertilizers. Apply timely irrigation at regular intervals in rice. Undertake sowing of early varieties of potato.
 - In Central Plain Zone in Punjab apply second dose of nitrogen to the Basmati rice depending upon variety and date of transplanting. It is the right time of transplanting of brinjal in the field. Undertake sowing of desi varieties of radish, carrot and turnip and



Rice



Groundnut



Sugarcane



Maize

planting of fruit trees like kinnow, malta, grapefruit, lemon, mango, lichi, amla, ber, jamun, guava and papaya.

- In Delhi, undertake transplanting of brinjal, tomato, chilli, cauliflower and cabbage on raised beds if seedlings are ready. Undertake sowing of carrot, sarson saag, radish, spinach and coriander on raised beds.
 - In Western Zone of Haryana, it is the right time to transplant the fruit plants. Start sowing of palak, methi, brinjal, chilli, onion and early cauliflower on ridge. As there is possibility of dry weather, apply irrigation to vegetable crops.
 - In East Rajasthan, continue sowing of radish and nursery raising for mid-season cauliflower, early cauliflower and In East Rajasthan, continue sowing of radish, carrot and nursery raising for mid-season cauliflower, early cauliflower and complete transplanting of brinjal and chilli. In Transitional Plain Zone, continue planting of fruit plants like ber, aonla, pomegranate. Start field preparation for sowing of rainfed taramira, toria. Also undertake picking of well ripe pods of pulse crops like green gram, moth bean and cowpea and harvesting of mature bajra. Undertake preparation of seed bed for raising nursery of chilli, brinjal and tomato for *rabi* season.
 - In West Rajasthan, continue sowing of early varieties of radish and nursery sowing of early varieties cabbage and cauliflower. Also start picking matured pods of pulses viz. green gram, moth bean and cow pea etc. and harvesting of mature bajra. Plough fallow fields to conserve soil moisture for sowing of barani taramira crops and also undertake field preparation for sowing of carrot.
 - In Sub-Humid and Sub Tropic Zone of Uttarakhand, low temperature and high humidity condition is favorable for attack of leaf hopper on rice. If Yellow scratches appear on the leaf surface spray Methyl parathion 50 EC @1.0litre/ha or Phosphomedon 100EC @ 300 ml/ha or Dimethoate 30 EC @1.25l/ha on a non- rainy day. Keep field weed free because the larvae of this insect survive on weed plant.
 - In Sub-Tropical Zone of Jammu & Kashmir, weather condition are favourable for rice hispa in early and normal transplanted rice crop, when one damaged leaf / hill is observed, go for clipping of tips of leaves and spray the crop with Triazophos 40EC @ 400ml/ha or Chloropyriphos 20EC@ 1500 ml/ha. Present weather conditions are also congenial for tikka leaf spot and collar rot in ground nut, spray the crop with mancozeb @ 0.25% or carbendazim@ 0.1% after current spells of rain.
 - In Central Plain Zone of Uttar Pradesh due to high humidity attack of leaf roller in pigeon pea is observed, spray monocrotophos 36 E.C. @ 800ml/ha.
 - In Mid Hills Sub Humid Zone and Sub Montane Low Hills Sub Tropical Zone of Himachal Pradesh, due to high humidity, there is chance of occurrence of blast and rice hispa in rice, spray Blitox 50 or 750 g Bavistin 50 WP in 750 litres of water per ha. for control of blast and spray 600 ml methyl parathion in 500 litres of water per ha. for control of hispa on a non-rainy day.
 - In Semi Arid Eastern Plain Zone of East Rajasthan, tomato crop is affected with fruit borer. To control this spray Malathion 50 EC @ 1 ml per litre water or spray Bacillus Thuringensis Kastki (Dypel-8 L) @ 1 litre water with Methomil 40 SP @ 600 gm per hectare. Repeat spray after 15 days if problem persists.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure III.
- **Animal Husbandry**
 - In Mid Hills Sub-Humid Zone of Himachal Pradesh, there are chances of endo and ectoparasite infestation. Deworming of animals should be done in this period. Single dose of Ivermectin tablet @10mg/50kg body weight should be given to the animals and the dose should be repeated after 21 days with same dose rate.
 - **Floriculture**
 - In Valley Temperate Zone of Jammu & Kashmir, mowing of lawns may be continued on sunny days. Prepare nursery beds for spring flowering annuals and herbaceous perennials.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Significant rainfall occurred in Alirajpur and Umaria districts of Madhya Pradesh, Bastar, Bijapur Bilaspur, Dantewara, Korba districts of Chhattisgarh during the week.
- **Weather forecast:** Rain/thundershowers would occur at few places over Chhattisgarh during next 24 hours and increase thereafter, at isolated places over East Madhya Pradesh and mainly dry weather over West Madhya Pradesh.
- **Weather Warning:** Heavy rainfall would occur at isolated places over Chhattisgarh on 14th and 15th September
- **Weather Outlook:** Rainfall/thundershower would occur at isolated places over east Madhya Pradesh, Chhattisgarh and mainly dry over West Madhya Pradesh.
- **Advisories:**
 - In Malwa Plateau Zone of Madhya Pradesh, undertake weeding and hoeing in vegetables and spray or apply top dressing of urea.
 - In Vindhya Plateau Zone of Madhya Pradesh, undertake nursery raising of cabbage and cauliflower.
 - In Chhattisgarh Plain Zone and North Hill Plain Zone, maintain 5 to 7 cm water level in the rice field.
 - In Bundelkhand Zone of Madhya Pradesh, there is report of attack of Bihar hairy caterpillar in sesame crop, spray Quinalphos 20 E.C. @ 2ml /lit of water. Also there is report of attack of Girdle beetle in soybean, Trizophos 40 E.C. 2.0 ml per litre of water may be sprayed to control the insect pest.
 - In Kymore Plateau and Satpura Hill Zone of Madhya Pradesh, present weather is congenial for tikka disease in groundnut, spray Mancozeb @ 2-3 g/lit. of water.
 - In Jabua Hill Zone of Madhya Pradesh, present weather is congenial for attack of sucking pests in cotton, spray thiomithaxim / acetameprid @ 0.3 gm/liter of water for control.
 - In North Hill Plain Zone of Chhattisgarh, present weather is congenial for chance of occurrence of blasts in the rice crop, apply Tricyclazole @ 120 grams per acre and repeat the spray after 10-12 days as per requirement after current spells of heavy rain.
 - In Bastar Plateau zone of Chhattisgarh, stem borer attack is being noticed in late sown maize crop, apply Carobofuran 3 G @ 2-3 grains/ plant at the time of earthing after current spells of rain.
 - 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 after current spells of rain.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure III
- **ANIMAL HUSBANDRY & POULTRY**
 - In Madhya Pradesh clean cattle sheds and create smoke in evening to save them from mosquitoes and bees and undertake vaccination to protect the animals from mouth and jahari fever disease.



Rice



Soybean



Sugarcane



Maize

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

- **Realised Rainfall:** Significant rainfall occurred in Sikkim, in most of the districts of Sub Himalayan West Bengal except Malda and South Dinajpur; in many districts of Gangetic West Bengal except Bankura; Birbhum, Burdwan, Hooghly, North 24 Parganas and Purulia, in most of districts of Odisha except Sambalpur, Nawapara, Koraput, Kandhamal, Kalahandi, Jharsuguda, Jajpur, Jagatsingpur, Cuttack, Boudh, Bolangir, Bargarh, Angul districts; in Araria, Kishanganj, Purnea and Sitamarhi districts of Bihar and East Singbhum, Jamatara, Koderma, Ranchi, Saraikela, Simdega and West Singbhum districts of Jharkhand.
- **Weather Forecast:** Rain/thundershowers would occur at a few places over West Bengal & Sikkim, Jharkhand during the period, at a few places over Odisha during next 24 hours and increase thereafter and at isolated places over Bihar.
- **Warning:** Heavy rainfall would occur at isolated places over Odisha on 14th and 15th



Rice



September.

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

- **Advisories:**

- In Old Alluvial Zone of West Bengal, undertake weeding followed by top dressing of urea in timely sown rice crop at 3 weeks after transplanting. Keep 2-3cm stagnant water in the field after transplanting.
- In Laterite and Red Soil Zone and New Alluvial Zone of West Bengal, undertake hand weeding or apply Pretilachlor 50% EC@1-2 litre/500 litre of water/ha to keep the field weed free and maintain 5-7cm water at panicle initiation stage of *Aman* rice.
- In Coastal Saline Zone of West Bengal, undertake sowing of pulse (Vadu Kalai) in the upland areas where there is no water stagnation.
- Continue sowing of sesame and complete sowing of green gram and black gram in fallow uplands in Western Undulating Zone of Odisha after current spells of heavy rain.
- Complete planting of banana, cashew nut, marigold and sowing of sesame in East and South Eastern Coastal Plain Zone of Odisha after current spells of heavy rain. Undertake sowing of moong, black gram and horse gram in the uplands/medium lands using @ 8-10kg seeds/acre after seed treatment. Undertake sowing of Sesamum in rainfed uplands after current spells of heavy rain.
- In North West Alluvial Plain Zone of Bihar, undertake sowing of September arhar, cabbage, shakarkand and nursery sowing of cabbage and cauliflower. To control khaira disease in rice crop, spray mixture of Zinc Sulphate@5.0 kg and 2.5 kg lime sulphate in 1000 litres of water.
- In North East Alluvial Zone of Bihar continue sowing of September arhar. Drain out excess rain water from standing crops. To prevent sheath blight in rice crop spray hexaconazole@1ml/ litre of water.
- In Sheikhpura, Jahanabad and Gaya districts of South Bihar Alluvial Zone of Bihar, where sowing of normal *Kharif* crops could not be carried out due to deficient rain, undertake sowing of September arhar. In other parts in fallow land undertake sowing of barja, toria and vegetables. In South Bihar Alluvial Zone, continue sowing of urad, sorghum, maize and small millets, planting of banana and papaya. Undertake intercultural operation in *kharif* vegetables, *kharif* fodder and apply nitrogenous fertilizer.
- In Western Plateau Zone of Jharkhand, undertake weeding in transplanted rice crop and apply urea after 20-25 days of transplanting. In fallow land areas, farmers may sow the crop like kulthi, niger, urd and toria. Prepare field for early potato and green peas. Undertake sowing of green fodder like maize and lobia.
- In Jharkhand, due to deficient rain during July and August, area under rice, maize, oilseeds and pulses have been reduced significantly, undertake sowing of horse gram till 15th September in areas where *Kharif* crops could not be sown.
- In South Eastern Plateau Zone of Jharkhand, undertake sowing of Pigeon pea, cow pea, Rice bean and safflower.
- In Central & North Eastern Plateau Zone of Jharkhand, continue sowing of urad, niger and horse gram, green peas. Continue planting of potato and marigold. In rice crop, undertake intercultural operations and top dressing of urea after current spells of rain. Undertake nursery sowing of tomato, cabbage and cauliflower.
- Due to humid weather conditions in New Alluvial Zone of West Bengal, attack of brown spot and blast may be found in *Aman* rice. If leaves are affected more than 5% apply Carbendazim +Mancozeb 2.5g/litre of water. In *Aman* rice attack of stem borer and rice hispa may be found. Apply Chlorpyrifos 2.5ml / Triazophos 2 ml per litre of water after current spells of rain. Combined attack of downy mildew and mosaic may be seen in bitter gourd and pointed gourd, apply Ridomil -MZ @2 gm per litre of water on a non rainy day.
- Due to high humidity and cloudy sky in Laterite and Red Soil Zone of West Bengal, leaf blight may be seen in tomato and chilli/capsicum, apply Mancozeb 75% @2.5 gm per litre of water on a non rainy day. 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 some areas of South Eastern Plateau Zone of Jharkhand, rice is infected with leaf blast, spray Bavistin @ 1 g or Beam (Tricyclazole) @ 6 g per 10 liter of water by mixing

Sugarcane



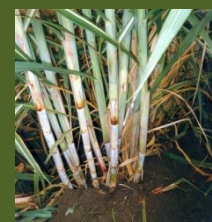
Maize

Teepol @ 0.5 ml per liter of water. Present weather condition favours occurrence of Anthracnose disease in cucurbitaceous crops, spray Blitox 50 @ 3g per liter of water as prophylactic spray. Weather is conducive for the attack of diseases like leaf blight in tomato and chilli/capsicum, spray Blitox 50 or copper oxychloride @ 3 g per litre of water on a non-rainy day.

