

# National Agromet Advisory Service Bulletin

**Friday 01<sup>st</sup> August 2014**

**(For the period 01<sup>st</sup> to 05<sup>th</sup> August 2014)**

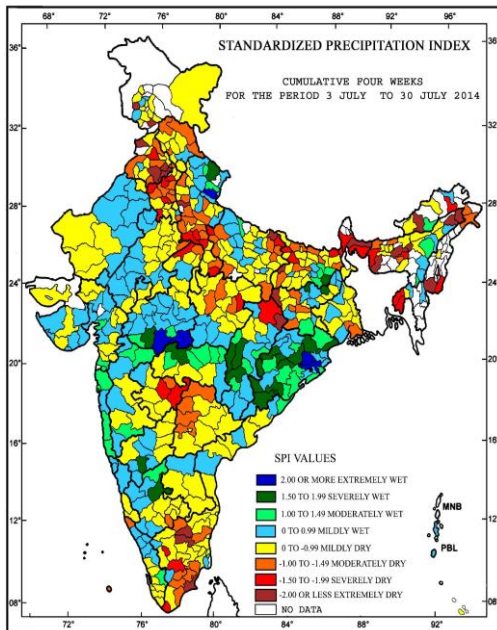


**Issued by**

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



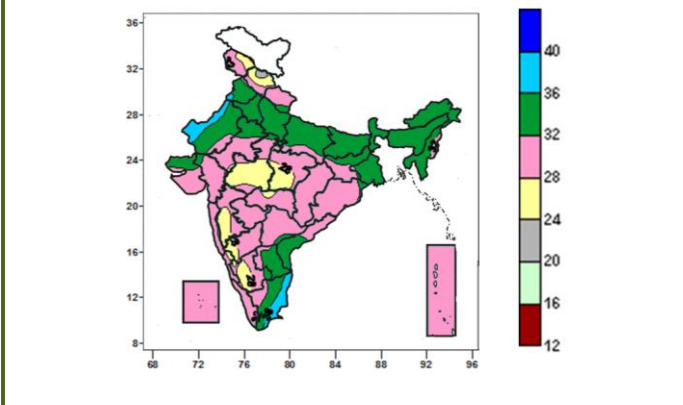
**Standardised Precipitation Index**  
**Four Weekly**  
**for the Period 3<sup>rd</sup> July to 30<sup>th</sup> July 2014**



- Extremely/severely wet conditions experienced in few districts of Odisha, Nainital and Chamoli districts of Uttarakhand, Banka district of Bihar; Deoghar and Koderma districts of Jharkhand; Betul, Khargone and Khandwa districts of West Madhya Pradesh; Durg, Rajnandgaon and Kanker districts of Chhattisgarh; Gadag and Chitradurga districts of Karnataka; Amaravati district of Maharashtra.
- Extremely/ moderately/ severely dry conditions experienced in few districts of North East, Punjab, Haryana, Uttar Pradesh, Bihar, Jharkhand, TamilNadu; Udhampur and Poonch districts of Jammu & Kashmir; Lahaul & Spiti, Kinnaur and Chamba districts of Himachal Pradesh; Damoh, Panna, Umaria and Shahdol districts of East Madhya Pradesh; Surguja and Jashpur districts of Chhattisgarh; Howrah, South 24 Paraganas and Darjeeling districts of West Bengal; Parbhani, Nanded and Hingoli districts of Maharashtra; Ramanagara district of Karnataka; Adilabad, Nizamabad, Medak and Rangareddy districts of Telangana; Kasargod district of Kerela.
- Rest of the country experienced mild wet/dry conditions.

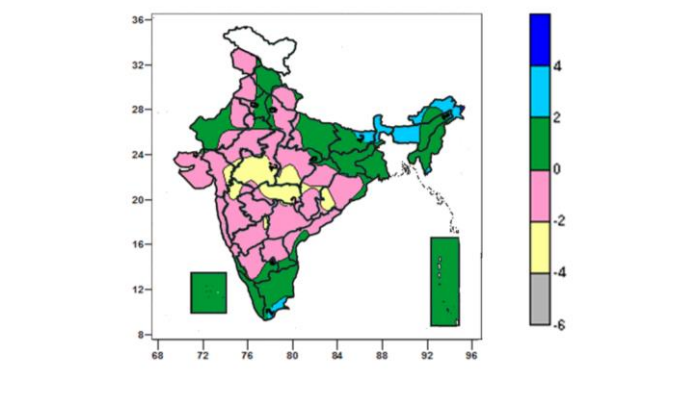
**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 30.07.2014**

**Actual Mean Maximum Temperature ( $^{\circ}\text{C}$ ) in India for the week ending 30.07.2014**



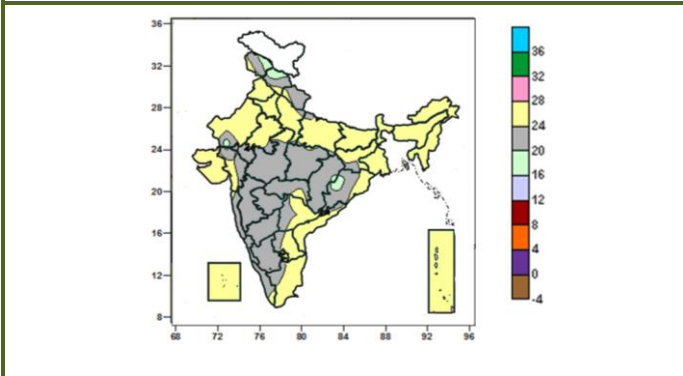
- 36 to 40 $^{\circ}\text{C}$  over some parts of Punjab, West Rajasthan and Coastal Tamil Nadu.
- 32 to 36 $^{\circ}\text{C}$  over many parts of Punjab, Haryana, Delhi, Uttar Pradesh, West Rajasthan, Bihar, West Bengal & Sikkim, North East India, Coastal Andhra Pradesh, Rayalaseema, some parts of Uttarakhand, East Rajasthan, Telangana, Jharkhand, Gujarat and Tamil Nadu.
- 28 to 32 $^{\circ}\text{C}$  over many parts of Jammu & Kashmir, Uttarakhand, East Rajasthan, Jharkhand, Odisha, Chhattisgarh, Telangana, Gujarat, Maharashtra, Karnataka, Kerala, Lakshadweep, Andaman & Nicobar Islands, some parts of Himachal Pradesh, Uttar Pradesh, West Rajasthan, Madhya Pradesh, Coastal Andhra Pradesh, Rayalaseema and Tamil Nadu.
- 24 to 28 $^{\circ}\text{C}$  over many parts of Madhya Pradesh, some parts of Jammu & Kashmir, Himachal Pradesh, Vidarbha, Madhya Maharashtra and Interior Karnataka.

**Mean Maximum Temperature ( $^{\circ}\text{C}$ ) Anomaly in India for the week ending 30.07.2014**



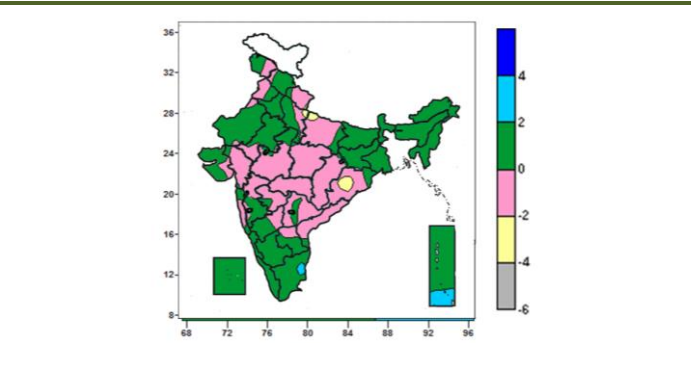
- 2 to 4 $^{\circ}\text{C}$  over many parts of Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, some parts of Bihar, Assam & Meghalaya and Tamil Nadu.
- -2 to 2 $^{\circ}\text{C}$  over entire country except many parts of Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, West Madhya Pradesh, Vidarbha, some parts of Bihar, Assam & Meghalaya, Tamil Nadu, Gujarat region, East Madhya Pradesh, Odisha, Chhattisgarh, Madhya Maharashtra and North Interior Karnataka.
- -4 to -2 $^{\circ}\text{C}$  over many places over West Madhya Pradesh, Vidarbha, some parts of Gujarat region, East Madhya Pradesh, Odisha, Chhattisgarh, Madhya Maharashtra and North Interior Karnataka.

**Actual Mean Minimum Temperature ( $^{\circ}\text{C}$ ) in India for the week ending 30.07.2014**



- 24 to 28 $^{\circ}\text{C}$  over many parts of Punjab, Haryana, Delhi, Uttar Pradesh, Bihar, Jharkhand, West Bengal & Sikkim, North East India, Rajasthan, Saurashtra & Kutch, Andhra Pradesh, Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Odisha, West Madhya Pradesh, Vidarbha, Gujarat region, Konkan and Kerala.
- 20 to 24 $^{\circ}\text{C}$  over many parts of Uttarakhand, Central India, Odisha, Maharashtra, Gujarat region, Karnataka, Kerala, some parts of Jammu & Kashmir, Himachal Pradesh, Rajasthan, Telangana, Rayalaseema and Tamil Nadu.

**Mean Minimum Temperature ( $^{\circ}\text{C}$ ) Anomaly in India for the week ending 30.07.2014**



- 2 to 4 $^{\circ}\text{C}$  over some parts of Tamil Nadu, Lakshadweep Islands.
- 0 to 2 $^{\circ}\text{C}$  over many parts of Jammu & Kashmir, Himachal Pradesh, West Uttar Pradesh Rajasthan, Saurashtra & Kutch, Bihar, Jharkhand, West Bengal & Sikkim, North East India, Madhya Maharashtra, Rayalaseema, Karnataka, Tamil Nadu, Kerala, Lakshadweep, Andaman & Nicobar Islands, some parts of Uttarakhand, East Uttar Pradesh, Odisha, West Madhya Pradesh, Telangana, Konkan and Marathwada.
- -2 to 0 $^{\circ}\text{C}$  over many parts of Uttarakhand, East Uttar Pradesh, Central India, Odisha, Coastal Andhra Pradesh,

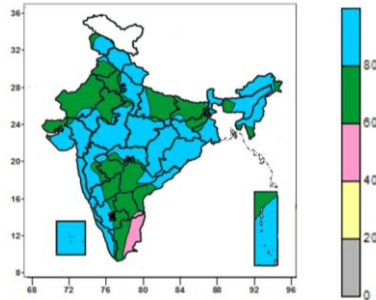
- 16 to 20<sup>0</sup>C over some parts of Jammu & Kashmir, Himachal Pradesh, West Rajasthan, Chhattisgarh, Odisha.

Telangana, Vidarbha, Marathwada, Gujarat region, some parts of Jammu & Kashmir, Himachal Pradesh, Rajasthan, Punjab, West Uttar Pradesh, Rayalaseema, Madhya Maharashtra, Konkan & Goa, Saurashtra & Kutch.

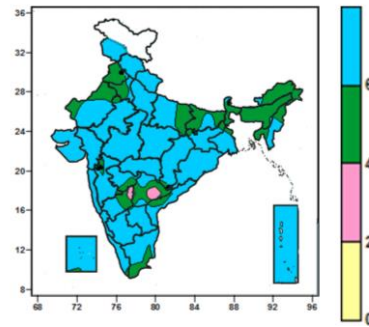
- -4 to -2<sup>0</sup>C over some parts of Chhattisgarh, Uttar Pradesh.

### Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 30.07.2014

#### Relative Humidity (%) over India for the week ending 30.07.2014



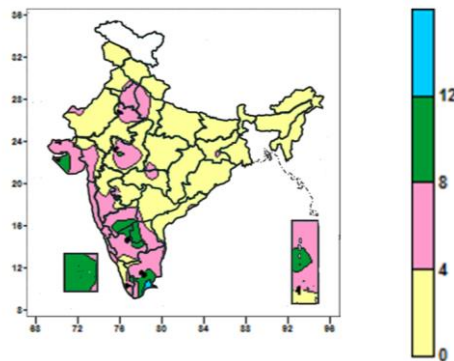
#### Cloud amount (okta) over India for the week ending 30.07.2014



- 80 to 100% over many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, West Uttar Pradesh, Jharkhand, West Bengal & Sikkim, North East India, Central India, Odisha, Kerala, Coastal & South Interior Karnataka, Konkan & Goa, Madhya Maharashtra, Vidarbha, Gujarat, Lakshadweep and Andaman & Nicobar Islands, some parts of Punjab, Rajasthan, East Uttar Pradesh, Bihar, Coastal Andhra Pradesh, Telangana, North Interior Karnataka and Tamil Nadu.
- 60 to 80% over many parts of Punjab, Haryana, Delhi, Rajasthan, East Uttar Pradesh, Bihar, Marathwada, Andhra Pradesh, Tamil Nadu, North Interior Karnataka, some parts of Jammu & Kashmir, West Uttar Pradesh, Jharkhand, Tripura, Gujarat, Madhya Maharashtra, Vidarbha, Kerala and South Interior Karnataka.
- 40 to 60% over some parts of Rayalaseema and Tamil Nadu.

- 6 to 8 okta over entire country except many parts of Punjab, Haryana, Bihar, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Telangana, North Interior Karnataka, some parts of East Uttar Pradesh, Rajasthan, Mizoram, Tripura, Coastal Andhra Pradesh, Madhya Maharashtra, Marathwada, Tamil Nadu, Kerala and North Interior Karnataka.
- 4 to 6 okta many parts of Punjab, Haryana, Bihar, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Telangana, North Interior Karnataka, some parts of East Uttar Pradesh, Rajasthan, Mizoram, Tripura, Coastal Andhra Pradesh, Telangana, Madhya Maharashtra, Marathwada, Tamil Nadu, Kerala and North Interior Karnataka.
- 2 to 4 okta over some parts of North Interior Karnataka, Telangana.

#### Wind speed (knots) over India for the week ending 30.07.2014



- 12 to 16 knots over some parts of Tamil Nadu.
- 8 to 12 knots over many parts of Lakshadweep Islands, some parts of Saurashtra, West Madhya Pradesh, Interior Karnataka, Rayalaseema, Tamil Nadu and Andaman & Nicobar Islands.
- 0 to 8 knots over entire country except many parts of Lakshadweep Islands, some parts of Saurashtra, West Madhya Pradesh, Interior Karnataka, Rayalaseema, Tamil Nadu and Andaman & Nicobar Islands.

## Monsoon Watch

- Yesterday, the southwest monsoon was vigorous over Saurashtra & Kutch and north & south interior Karnataka and active over Odisha, Gujarat region, Konkan & Goa, Madhya Maharashtra, Chhattisgarh and coastal Karnataka.

## Weather Forecast

### Weather Forecast for next 3 days (upto 0830 hours IST of 4<sup>th</sup> August, 2014)

- Rain/thundershowers would occur at isolated places over Andaman & Nicobar Islands during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at many places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram and Tripura during next 48 hours and at most places thereafter.
- Rain/thundershowers would occur at a few places over Sub-Himalayan West Bengal & Sikkim, Bihar and Jharkhand during next 24 hours; over Gangetic West Bengal during next 48 hours and at many places thereafter.
- Rain/thundershowers would occur at many places over Odisha during next 24 hours; over Himachal Pradesh during next 48 hours and decrease thereafter.
- Rain/thundershowers would occur at most places over Gujarat Region and Chhattisgarh during next 24 hours; over East Madhya Pradesh, Saurashtra & Kutch during next 48 hours and at many places thereafter.
- Rain/thundershowers would occur at most places over Konkan & Goa, Madhya Maharashtra, Coastal Karnataka and Kerala during the period.
- Rain/thundershowers would occur at many places over Uttarakhand, East Rajasthan, West Madhya Pradesh, Vidarbha and South Interior Karnataka during the period.
- Rain/thundershowers would occur at a few places over Uttar Pradesh during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at a few places over West Rajasthan, Marathwada, Tamilnadu & Pudducherry and Lakshadweep during the period.
- Rain/thundershowers would occur at isolated places over Haryana & Delhi and Punjab during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at many places over Telangana and North Interior Karnataka during next 24 hours and decrease thereafter.
- Rain/thundershowers would occur at a few places over Coastal Andhra Pradesh during next 24 hours; and isolated places thereafter.
- Rain/thundershowers would occur at isolated places over Jammu & Kashmir and Rayalaseema during the period.

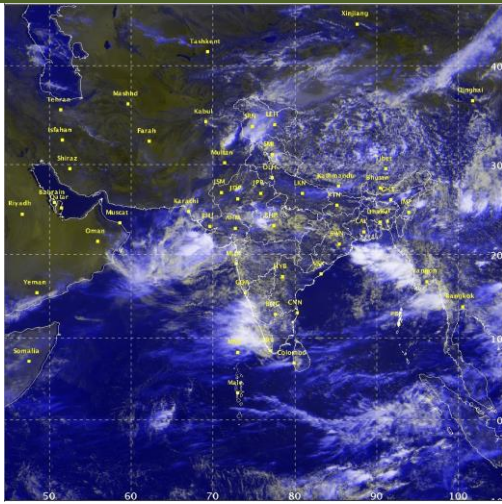
### Weather Warning during next 3 days

- **01 August (Day 1):** Heavy to very heavy rainfall would occur at isolated places over Saurashtra, Gujarat Region, Konkan & Goa, coastal Karnataka, Kerala and east Madhya Pradesh. Heavy rainfall would occur at isolated places over Uttarakhand, Chhattisgarh, west Madhya Pradesh, Vidarbha, Madhya Maharashtra, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.
- **02 August (Day 2):** Heavy to very heavy rainfall would occur at isolated places over Konkan & Goa, coastal Karnataka and Kerala. Heavy rainfall would occur at isolated places over east Uttar Pradesh, east Madhya Pradesh, Chhattisgarh, Bihar, Saurashtra, Gujarat Region, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.
- **03 August (Day 3):** Heavy to very heavy rainfall would occur at isolated places over Chhattisgarh, Bihar, Sub-Himalayan West Bengal & Sikkim, Konkan & Goa, coastal Karnataka and Kerala. Heavy rainfall would occur at isolated places over east Uttar Pradesh, east Madhya Pradesh, Jharkhand, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura.

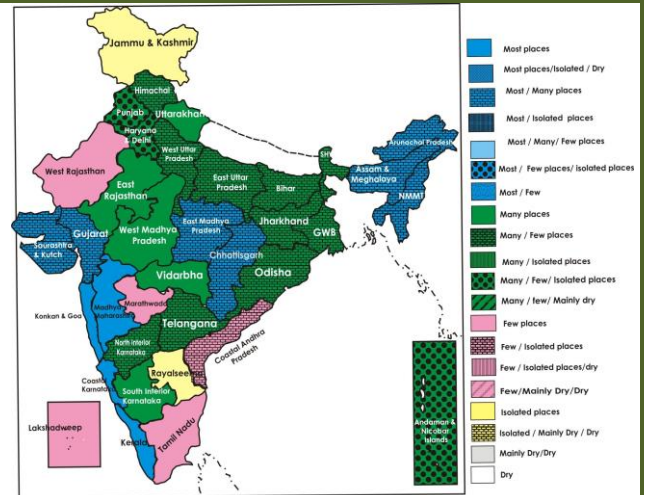
### Weather Outlook for subsequent 4 days from 04<sup>th</sup> August 2014 to 08<sup>th</sup> August 2014

- Rain/thundershowers would occur at most places along west coast.
- Rain/thundershowers would occur at many places over western Himalayan region, Uttar Pradesh, east and adjoining central India and northeastern states.
- Subdued rainfall activity would occur over interior peninsular India.

Satellite image dated 01.08.2014, 0600 UTC



Weather Forecast Map (Valid upto 0830 hours of 4<sup>th</sup> August , 2014)



### Salient Advisories

- In **North Interior Karnataka**, complete sowing of contingency crops like sesame, sunflower, niger, castor, bajra, groundnut (spreading), red gram, desi cotton, horse gram, cowpea, also sowing of intercrops like, pearl millet + pigeon pea (2:1), pearl millet + castor (2:1), *kharif* sorghum + red gram (5:1), red gram + sesame (1:2 or 2:4); red gram + horse gram (2:1).
- In **South and Middle Gujarat** region, continue sowing of contingency crops like soybean (cv. GS-1,GS-2, JS-335), short duration varieties of Sunflower (cv. Modern and EC-68414 and Guj-1) and Sesame (cv. Guj. Tal 1,2, 10), blackgram (cv. T-9, Guj. Udid-1), green gram (cv. GM-4, K-851, Meha), cowpea (cv. Guj. Cowpea 1,2,4, Pusa Falguni). Also continue sowing of grain sorghum (cv. GJ-35, 36 and 37) and Fodder sorghum (cv. S-1049, C-10-2, Gundari, GFS 4,5).
  - In Baroda and Panchmahal districts, continue drill sowing of rice cv.GR 5,8,9, Sathi 34-36, IR-28, ADR-1 and Sukhvel-20 as contingency crop.
  - In **North Gujarat Region**, continue sowing of contingency crops like sesame (varieties like Guj.Tal-1,2,10), sunflower (Modern, EC 68414 and bajra (GHB- 538,732).
  - In **Saurashtra region**, continue sowing of contingent crops like black gram (T-9, Guj. Udid-1), green gram (GM-4, K-851, Meha), pigeon pea (cv. BDN-2, ICPL-87, GT-100, GT-101, Vaishali), sesame (cv. Purva-1) and cotton (G. cot-13, 21, 23, V-797). For fodder purpose take sorghum cv. CSH-6 and CFS-4.
- In **Bihar**, complete transplanting of rice varieties like Rajendra Bhagwati, Prabhat, Narendra 97, MTU-1010 and Rajendra Sweta in medium land and Swarna Sab-1, BPT-5204, MTU-7029, MTU-1001 and Rajshree in low land situation. Transplanting in upland areas should be avoided. Instead of that, undertake sowing of black gram(var. T-9, Navin), red gram (Bahar, Pusa-9, Malvia-13) and sweet potao (Rajendra Mishrikhand-11).

### Detailed Zonewise Agromet Advisories

#### SOUTH INDIA [TN, AP, KERALA, KARNATAKA]



Trasplanting of Rice



Rice Nursery



Sugarcane



Okra

- **Realised Rainfall:** Rainfall occurred in all districts of Coastal Karnataka; Belgaum, Dharwad and Haveri districts of North Interior Karnataka; Chikmagalur, Chitradurga, Davangere, Hassan, Kodagu and Shimoga districts of South Interior Karnataka; all districts of Kerala except Thiruvananthapuram; all districts of Andhra Pradesh except Nellore

and Vizianagaram; all districts of Telangana except Hyderabad, Nalgonda and Rangareddy; Coimbatore, Nilgiris and Puducherry districts of Tamil Nadu. Mainly dry weather prevailed over remaining parts of the region.