- In some areas in Western Undulating Zone of Odisha, rice gallmidge and stem borer attack in rice at tillering stage has been reported, apply Fipronol 5kg/acre on a non rainy day. To control case worm and whorl maggot in rice, spray Triazophos or Chloropyriphos @2ml/lit water on a non rainy day.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.

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

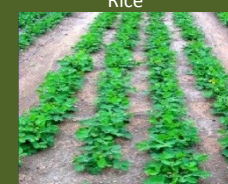
- **Realised Rainfall:** Significant rainfall occurred in all the districts in Arunachal Pradesh except Lower Subansari, Tirap, Upper Subansari districts, all the districts in Assam except Dhemaji, Dibrugarh, Golghat, Jorhat, Kamrup (Metro), Morigaon, Sibsagar, Tinsukia, districts, all the districts in Meghalaya except Ribhoi, West Garo Hills, West Khasi Hills districts, all the districts in Mizoram except Champhai, Chhimtuipui, Serchhip districts, all the districts in Manipur except Churachandpur district.
- **Weather Forecast:** Rain/thundershowers would occur at few places over the States of the region.
- **Weather Warning:** Nil
- **Weather Outlook:** Rain/ thundershower would occur at a few places over the States of the region.
- **Advisories:**
 - In Hill Zone of Assam, continue sowing of green gram and black gram, transplanting of early cauliflower and continue nursery raising of winter vegetables.
 - In Lower Bramhaputra Valley Zone of Assam, in flood affected districts of Goalpara, Nalbari, Barpeta, Bongaigaon and Kokrajhar, field should be prepared just after recession of flood, puddle the fields and undertake direct seeding of germinated seeds of extra early varieties of *sali* rice such as Luit, Kapilee, Culture-1 and Heera or any short durational local/ traditional varieties of *sali* rice. Germinated seeds should be sown in lines 20 cm apart with a seed rate of 75 kg/ha.
 - In Lower Bramhaputra Valley Zone of Assam, undertake sowing of pumpkin.
 - In Upper Bramhaputra Valley Zone of Assam, continue sowing of improved varieties of mid cauliflower and pulses.
 - In Barak Valley Zone of Assam, continue transplanting of early varieties of cabbage, cauliflower, knol khol and brinjal.
 - In Central Bramhaputra Valley Zone and North Blank Plain Zone of Assam, continue nursery sowing of early cole crops, brinjal and sowing of green gram, black gram and radish.
 - In Sub Tropical Hill Zone of Arunachal Pradesh, prepare nursery bed of cauliflower, cabbage and continue sowing of radish. Undertake field preparation for sowing of maize and sesame. In view clear/partially cloudy weather for the next 2/3 days, farmers are advised to immediately harvest matured *jhum* rice and early WRC rice.
 - In the upland areas of Sub Tropical Plain Zone of Manipur, complete sowing of black gram and rice bean.
 - In Temperate Sub Alpine Zone of Meghalaya, continue sowing of green gram and black gram, where sowing of rice could not be continued due to long dry spell.
 - Continue nursery sowing for early cauliflower, radish and brinjal in Mid Tropical Plain Zone of Tripura.
 - In Mild Tropical Hill Zone of Mizoram, avoid water stagnation in the field of ginger and turmeric.
 - 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, Upper Bramhaputra



Sugarcane



Rice



Groundnut



Maize

Valley Zone and North Bank Plain Zone of Assam. 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 on a non rainy day.

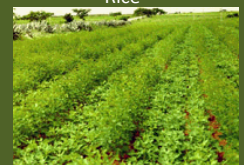
- In Mild Tropical Plain Zone of Tripura, prevailing humid weather is conducive for the attack of Leaf folder in *aman* rice (long duration) and sheath blight and gundhi bag in *jhum* rice. Apply Emidachloprid 2ml per liter of water for Leaf Folder on a non rainy day. Also there is chance of occurrence of stem and cob rot disease in maize. The combination of Trichoderma Viride (5ml per liter) and Seodomonous Flurensense (5ml per liter) may be applied to manage the attack on a non rainy day.
- In Mild Tropical Plain Zone of Tripura, prevailing high humidity and reduced temperature, particularly night temperature favour the occurrence of Bacterial wilt in banana. Good field sanitation, better drainage and free from weed is best to avoid this disease. The affected plant must be removed and destroyed immediately.
- 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. Vaccination and deworming may be done to protect the pigs from swine fever and internal parasite disease.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

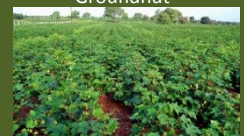
- **Realised Rainfall:** All the districts in Konkan, Ahmednagar, Nashik, Pune, Satara and Solapur district in Madhya Maharashtra, Nanded and Usmanabad districts in Marathwada, Gadchiroli and Washim district in Vidarbha received significant rainfall during last week. Significant rainfall received in Navsari, Valsad and Dangs districts of Gujarat.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Konkan, Madhya Maharashtra and Marathwada, at a few places over Vidarbha during the period, at a few places in Gujarat during next 48 hours and decrease thereafter.
- **Weather Warning:** nil
- **Weather Outlook:** Rain / thunder showers would occur at many places over Konkan , few places over Vidarbha and mainly dry weather in rest part of the region.
- **Advisories:**
 - In Konkan, Madhya Maharashtra and Marathwada, postpone irrigation, intercultural operations, application of fertilizers and plant protection measures in standing crops. Maintain water level upto 8-10 cm in rice fields in Konkan and 7-8 cm in rice fields in Madhya Maharashtra.
 - In Vidarbha, continue intercultural operation, application of fertilizers in rice, cotton, red gram and pulses. Maintain 7-8 cm water level in rice field.
 - Apply irrigation in cotton, groundnut, cluster bean and sesame in North Gujarat Zone. Carryout intercultural operations and mulching in castor and pulses to conserve soil moisture. Undertake harvesting of pearl millet.
 - In North and South Saurashtra Zones of Gujarat, provide supplementary irrigation to spreading and semi-spreading groundnut, cotton and vegetables crops. Irrigate the groundnut crop timely particularly GG -20 variety to prevent infestation of Sclerotium Rolfsii. Spray 7 ml Nephathalic Acetic acid / 10 litres of water in cotton to reduce dropping of flowers and immature cotton bolls.
 - Undertake intercultural operation, hand weeding followed by application of nitrogen @ 40kg/ha as a supplementary dose in castor in Middle Gujarat Zone. Continue transplanting of tobacco.
 - Undertake harvesting of green gram in Bhal and Coastal Zone. Carry out intercultural operation, hand weeding and earthing up operations followed by application of supplementary dose of nitrogen @ 40 kg/ha in cotton. Apply supplementary dose of



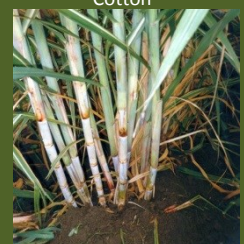
Rice



Groundnut



Cotton



Sugarcane

nitrogen in castor also.

- Carry out hand weeding and intercultural operations in *kharif* crops in South Gujarat Heavy Rainfall Zone. Apply split dose of nitrogenous fertilizers in *kharif* cereals. Clean the orchards and remove weeds.
- Prevailing cloudy and rainy weather is congenial for increase in infestation of blight and fruit borer in tomato in Western Maharashtra Scarcity Zone; spray Cypermethrin 10 ml or Quinalphos 10 ml + Trizophos 35 % at 20 ml + Mancozeb 25g per 10 litres of water by hand pump after current spells of rain.
- Due to humid weather, there may be incidence of powdery mildew on lower leaves of okra and gaur in Pune region; spray Sulphar 80 % WS @ 20 g per 10 litres of water after current spells of rain.
- Due to cloudy and humid weather, there may be attack of leaf roller in red gram in Marathwada; spray Dimethoate 30 % @ 10 ml per 10 litres of water after current spells of rain.
- Due to higher temperature in North Gujarat Zone, there are chances of incidence of sucking pests in cotton; spray Methyl-o-Demeton or Dimethoate @ 10 ml / 10 litre water for control on a non-rainy day.
- Due to warm, cloudy and humid weather condition in North Saurashtra Zone, there are chances of increase in infestation of sucking pests in vegetable crops; spray Acetamiprid 20 % SP@ 7 g/ 10 lit of water against whiteflies and other sucking pests in all crops and vegetables on anon-rainy day.
- Stages of the crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
 - In Gujarat, spray phenyl in the animal sheds to avoid flies and mosquitoes.

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

- **Realized rainfall:** Significant rainfall occurred in most of the districts in Coastal Andhra Pradesh except Vizianagaram, West Godavari districts; all the districts in Rayalaseema; Hyderabad, Khammam, Mahbubnagar, Medak, Nalgonda and Rangareddy in Telangana; most of the districts in Tamil Nadu except Coimbatore, Kanyakumari, Namakkal, Ramanathapuram, Shivaganga, Theni, Thirunelveli, Thiruppur, Virudhunagar and Thoothukudi; all the districts in Kerala; all the districts in Karnataka. No significant rainfall occurred in the remaining parts of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at many places over the region.
- **Weather Warning:** Heavy rainfall would occur at isolated places over Andaman & Nicobar Islands on 13th and 14th Sept., over Coastal Andhra Pradesh, Rayalaseema, Tamilnadu, Coastal Karnataka, south interior Karnataka, Kerala and Lakshadweep during the period.
- **Weather Outlook:** Rain/thundershower would occur at many places over peninsular India and Andaman & Nicobar Islands.
- **Advisories:**
 - In Anantapur district of Rayalaseema, complete sowing of contingency crops like horse gram, green gram, cow pea, cluster bean and fodder jowar after spells of heavy rain. Provide adequate drainage in crop fields to remove excess water. Continue direct sowing of rice in puddled soil or directly with drum seeder and intercropping foxtail millet (korra) + red gram (1:5) in Kurnool district after spells of heavy rain. Undertake preparation of main field for rice.
 - Undertake sowing of minor millets like bajra, foxtail millet, proso millet, little millet, fodder maize and continue sowing of short duration varieties of pulse like black gram, cowpea, field bean and horse gram in the Eastern Dry Zone of Karnataka after current



Sugarcane



Cotton



Groundnut

spells of heavy rain.