- **Weather Forecast:** Rain/thundershowers would occur at most places over Coastal Karnataka and Kerala during the period. Rain/thundershowers would occur at many places over Telangana and North Interior Karnataka during next 24 hours and decrease thereafter. Rain/thundershowers would occur at many places over South Interior Karnataka; at isolated places over Rayalaseema; at a few places over Tamilnadu & Pudducherry during the period. Rain/thundershowers would occur at a few places over Coastal Andhra Pradesh during next 24 hours and at isolated places thereafter.
- **Weather Warning:** Heavy to very heavy rainfall would occur at isolated places over Coastal Karnataka and Kerala during the period.
- **Weather Outlook:** Subdued rainfall activity would occur over interior peninsular India.
- **Advisories:**
  - **Karnataka:**
    - As rain/thundershowers would occur at most places over Coastal Karnataka and at many places over South Interior Karnataka along with heavy to very heavy rainfall at isolated places over Coastal Karnataka during the period, postpone irrigation, intercultural operations and application of fertilizers and plant protection measures in standing crops. Provide adequate drainage in standing crops to remove excess water.
    - Continue transplanting of lowland and upland rice utilizing the realized and expected rainfall in the Hill Zone of Karnataka.
    - Continue transplanting of vegetables in the Southern Transition Zone of Karnataka.
    - Complete nursery sowing of rice, ragi and undertake planting of ginger, turmeric, arecanut and banana in the Southern Transition Zone of Karnataka utilizing the realized and expected rainfall.
    - In North Interior Karnataka, complete sowing of contingency crops like sesame, sunflower, niger, castor, bajra, groundnut (spreading), red gram, desi cotton, horse gram, cowpea, also sowing of intercrops like, pearl millet + pigeon pea (2:1), pearl millet + castor (2:1), *kharif* sorghum + red gram (5:1), red gram + sesame (1:2 or 2:4); red gram + horse gram (2:1).
  - **Kerala:**
    - As rain/thundershowers would occur at most places along with heavy rainfall at isolated places during the period, postpone irrigation, intercultural operations and application of fertilizers and plant protection measures in standing crops. Provide adequate drainage in standing crops to remove excess water.
    - Continue planting of Nendran banana and cultivation of monsoon vegetables in the Northern Zone of Kerala.
    - Present cloudy weather with high humidity and low temperature condition is congenial for the incidences of black bug, stem borer and leaf roller attack on rice crop in the Problem Area Zone of Kerala. Monitor the crop and spray Asataf @ 2 g/litre at the basal part of the plant after draining the field, if noticed.
    - Due to high humidity and moist weather conditions, there is chance of increase of leaf folder and stem borer attack on rice crop in the Central Zone of Kerala. To manage, use Trichogramma cards @ 2CC per acre and apply Quinalphos (2ml per one litre of water) or Cartap hydrochloride (25g per one hectare) if the attack is severe after current spells of rain. Due to continuous rain, there is a chance of bud rot disease in coconut. Cut and remove all the affected tissues of the crown. Apply Bordeaux paste and protect it from rain till normal shoot emergence.
    - High humidity is congenial for the incidence of leaf folder in rice and sigatoka disease in bananas in the Southern Zone of Kerala. Use Tricho cards @ 2cc/acre to manage leaf folder and apply propiconazol 1ml / litre of water and copper oxy chloride 4 g/ litre of water alternately at two weeks interval after current spells of rain.
  - **Andhra Pradesh:**
    - In Krishna Godavari Zone of Andhra Pradesh, continue sowing of rainfed maize, cotton, red gram and green gram. Continue transplanting of rice in Nellore district in the Southern Zone of Andhra Pradesh.
    - Complete planting of rainfed sugarcane and sowing of green gram, black gram and red gram and continue direct sowing of rice under aerobic conditions utilizing the realized and expected rainfall in the North Coastal Zone of Andhra Pradesh.
    - In the Southern Telangana Zone of Andhra Pradesh, complete sowing of rainfed crops like cotton, maize, groundnut, pulses, castor etc. at the earliest. Continue nursery sowing and transplanting of tomato, brinjal and chilli and direct sowing of cucurbits, beans and bhendi utilizing the realized and expected rainfall.
    - In Scarce Rainfall Zone of Rayalaseema, continue sowing of red gram and intercropping of Korra + redgram @ 5:1 in the rainfed tracts in Kurnool district. In Anantpur district, continue sowing of rainfed castor and red gram, groundnut and bajra utilizing the realized rainfall.
  - **Tamil Nadu:**
    - Continue land preparation for nursery sowing of *samba* rice in Nagapattinam, Thanjavur and Trichy districts in the Cauvery Delta Zone of Tamil Nadu with irrigation.
    - Since prevailing wind speed is high, five months old banana and sugarcane may be propped against lodging in the Western Zone and Southern Zone of Tamil Nadu.
    - Black bug incidence was noticed in *kuruvai* rice in tillering stage in the Cauvery Delta Zone of Tamil Nadu and likely to persist, spray Cholpyriphos 20 E.C @ 500 ml /acre or Neem seed kernel extract 5% to manage the

incidence.

- Due to continuous dry weather in some pockets of Erode district in the Western Zone of Tamil Nadu, mealy bug incidence is seen in sugarcane crop and likely to spread. Spray Malathion @ 2ml or Imidachlopid @ 0.6ml per litre of water to manage the incidence.
- Partly cloudy sky and moderate humidity is congenial for the incidence of pod borer in green gram in the South Zone of Tamil Nadu. Monitor the crop and spray Indoxacarb 15.8 % SC @ 333 ml/ ha (If ETL > 10% damaged plants) to manage pod borer.
- Suitable varieties are given in Annexure II.
- **Animal Husbandry**
- Prevailing weather conditions are congenial for Anthrax in cattles in the Scarce Rainfall Zone of Andhra Pradesh. Vaccinate the animals to prevent the disease.

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



*Rice Nursery*



*Trasplanting of Rice*



*Okra*



*Jute*

- **Realised Rainfall:** Rainfall occurred in Changlang, East Siang, Lohit, Lower Dibang Valley, Papumpara, Tawang, Upper Siang and Upper Subansari districts of Arunachal Pradesh; Barpeta, Cachar, Chirang, Dibrugarh, Golghat, Hailakandi, Jorhat, Kamrup(Rural), Karbi Anglong, Karimganj, Lakhimpur, N.C.Hills, Nowgaon, Sonitpur and Sibsagar districts of Assam; East Khasi Hills district of Meghalaya; Aizwal and Serchhip districts of Mizoram; Imphal West districts of Manipur; Dimapur and Kohima districts of Nagaland and all districts of Tripura. Mainly dry weather prevailed over remaining parts of the region.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Assam & Meghalaya, Nagaland, Manipur, Mizoram, Tripura and Arunachal Pradesh during next 48 hours and at most places thereafter.
- **Weather Warning:** Heavy rainfall would occur at isolated places over Assam & Meghalaya, Nagaland, Manipur, Mizoram and Tripura during the period and over Arunachal Pradesh on 3<sup>rd</sup> August.
- **Weather Outlook:** Rain/thundershowers would occur at many places over northeastern states.
- **Advisories:**
  - **Assam & Meghalaya, Arunachal Pradesh:**
    - As rain/thundershowers would occur at many/most places over Assam and Meghalaya along with isolated heavy spells during the period, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
    - In Assam, continue transplanting of *sali* rice. The proper age of seedling for transplanting is 21days for short duration varieties, 30-35 days for medium duration varieties. Replanting of dead hills or gap filling with seedlings of similar age should be done within 7-10 days of transplanting.
    - In Meghalaya, complete transplanting of *sali* rice and sowing of pigeon pea. In high upland fields, farmers are advised to grow tuber crops like sweet potato, colocassia, tapioca, etc.
    - In Arunachal Pradesh, complete transplanting of local varieties and continue transplanting of HYV of *Kharif* rice utilising realised and expected rainfall.
    - In North Bank Plain Zone of Assam, there is chance of continuing attack of fruit fly, red pumpkin beetle and epilechna beetle in summer gourds; spray Malathion 50 EC @ 1 ml per litre after current spells of rain.
    - In Upper Bramhaputra Valley Zone of Assam, continue transplanting of medium duration (130-135 days) *sali* rice varieties like Satyaranjan, Basundhara, Jaya, IR 36 etc till 15-20 August. Undertake sowing of pulses like green gram, black gram and nursery raising of early cauliflower.
    - Present weather of alternate dry and wet condition may favour occurrence of rotting of leaves and stems of beetle vine and quick wilt in black pepper in Central Bramhaputra Valley Zone of Assam. Prophylactic application of Bordeaux mixture in clear weather may prevent the spread/ outbreak of the disease.
    - Due to prevailing humid weather conditions, there is chance of attack of aphids on black gram in Arunachal Pradesh. Spray Methyl Demeton 25 EC or Dimethoate @ 500 ml /500 litres of water per ha after current spells of rain. Also there is chance of fruit flies in cucurbits; for control, spray Malathion @ 3ml per litre of water after current spells of rain.
    - In Meghalaya, due to cloudy & high humid conditions, there are chances of incidence of blast, thrips and gundhi



bug in direct seeded *ahu* rice. Spray Mencozeb @ 2g/litre or Carbandazime @ 1g/litre against blast, Chloropyriphos @ 2ml/litre of water against thrips and Malathion 5% dust @ 6.25kg/ha against gundhi bug after the current spells of rain.

- **Nagaland, Manipur, Mizoram and Tripura:**

- As rain/thundershowers would occur at many/most places over Nagaland, Manipur, Mizoram and Tripura during the period, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops.
- In Mizoram, complete nursery sowing of rice and main field preparation for transplanting of rice utilizing the realized and expected rainfall.
- In Nagaland, continue transplanting of low land rice and sowing of soybean, groundnut and pulses like black gram, green gram utilizing the realized and expected rainfall. Right after transplanting of rice, adequate land submergence of around 5cm of water is necessary to prevent damage to establishing seedlings and for root development.
- Complete transplanting of main *kharif* rice, continue nursery raising of cole crops in Manipur.
- In Mild Tropical Plain Zone of Tripura, complete transplanting of *aman* rice and continue sowing of vegetables.
- In Tripura, due to cloudy and humid weather there is chance of Panama wilt disease in banana. Drench with Bavistin @ 1g per liter of water and Trichodermaviride and *Pseudomonas flourescence* may be incorporated in the soil after current spells of rain. Also there are chances of attack of yellow stem borer in *aman* rice. To manage the attack, spray Validamycin 3L @ 2.5 ml or Hexaconazole 5 EC @ 2.0 ml per litre of water after current spells of rain.
- In Nagaland, cloudy weather is conducive for attack of thrips in chilli, spray 3% and 5% neem oil for control after current spells of rain.
- Suitable varieties are given in Annexure II.

- **Animal Husbandry**

- In the Northeastern States, animal sheds should be kept dry and avoid dampness during rainy days. Immunizations against FMD, HS and BQ in cattle & buffaloes and swine-fever in pigs may carry out during monsoon season. Keep pig sheds warm using gunny bags, straw, enclosure.
- Monsoon weather could lead to gastrointestinal parasites infection in pigs and poultry in Tripura. Farmers are advised to keep good sanitary conditions in pig and poultry sheds.
- In Nagaland, high humidity is favourable for occurrence of coccidial disease in poultry, provide anti-coccidial drugs.
- In Meghalaya, due to prevailing high relative humidity & warm temperature, there is chance for growth of molds (especially *Aspergillus* spp.) in animal feeds. So always keep animal feeds in dry and clean place and avoid direct contact with ground/soil.

- **Fisheries**

- In flood affected areas of Lower Brahmaputra Valley Zone of Assam, protect the fish ponds by putting nylon net or bamboo net around the ponds. Due to heavy rainfalls & muddy water influx from the surrounding areas, the ponds may result reduction of dissolved oxygen. Stirring the water with a bamboo pole will help in increasing the oxygen and protect the fishes from suffocation.

## EAST INDIA [JHARKHAND, BIHAR, ODISHA, WEST BENGAL & SIKKIM, ANDAMAN & NICOBAR ISLANDS]



**Sugarcane**



**Jute**



**Onion**



**Trasplanting of Rice**

- **Realised Rainfall:** Rainfall occurred in Banka, Bhagalpur, Darbhanga, East Champaran, Jahanabad, Jamui, Kathihar, Khagadia, Lakhisarai, Madhepura, Madhubani, Monghyar, Muzaffarpur, Samastipur, Sheikpura, Sitamarhi, Supaul, Vaishali and West Champaran districts of Bihar; Chatra, Dumka, East Singbhum, Giridih, Godda, Gumla, Hazaribaug, Jamtara, Koderma, Latehar, Ranchi, Sahebganj, Saraikela, Simdega and West Singbhum districts of Jharkhand; all districts of Odisha; all districts of Gangetic West Bengal except Nadia; all districts of Sub- Himalayan West Bengal & Sikkim except Malda; all districts of Andaman & Nicobar islands except Nicobar. Mainly dry weather prevailed over remaining parts of the region.
- **Weather Forecast:** Rain/thundershowers would occur at a few places over Sub-Himalayan West Bengal & Sikkim, Jharkhand and Bihar during next 24 hours and over Gangetic West Bengal during next 48 hours and at many places thereafter. Rain/thundershowers would occur at many places over Odisha during next 24 hours and decrease thereafter.

Rain/thundershowers would occur at isolated places over Andaman & Nicobar Islands during next 24 hours and increase thereafter.

- **Weather Warning:** Heavy rainfall would occur at isolated places over Bihar on 2<sup>nd</sup> and over Jharkhand on 3<sup>rd</sup> August. Heavy to very heavy rainfall would occur at isolated places over Bihar and Sub-Himalayan West Bengal & Sikkim on 3<sup>rd</sup> August.
- **Weather Outlook:** Rain/thundershowers would occur at many places over east India.
- **Advisories:**
  - **West Bengal:**
    - As rain/thundershowers would occur at many places over Sub-Himalayan West Bengal and Sikkim on 2<sup>nd</sup> & 3<sup>rd</sup> August along with heavy to very heavy rainfall at isolated places on 3<sup>rd</sup> August, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops.
    - In Sub Himalayan West Bengal, continue transplanting of *aman* rice utilizing the realised and expected rainfall.
    - Complete transplanting of *aman* rice in Coastal Saline Zone and New Alluvial Zone of West Bengal.
    - In Laterite and Red Soil Zone, complete nursery sowing of *aman* rice. Undertake the land preparation for transplanting of *aman* rice. Complete dry seeding of Upland rice.
    - In Laterite and Red Soil Zone, there is a chance of the attack of white-fly and jassids in ladies finger. To control these insects, apply Imidachloprid 17.8 SL @ 4 ml per 10 litres of water against white fly and Thiamethoxon @ 1g/10 liter of water against jassids after current spells of rain. In the prevailing weather situation, there is a chance of attack of fruit borer in chilli. To control these insects, spray Dichlorovos @ 1.5 – 2.0 ml per litre of water after current spells of rain.
    - In New Alluvial Zone, due to cloudy weather and humid conditions fungal and bacterial diseases are prevalent in maize. For fungal attack, spray Mancozeb @ 2.5g per litre of water and in case of bacterial rot, spray Streptocycline @ 0.1g per litre of water after current spells of rain.
    - In Terai Zone, due to cloudy weather there is chance of *Phytophthora* in betel vine. To manage the disease, spray Mancozeb 64% + Matalaxyl 8% @ 1.5 gm/litre of water after current spells of rain.
  - **Andaman & Nicobar Islands:**
    - In North and Middle Andaman & Nicobar Islands, undertake transplanting of rice. Provide support to the fruit bearing banana tree due to high wind.
  - **Odisha:**
    - As rain/thundershowers would occur at most/many places over Odisha on 1<sup>st</sup> August, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops.
    - Due to heavy rains during last week there was flood in low lying areas of North Eastern Coastal Plain Zone of Odisha. Rice crops were completely submerged for three to five days. In the flood affected areas, the following contingent measures may be taken up after the flood water recedes;
      - In **direct seeded rice**, if the entire crop is damaged, wet seeding with sprouted seeds should be done by taking 120-130 days duration varieties.
      - Apply 50% N & K<sub>2</sub>O and full dose of P<sub>2</sub>O<sub>5</sub> at the time of sowing and rest dose at tillering stage.
      - If loss in seedlings is less than 50%, go for distribution of clonal tillers with application of 50 % N and 50 % K<sub>2</sub>O.
      - In **transplanted rice**, in case of silt deposit, go for water spray in nursery areas.
      - Avoid application of urea and go for spraying of 1% K<sub>2</sub>SO<sub>4</sub>.
      - Go for clonal propagation if the loss in plant stand is less than 50%.
    - In Western Undulating Zone of Odisha, continue transplanting of rice with 3 week aged seedlings. Continue sowing of maize, arhar and cotton in upland areas taking the advantage of the realised and expected rainfall.
    - In East and South Eastern Coastal Plain Zone of Odisha, complete transplanting of *kharif* rice under SRI cultivation utilizing the realised and expected rainfall and beushening in 21 days old direct sown rice in low land areas. Also continue sowing of ragi, maize, groundnut and sesame. Complete sowing of early duration sesame, cowpea, green gram and black gram in upland.
    - In Western Undulating Zone of Odisha, the weather is conducive for swarming caterpillar development in rice. Monitor the crop. Clean the bunds of rice fields and apply Methyl chloropyriphos 1.5% dust @ 12 kg/acre on the bunds as preventive measures. Keep 20 nos. bird perchs per acre.
    - In North Central Plateau Zone of Odisha, complete the sowing of green gram and black gram in fallow uplands. Grow high yielding varieties such as for green gram- K-851, PDM-54, PDM-11, OUM-11-5, black gram- T9, Pant-U-11, Pant-U19 or Pant-U-30.
  - **Bihar:**
    - As rain/thundershowers would occur at many places over Bihar on 2<sup>nd</sup> & 3<sup>rd</sup> August, along with heavy rainfall at isolated places, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
    - In Bihar, complete transplanting of rice varieties like Rajendra Bhagwati, Prabhat, Narendra 97, MTU-1010 and Rajendra Sweta in medium land and Swarna Sab-1, BPT-5204, MTU-7029, MTU-1001 and Rajshree in low land situation. Transplanting in upland areas should be avoided. Instead of that, undertake sowing of black gram(var. T-

9, Navin), red gram (Bahar, Pusa-9, Malvia-13) and sweet potato (Rajendra Mishrikhand-11).

- In North West Alluvial Plain Zone of Bihar, complete transplanting of rice in low and medium land areas with realised and expected rainfall. Continue sowing of arhar, urd and kulthi in upland areas. In upland and medium land areas, it is advised to plant brinjal, early tomato, chilli and onion in the ridge of main field and also sow cucurbits and cluster bean, radish, cumin and fenugreek.
- In North East Alluvial Plain Zone of Bihar, continue transplanting of *kharif* onion. Continue transplanting of 20-25 days old paddy seedling in low and medium land areas with realised rainfall. Continue planting of mango, litchi, guava and papaya.
- **Jharkhand:**
  - As rain/thundershowers would occur at many places over Jharkhand on 2<sup>nd</sup> & 3<sup>rd</sup> August, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops.
  - In South Eastern Plateau Zone of Jharkhand, complete sowing of maize and pigeon pea, urad, moong, groundnut, soybean, sesame. Complete transplanting of rice in low and medium land areas with realised and expected rainfall.
  - In Western Plateau Zone of Jharkhand, continue transplanting of rice in low and medium land areas and complete transplanting of finger millet. Undertake transplanting of tomato, cauliflower, cabbage, brinjal and chilli. In low lands, apply Blue Green Algae @ 4 kg per acre after 15 days of transplanting.
  - In South Eastern Plateau Zone of Jharkhand, weather is conducive for the attack of fruit and shoot borer in brinjal and okra and fruit fly in cucurbitaceous vegetables; spray Malathion @ 2 ml per litre of water for fruit and shoot borer and arrange Bait trap for control of fruit fly after current spells of rain.
  - Cloudy weather and high humidity during last week favours the occurrence and spreading of Brown spot disease in direct seeded upland rice in South Eastern Plateau Zone of Jharkhand; spray Bavistin @ 1 g or Beam (Tricyclazole) @ 6 g per 10 liter of water by mixing Teepol @ 0.5 ml per liter of water after current spells of rain.
  - Suitable varieties are given in Annexure II.
- **Animal Husbandry**
  - Keep the cattle in the sheds during heavy rainfall periods in Odisha.
  - Provide dry and clean shelter to dairy animals in Old Alluvial Zone of West Bengal. Clean and hygienic water should be provided to dairy animals. De-worming and FMD-HS-BQ vaccination should be done to protect the livestock animals.
- **Poultry**
  - In Nicobar Islands, South, North and Middle Andaman, newly hatched chicks should be provided warm condition with electric bulbs under enclosed dry area with sufficient feeding and watering facility.
  - Because of high humidity, there are chance of occurrence of fungal diseases in poultry birds in South Eastern Plateau Zone of Jharkhand. Lime should be mixed thoroughly in poultry litter. RD vaccine should be given immediately to the chicks which are 7 days old. To prevent coxidirosis disease, spray antibiotic solution in the poultry house.

## CENTRAL INDIA [M.P., CHHATTISGARH]



**Sugarcane**



**Trasplanting of Rice**



**Okra**



**Green Gram**

- **Realised Rainfall:** Rainfall occurred in Balaghat, Chhatarpur, Chindwara, Jabalpur, Mandla, Panna, Sagar, Satna, Seoni and Singrauli districts of East Madhya Pradesh; all districts of West Madhya Pradesh except Gwalior; all districts of Chhattisgarh except Bilaspur, Jashpur and Surguja. Mainly dry weather prevailed over remaining parts of the region.
- **Weather Forecast:** Rain/thundershowers would occur at many places over West Madhya Pradesh during the period. Rain/thundershowers would occur at most places over East Madhya Pradesh during next 48 hours and over Chhattisgarh during next 24 hours and at many places thereafter.
- **Weather Warning:** Heavy to very heavy rainfall would occur at isolated places over east Madhya Pradesh on 1<sup>st</sup> and over Chhattisgarh on 3<sup>rd</sup> August. Heavy rainfall would occur at isolated places over Chhattisgarh on 1<sup>st</sup> and 2<sup>nd</sup> August; over west Madhya Pradesh on 1<sup>st</sup> and over east Madhya Pradesh on 2<sup>nd</sup> and 3<sup>rd</sup> August.
- **Weather Outlook:** Rain/thundershowers would occur at many places over Central India adjoining to east India.
- **Advisories:**
  - **Madhya Pradesh:**
    - As rain/thundershowers would occur at most/many places over Madhya Pradesh during the period, along with

heavy to very heavy rainfall at isolated places over east Madhya Pradesh on 1<sup>st</sup> and heavy rainfall at isolated places on 2<sup>nd</sup> & 3<sup>rd</sup> August and heavy rainfall at isolated places over West Madhya Pradesh on 1<sup>st</sup> August, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.