- Continue sowing of sunflower and groundnut; undertake intercultivation in already sown crops to conserve soil moisture and to control weeds in the North Dry Zone of Karnataka after current spells of heavy rain; postpone harvesting of green gram and arrange for adequate drainage facilities.
 - Drain out excess water from the standing crops like maize to create aeration near root zone in the North Transition Zone of Karnataka.
 - Continue sowing of cotton in the Hill Zone of Karnataka after current spells of heavy rain.
 - Undertake transplanting of vegetables and complete transplanting of rice in Southern Transition Zone of Karnataka.
 - In North East Dry Zone of Karnataka, continue sowing of sunflower, transplanting of chilli after spells of heavy rain and postpone intercultural operations in kharif crops like red gram, cotton etc. and harvesting of green gram.
 - In cotton crop to reduce the square/flower bud/flower drop, spray Planofix 0.25 ml per litre of water as it is at square to flowering stage in the Central Dry Zone and North Transition Zone of Karnataka after current spells of rain.
 - In Kerala, continue planting of Nendran banana in the Problem Area Zone after spells of heavy rain. Provide adequate drainage in crop fields to remove excess water.
 - Continue transplanting of samba rice, dry sowing of long duration varieties of rice, prepare late samba nursery and undertake thinning, gap filling and application of micro nutrient mixture at 5 kg/acre in rainfed cotton and maize crops utilising the realised rainfall in the Cauvery Delta Zone of Tamil Nadu.
 - Continue transplanting of samba rice and maintain standing water to facilitate more tillering in samba rice in the Western Zone of Tamil Nadu.
 - Undertake propping in sugarcane and provide support for banana to protect from strong winds in the South Zone of Tamil Nadu.
 - Undertake direct sowing of rice without nursery preparation in the North Western Zone of Tamil Nadu utilising the realised rainfall after current spells of rain.
 - Present and anticipated weather is conducive for turmeric leaf spot incidence in turmeric and sigatoka leaf spot incidence in banana in the Western Zone of Tamil Nadu. Spray Carbendazim @ 2ml / litre of water to prevent leaf spot incidence and undertake suitable control measures to control sigatoka leaf spot incidence after current spells of heavy rain.
 - Undertake strict field surveillance to prevent incidences of brown plant hopper (BPH), case worm, sheath blight and bacterial leaf blight in paddy and bud rot, leaf rot diseases, rhinoceros beetle and red palm weevil in coconut and Undertake plant protection measures after current spells of heavy rain in the Problem Area Zone of Kerala.
 - Prevailing weather conditions are favourable for the incidence of sheath blight and sheath rot in rice in the Southern Zone of Kerala. Spray Tilt (Propiconazol) 150 ml/ 200 litre of water as a control measure after current spells of heavy rain.
 - Stages of major crops are mentioned in Annexure I.
 - Varieties are mentioned in Annexure III.
- **Animal Husbandry**
 - Vaccinate cattle, since prevailing weather condition is favorable for foot and mouth disease, deworm cattles and goats and avoid water leaking in poultry sheds to prevent damp situation in poultry farms due to rains 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.



Rice

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 (tasseling/cob formation), 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) in Himachal Pradesh.
- Rice (flowering / maturity / harvesting), ginger (vegetative), sugarcane (vegetative / active vegetative), vegetables *viz.* tomato, *Capsicum*, chilli, brinjal, cabbage, cauliflower in mid and high hilly area (flowering / fruiting / picking), vegetables *viz.* palak (vegetative/picking), fenugreek, coriander, bhindi, French bean and lobia (flowering / fruiting / picking), finger millet, urad, moong, soybean (pod maturity / harvesting), pigeon pea, cowpea, horse gram, rice bean (flowering / maturity), sesame in low land area (early vegetative / vegetative), pearl millet (vegetative / panicle initiation), vegetable pea (sowing / germination), toria (land preparation / sowing) in Uttarakhand.
- Rice (grain formation / maturity), *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), radish, spinach and coriander (vegetative), guar, bajra (flowering / grain filling), onion (vegetative), Cucurbitaceous crops (flowering / fruiting / picking), mustard, pea (land preparation / sowing) in Delhi.
- Rice (panicle initiation / flowering), maize (early sown) (tasselling / silking), maize (normal sown) (vegetative / tasselling / cob formation), pole type beans (vegetative), cowpea (vegetative), sunflower (vegetative / flowering), garlic, cucurbits, okra (vegetative / flowering / fruiting), radish, spinach (transplanting / early vegetative), carrot, turnip (sowing), onion, cole crops (nursery sowing / transplanting), fruit crops (planting), brinjal, chilli, tomato, (transplanting / early vegetative / vegetative), potato (vegetative / early tuberization), *Kharif* pulses (moong, mash) (flowering / pod formation), beans, moong, rajmash (Valley Temperate Zone) (pod maturity / picking), groundnut (active vegetative / flowering / pegging initiation), radish, carrot, cucurbits, (nursery sowing), toria (land preparation / sowing / emergence) in Jammu & Kashmir.
- *Kharif* maize (knee high/tasseling/silking), jowar, bajra (early vegetative / vegetative), rice (tillering / panicle initiation/booting/heading), groundnut, arhar, moong and urad (early vegetative / vegetative), tomato, brinjal (vegetative / flowering), and cucurbitaceous vegetables (flowering / fruiting), spring sugarcane (vegetative/active vegetative/grand growth), toria (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), moong, mash (vegetative) maize (tasseling / cob formation) sesamum (vegetative), cauliflower (transplanting), potato (land preparation / sowing), in Punjab.
- New sugarcane (vegetative), cotton (vegetative), rice (booting/ panicle initiation) in Haryana.
- Rice (early tillering / tillering), 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 (active vegetative / flowering / pod formation), bajra, sorghum (active tillering / panicle initiation / flowering), rainfed Taramira, Toria and Mustard (field preparation / sowing), cucurbits (sowing), radish, Deshi carrot –sowing, cabbage and cauliflower (nursery sowing) and fruit crops (ber, aonla, pomegranate, phalsa) (transplanting) in Rajasthan.

CENTRAL INDIA [M.P., CHHATTISGARH]

- *Kharif* rice (tillering), soybean, green gram (pod formation / pod maturity), onion (vegetative), maize (silking/tasseling/cob formation), jowar, arhar, sesame, groundnut (vegetative), sugarcane (grand growth), vegetables (early vegetative/vegetative) in Madhya Pradesh.
- Sugarcane (tillering), *kharif* rice (tillering), maize, jowar, groundnut (vegetative), arhar, soybean, green gram

(vegetative/flowering), ragi and kodomillet (germination/early vegetative), ginger, turmeric, papaya (vegetative), onion (vegetative), vegetable crops (early vegetative) in Chhattisgarh.

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

- *Kharif* rice, (early vegetative), maize(early vegetative), sugarcane (tillering/grand growth), onion(transplanting), urad (sowing), yam (vegetative), arhar (sowing) in Bihar.
- *Kharif* rice (tillering), maize, urad, marua (sowing), arhar, groundnut (early vegetative), onion (vegetative), ginger and turmeric (vegetative), *kharif* vegetables *viz.* bhindi, bean, French bean (sowing/vegetative), tomato, cauliflower, cabbage (nursery sowing/transplanting), niger, potato, green peas, horse gram, sweet potato(sowing) in Jharkhand.
- Rice (early 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), Jute (active vegetative), turmeric, ginger, yam (vegetative), sugarcane (tillering), banana (planting/vegetative), tomato (fruiting / harvesting), marigold(sowing), in Odisha.
- *Aman* rice (tillering/panicle initiation stage), *kharif* maize (tasselling to cob formation stage), ginger, turmeric (vegetative), pigeon pea (early vegetative), *kharif* vegetables (vegetative), brinjal, okra, tomato and chilli (flowering/fruiting), pointed gourd, banana (fruiting), tomato (nursery sowing), cowpea (sowing) in West Bengal.
- Ginger (vegetative), large cardamom (secondary flowering), *kharif* vegetables (vegetative) in Sikkim

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

- Sugarcane (active vegetative / elongation), *sali* rice (tillering / panicle initiation), *Olitorius* and *Capsularis* jute (seed crop) (vegetative), pigeon pea (vegetative), sesame (vegetative/ flowering), green gram and black gram (sowing / germination / vegetative), ginger, turmeric (vegetative), early cauliflower, cabbage, knol-khol (transplanting / early vegetative), mid cauliflower (nursery sowing), brinjal (nursery sowing) and radish (sowing) in Assam.
- *Jhum* rice (harvesting), WRC rice (early sown) (maturity/ harvesting), regular WRC rice (flowering/ grain formation), cauliflower and cabbage (nursery preparation), radish, spinach (sowing) in Arunachal Pradesh.
- *Kharif* rice (panicle initiation/ flowering), *kharif* rice (late variety)(tillering), groundnut (flowering / pegging), soybean (flowering/ pod formation), early *rabi* vegetables (nursery preparation), Mango, litchi, guava (planting), black gram, rice bean (early vegetative/ vegetative), in Manipur.
- *Sali* rice (tillering/panicle initiation), turmeric, ginger (rhizome formation/ rhizome maturity), cucurbits (flowering / fruiting), green gram and black gram (sowing/germination), early cauliflower, winter vegetables (nursery sowing) in Meghalaya.
- *Jhum* rice (tillering), groundnut (vegetative), cucurbits, bitter guards (flowering / fruiting), soybean (germination/early vegetative), ginger and turmeric (vegetative) in Mizoram.
- Upland rice (grain formation/ grain maturity), lowland rice (tillering/ panicle initiation), chilli (flowering/ fruiting), brinjal (fruiting / harvesting), ginger (vegetative) and cucurbits (fruiting/ harvesting) in Nagaland.
- *Jhum* rice (grain filling), *aman* rice (long duration) (active tillering), *aman* rice (short duration) (active tillering/ panicle initiation), groundnut (pod formation/ pod maturity), maize (cob formation), banana (vegetative), *kharif* vegetables like okra, cucurbits (active vegetative / flowering), Early cauliflower, brinjal, radish (nursery sowing / sowing) in Tripura.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- *kharif* rice (panicle initiation / flowering in Konkan and tillering / panicle initiation in Kolhapur, Nasik (Ghat), Pune (West) region and East Vidarbha), cotton (floral bud initiation / flowering in Madhya Maharashtra, Marathwada and Vidarbha), jowar (flag leaf initiation / flowering in Madhya Maharashtra, Marathwada and Vidarbha), red gram (primary branching in Madhya Maharashtra, Vidarbha and Marathwada), bajra (grain formation / maturity in Madhya Maharashtra and Marathwada), soybean (pod development in Madhya Maharashtra, Marathwada and Vidarbha), groundnut (pod formation / pod development in Madhya Maharashtra, Marathwada and Vidarbha), green gram (pod maturity / plucking in Madhya Maharashtra and Marathwada),sugarcane (*adsali*, pre-seasonal and suru) (active tillering / elongation), Sugarcane (new *adsali*) (sprouting / early tillering in Marathwada and Madhya Maharashtra) in Maharashtra.
- *Kharif* rice (tillering / flowering), castor (vegetative), pearl millet (maturity / harvesting), sesame (flowering

/ capsule formation), groundnut (flowering / pegging / pod development), cotton (flowering / squaring / boll formation), pulses (pod development / maturity / harvesting), maize (vegetative), *kharif* vegetables (flowering), sugarcane (grand growth) in Gujarat.