- Complete transplanting of rice in east Madhya Pradesh.
- Continue sowing of early maturing varieties of moong, urad and nursery sowing of vegetables in Satpura Plateau Zone of Madhya Pradesh after current spells of heavy rain.
- In West Madhya Pradesh, continue sowing of early maturing varieties of maize (JVM 421, JM 12), red gram (UPAS 120, Pusa 9, TJT 501), sunflower (Modern, sesame variety TKG-8) and black gram (T 9, JU 86). Also undertake transplanting of vegetables.
- Due to cloudy and humid weather, there are chances of attack of aphids and jassids on vegetables in West Madhya Pradesh; spray Thiamethoxam @ 0.35 g per litre after current spells of rain.
- Due to cloudy weather, there is possibility of attack of red pumpkin beetle and fruit fly in cucurbit crops in Bundelkhand Zone of Madhya Pradesh; spray Trizophas 40 E.C. @ 2.0 ml per litre of water after current spells of rain.
- **Chhattisgarh:**
  - As rain/thundershowers would occur at most/many places over Chhattisgarh during the period along with heavy to very heavy rainfall at isolated places, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
  - In Chhattisgarh Plain Zone, complete transplanting of rice and complete sowing of maize, moong and urad and nursery sowing of *kharif* vegetables utilising the realised and expected rainfall.
  - In Chhattisgarh Plain Zone, undertake planting of horticultural crops like papaya, mango, guava etc. utilizing the realised and expected rainfall.
  - Complete transplanting of rice and transplanting of tomato, brinjal, cauliflower, cabbage and chilli in North Hill Zone and complete sowing of maize and urad in Bastar Plateau Zone of Chhattisgarh.
  - Suitable varieties are given in Annexure II
- **Animal Husbandry**
  - In Madhya Pradesh and Chhattisgarh, keep animals in sheds during heavy rainfall periods, supplement cattle feeds with vitamins and energy food material along with calcium content to dairy animals. Vaccinate the milch cattle against H.F. and B.Q disease. Provide four to five hours of bulb light in Poultry Farms.

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



*Trasplanting of Rice*

*Sugarcane*

*Bottle Gourd*

*Onion*

- **Realised rainfall:** Rainfall occurred in all districts of Himachal Pradesh except Kinnaur and Lahaul and Spiti; Faridkot, Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Moga and Nawashahar districts of Punjab; Yamunanagar districts of Haryana; North East Delhi, South Delhi and South West Delhi districts of Delhi; Jammu, Kathua and Reasi districts of Jammu & Kashmir; Bagraich, Ballia, Banda, Barabanki, Basti, Gorakhpur, Hardoi, Kanpur City, Mau, Sahuji Maharajnagar, Sant Kabirnagar, Shrawasti, Sidharthnagar, Sitapur, Sonbhadra, Auraiya, Badaun, Bareilly, Bijnor, Etah, Jalaun, Jyotiba Phule Nagar, Kanshiramnagar, Mahamaya Nagar, Mainpuri, Mathura, Rampur, and Shahjahanpur districts of Uttar Pradesh; all districts of Uttarakhand except Haridwar and Udham Singh Nagar; all districts of Rajasthan except Dholpur, Barmer and Jaisalmer. Mainly dry weather prevailed over remaining parts of the region.
- **Weather Forecast:** Rain/thundershowers would occur at many places over East Rajasthan and Uttarakhand during the period. Rain/thundershowers would occur at a few places over Uttar Pradesh during next 24 hours and at many places thereafter. Rain/thundershowers would occur at many places over Himachal Pradesh during next 48 hours and decrease thereafter. Rain/thundershowers would occur at a few places over West Rajasthan and at isolated places over Jammu & Kashmir during the period. Rain/thundershowers would occur at isolated places over Haryana & Delhi and Punjab during next 24 hours and increase thereafter.
- **Weather Warning:** Heavy rainfall would occur at isolated places over Uttarakhand on 1<sup>st</sup> August and over east Uttar Pradesh on 2<sup>nd</sup> and 3<sup>rd</sup> August.

- **Weather Outlook:** Rain/thundershowers would occur at many places over western Himalayan region and Uttar Pradesh.
- **Advisories:**
  - As rain/thundershowers would occur at most/many places in Uttarakhand, Himachal Pradesh, Uttar Pradesh and East Rajasthan during the period along with heavy rainfall at isolated places over Uttarakhand on 1<sup>st</sup> August, over East Uttar Pradesh on 2<sup>nd</sup> & 3<sup>rd</sup> August, postpone irrigation, intercultural operations and application of fertilizers and plant protection measures in standing crops. Provide adequate drainage in crop fields to remove excess water.
  - **Jammu & Kashmir:**
    - Complete sowing of pulses like mash (var. Pant U-19, T-9) and moong (var. PDM-54, PS-16, PS-17, ML-131) in Intermediate Zone of Jammu & Kashmir utilizing realized and expected rainfall.
    - In Valley Temperate Zone of Jammu & Kashmir, undertake hand weeding after 18-20 days of transplanting of rice and apply first top dose of Nitrogen @ 3.25 kg urea per kanal.
    - Due to humid condition there are chances of aphid attack on vegetables, in Cold Arid Zone of Jammu & Kashmir. To control, apply Chloropyrifos 20EC @ 2 ml/litre of water, on a non rainy day
  - **Himachal Pradesh:**
    - Complete transplanting of rice in Mid-Hills Sub-Humid Zone and Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh utilizing the realised and expected rainfall.
    - Continue nursery sowing of cauliflower and transplanting of cabbage in Sub-Montane & Low Hills Sub-Tropical Zone and in Bilaspur district of Mid-Hills Sub-Humid Zone of Himachal Pradesh.
    - Under prevailing humid weather condition and low night temperature (<26<sup>o</sup>C) there are chances of incidence of blast disease in rice. For control, spray Bavistin @ 0.01 or Beam 75 WP 0.06% at 10-15 days interval in Mid-Hills Sub-Humid Zone of Himachal Pradesh after current spells of rain.
    - Under prevailing humid weather condition, there are chances of incidence of leaf spot and fruit rot diseases in tomato, brinjal, capsicum and chilli in Mid-Hills Sub-Humid Zone of Himachal Pradesh. Spray Metamil/Redomil MZ @ 2.5 g per litre of water after current spells of rain and repeat after 15 days. For control of phyto pathora in tomato, capsicum and tej mirch, spray Dithane M-45 2.5-3 g per litres of water, after current spells of rain.
    - Due to prevailing humid weather conditions, there are chances of scab infestation in apple in High Hill Temperate Dry Zone of Himachal Pradesh. Spray Bavistin @ 0.5g or Boron @ 1g per litre of water after current spells of rain.
    - Under prevailing humid weather condition, there are chances of attack of Anar butter fly in anar in Mild Hills Sub-Humid Zone of Himachal Pradesh. Spray Cypermethrin 10EC @ 80ml per 200 litres of water after current spells of rain. Mix sticker (100ml Sandovit or 40g Selwet) to the spray emulsion to avoid washing off during rainy season.
  - **Uttarakhand:**
    - In Sub Humid Sub Tropic Zone of Uttarakhand, complete transplanting of late sown rice. To control weeds, apply Butachlor @ 3 liter or Anilophos @ 1 litre with 700-800 litre of water 7 DAT as post emergent herbicides after current spells of rain.
    - Due to cloudy and humid weather condition, there are chances of fruit borer in tomato and brinjal in Hill zone of Uttarakhand. To control spray Neem oil @ 20 – 25ml per 5 litres of water with half spoon surf powder, after current spells of rain.
  - **Punjab, Haryana and Delhi:**
    - In Western Zone of Punjab, complete transplanting of rice with 25 to 30 days old seedlings utilizing realised rainfall, continue nursery sowing of basmati rice and complete sowing of okra and cow pea with expected rainfall.
    - In Sub-Mountane and Undulating Plain Zone of Punjab, continue transplanting of rice and complete sowing of maize and continue sowing of mung, mash and til.
    - In Central Plain Zone and in Western Plain Zone of Punjab, complete transplanting of rice and continue sowing of okra, radish and cucurbits.
    - In Central Plain Zone of Punjab, high humidity is favourable for stem and fruit rot in chilli; spray Indofil M-45 @ 750 g in 250 litres of water after current spells of rain. Hot and humid weather is favourable for the attack of fruit fly in guava; spray Fenvalerate (2.5 ml /litres of water) on clear day and repeat at weekly interval.
    - In Western Zone of Punjab, incidence of sheath blight is noticed in rice and likely to continue, spray Folicur 25 EC (Tebuconazole) @ 200 ml or Tilt 25 EC (Propiconazole) @ 200ml in 200 litres of water/acre after current spells of rain.
    - Due to partly cloudy weather, there are chances of occurrence of sucking pest viz. white fly and jassids in cotton in Western Zone of Punjab. Monitor the crops and spray Oberon @ 200ml/acre for white fly and Ulala @ 80 g/acre for the management of jassids after current spells of rain.
    - In Eastern Zone of Haryana, continue sowing of guar, bajra and pulses with realised and expected rainfall.
    - In Western Zone of Haryana, continue sowing of guar, bajra, pulses, fodder crops such as jowar mixed with cowpea to increase the nutritive value for continuous supply of green fodder.
    - In Delhi, complete transplanting of rice, early cauliflower and brinjal. Continue sowing of pigeon pea, bajra, cluster bean, spinach, amaranths, okra, cucurbits sweet corn and baby corn during the week with realised and expected rainfall.

- **Uttar Pradesh:**

- As rain/thundershowers would occur at many places over Uttar Pradesh on 2<sup>nd</sup> and 3<sup>rd</sup> August, postpone irrigation, intercultural operations and application of fertilizers and plant protection measures in standing crops.
- In Central Plain Zone of Uttar Pradesh, continue transplanting of rice and undertake planting of fruit crops like mango. Guava, litchi, amla, lemon, banana, papaya, etc. utilizing the realized and expected rainfall. Also undertake top dressing of Nitrogen @ 15-20 kg per ha in cucurbits and @ 35-40 kg per ha in ladies finger after 25-30 days of sowing and 25 g per ha in ginger after 40 days of sowing after current spells of rain.
- Complete sowing of urd, moong, sesame and lobia utilizing the realized rainfall and undertake land preparation for planting of fruit crops like mango, papaya, guava, etc. in Bundelkhand Zone of Uttar Pradesh with expected rainfall. Undertake top dressing of nitrogen in Arhar, jowar and maize 30-35 day, after sowing after current spells of rain. Undertake sowing of groundnut and soybean after Rhizobium culture treatment.
- Due to prevailing humid weather condition, there are chances of attack of leaf eating caterpillar in vegetables in Western Plain Zone of Uttar Pradesh. Spray Di-crovas @ 1ml per litre of water. For control of attack of butterfly in citrus fruits, spray 5% ELISA (Imidacloprid) or 50% Carbaryl after current spells of rain.
- Due to humid weather condition, there are chances of attack of white fly, jassids, thrips in ladies finger in Bundelkhand Zone of Uttar Pradesh. Spray Dimethoate 30 EC @ 800 ml per 800 litres of water after current spells of rain. For control of red beetle in cucurbits, spray Nimbisidin 2 litre per 800 litres of water after current spells of rain.
- Due to humid weather condition, there are chances of attack of stem borer or leaf roller in Maize in Central Plain Zone of Uttar Pradesh. Spray Phenitrothion 50 E.C. @ 500-700 ml in 700-800 litres of water per hectare or Quinolphos 25 E.C. @ 2 litres in 700-800 litres of water per hectare after current spells of rain.

- **Rajasthan:**

- Complete sowing of short duration varieties of soybean, maize in Southern Humid Plain Zone of Rajasthan, utilizing the realised and expected rainfall.
- Complete sowing of moong, urad, til, groundnut and arhar in South Eastern Humid Plain Zone utilizing the realised and expected rainfall.
- In West Rajasthan continue sowing of black gram, geen gram, cluster bean and sesame. Short duration improved varieties in cluster bean like RGC-936, black gram (RBU-38, T-9), green gram (SML-668, K851), Sesame (RT-46, RT-125) may be preferred. Intercropping of Groundnut cv. JL-24, Pratap munghali-2 with sesame at 6:2 row ratio is suggested, utilizing the realised and expected rainfall.
- Continue sowing of moong, moth, guar and til in Irrigated North Western Plain Zone & Arid Western Plain Zone of Rajasthan utilizing the realised and expected rainfall.
- Due to warm and humid climate, there are chances of white fly in cotton in Irrigated North Western Plain Zone of Rajasthan. To control spray Dryzophose @ 40 EC in 2,5 ml or Ectamipride @ 20 S.P in 0.4 mg per litre of water on a non rainy day.

- **Floriculture**

- Due to prevailing humid weather condition there are chances of attack of blue beetle in balsam, zenia, cleome and rose in Mid-Hills Sub-Humid Zone and Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh. For control, spray Cypermethrin @ 20 ml in 10 litres of water. In poly houses attack of thrips and mites is also expected. For control spray Rogor @ 20 ml in 10 litres of water for thrips and for beetle spray Diclofol @ 20 ml in 10 litres of water. To control thrips in tagets spray Rogor @ 20 ml in 10 litres of water, after current spells of rain.

- **Horticulture**

- Continue planting of mango, guava and lemon saplings in Bhabar and Tarai Zone of Uttarakhand, utilizing realised and expected rainfall.
- Undertake plantation of fruit plants like mango, litchi, guava, citrus, laquat and amla in Mid-Hills Sub-Humid Zone of Himachal Pradesh utilizing realized and expected rainfall.
- Due to prevailing humid weather condition, there are chances of attack of citrus canker in horticultural crops like peach, pear, plum, almonds, apricot and apple in Mid-Hills Sub-Humid Zone of Himachal Pradesh. Spray Malathion @ 10 ml or Metasystox @ 10 ml per 10 litres after current spells of rain. Keep the basins of the plants free from weeds and arrange for drainage.

- **Animal Husbandry:**

- Under prevailing humid weather condition, there are chances of attack of ticks and mites on animals in Mid-Hills Sub-Humid Zone of Himachal Pradesh. For control spray Butox @ 2.0 ml per litres of water. Clean the cowshed with phenyl and keep the animal sheds dry and clean with phenyl.
- Keep cattle indoors during heavy rainfall periods in Uttarakhand, Himachal Pradesh, Uttar Pradesh and East Rajasthan.

## WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



### Transplanting of Rice

### Sugarcane

### Rice Nursery

### Okra

- **Realised Rainfall:** Rainfall occurred in all districts of Konkan & Goa, all districts of Madhya Maharashtra except Sholapur, in Aurangabad district of Marathwada; all districts of Vidarbha; all districts of Gujarat State. Weather remained mainly dry over remaining parts of the region.
- **Weather Forecast:** Rain/thundershowers would occur at most places over Konkan & Goa and Madhya Maharashtra during the period. Rain/thundershowers would occur at most places over Saurashtra & Kutch during next 48 hours and over Gujarat region during next 24 hours and at many places thereafter. Rain/thundershowers would occur at many places over Vidarbha and at a few places over Marathwada during the period.
- **Weather Warning:** Heavy to very heavy rainfall would occur at isolated places over Konkan & Goa during the period and over Saurashtra and Gujarat region on 1<sup>st</sup> August. Heavy rainfall would occur at isolated places over Vidarbha and Madhya Maharashtra on 1<sup>st</sup> August and over Saurashtra and Gujarat region on 2<sup>nd</sup> August.
- **Weather Outlook:** Rain/thundershowers would occur at most places along west coast.
- **Advisories:**
  - **Maharashtra:**
    - As rain would occur at most/many places over Konkan & Goa, Madhya Maharashtra and Vidarbha during the period along with heavy to very heavy spells at isolated places over Konkan & Goa during the period and heavy rainfall at isolated places over Madhya Maharashtra and Vidarbha on 1<sup>st</sup> August, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
    - In Konkan, drain out excess water from rice, finger millet and vegetable fields and postpone fertilizer application. Complete transplanting of rice and finger millet in North Konkan. Maintain water level upto 2-3 cm in early transplanted rice.
    - In Madhya Maharashtra, complete transplanting of rice in Western parts of Kolhapur, Pune and Nasik districts. In north Madhya Maharashtra (Dhule, Nandurbar, Jalgaon and Ahmednagar), continue sowing of contingency *kharif* crops like bajra (hybrid varieties shraddha, shanti, saburi and improved varieties ICTP-8203 and ICMV-133), red gram (Vipula), bean (Varun) and sesame and undertake intercropping of pearl millet + red gram in 2:1, sunflower + red gram in 2:1, and guar + red gram in 2:1 ratios. In South Madhya Maharashtra, except in Solapur district, continue sowing of contingency crops like sesame, pearl millet, red gram, horse gram and moth bean and undertake intercropping of pearl millet+redgram in 2:1 and guar+red gram in 2:1 ratios.
    - In Marathwada, continue sowing of contingency *kharif* crops like red gram (BSMR-736, BSMR-853) and hybrid jowar (Parbhani Shweta, CSH-14,16 or PKV 09). Adopt intercropping systems like cotton + pigeon pea (6:1), bajra + pigeon pea (3:3), etc. for minimizing risk.
    - In west Vidarbha, continue sowing of short duration improved varieties of sunflower, red gram (PKV-Tara) after current spells of heavy rain. Intercropping of sunflower + red gram may be undertaken. In east Vidarbha, continue transplanting of rice. Drain out excess water from cotton and soybean fields.
    - Prevailing humid weather in Pune region is congenial for the incidence of Buck Eye Rot in premature tomato fruits; collect and destroy the infested fruits and spray Metalaxyl 8 % + Mancozeb 64 % @ 20 g per 10 litres of water with sticker after current spells of rain.
  - **Gujarat:**
    - As rain would occur at most/many places over Gujarat State during the period, along with heavy to very heavy rainfall at isolated places over Gujarat region and Saurashtra on 1<sup>st</sup> and isolated heavy rainfall on 2<sup>nd</sup> August, postpone irrigation, intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
    - In South and Middle Gujarat region, continue sowing of contingency crops like soybean (cv. GS-1,GS-2, JS-335), short duration varieties of Sunflower (cv. Modern and EC-68414 and Guj-1) and Sesame (cv. Guj. Tal 1,2, 10), blackgram (cv. T-9, Guj. Udid-1), green gram (cv. GM-4, K-851, Meha), cowpea (cv. Guj. Cowpea 1,2,4, Pusa Falguni). Also continue sowing of grain sorghum (cv. GJ-35, 36 and 37) and fodder sorghum (cv. S-1049, C-10-2, Gundari, GFS 4,5).
    - In Baroda and Panchmahal districts, continue drill sowing of rice cv.GR 5,8,9, Sathi 34-36, IR-28, ADR-1 and Sukhvel-20 as contingency crop.

- In North Gujarat Region, continue sowing of contingency crops like sesame (varieties like Guj.Tal-1,2,10), sunflower (Modern, EC 68414 and bajra (GHB- 538,732).
- In Saurashtra region, continue sowing of contingent crops like black gram (T-9, Guj. Udid-1), green gram (GM-4, K-851, Meha), pigeon pea (cv. BDN-2, ICPL-87, GT-100, GT-101, Vaishali), sesame (cv. Purva-1) and cotton (G. cot-13, 21, 23, V-797). For fodder purpose take sorghum cv. CSH-6 and CFS-4.
- Cloudy and humid weather conditions are favourable for outbreak of sucking pests in vegetables in South Gujarat Heavy Rainfall Zone. To control, spray Dimethoate (40%) or Methyl-o-Demonate (25%) @ 10 ml in 10 lit. of water after current spells of rain.
- **Animal Husbandry**
- In Gujarat, clean animal byres and spray neon insecticide 1 to 1.5 ml per litre of water for control of ecto parasites in animal house. Spray phenyl in the animal sheds to avoid flies, mosquitoes. Make arrangement for artificial light to birds to maintain egg production. Keep fodder in safe place to avoid spoilage due to rainfall.

**Districtwise realised rainfall and % departure for past three weeks is given below in Annexure I.**

**Annexure I**  
**Week by week Rainfall Distribution**

Sub-Divisions	16.07.14		23.07.14		30.07.14	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>						
Anjaw	**	**	**	**	**	**
Changlang	34.3	-68	76.0	-28	43.3	-54
Dibang Valley	**	**	**	**	**	**
East Kameng	5.9	-94	20.1	-76	1.4	-98
East Siang	23.0	-91	127.2	-39	41.2	-82
Kurung Kumey	**	**	**	**	**	**
Lohit	15.4	-89	91.5	-50	62.4	-59
Lower Dibang Valley	36.1	-19	130.3	133	83.8	43
Lower Subansari	**	**	**	**	**	**
Papumpara	250.8	95	173.8	17	217.5	114
Tawang	105.0	-50	142.0	1	119.0	-22
Tirap	109.6	-43	45.6	-77	25.4	-87
Upper Siang	128.6	-12	68.6	-49	105.8	-23
Upper Subansari	58.0	-1	79.6	95	43.8	26
West Kameng	64.0	-70	207.8	48	26.4	-83
West Siang	243.7	45	204.5	64	25.0	-82
<b>Assam&amp;Meghalaya</b>						
<b>Assam</b>						
Baksa	48.2	-67	26.4	-84	24.2	-83
Barpeta	109.5	-24	100.2	-38	67.1	-53
Bongaigaon	89.7	-46	155.0	-9	29.6	-79
Cachar	165.2	39	60.4	-53	190.5	61
Chirang	119.5	-29	185.9	9	65.4	-54
Darrang	56.0	-38	8.0	-88	21.0	-66
Dhemaji	59.0	-61	39.0	-66	21.0	-83
Dhubri	32.9	-76	53.7	-53	19.2	-87
Dibrugarh	89.0	-28	35.8	-71	58.4	-48
Goalpara	163.3	47	63.4	-38	9.3	-92
Golghat	75.8	-1	64.7	-14	198.7	209