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

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

Annexure II

Week by Week Rainfall Distribution

State/Districts	24.07.13		31.07.13		07.08.13		14.08.13		21.08.13		28.08.13		04.09.13		11.09.13	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
Punjab																
Amritsar	19.7	-65	21.7	-58	106.9	95	18.2	-67	184.6	367	0.9	-98	4.1	-86	7.3	-72
Barnala	58.5	118	1.0	-97	8.0	-76	0.0	-100	32.5	16	4.3	-81	0.0	-100	0.0	-100
Bhatinda	30.0	5	27.0	13	85.0	97	30.0	26	170.0	514	0.0	-100	0.0	-100	0.0	-100
Faridkot	42.6	33	0.0	-100	41.7	50	13.0	-41	313.5	1079	0.0	-100	0.0	-100	0.0	-100
Fatehgarh Sahib	8.0	-79	1.0	-98	63.0	37	72.0	55	48.0	8	10.0	-60	20.9	-30	30.0	11
Ferozpur	65.9	97	1.8	-94	37.8	0	0.0	-100	123.7	348	0.0	-100	0.0	-100	0.5	-97
Gurdaspur	154.1	82	93.9	12	197.4	137	155.3	58	193.1	180	37.6	-31	44.8	11	39.2	2
Hoshiarpur	22.7	-67	27.3	-58	17.4	-75	50.3	-31	60.0	21	11.9	-71	21.7	-29	11.6	-69
Jalandhar	67.8	28	19.6	-53	29.4	-44	2.0	-96	93.1	125	1.4	-96	10.8	-69	7.0	-80
Kapurthala	42.8	-10	17.6	-49	35.6	-4	17.8	-54	88.5	205	2.7	-90	25.1	9	2.8	-86
Ludhiana	17.3	-62	25.2	-42	62.1	36	15.2	-67	64.4	52	14.8	-59	4.1	-84	14.9	-52
Mansa	10.5	-65	14.0	-39	37.4	2	0.0	-100	37.4	23	0.0	-100	0.0	-100	0.0	-100
Moga	51.7	94	3.0	-90	39.7	31	2.0	-95	262.7	661	0.0	-100	0.0	-100	0.0	-100
Muktesar	1.7	-94	45.1	123	75.0	128	1.5	-94	249.0	969	0.0	-100	0.0	-100	0.0	-100
Nawashahar	58.0	-12	0.8	-99	48.0	-33	74.9	19	46.5	-7	11.5	-79	30.6	-23	55.2	42
Patiala	14.8	-66	7.3	-87	47.3	-16	22.4	-56	78.0	64	12.2	-72	6.0	-81	11.7	-60
Ropar	97.1	50	7.1	-91	46.7	-41	87.7	46	75.2	39	24.7	-49	37.7	11	11.2	-69
Sangrur	9.5	-72	2.3	-94	26.7	-32	1.1	-97	53.2	38	0.2	-99	0.8	-96	0.4	-99
Mohali	22.0	-57	6.0	-89	8.0	-88	94.0	80	55.0	18	18.0	-54	14.0	-51	8.0	-81
TarnTaran	31.1	-10	12.0	-66	40.4	36	4.0	-84	155.1	472	0.0	-100	0.0	-100	0.0	-100
Haryana																
Ambala	32.9	-51	14.6	-80	59.1	-19	129.4	36	66.0	-13	21.0	-68	32.9	-22	10.7	-80
Bhiwani	28.3	-15	17.9	-44	18.6	-36	45.9	32	46.1	56	0.0	-100	1.2	-94	0.0	-100
Chandigarh	31.8	-35	46.6	-35	37.8	-56	95.7	27	105.2	52	27.2	-47	18.7	-34	30.6	-34
Faridabad	65.3	54	97.3	92	33.1	-50	34.5	-18	133.6	142	26.9	-53	6.8	-86	0.0	-100
Fatehabad	11.9	-57	4.6	-80	8.9	-70	6.7	-68	70.1	217	2.8	-84	0.0	-100	0.0	-100
Gurgaon	45.4	11	7.8	-79	32.8	-34	11.3	-76	76.3	87	17.5	-55	5.0	-81	1.6	-95
Hissar	21.2	-34	4.2	-85	48.5	68	9.8	-65	64.1	116	0.0	-100	0.0	-100	0.0	-100
Jhajar	25.8	-28	7.1	-82	15.5	-62	2.3	-93	75.2	105	27.1	-19	1.9	-91	0.0	-100
Jind	32.0	5	23.1	-8	45.5	12	31.0	7	84.3	123	14.2	-58	0.0	-100	0.0	-100
Katihah	5.1	-82	18.1	-42	12.5	-62	35.1	0	54.0	55	6.6	-79	4.4	-80	0.6	-97
Karnal	26.7	-23	29.6	-23	72.8	60	43.5	-13	68.5	16	19.2	-69	6.7	-68	3.6	-88
Kurukshetra	7.1	-85	4.0	-90	26.5	-39	40.3	-8	33.7	-42	10.0	-79	3.6	-85	0.8	-97
Mahendragarh	35.8	-19	21.7	-38	48.3	35	50.9	23	71.5	148	0.1	-99	0.0	-100	0.0	-100
Mewat	59.7	49	51.9	29	20.9	-55	16.7	-69	87.7	119	7.0	-83	2.1	-94	0.0	-100
Palwal	6.8	-82	16.3	-58	28.5	-34	23.2	-41	45.6	10	21.8	-47	11.2	-46	0.0	-100

Panchkkula	39.8	-50	22.0	-73	38.1	-57	65.3	-31	80.0	12	21.1	-70	28.1	-46	32.5	-46
Panipat	10.8	-69	16.5	-54	16.5	-66	32.0	-33	64.8	20	23.5	-51	2.1	-89	0.4	-99
Rewari	26.2	-43	29.7	-11	38.0	-28	59.4	17	47.6	31	8.0	-78	0.5	-98	0.0	-100
Rohtak	6.5	-87	15.4	-65	14.0	-70	10.9	-77	72.4	88	10.2	-79	0.4	-99	0.0	-100
Sirsa	6.8	-73	0.0	-100	53.6	215	0.0	-100	55.8	158	0.0	-100	0.0	-100	0.0	-100
Sonepat	42.8	-7	36.3	-26	46.5	-15	13.9	-70	93.2	89	20.5	-59	0.0	-100	0.1	-99
Yamunanagar	84.1	2	24.7	-67	87.3	9	215.5	182	45.7	-40	26.8	-62	43.7	-19	41.2	-17
Delhi	90	57	30.6	-43	32.8	-55	28.8	-54	100.2	85	12.3	-75	7.7	-81	0.7	-98
East Madhya Pradesh																
Anuppur	54.8	-36	72.2	-9	58.7	-40	85.5	-3	102.3	12	45.5	-42	32.1	-54	6.2	-91
Balaghat	114.5	10	126.8	15	41.2	-60	71.1	-33	107.2	-12	61.5	-27	19.0	-78	23.1	-64
Chhatarpur	74.6	-8	122.7	57	56.3	-46	140.4	59	110.8	35	136.2	93	103.8	26	0.0	-100
Chindwara	51.6	-19	91.5	59	109.8	43	68.0	8	65.4	18	118.3	115	0.0	-100	1.6	-97
Damoh	104.8	23	173.2	90	34.7	-72	172.4	111	250.4	179	183.1	163	21.4	-70	0.5	-99
Dindori	94.2	8	140.0	67	43.3	-61	141.4	54	59.0	-42	88.2	21	59.3	-12	0.9	-98
Jabalpur	81.1	0	103.3	22	55.0	-50	93.3	1	372.6	303	185.7	132	60.9	-25	6.6	-90
Katni	68.1	-15	169.0	105	56.7	-50	65.7	-23	205.9	137	94.9	23	20.3	-69	1.6	-98
Mandla	125.9	37	184.6	83	61.2	-44	103.4	-6	279.3	159	65.4	-14	33.9	-59	1.6	-97
Narsingpur	121.0	51	99.0	17	66.6	-32	135.5	66	156.2	54	168.7	186	1.0	-99	1.4	-98
Panna	58.7	-35	196.1	143	73.0	-27	96.5	-2	91.5	8	92.0	17	229.1	216	0.0	-100
Rewa	112.6	59	188.6	136	19.8	-76	182.4	122	148.8	95	91.2	41	30.6	-59	0.0	-100
Sagar	84.7	-1	307.8	288	48.1	-60	136.5	50	202.4	129	152.2	104	16.5	-76	0.6	-99
Satna	53.2	-27	111.5	39	52.2	-41	109.6	24	148.2	96	111.2	82	65.0	9	0.1	-99
Seoni	67.7	-8	90.7	7	61.7	-29	114.7	54	152.0	109	173.3	188	14.9	-76	0.6	-99
Shahdol	74.0	2	44.0	-27	38.6	-61	61.5	-29	72.0	-13	107.0	68	26.0	-65	1.1	-98
Sidhi	84.2	33	244.0	201	19.4	-74	**	**	130.2	58	115.2	85	55.6	-30	0.0	-100
Singrauli	70.1	42	119.0	51	14.2	-79	50.7	-18	34.4	-54	32.4	-28	15.0	-76	0.0	-100
Tikamgarh	122.5	69	154.0	131	39.0	-51	80.0	-4	121.0	38	89.0	44	63.5	3	0.0	-100
Umaria	42.0	-45	102.3	36	113.6	12	37.4	-58	37.7	-63	78.3	-6	38.2	-51	35.6	-48
West Madhya Pradesh																
Alirajpur	65.8	-4	120.7	74	93.3	37	60.6	25	5.3	-90	98.4	48	5.3	-90	68.5	33
Asoknagar	108.3	6	271.7	310	69.5	-14	143.8	128	67.0	-22	80.5	30	3.3	-94	0.0	-100
Badwani	55.7	18	50.0	2	84.5	85	41.6	-1	9.4	-78	91.6	105	9.1	-79	10.7	-71
Betul	121.4	77	124.6	69	173.8	110	51.0	-22	118.3	75	299.8	471	1.1	-98	8.1	-87
Bhind	37.0	-37	65.5	24	74.8	27	109.5	49	56.3	-6	77.0	62	111.9	128	0.6	-99
Bhopal	59.2	-20	230.2	157	68.1	-27	34.5	-54	55.2	-37	175.0	172	0.0	-100	2.3	-96
Burhanpur	151.2	226	56.2	-17	124.7	92	104.7	110	26.9	-51	94.8	49	4.5	-91	0.3	-99
Datia	57.1	-16	50.3	-11	108.4	36	116.3	63	178.1	143	48.3	1	127.1	110	0.0	-100
Dewas	72.2	6	161.8	88	119.0	42	57.0	-16	57.2	-29	227.3	276	3.3	-96	4.7	-91
Dhar	52.7	-15	129.8	81	94.9	30	56.7	14	19.1	-65	123.3	136	7.1	-88	2.9	-94
Guna	124.6	23	277.5	269	104.8	11	244.2	240	92.1	11	61.2	-25	3.3	-95	0.0	-100