Hailakandi	217.1	127	110.1	9	172.3	59
Jorhat	55.3	-39	102.2	20	133.7	70
Kamrup(Rural)	60.6	-26	6.2	-92	38.1	-38
Kamrup(Metro)	76.2	-7	12.3	-84	12.1	-80
Karbi Anglong	88.4	74	69.6	41	121.8	83
Karimganj	108.8	-30	56.7	-57	158.8	18
Kokrajhar	109.1	-25	155.9	-18	19.2	-87
Lakhimpur	156.0	3	146.7	28	79.4	-37
Morigaon	54.6	-41	16.8	-75	27.2	-69
N.C.Hills	108.6	73	41.9	-21	111.4	71
Nowgong	100.7	12	22.9	-70	70.3	-3
Nalbari	100.0	-16	54.5	-40	25.2	-74
Sonitpur	72.8	-23	74.4	-5	111.9	38
Sibsagar	76.2	-9	100.5	42	172.1	118
Tinsukia	44.8	-65	37.8	-67	27.6	-77
Udalgiri	48.6	-46	138.0	103	7.8	-87
<b>Meghalaya</b>						
East Garo Hills	25.3	-76	52.4	-51	14.7	-88
East Khasi Hills	153.8	-62	116.9	-63	52.4	-82
Jaintia Hills	**	**	**	**	**	**
Ribhoi	50.2	-37	4.1	-96	21.2	-78
South Garo Hills	34.0	-69	117.0	13	28.0	-75
West Garo Hills	40.6	-63	44.8	-57	25.2	-77
West Khasi Hills	**	**	**	**	**	**
<b>NMMT</b>						
<b>Mizoram</b>						
Aizwal	207.2	76	23.9	-75	158.2	52
Champhai	**	**	**	**	**	**
Kolasib	**	**	**	**	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	**	**	**	**	**	**
Mamit	**	**	**	**	**	**
Saiha	85.0	-14	76.0	-17	28.0	-75
Serchhip	33.0	-69	31.8	-68	63.3	-49
<b>Manipur</b>						
Bishnupur	**	**	**	**	**	**
Chandel	32.0	-78	80.0	-26	22.0	-83
Churachandpur	19.0	-81	12.0	-86	3.0	-97
Imphal east	12.3	-84	32.0	-53	3.5	-95
Imphal west	33.3	-41	163.9	208	138.9	185
Senapati	4.0	-95	1.0	-99	**	**
Tamenglong	**	**	**	**	**	**
Thoubal	**	**	**	**	**	**
Ukhrul	**	**	**	**	**	**
<b>Nagaland</b>						
Dimapur	55.5	-5	37.4	64	134.2	186
Kephire	**	**	**	**	**	**
Kohima	47.5	-41	117.0	42	108.3	20
Longleng	**	**	**	**	**	**

Mokokchung	21.0	-78	6.0	-94	**	**
Mon	**	**	**	**	**	**
Paren	**	**	**	**	**	**
Phek	5	-94	107	30	22	-76
Tuensang	**	**	**	**	**	**
Wokha	**	**	**	**	**	**
Zunheboto	**	**	**	**	**	**
<b>Tripura</b>						
Dhalai	84.5	6	20.0	-76	124.7	65
North tripura	132.0	31	27.2	-70	164.7	88
South tripura	28.7	-76	28.9	-74	61.0	-33
West tripura	33.0	-66	16.5	-82	49.5	-41
<b>Himachal Pradesh</b>						
Bilaspur	25.8	-59	54.1	-26	37.3	-56
Chamba	60.8	-55	31.9	-80	49.7	-68
Hamirpur	112.5	33	68.8	-31	89.7	-15
Kangra	196.1	42	51.3	-65	127.4	-20
Kinnaur	0.0	-100	23.4	14	2.1	-88
Kullu	17.6	-56	45.2	-17	61.8	42
Lahaul and Spiti	14.2	-62	9.9	-75	3.0	-93
Mandi	91.1	2	87.3	-16	139.2	19
Shimla	16.1	-70	109.3	77	102.7	89
Sirmaur	125.5	5	154.5	23	48.4	-62
Solan	55.7	-35	137.9	39	36.5	-55
Una	87.7	10	103.5	31	41.9	-41
<b>Punjab</b>						
Amritsar	0.0	-100	23.0	-56	17.4	-69
Barnala	0.0	-100	5.9	-79	1.0	-97
Bhatinda	0.0	-100	17.9	-42	28.4	19
Faridkot	0.0	-100	2.0	-94	77.5	312
Fatehgarh Saheb	0.0	-100	25.3	-34	15.7	-70
Ferozpur	0.0	-100	3.9	-88	15.2	-46
Gurdaspur	95.3	22	38.7	-54	56.3	-31
Hoshiarpur	44.6	-28	38.3	-43	54.5	-11
Jalandhar	1.8	-96	17.5	-66	34.7	-20
Kapurthala	0.0	-100	18.4	-59	43.8	22
Ludhiana	0.1	-99	22.7	-50	35.4	-19
Mansa	0.0	-100	0.0	-100	9.6	-62
Moga	0.0	-100	44.0	91	40.7	33
Muktesar	0.0	-100	8.8	-74	1.0	-95
Nawashahar	1.2	-99	80.6	30	78.8	20
Patiala	4.0	-94	32.2	-32	2.7	-94
Ropar	15.1	-80	34.3	-49	21.5	-71
Sangrur	0.4	-99	11.5	-66	8.3	-78
Mohali	2.0	-97	87.8	71	18.3	-69
TarnTaran	0.0	-100	17.1	-52	11.3	-68
<b>Haryana,Chd,Delhi</b>						
<b>Haryana</b>						
Ambala	12.6	-84	102.8	46	20.8	-70

Bhiwani	0.0	-100	20.0	-35	14.8	-54
Chandigarh	0.1	-99	74.8	41	13.1	-81
Faridabad	19.3	-68	115.8	152	17.8	-63
Fatehabad	0.0	-100	4.5	-81	1.2	-95
Gurgaon	2.6	-95	55.6	35	9.0	-76
Hissar	0.0	-100	7.5	-76	12.2	-60
Jhajar	1.0	-98	54.0	52	4.3	-88
Jind	10.5	-77	18.5	-38	7.7	-69
Katihah	1.2	-97	16.3	-49	3.0	-90
Karnal	0.3	-99	29.3	-15	8.7	-78
Kurukshetra	1.0	-98	32.0	-36	3.1	-92
Mahendragarh	0.0	-100	26.7	-36	12.5	-65
Mewat	0.5	-99	75.2	85	5.9	-84
Palwal	0.0	-100	24.3	-37	19.0	-49
Panchkkula	3.7	-95	79.7	1	5.8	-93
Panipat	0.4	-99	21.1	-44	3.4	-90
Rewari	0.0	-100	37.2	-18	15.2	-54
Rohtak	0.0	-100	12.0	-76	11.8	-72
Sirsa	0.0	-100	0.4	-99	9.5	-57
Sonepat	0.0	-100	33.9	-28	10.4	-78
Yamunanagar	12.4	-81	131.6	64	81.0	6
<b>Delhi</b>						
Central Delhi	3.0	-95	88.0	56	3.0	-94
East Delhi	10.0	-85	36.0	-36	12.0	-78
New Delhi	25.4	-62	60.1	6	2.7	-95
North Delhi	2.1	-97	31.3	-45	18.6	-65
North East Delhi	60.0	-9	45.0	-20	40.0	-25
North West Delhi	0.0	-100	19.7	-65	1.0	-98
South Delhi	7.2	-89	66.7	18	61.0	14
South West Delhi	7.5	-89	84.8	50	52.8	-1
West Delhi	0.0	-100	56.0	-1	1.0	-98
<b>Jammu &amp; Kashmir</b>						
Anantnag	4.6	-76	14.6	-30	10.3	-54
Badgam	5.1	-68	10.6	-7	2.9	-86
Bandipore	**	**	**	**	**	**
Baramula	11.2	-47	6.6	-67	11.0	-42
Doda	34.8	13	12.2	-67	20.5	-33
Ganderbal	1.2	-92	13.2	-2	18.1	15
Jammu	51.6	-37	39.7	-50	72.5	-24
Kargil	**	**	**	**	**	**
Kathua	73.8	4	38.2	-62	43.4	-61
Kistwar	**	**	**	**	**	**
Kulgam	3.7	-80	4.0	-81	17.9	-20
Kupwara	3.0	-72	12.2	-21	0.0	-100
Ladakh(Leh)	0.0	-100	1.5	-57	0.0	-100
Poonch	7.8	-90	12.4	-87	0.0	-100
Pulwama	13.0	-29	4.1	-75	3.9	-78
Rajouri	26.5	-50	27.5	-63	11.5	-82
Ramban	7.1	-77	9.6	-74	4.9	-84

Reasi	203.3	90	88.9	-30	45.3	-70
Samba	7.7	-91	35.9	-55	26.6	-72
Shopian	9.0	-51	6.0	-63	0.0	-100
Srinagar	6.6	-55	11.2	-17	4.7	-70
Udhampur	22.8	-79	28.4	-78	7.4	-95
<b>East Madhya Pradesh</b>						
Anuppur	93.6	-2	138.5	68	27.3	-67
Balaghat	83.3	-27	245.4	115	52.5	-53
Chhatarpur	49.0	-22	101.8	29	32.0	-58
Chindwara	50.7	-20	193.1	205	36.4	-39
Damoh	29.0	-64	100.7	19	17.5	-79
Dindori	92.2	-16	134.1	47	25.8	-70
Jabalpur	91.7	14	158.4	100	52.0	-36
Katni	28.6	-67	176.6	123	22.8	-71
Mandla	99.8	-2	194.9	105	45.0	-55
Narsingpur	99.6	27	194.4	143	24.8	-70
Panna	42.9	-44	91.4	-2	35.2	-56
Rewa	20.6	-71	128.3	79	5.6	-93
Sagar	67.2	-17	134.9	62	43.5	-42
Satna	27.8	-54	118.5	60	37.5	-53
Seoni	62.8	-27	222.5	191	39.6	-53
Shahdol	31.0	-59	64.0	-13	28.0	-56
Sidhi	20.2	-75	95.0	49	23.2	-72
Singrauli	1.0	-98	90.0	86	95.0	25
Tikamgarh	53.0	-10	173.5	129	17.0	-73
Umaria	72.3	-11	55.6	-34	7.4	-90
<b>West Madhya Pradesh</b>						
Alirajpur	46.3	-21	80.5	16	206.1	203
Asoknagar	87.5	49	109.8	16	40.8	-42
Badwani	65.9	53	68.9	44	145.2	216
Betul	110.3	77	335.0	417	151.2	102
Bhind	17.1	-67	37.3	-35	30.6	-43
Bhopal	57.5	-12	178.5	140	91.2	3
Burhanpur	95.3	101	300.0	520	160.9	160
Datia	45.2	-15	113.9	71	32.8	-44
Dewas	115.7	74	80.2	20	104.5	23
Dhar	60.5	2	77.7	28	135.7	89
Guna	46.4	-25	134.8	44	73.2	-10
Gwalior	49.0	-14	83.7	25	6.9	-89
Harda	88.5	18	88.2	12	200.2	126
Hosangabad	114.7	22	150.8	68	133.2	34
Indore	77.4	37	88.0	52	140.1	87
Jhabua	83.7	81	36.5	-40	163.9	177
Khandwa	154.0	168	239.3	301	159.0	123
Khargone	112.6	120	112.4	116	165.5	183
Mandsaur	26.9	-52	114.1	87	69.9	-16
Morena	4.8	-90	35.3	-47	37.0	-44
Neemuch	86.1	65	49.8	-12	111.3	32
Raisen	112.8	49	181.6	99	33.1	-64