Gwalior	46.3	-31	57.8	-11	80.5	9	58.9	-22	137.8	103	49.7	-3	42.1	-30	0.0	-100
Harda	92.8	17	84.3	-4	163.1	63	70.8	-13	13.0	-87	208.0	219	0.0	-100	0.0	-100
Hosangabad	155.5	68	205.1	101	200.7	65	75.1	-25	178.1	58	302.3	246	0.0	-100	0.0	-100
Indore	31.6	-47	165.4	121	113.9	70	54.4	-3	13.1	-78	188.8	264	6.3	-90	1.0	-98
Jhabua	51.7	-9	177.6	197	105.1	54	34.3	-31	24.9	-47	135.0	164	5.0	-92	4.5	-91
Khandwa	50.3	-14	16.3	-78	134.0	82	102.4	62	27.7	-54	142.3	168	6.0	-91	0.0	-100
Khargone	35.8	-31	63.3	2	121.7	89	33.1	-30	14.4	-70	120.1	138	0.0	-100	0.0	-100
Mandsaur	91.4	39	175.6	106	74.9	-1	78.1	40	27.9	-60	71.7	57	0.0	-100	0.0	-100
Morena	98.0	40	54.0	-12	123.0	71	115.3	51	136.3	102	73.0	43	62.0	26	0.0	-100
Neemuch	137.5	140	137.0	60	59.3	-5	53.3	-4	74.3	9	95.3	88	0.0	-100	0.0	-100
Raisen	133.8	46	195.6	118	81.7	-24	110.3	32	134.1	35	82.9	11	0.6	-99	1.0	-99
Rajgarh	136.1	80	166.4	112	119.6	30	85.3	31	171.2	96	111.8	85	0.0	-100	0.0	-100
Ratlam	42.9	-37	209.8	134	116.7	45	62.7	6	9.2	-87	123.4	110	1.3	-98	1.0	-98
Sehore	124.1	49	153.5	62	117.5	16	71.3	-9	79.5	-15	204.4	183	3.8	-96	4.6	-93
Shajapur	76.0	10	187.0	104	137.3	52	51.0	-17	111.3	34	184.5	274	1.2	-98	0.0	-100
Sheopur Kalani	54.0	-19	168.0	153	84.5	40	161.0	109	184.0	147	112.1	137	0.0	-100	0.0	-100
Shivpuri	115.8	44	172.8	165	104.8	41	171.0	146	76.5	24	34.8	-36	51.0	-6	0.0	-100
Ujjain	62.2	6	125.4	54	116.0	55	68.8	37	28.6	-61	158.5	185	2.0	-97	3.2	-93
Vidisha	115.3	23	288.4	235	99.0	2	164.4	124	94.1	-3	107.1	39	0.0	-100	0.0	-100
East Uttar Pradesh																
Allahabad	62.3	8	80.5	24	26.5	-57	93.3	18	115.9	94	49.6	-17	54.6	15	0.5	-99
Ambedkar Nagar	89.8	19	16.0	-80	34.2	-53	91.0	24	79.0	34	36.0	-39	109.4	130	45.0	-44
Azamgarh	24.6	-68	64.0	-3	32.4	-55	71.9	-4	53.7	-5	85.1	33	77.2	49	0.7	-99
Bahraich	63.3	-26	26.8	-66	67.9	2	89.4	24	32.4	-51	37.6	-47	76.5	39	24.9	-61
Ballia	22.7	-67	43.4	-29	22.7	-64	62.3	-7	47.2	-4	32.7	-44	65.8	56	13.6	-72
Balrampur	95.0	-6	7.5	-92	45.6	-28	72.1	-17	102.0	38	58.0	-21	47.1	-35	29.9	-36
Banda	94.6	80	115.1	75	60.8	-19	51.4	-44	88.9	25	38.2	-38	67.3	13	0.0	-100
Barabanki	33.9	-55	15.7	-77	18.7	-72	78.4	8	32.6	-51	38.6	-37	38.6	-27	12.7	-82
Basti	47.1	-45	8.5	-88	5.1	-93	141.9	103	44.1	-27	93.4	47	47.7	-14	1.4	-98
Chandauli	0.0	-100	51.4	-23	35.2	-42	10.2	-87	88.2	41	30.2	-47	56.2	11	0.0	-100
Deoria	31.0	-57	5.0	-93	36.5	-39	80.0	2	39.0	-39	5.5	-92	65.0	16	0.0	-100
Faizabad	24.3	-71	4.1	-95	31.7	-59	41.9	-46	39.5	-43	23.4	-65	38.3	-23	4.8	-93
Farrukhabad	68.5	34	78.8	38	4.0	-92	31.9	-65	40.4	-34	59.6	-6	17.9	-53	5.8	-88
Fatehpur	17.0	-66	60.4	-4	3.2	-95	66.3	-24	75.8	26	11.6	-81	56.0	35	0.0	-100
Gazipur	11.3	-82	98.9	77	20.2	-77	102.8	34	71.1	14	28.2	-49	106.1	124	0.6	-99
Gonda	114.3	31	30.8	-57	11.3	-87	57.8	-25	67.1	12	41.0	-45	48.9	-8	14.2	-79
Gorakhpur	21.0	-76	26.9	-68	36.8	-62	94.2	-7	51.6	-40	61.2	-20	90.9	46	7.2	-90
Hardoi	76.6	33	74.3	21	25.1	-54	27.2	-61	58.4	10	52.9	-23	36.3	-28	20.9	-59
Jaunpur	7.3	-88	46.0	-28	13.6	-75	18.3	-74	35.1	-28	39.5	-38	45.9	-5	0.9	-99
Kannauj	74.6	51	101.8	80	3.8	-94	92.0	-1	137.8	114	68.8	-1	20.4	-53	0.0	-100

Kanpur City	90.2	66	97.3	60	66.4	21	32.8	-57	29.7	-52	9.9	-82	67.4	76	3.2	-92
Kanpur Dehat	43.4	-34	50.0	-21	31.5	-54	19.2	-75	24.2	-60	12.6	-80	31.7	-35	4.5	-91
Kaushambi	13.6	-74	42.9	-29	3.3	-94	29.9	-63	81.1	42	24.8	-58	19.9	-54	5.1	-89
Kheri	103.9	40	30.9	-49	136.7	89	18.3	-72	45.9	-35	73.3	3	43.7	-21	31.7	-51
Kushi nagar	2.5	-97	1.5	-98	6.5	-92	28.0	-69	24.0	-72	27.5	-69	31.0	-38	8.5	-85
Lucknow	79.2	54	22.3	-65	27.3	-57	51.7	-23	59.6	7	18.2	-68	45.5	-1	9.5	-79
Maharajganj	20.6	-79	4.0	-96	15.7	-80	46.6	-55	49.2	-45	107.0	28	62.3	13	15.5	-72
Mau	1.0	-99	29.8	-59	3.5	-95	26.5	-67	44.5	-37	31.0	-60	65.5	23	5.0	-92
Mirzapur	26.5	-58	65.0	-2	30.3	-57	66.7	-24	93.5	76	101.3	79	43.4	-21	0.0	-100
Pratapgarh	44.3	-26	62.3	-11	13.3	-77	49.3	-36	138.5	133	44.0	-39	73.7	49	15.7	-74
RaiBareilly	77.3	48	54.4	-11	20.4	-63	29.0	-58	35.2	-38	5.0	-91	45.3	3	8.5	-82
Sahuji Maharajnagar	105.4	61	123.5	118	31.0	-54	76.0	-4	167.5	131	79.8	10	39.3	-37	2.8	-96
Sant Kabirnagar	24.0	-73	24.0	-69	25.0	-68	67.0	-4	37.0	-42	78.0	23	87.0	78	2.0	-97
Sant Ravidas Nagar	8.0	-88	44.0	-34	52.0	-14	43.0	-45	72.0	15	62.0	8	43.0	-15	0.0	-100
Shrawasti	78.2	-8	37.5	-52	51.3	-23	61.5	-14	67.3	1	34.7	-51	90.5	65	60.3	-6
Sidharthnagar	84.5	-5	32.5	-62	35.9	-47	35.9	-55	36.5	-48	202.9	172	84.7	53	27.1	-48
Sitapur	74.9	15	48.5	-25	172.7	230	34.4	-51	69.4	14	19.8	-71	44.0	-28	7.8	-88
Sonbhadra	46.3	-26	137.2	132	52.9	-25	78.8	-3	82.2	35	42.1	-27	51.2	-10	0.0	-100
Sultanpur	92.3	34	29.0	-56	23.8	-58	67.8	0	62.4	2	15.0	-77	44.7	-12	7.2	-86
Unnao	46.5	-19	36.5	-37	27.8	-58	16.3	-80	42.8	-29	27.8	-56	78.8	85	1.3	-98
Varanasi	10.3	-85	74.2	13	34.5	-43	64.8	-6	88.6	49	22.5	-67	114.2	104	0.5	-99
West Uttar Pradesh																
Agra	59.0	4	20.3	-63	37.7	-45	78.4	4	53.5	-14	13.3	-76	98.8	124	0.0	-100
Aligarh	28.6	-42	79.5	43	18.7	-73	65.0		73.6	28	12.4	-80	65.4	86	0.1	-99
Auraiya	17.0	-69	36.5	-33	72.0	14	41.0	-45	40.9	-23	94.9	63	65.1	47	0.0	-100
Badaun	42.0	-21	66.7	-7	4.0	-94	43.4	-40	14.0	-74	32.8	-56	23.0	-53	5.0	-88
Baghpat	30.8	-20	23.2	-49	110.8	83	61.8	14	36.6	-20	6.0	-89	2.1	-88	2.0	-92
Bareilly	131.5	112	103.1	27	42.2	-40	25.5	-65	62.5	20	71.1	-8	46.3	-17	1.2	-97
Bijnor	76.9	-8	105.0	10	81.6	-4	116.7	44	32.4	-48	125.6	66	32.1	-21	24.8	-50
Bulandsahar	38.1	-22	39.1	-36	7.4	-87	34.7	-43	24.6	-59	19.0	-71	26.7	-23	4.5	-87
Etah	56.5	27	56.3	20	4.0	-93	67.8	-1	71.0	50	41.3	-29	38.5	17	0.0	-100
Etawah	19.5	-66	39.5	-32	53.3	-30	61.0	-24	63.8	-2	24.0	-53	34.8	-23	0.0	-100
Firozabad	56.4	-7	57.8	49	30.1	-49	88.7	29	127.6	130	29.5	-47	62.7	54	0.0	-100
GBNagar	20.0	-57	12.0	-67	6.0	-90	33.0	-44	44.0	-16	33.0	-34	27.0	7	0.0	-100
Ghaziabad	37.0	-18	7.0	-87	11.5	-83	27.0	-53	36.2	-36	15.2	-76	4.3	-88	0.0	-100
Hamirpur	65.3	2	58.2	-6	61.6	-18	80.0	-14	73.1	15	49.1	-19	160.9	235	0.0	-100
Jalaun	90.7	53	52.8	-5	57.0	-27	23.7	-76	46.8	-18	68.0	25	122.6	148	0.5	-99
Jhansi	25.9	-61	105.2	68	27.2	-62	79.9	-14	86.1	22	54.1	-5	164.4	183	0.0	-100
Jotirba Phule Nagar	61.5	3	21.5	-70	34.0	-45	102.0	26	30.5	-52	46.0	-40	23.5	-41	0.0	-100
Kanshiramnagar	26.0	-51	44.0	-18	1.0	-98	138.0	90	72.0	34	70.0	-3	51.0	4	0.0	-100
Lalitpur	122.4	33	269.5	262	87.5	0	184.5	98	183.0	152	99.0	41	17.0	-77	0.0	-100

Mahamaya Nagar	52.0	10	26.5	-51	11.5	-79	117.0	58	81.5	52	10.0	-80	64.5	109	0.0	-100
Mahoba	23.4	-62	95.2	51	14.6	-81	34.6	-63	12.4	-82	74.2	25	107.6	137	0.0	-100
Mainpuri	28.2	-41	57.3	16	18.5	-67	50.9	-32	103.7	92	42.6	-8	26.4	-35	0.0	-100
Mathura	65.7	31	22.2	-54	10.0	-83	22.5	-62	47.8	-16	28.0	-46	50.0	42	0.0	-100
Meerut	49.5	-18	36.7	-44	118.6	63	83.4	11	36.5	-48	40.8	-43	45.7	17	5.8	-87
Moradabad	108.5	66	81.5	2	17.4	-76	82.9	3	60.7	-9	116.8	58	35.3	-17	5.1	-90
Muzzaffarnagar	42.5	-22	40.0	-35	103.9	57	138.2	95	40.8	-39	40.1	-29	74.2	126	4.8	-88
Pilibhit	78.7	11	59.1	-33	44.2	-47	63.4	-19	21.6	-70	67.1	-20	18.9	-71	0.9	-98
Rampur	49.9	-29	62.2	-35	33.8	-58	50.9	-34	51.0	-24	77.9	1	16.3	-65	1.5	-96
Saharanpur	207.7	269	83.3	33	122.7	62	219.0	225	11.3	-86	21.3	-65	63.0	79	43.0	9
Shahjahanpur	133.6	95	50.1	-28	59.8	-14	32.2	-56	78.1	22	57.8	-27	15.3	-68	18.3	-65
Bihar																
Araria	132.4	25	42.8	-58	128.2	56	133.8	62	49.5	-35	28.5	-68	34.2	-47	43.2	-38
Arwal	0.0	-100	27.2	-47	9.6	-81	15.2	-77	115.4	113	15.6	-73	144.0	265	0.0	-100
Aurangabad	0.0	-100	34.3	-46	56.2	1	65.3	18	75.0	26	49.6	-16	96.4	71	0.8	-99
Banka	6.4	-87	98.8	71	19.8	-66	35.4	-37	52.6	-13	132.0	165	256.0	493	2.2	-95
Begusarai	0.0	-100	35.2	-52	10.0	-85	27.7	-46	7.6	-82	17.8	-74	41.2	-29	1.2	-98
Bhabua	0.0	-100	63.4	-10	51.9	-33	46.7	-28	58.7	-7	35.2	-52	121.3	103	0.0	-100
Bhagalpur	6.1	-89	32.1	-47	38.8	-43	94.0	8	21.0	-67	66.0	15	146.2	197	0.5	-99
Bhojpur	3.1	-95	4.8	-94	19.7	-69	61.9	8	48.0	-25	36.0	-46	123.2	138	0.0	-100
Buxar	36.0	-42	35.0	-41	20.8	-64	89.6	33	14.4	-73	42.2	-28	39.6	-28	2.4	-96
Darbhanga	1.9	-96	50.0	-34	51.5	-20	28.9	-60	47.0	-21	9.2	-87	92.4	103	14.7	-70
East Champaran	16.6	-81	11.3	-86	15.2	-75	50.4	-28	74.2	18	57.2	-27	90.4	80	12.4	-78
Gaya	0.9	-99	29.8	-54	11.2	-84	51.4	-15	33.8	-46	50.8	-16	91.0	82	0.0	-100
Gopalganj	9.7	-84	7.3	-89	0.0	-100	41.5	-47	43.0	-33	73.7	-7	48.2	3	13.4	-79
Jahanabad	4.1	-91	23.1	-56	5.0	-93	59.4	1	98.9	59	32.4	-31	148.3	227	0.0	-100
Jamui	7.6	-87	35.9	-42	22.4	-65	59.8	6	40.9	-22	74.2	24	101.5	102	6.0	-89
Kathihar	6.5	-90	25.4	-66	55.5	-17	65.5	25	17.9	-72	121.9	100	94.7	103	4.7	-93
Khagadia	0.8	-98	44.0	-23	18.8	-77	49.7	-27	27.8	-54	52.9	-21	75.6	61	14.3	-77
Kishanganj	200.2	45	29.2	-74	165.3	77	182.0	50	59.6	-39	56.0	-48	128.9	37	124.7	37
Lakhisarai	0.0	-100	18.0	-74	46.0	-37	20.0	-63	13.0	-77	30.0	-55	77.0	51	0.0	-100
Madhepura	18.5	-75	42.1	-42	33.4	-52	95.9	34	28.1	-43	29.7	-65	152.1	127	2.5	-96
Madhubani	26.9	-69	20.0	-76	12.4	-79	22.5	-73	7.1	-86	21.2	-75	56.3	2	26.7	-50
Monghyar	0.0	-100	93.8	37	25.9	-64	61.9	15	21.9	-62	29.5	-56	146.0	186	0.2	-99
Muzaffarpur	0.5	-99	16.4	-78	13.3	-79	40.5	-38	27.2	-56	33.2	-58	61.8	36	16.7	-66
Nalanda	3.9	-93	19.8	-69	27.2	-56	83.8	37	95.8	63	58.3	-1	122.0	152	0.0	-100
Nawada	1.4	-98	29.1	-50	4.3	-94	59.9	-7	45.3	-29	57.4	-4	107.8	157	0.0	-100
Patna	0.7	-99	20.9	-71	6.9	-87	13.8	-79	92.3	69	30.3	-58	186.0	357	0.4	-99
Purnea	25.3	-71	46.3	-44	33.7	-60	28.9	-64	96.3	70	54.6	-36	58.4	-12	66.5	-13
Rohtas	6.3	-88	69.0	-1	94.1	36	61.3	0	111.4	84	51.7	-14	102.0	76	0.0	-100
Saharsha	5.6	-94	20.4	-81	17.4	-75	88.5	-23	0.0	-100	45.7	-46	237.1	343	6.2	-92

Samstipur	4.1	-93	19.3	-72	46.5	-31	11.0	-85	11.8	-84	6.8	-89	119.7	149	8.7	-84
Saran	3.7	-94	13.6	-82	33.3	-45	51.7	-26	20.6	-69	20.0	-73	100.4	116	0.0	-100
Sheikpura	0.0	-100	26.1	-56	25.2	-58	20.9	-55	36.3	-31	10.8	-83	39.3	-8	0.0	-100
Sheohar	8.0	-91	19.0	-83	0.0	-100	58.0	-24	30.0	-49	0.0	-100	47.6	9	14.8	-69
Sitamarhi	11.6	-86	11.9	-89	14.4	-76	30.6	-60	56.7	-4	35.9	-62	68.0	55	31.0	-35
Siwan	3.4	-95	8.9	-88	6.1	-90	153.0	114	13.4	-78	92.5	37	146.4	225	3.9	-95
Supaul	96.4	15	25.0	-67	40.4	-21	38.5	-35	59.1	5	18.0	-78	144.7	191	21.2	-57
Vaishali	4.6	-93	12.6	-86	16.1	-74	33.6	-52	10.4	-83	38.9	-47	52.3	31	8.4	-87
West Champaran	31.8	-65	61.3	-51	60.4	-8	45.7	-47	39.5	-41	61.1	-45	80.5	55	25.5	-54
East Rajasthan																
Ajmer	31.9	-31	39.0	0	34.6	2	65.2	74	45.6	7	17.8	-43	0.0	-100	0.3	-99
Alwar	67.7	27	33.7	-30	82.2	55	62.5	12	96.4	96	15.2	-65	1.2	-97	0.8	-98
Banswara	66.3	11	142.0	73	62.1	-18	81.7	32	8.7	-88	93.0	57	1.0	-98	0.0	-100
Baran	155.7	68	267.5	271	135.6	82	252.5	230	150.5	97	60.3	10	0.3	-99	0.0	-100
Bharatpur	60.9	27	38.2	-15	38.7	-34	77.4	39	82.7	61	27.7	-45	15.8	-62	6.1	-83
Bhilwara	53.0	-3	84.5	64	55.1	16	111.0	118	32.8	-46	34.3	-19	0.0	-100	0.0	-100
Bundi	91.5	18	152.8	143	80.6	43	114.0	99	68.5	10	36.7	-13	0.0	-100	0.0	-100
Chittorgarh	59.6	0	124.0	75	80.2	38	151.2	167	27.5	-63	55.8	-4	0.0	-100	0.9	-98
Dausa	67.0	-2	79.0	56	65.4	16	146.6	127	88.6	65	8.0	-81	0.0	-100	0.0	-100
Dholpur	111.2	114	38.3	-25	99.8	55	132.5	80	121.7	90	60.3	25	50.8	25	0.0	-100
Dungarpur	86.7	103	105.5	78	68.9	20	54.0	27	26.3	-54	40.6	-11	0.4	-99	0.0	-100
Jaipur	41.9	-34	52.2	13	68.9	45	77.3	63	94.6	120	21.4	-51	0.0	-100	0.0	-100
Jhalawar	161.1	105	208.4	181	93.9	12	144.1	103	155.0	70	77.2	21	2.0	-97	0.0	-100
Jhunjhunu	59.4	19	26.7	-8	61.2	62	37.9	7	52.1	74	0.9	-97	0.0	-100	0.0	-100
Karauli	83.5	20	79.4	48	60.2	-2	137.8	45	111.0	91	33.8	-16	1.8	-96	0.0	-100
Kota	128.9	55	217.5	204	109.9	78	144.8	113	101.1	37	25.6	-48	2.1	-96	0.0	-100
Pratapgarh	131.4	127	156.4	96	73.2	0	104.8	94	31.4	-60	92.6	72	0.0	-100	0.0	-100
Rajsamand	58.9	52	87.3	96	58.7	49	92.7	127	28.4	-37	12.6	-68	0.0	-100	1.6	-95
Sawai Madhopur	44.3	-43	81.4	35	52.8	-19	159.1	102	110.0	82	24.3	-48	0.0	-100	1.3	-96
Sikar	30.2	-46	61.2	83	71.4	119	41.4	20	53.0	89	7.9	-75	0.0	-100	0.0	-100
Sirohi	79.5	7	130.7	35	61.1	-30	106.9	61	43.7	-43	1.7	-97	0.7	-99	0.5	-99
Tonk	57.9	-13	115.7	133	61.2	22	142.6	178	88.5	58	39.9	3	0.0	-100	0.3	-99
Udaipur	87.5	93	98.7	92	66.0	24	58.7	41	21.5	-56	22.2	-49	0.0	-100	0.0	-100
West Rajasthan																
Barmer	0.7	-97	70.6	239	12.4	-52	55.1	212	72.0	226	0.0	-100	0.0	-100	0.0	-100
Bikaner	31.7	16	35.0	117	26.2	41	41.2	161	44.3	146	2.7	-83	0.0	-100	0.0	-100
Churu	47.5	25	43.8	75	48.8	84	38.1	57	52.8	155	3.4	-87	0.0	-100	0.0	-100
Hanumangarh	11.4	-59	45.6	110	28.2	26	12.2	-42	88.1	336	0.0	-100	0.0	-100	0.0	-100
Jaisalmer	3.3	-79	31.5	152	17.9	36	15.2	18	87.3	382	0.0	-	0.0	-	0.0	-

												100		100		100
Jalore	13.9	-52	96.4	111	32.2	-14	100.9	269	22.6	-37	0.0	-100	0.0	-100	0.1	-99
Jodhpur	45.4	71	63.9	143	14.0	-40	77.9	251	62.2	166	3.1	-85	0.0	-100	0.0	-100
Nagaur	53.7	22	33.5	36	57.5	130	49.9	92	63.3	121	7.1	-76	0.0	-100	0.0	-100
Pali	68.5	65	53.2	21	48.3	26	113.5	220	13.2	-66	3.9	-87	0.0	-100	0.5	-98
Sri Ganganagar	7.8	-69	25.7	81	12.9	-21	13.7	-13	65.0	285	2.1	-81	0.0	-100	0.0	-100
Gujarat Region																
Ahmedabad	51.6	13	87.9	82	94.0	96	35.6	-30	25.3	-37	4.3	-87	0.8	-98	12.9	-68
Anand	91.9	49	140.5	115	84.8	38	104.9	65	39.8	-32	20.0	-58	1.1	-98	12.2	-80
Banaskantha	29.2	-30	109.7	84	46.4	-9	69.9	86	46.2	9	0.0	-99	0.0	-100	0.5	-99
Baroda	85.9	17	113.0	43	129.2	71	63.0	-13	16.6	-75	63.8	10	3.7	-94	14.7	-77
Broach	62.6	6	59.6	-11	97.0	73	41.6	-20	7.2	-85	7.0	-82	2.3	-95	4.6	-91
DNH	396.7	103	195.9	-7	307.7	79	151.3	-10	67.4	-43	40.1	-67	10.9	-94	56.0	-47
Dahod	25.6	-53	90.8	10	74.8	-6	59.5	-1	21.9	-66	75.8	35	4.5	-94	3.0	-95
Daman	249.0	28	215.0	2	258.6	51	93.4	-44	24.8	-79	29.2	-76	15.6	-91	87.0	-17
Dangs	122.7	-24	119.0	-45	74.8	-54	219.9	64	26.4	-78	73.8	-38	11.1	-92	56.9	-45
Gandhinagar	44.9	-28	75.1	23	152.9	102	59.5	29	33.4	-23	6.6	-82	0.0	-100	14.7	-76
Kheda	47.6	-25	134.9	89	95.7	47	53.3	-14	23.1	-60	19.3	-59	0.0	-100	11.9	-82
Mehsana	62.2	31	104.1	88	68.3	21	45.4	-4	25.0	-41	0.2	-99	0.0	-100	3.0	-94
Narmada	84.7	3	116.1	16	232.0	150	69.3	-20	38.6	-44	24.3	-61	28.3	-63	17.2	-70
Navsari	206.7	34	143.9	-14	132.2	-1	123.8	0	36.6	-62	29.8	-66	21.7	-80	36.2	-58
Panchmahal	56.3	-10	138.8	64	73.6	-12	83.7	12	32.3	-54	84.0	40	3.1	-96	1.5	-98
Patan	24.0	-38	54.4	5	58.1	35	69.5	80	47.7	35	1.0	-97	0.1	-99	3.5	-89
Sabarkantha	95.0	66	145.0	95	107.9	51	100.8	67	34.0	-37	19.2	-59	0.0	-100	0.2	-99
Surat	163.0	62	162.7	46	149.6	74	118.4	40	28.7	-55	27.5	-55	4.8	-94	20.4	-69
Tapi	267.1	141	204.6	30	115.3	-9	133.0	24	31.7	-60	29.6	-66	7.2	-92	11.3	-85
Valsad	270.4	58	194.9	13	215.8	49	128.6	-2	38.6	-62	32.5	-66	10.2	-92	68.6	-26
S K & Diu region																
Amreli	51.0	14	97.2	156	73.4	150	8.0	-73	14.3	-49	3.1	-88	1.8	-94	4.0	-81
Bhavnagar	52.4	35	63.8	55	90.5	179	33.2	8	20.1	-31	5.9	-81	3.8	-88	3.7	-89
Diu	65.1	13	85.1	63	57.0	33	30.6	-23	42.8	65	0.6	-95	2.2	-90	0.2	-99
Jamnagar	26.7	-49	40.3	7	60.4	107	29.1	-21	23.8	21	0.0	-100	3.4	-88	9.0	-53
Junagarh	91.9	14	146.1	133	49.5	15	27.1	-39	20.8	-42	0.8	-97	5.1	-87	3.6	-85
Kutch	3.4	-91	67.0	108	16.6	-38	22.4	-21	46.8	146	0.2	-99	0.7	-97	1.2	-95
Porbandar	80.5	15	87.3	93	55.2	45	28.6	-39	52.6	96	0.2	-99	2.4	-94	4.1	-75
Rajkot	53.2	2	81.2	60	54.0	41	28.9	-23	30.6	9	0.1	-99	1.4	-95	1.3	-94
Surendranagar	39.4	-17	44.1	30	23.2	-38	21.7	-34	21.2	-27	1.2	-96	0.6	-98	5.2	-84
Maharashtra																
Konkan & Goa																
Goa	429.3	59	288.2	18	143.0	-30	74.6	-62	235.2	80	61.3	-44	8.2	-91	38.7	-47
Mumbai	441.9	157	97.0	-41	93.1	-31	64.8	-50	34.5	-63	42.0	-62	0.4	-99	19.2	-72
Raigad	618.4	134	258.6	-7	174.1	-24	111.9	-48	79.3	-56	70.1	-58	24.5	-84	72.9	-27

Ratnagiri	633.5	128	207.6	-25	203.5	-16	119.8	-46	159.3	-14	89.9	-43	24.4	-82	53.9	-42
Sindhudurg	479.1	82	198.3	-22	151.5	-23	65.7	-64	265.4	94	65.8	-53	9.3	-91	44.6	-36
Thane	374.6	84	188.5	-8	182.2	-4	137.4	-25	94.9	-28	55.2	-56	20.0	-84	46.3	-48
Madhya Maharashtra																
Ahmednagar	71.8	204	10.9	-53	30.7	55	11.7	-31	5.6	-69	7.9	-68	0.1	-99	60.1	133
Dhule	58.4	49	93.0	145	79.0	92	43.1	68	4.3	-84	40.1	51	0.8	-97	17.0	-21
Jalgaon	102.2	147	45.3	-9	79.4	55	55.3	23	11.9	-73	67.1	70	1.7	-96	7.7	-74
Kolhapur	302.3	72	202.9	35	168.1	20	46.7	-63	60.6	-41	46.0	-42	7.8	-88	19.7	-51
Nandurbar	67.8	1	198.2	178	91.7	33	109.0	101	23.5	-52	33.2	-30	1.3	-97	28.7	-31
Nasik	136.4	95	73.8	-7	84.1	17	81.7	34	35.7	-35	37.4	-23	9.1	-83	38.2	-22
Pune	118.7	76	113.1	58	68.6	6	25.2	-58	17.4	-62	14.1	-64	3.7	-91	78.7	169
Sangli	77.4	122	36.9	11	36.3	19	4.2	-85	10.9	-44	3.7	-83	4.3	-78	28.3	24
Satara	96.8	63	72.2	24	74.2	45	17.2	-64	12.9	-62	9.5	-68	3.1	-89	37.4	47
Solapur	61.6	151	1.5	-95	21.5	-5	7.2	-63	10.7	-48	4.0	-85	2.5	-91	51.4	69
Marathwada																
Aurangabad	73.1	100	8.4	-80	52.9	44	26.1	-22	6.0	-81	34.0	-7	0.4	-99	26.4	0
Beed	101.0	186	4.2	-88	42.2	72	22.2	-31	21.0	-31	5.5	-83	2.1	-95	24.0	-28
Hingoli	179.9	213	21.2	-65	108.2	83	45.5	-20	25.7	-59	27.3	-49	0.4	-99	20.3	-43
Jalna	115.9	203	13.8	-69	72.5	107	32.4	-6	5.5	-84	14.9	-60	0.3	-99	20.5	-21
Latur	150.7	194	19.9	-70	44.9	-5	55.0	21	35.9	-32	11.7	-78	9.7	-82	11.9	-73
Nanded	171.1	169	47.2	-29	88.0	75	46.5	-18	49.5	-16	14.3	-74	2.2	-96	44.0	11
Usmanabad	97.5	161	8.6	-81	36.6	15	19.9	-32	11.2	-68	9.9	-77	3.6	-91	51.0	38
Parbhani	143.7	193	24.3	-61	61.3	41	61.4	47	15.8	-72	12.0	-79	0.8	-99	18.8	-52
Vidarbha																
Akola	89.2	45	72.2	47	103.7	90	84.2	75	13.0	-69	72.1	82	3.0	-93	18.5	-39
Amraoti	74.1	21	42.9	-28	101.8	49	33.4	-42	28.2	-48	88.6	107	1.3	-97	11.5	-71
Bhandara	153.4	103	174.6	101	260.8	149	113.1	17	99.8	23	69.4	-4	7.0	-91	15.6	-75
Buldhana	133.2	191	28.8	-38	89.0	66	34.1	-20	8.0	-81	42.4	3	3.0	-92	13.5	-53
Chandrapur	289.8	257	178.1	112	142.0	43	38.8	-55	138.7	83	21.3	-73	7.8	-90	14.1	-76
Gadchiroli	295.2	169	251.7	141	207.2	81	73.7	-33	178.2	95	44.9	-50	9.8	-88	40.3	-33
Gondia	153.0	70	240.9	160	131.7	24	99.5	0	152.1	67	87.3	-3	11.1	-87	13.3	-79
Nagpur	155.9	139	80.9	23	157.9	99	45.2	-21	59.8	-3	67.8	30	9.0	-87	7.6	-85
Wardha	180.3	193	48.7	-22	63.5	-13	24.2	-62	44.9	-20	31.6	-41	1.1	-98	7.0	-85
Washim	109.5	85	40.9	-19	157.1	135	64.9	-3	6.6	-88	35.4	-23	0.0	-100	30.9	-21
Yeotmal	130.6	94	79.1	38	147.6	128	34.5	-45	33.9	-41	25.7	-53	0.3	-99	18.4	-54
Odisha																
Angul	75.5	-15	140.3	119	26.8	-69	60.6	-24	111.7	31	4.3	-94	27.0	-65	20.8	-69
Balasore	45.4	-48	116.6	66	38.6	-55	47.3	-34	178.6	136	72.3	-1	61.2	3	61.4	-28
Bargarh	88.9	10	182.9	108	33.3	-60	55.8	-36	63.8	-29	20.4	-69	77.5	10	29.1	-61
Bhadrak	66.9	1	86.3	52	25.8	-73	64.8	-15	73.6	-9	29.7	-59	58.7	-5	30.1	-51
Bolangir	143.6	70	176.0	107	44.9	-46	68.9	-17	91.9	8	24.3	-64	33.0	-64	25.1	-62
Boudh	93.0	30	83.8	13	26.5	-70	50.0	-44	80.4	-3	2.7	-97	28.4	-58	13.7	-79
Cuttack	115.8	44	78.7	-9	19.9	-74	19.8	-75	52.7	-44	7.0	-91	32.3	-46	25.2	-71
Deogarh	97.1	2	123.2	26	81.0	-29	47.1	-61	256.1	115	4.3	-95	55.9	-33	28.9	-66

Dhenkanal	102.5	12	151.6	117	24.2	-72	45.4	-49	54.4	-35	14.1	-83	32.9	-51	38.0	-47
Gajapati	85.4	19	28.3	-57	64.7	36	26.9	-57	65.4	-2	5.0	-91	26.6	-55	59.1	19
Ganjam	126.2	145	68.9	13	11.9	-75	70.7	39	42.6	-34	32.2	-40	33.7	-38	87.2	59
Jagatsingpur	81.6	6	56.4	-32	33.6	-68	41.7	-31	39.8	-62	22.5	-67	45.2	-14	44.2	-37
Jajpur	73.5	7	117.1	58	23.7	-73	33.8	-56	89.7	5	12.1	-86	45.2	-29	21.6	-65
Jharsuguda	60.3	-35	213.5	156	42.3	-59	98.6	-9	106.8	11	13.7	-82	50.0	-36	18.3	-77
Kalahandi	93.9	11	147.6	70	52.4	-37	63.9	-35	101.7	13	9.3	-87	29.1	-53	18.6	-74
Kandhamal	132.6	86	123.1	67	41.1	-53	59.9	-32	103.7	26	15.9	-80	21.9	-68	11.4	-83
Kendrapara	91.2	50	101.7	84	57.3	-39	55.2	-32	26.8	-70	46.7	-39	50.3	-20	37.2	-48
Keonjhar	67.9	-13	199.8	217	65.6	-26	55.3	-23	101.5	40	38.9	-38	48.5	-28	42.1	-21
Khurda	122.2	50	48.9	-32	41.4	-49	36.8	-52	55.8	-35	46.6	-33	35.4	-38	47.3	-39
Koraput	84.7	-6	42.9	-53	114.1	17	71.7	-34	103.7	10	20.9	-74	14.3	-81	26.5	-65
Malkangiri	126.0	3	57.5	-48	69.5	-31	100.3	-13	139.0	28	6.8	-93	7.0	-91	35.5	-55
Mayurbhanj	67.0	-33	277.6	336	26.6	-73	40.6	-53	228.3	171	68.5	-5	44.8	-47	48.7	-30
Nawapara	121.1	55	257.2	243	49.7	-20	94.6	38	105.3	39	12.0	-82	44.3	-30	29.9	-40
Nawarangpur	105.5	-15	113.9	29	135.6	61	56.0	-54	53.7	-45	6.2	-94	69.0	-22	43.1	-30
Nayagarh	211.3	180	60.7	-17	31.3	-56	53.7	-29	69.2	-19	29.6	-55	39.4	-40	34.0	-51
Puri	112.6	100	44.9	-40	42.8	-37	59.5	-26	33.9	-61	60.6	-5	36.0	-45	41.7	-46
Rayagada	79.4	-10	55.1	-29	89.5	68	73.5	21	66.3	-1	7.2	-88	39.7	-35	39.4	-31
Sambalpur	127.8	35	194.2	99	53.1	-53	63.8	-48	115.1	-3	2.3	-97	27.1	-68	20.8	-75
Sonepur	153.0	85	134.3	37	47.0	-56	93.1	-8	54.4	-49	4.9	-93	57.4	-35	46.3	-51
Sundargarh	59.5	-27	231.2	178	50.2	-47	79.4	-4	197.2	112	13.8	-80	47.9	-37	33.2	-54
West Bengal																
GWB																
Bankura	45.9	-33	198.9	198	28.2	-58	76.1	3	153.5	146	52.2	-17	28.8	-54	11.5	-82
Birbhum	38.2	-45	84.1	34	61.4	-20	102.0	33	92.1	49	88.6	54	66.2	21	22.7	-68
Burdwan	46.1	-38	80.4	37	49.4	-40	44.6	-31	121.4	106	68.9	16	77.8	41	29.2	-56
East Midnapore	61.3	-3	162.8	128	63.7	-25	114.1	99	182.7	127	136.7	80	61.3	-28	49.1	-51
Hooghly	37.6	-53	137.2	99	57.4	-20	46.6	-14	193.6	221	28.2	-52	47.4	-34	15.7	-70
Howrah	60.2	-27	103.0	33	20.0	-82	60.5	-4	219.7	189	121.9	162	77.8	2	35.0	-48
Kolkata	99.8	18	151.1	81	73.5	-20	127.9	79	327.3	395	126.3	63	66.7	-4	155.4	88
Murshidabad	18.6	-74	43.0	-33	18.7	-72	73.8	38	93.0	55	68.8	26	117.0	116	39.0	-39
Nadia	17.0	-75	62.0	22	38.0	-38	56.3	20	134.6	105	116.6	171	43.2	-14	36.6	-32
24 Pargana (N)	61.9	-19	142.8	112	50.6	-43	79.6	36	161.9	120	75.1	19	33.5	-37	20.3	-73
Purulia	44.6	-29	190.4	232	19.3	-77	29.1	-58	183.9	202	50.7	-25	44.8	-39	4.0	-94
24 Pargana (S)	56.4	-47	162.7	45	44.5	-58	162.1	76	312.4	262	137.9	39	102.1	9	77.8	-12
West Midnapore	25.9	-66	366.0	348	29.3	-65	22.8	-67	209.6	197	43.2	-37	88.0	17	59.2	-9
SHWB																
Cooch Behar	14.5	-91	19.3	-88	69.1	-60	147.9	-32	35.2	-72	50.8	-69	119.8	-2	203.1	85
Darjeeling	138.2	-24	99.5	-45	156.6	10	82.5	-47	141.1	0	82.4	-49	158.2	43	141.1	0
East Sikkim	69.0	-39	98.2	-24	85.2	-27	46.9	-49	65.6	-31	107.6	6	59.4	-43	56.0	-39
Jalpaiguri	256.3	23	51.9	-69	174.6	23	135.8	-16	129.4	-12	117.5	-27	235.1	84	220.5	89
Malda	26.8	-62	48.5	-35	55.4	-12	101.0	63	67.1	8	42.6	-42	42.5	-22	15.0	-78
North Dinajpur	4.0	-95	13.0	-81	129.9	134	142.5	82	43.0	-25	14.0	-80	42.5	-57	47.8	-38

East Godavari	13.2	-74	23.3	-50	11.6	-69	18.2	-64	35.9	-12	3.8	-91	23.7	-41	35.7	-4
Guntur	54.2	40	1.6	-96	41.5	43	39.3	7	76.2	115	7.8	-79	32.2	-3	35.2	9
Krishna	54.9	0	3.0	-94	17.6	-54	36.6	-31	82.8	103	8.5	-81	19.1	-53	38.0	8
Nellore	39.6	70	10.9	-48	20.1	5	19.7	-8	57.5	128	0.6	-97	25.8	35	30.2	54
Prakasam	45.3	61	4.1	-82	46.4	162	23.0	29	76.0	262	2.2	-92	42.1	67	52.5	142
Sirkakulam	81.4	69	9.7	-77	28.2	-36	21.8	-51	23.6	-50	8.9	-82	17.7	-60	53.5	1
Visakhapatnam	21.2	-57	9.9	-76	27.2	-23	39.4	-7	62.2	55	6.1	-86	15.3	-61	35.4	-15
Vizianagram	48.7	1	6.8	-83	36.1	-1	35.4	-16	35.6	-23	4.2	-92	14.1	-68	22.9	-53
West Godavari	43.5	-28	6.3	-88	17.7	-61	16.4	-75	58.1	19	8.8	-81	16.6	-64	29.8	-27
Telangana																
Adilabad	308.3	275	81.5	6	131.8	99	31.6	-57	66.4	2	24.2	-56	6.9	-90	25.5	-41
Hyderabad	74.7	49	11.3	-75	47.1	7	33.4	-27	45.8	-1	8.1	-79	5.7	-83	61.1	49
Karimnagar	302.3	366	46.2	-23	67.9	29	24.5	-57	75.8	42	12.1	-71	20.2	-58	23.7	-42
Khammam	231.9	229	36.2	-51	76.3	26	65.7	-8	125.0	156	26.4	-48	9.4	-81	34.2	-24
Mehabubnagar	48.8	18	2.7	-94	38.3	11	12.9	-64	100.4	150	2.5	-93	54.5	69	86.0	189
Medak	139.6	123	35.0	-38	41.0	-20	30.5	-37	42.5	-22	3.7	-90	19.0	-57	39.9	11
Nalgonda	65.5	51	3.7	-90	18.6	-35	7.1	-81	167.8	412	2.4	-93	23.2	-30	86.5	149
Nizamabad	224.0	190	57.6	-15	74.5	10	31.5	-57	61.4	-16	4.4	-93	12.7	-77	23.2	-51
Rangareddy	90.0	90	4.0	-92	50.9	40	14.2	-65	56.1	15	0.1	-99	28.8	-19	55.2	33
Warangal	218.2	203	27.5	-57	73.3	48	53.8	-14	113.4	141	19.7	-54	31.1	-35	19.7	-47
Rayalaseema																
Anantapur	11.9	-21	2.6	-85	12.6	-14	23.6	69	13.8	-26	3.4	-82	85.0	334	75.7	281
Chittoor	25.9	-9	3.8	-81	17.1	-33	32.0	33	36.4	46	1.2	-96	76.7	208	65.0	141
Cuddapah	20.5	-23	3.1	-88	21.3	-6	24.2	-2	45.5	72	1.3	-95	28.6	47	54.6	123
Kurnool	27.8	2	3.4	-90	29.7	17	15.6	-44	58.3	89	8.1	-72	46.6	69	63.5	141

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 List of Varieties

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

Radish: Pusa Chetki, cv. Japanese white and Minnowase, Pusa Reshmi & Pusa Himani

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

Cauliflower: cv. Giant Snow Ball and Pusa Synthetic.

Knolkhol : cv. White Vienna and Purple Vienna, King of Market and Kale cv. Local

Carrot : Nantes and turnip : Purple Top White Globe,

Turnip: cv. Purple Top White Globe.

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

Rajasthan

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

Radish: PusaChetki, Pusa Rasmi.

Deshi carrot. Pusa Keshar

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

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

Himachal Pradesh

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

Cauliflower : Patna snowball and joint snowball.

Pea: Ageta-6 and Arkal Matar.

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

Uttar Pradesh

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

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.

Chhattisgarh

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

Kodomillet: GPUK-03, RBK-155 etc.

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.

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.

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

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

Assam

Sali rice:

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

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

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

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

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

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

Radish: Pusa Desi, Pusa Himani, Pusa Chetki.

Cabbage: Golden Acre, Pride of India.

Knolkhol: White Vienna.

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

Pumkin : Arke Suryamukhi, Arka Chandan.

Gujarat

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

Tamil Nadu

Samba Rice- long duration rice varieties- CR 1009/Savithri/Ponmani and ADT 50, short duration rice varieties-ADT38,ADT46, BPT-5304,CO-43,CO-48,CO-49,CO-50,Improved white 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

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