Rajgarh	83.9	32	226.1	219	54.6	-30
Ratlam	49.7	-18	78.3	24	110.5	24
Sehore	135.8	81	144.0	76	126.4	34
Shajapur	84.4	45	107.9	65	60.5	-31
Sheopur Kalani	4.5	-94	97.5	50	48.5	-28
Shivpuri	36.3	-32	126.6	61	96.8	48
Ujjain	90.3	67	90.8	65	93.6	15
Vidisha	72.5	5	126.4	41	57.1	-35
<b>Chhattisgarh</b>						
Bastar	62.1	-17	195.7	128	87.1	3
Bijapur	181.2	110	260.8	135	68.2	-47
Bilaspur	88.2	9	125.8	54	28.9	-64
Dantewara	140.6	55	154.7	39	93.8	5
Dhamtari	37.0	-52	388.6	370	38.0	-55
Durg	122.7	94	278.3	285	33.6	-52
Janjgir	100.5	7	127.0	48	113.5	30
Jashpurnagar	48.3	-45	72.4	-27	29.7	-71
Kanker	119.4	48	393.8	333	53.9	-48
Korba	81.6	-15	142.5	63	123.1	42
Koriya	120.5	21	135.7	62	42.4	-49
Kawardha	231.2	258	125.8	103	36.9	-48
Mahasumund	89.8	27	372.3	404	33.7	-57
Narayanpur	138.4	66	245.5	122	101.0	9
Raigarh	116.9	39	160.9	88	83.7	10
Raipur	108.6	31	232.7	201	53.2	-31
Rajandgaon	145.9	84	255.9	226	45.8	-49
Surguja	30.6	-69	90.2	-2	24.4	-73
<b>East Uttar Pradesh</b>						
Allahabad	14.5	-79	101.9	67	28.1	-56
Ambedkar Nagar	12.0	-84	152.0	76	0.0	-100
Azamgarh	16.3	-80	89.3	-3	17.1	-73
Bahraich	44.7	-50	79.2	-14	54.8	-30
Ballia	7.6	-91	70.1	-5	34.3	-43
Balrampur	82.1	-29	44.8	-56	28.2	-69
Banda	5.8	-91	46.9	-17	44.7	-31
Barabanki	27.8	-68	68.2	-11	55.1	-22
Basti	7.5	-90	112.9	20	30.5	-57
Chandauli	97.2	8	56.0	-22	19.2	-71
Deoria	9.5	-89	33.0	-58	26.5	-61
Faizabad	1.5	-99	43.5	-53	22.5	-68
Farrukhabad	2.8	-96	42.7	-14	16.5	-72
Fatehpur	3.2	-96	83.7	60	15.6	-72
Gazipur	33.5	-51	73.2	15	11.8	-80
Gonda	2.6	-97	83.9	-8	18.2	-75
Gorakhpur	14.7	-84	25.0	-75	52.1	-39
Hardoi	7.2	-90	42.2	-30	43.8	-28
Jaunpur	12.6	-85	78.2	6	5.6	-91
Kannauj	0.0	-100	66.2	33	28.5	-54
Kanpur City	40.8	-21	86.8	51	36.1	-39

Kanpur Dehat	5.8	-90	58.7	-9	25.8	-61
Kaushambi	0.0	-100	70.6	36	12.5	-78
Kheri	86.0	15	77.2	16	26.7	-61
Kushi nagar	5.5	-95	7.5	-91	6.5	-92
Lucknow	25.5	-63	180.1	213	13.0	-79
Maharajganj	4.0	-96	19.5	-82	29.5	-69
Mau	0.0	-100	49.5	-47	38.0	-50
Mirzapur	2.3	-97	162.5	134	1.7	-97
Pratapgarh	13.3	-80	156.3	122	13.0	-80
RaiBareilly	1.2	-98	111.7	99	18.1	-68
Sahuji Maharajnagar	2.5	-96	56.5	-19	43.3	-20
Sant Kabirnagar	15.0	-85	42.0	-56	34.0	-55
Sant Ravidas Nagar	0.0	-100	238.0	231	0.0	-100
Shrawasti	163.9	85	111.6	21	122.4	57
Sidharthnagar	18.5	-81	39.5	-58	48.4	-43
Sitapur	17.1	-76	75.7	16	46.5	-32
Sonbhadra	14.8	-80	57.9	-11	58.1	-5
Sultanpur	3.3	-96	86.5	21	28.4	-55
Unnao	22.8	-66	108.5	75	6.4	-89
Varanasi	17.0	-81	219.6	185	6.2	-90
<b>West Uttar Pradesh</b>						
Agra	13.3	-77	40.9	-30	10.4	-81
Aligarh	1.3	-98	76.5	60	7.4	-87
Auraiya	23.5	-63	60.3	17	31.5	-45
Badaun	0.0	-100	56.0	11	46.6	-34
Baghpat	0.0	-100	54.9	41	9.3	-80
Bareilly	21.3	-72	121.8	100	31.9	-60
Bijnor	5.5	-93	262.2	224	67.3	-31
Bulandsahar	3.2	-94	60.4	20	7.4	-87
Etah	0.7	-99	52.0	15	39.4	-16
Etawah	13.9	-73	44.6	-18	8.3	-86
Firozabad	5.7	-90	21.1	-63	10.7	-74
GBNagar	0.0	-100	15.5	-65	0.0	-100
Ghaziabad	0.0	-100	25.1	-47	2.8	-95
Hamirpur	2.3	-96	65.8	0	26.3	-60
Jalaun	33.6	-39	20.6	-67	74.8	27
Jhansi	26.5	-55	90.7	47	15.3	-77
Jotiba Phule Nagar	8.0	-89	106.5	106	118.5	66
Kanshiramnagar	0.0	-100	57.5	14	83.0	50
Lalitpur	43.0	-32	159.0	88	7.0	-91
Mahamaya Nagar	15.5	-76	47.0	4	49.5	-9
Mahoba	8.4	-83	64.4	5	5.4	-91
Mainpuri	22.8	-60	31.4	-34	45.6	-11
Mathura	0.0	-100	32.3	-36	35.5	-26
Meerut	0.0	-100	82.0	37	23.7	-64
Moradabad	10.0	-85	211.9	244	24.3	-69
Muzzaffarnagar	0.0	-100	104.7	107	8.4	-87
Pilibhit	13.2	-82	102.2	48	24.9	-72
Rampur	6.9	-91	94.6	42	36.8	-61

Saharanpur	0.0	-100	76.0	43	22.3	-65
Shahjahanpur	67.5	-3	71.2	10	62.8	-13
<b>Uttarakhand</b>						
Almora	75.5	11	249.4	274	76.0	-3
Bageshwar	148.7	119	254.9	282	141.3	80
Chamoli	120.1	78	116.5	54	124.5	82
Champawat	67.5	-45	397.5	272	72.5	-32
Dehradun	194.1	23	132.4	-26	90.5	-46
Garhwal Pauri	90.8	-21	135.3	36	104.7	-10
Garhwal Tehri	104.9	17	148.7	69	73.0	-23
Haridwar	35.7	-55	193.0	203	21.7	-76
Nainital	114.7	-16	486.7	327	139.2	15
Pithorgarh	93.5	-18	218.6	71	103.4	-29
Rudraprayag	182.1	56	152.0	6	116.4	-26
Udham Sing Nagar	65.4	-42	226.6	198	16.7	-84
Uttarkashi	134.1	56	120.0	21	126.7	39
<b>Bihar</b>						
Araria	36.8	-67	63.6	-42	12.6	-87
Arwal	2.4	-97	25.5	-48	10.2	-82
Aurangabad	4.0	-95	79.1	18	6.9	-90
Banka	47.2	-39	105.0	88	70.2	30
Begusarai	0.0	-100	66.7	36	29.6	-53
Bhabua	30.0	-66	110.2	55	6.3	-91
Bhagalpur	26.2	-64	56.8	0	100.4	70
Bhojpur	4.2	-96	6.0	-92	0.0	-100
Buxar	23.8	-72	11.2	-83	1.0	-98
Darbhanga	24.4	-65	19.9	-65	47.1	-36
East Champaran	5.3	-93	43.6	-53	37.4	-56
Gaya	2.7	-97	64.7	1	7.4	-89
Gopalganj	9.7	-88	6.4	-90	12.8	-81
Jahanabad	2.3	-97	95.9	112	30.9	-42
Jamui	19.5	-77	66.2	8	69.9	15
Kathihar	10.7	-89	43.8	-36	77.9	8
Khagadia	41.2	-55	75.9	38	76.8	30
Kishanganj	83.5	-40	59.6	-57	27.2	-76
Lakhisarai	0.0	-100	50.0	-7	43.0	-37
Madhepura	4.5	-96	14.1	-81	118.2	60
Madhubani	1.0	-99	15.8	-81	35.0	-59
Monghyar	22.9	-72	90.1	67	36.9	-46
Muzaffarpur	3.5	-95	14.4	-81	42.1	-41
Nalanda	3.7	-95	54.1	-5	22.4	-67
Nawada	4.5	-94	21.8	-66	15.3	-73
Patna	15.8	-83	16.3	-76	3.4	-95
Purnea	21.5	-83	139.0	51	14.9	-81
Rohtas	1.7	-98	91.2	70	12.3	-82
Saharsha	0.0	-100	4.0	-96	24.0	-76
Samstipur	6.7	-93	47.4	-29	42.1	-40
Saran	5.3	-94	11.2	-82	3.1	-96
Sheikpura	19.6	-79	53.0	14	75.6	32

Sheohar	0.0	-100	23.6	-71	16.2	-85
Sitamarhi	3.5	-95	9.3	-89	57.4	-46
Siwan	6.3	-93	51.5	-24	13.6	-83
Supaul	7.5	-92	19.8	-76	52.7	-31
Vaishali	1.2	-99	32.6	-57	45.8	-50
West Champaran	53.2	-49	110.3	21	63.9	-49
<b>Jharkhand</b>						
Bokaro	43.2	-36	96.4	17	29.4	-59
Chatra	2.3	-97	45.0	-44	31.1	-54
Deoghar	33.1	-53	166.3	126	22.8	-63
Dhanbad	40.0	-41	67.7	-16	19.6	-76
Dumka	16.9	-80	39.7	-48	57.4	-17
East Singbhum	83.1	22	61.5	-13	46.7	-28
Garhwa	9.5	-86	60.8	-16	7.3	-91
Giridih	27.7	-62	62.6	-30	46.8	-42
Godda	9.8	-88	48.9	-22	61.5	-1
Gumla	52.3	-35	164.3	95	77.3	-11
Hazaribagh	25.1	-66	64.0	-21	31.9	-56
Jamtara	26.1	-65	44.1	-45	49.3	-33
Khunti	47.0	-42	164.5	101	2.0	-98
Koderrna	34.5	-46	72.2	2	37.3	-19
Latehar	4.6	-94	97.9	9	32.9	-63
Lohardagga	14.3	-78	87.4	3	27.9	-63
Pakur	35.4	-67	92.9	12	27.5	-64
Palamau	7.7	-90	106.7	38	5.3	-93
Ramgarh	63.8	-4	23.2	-75	25.4	-65
Ranchi	22.3	-74	49.5	-46	35.9	-51
Sahebganj	58.2	-42	106.0	31	63.8	-21
Saraikela	43.0	-35	104.0	25	34.1	-54
Simdega	63.6	-39	139.3	22	34.3	-68
West Singbhum	83.2	23	160.0	125	80.2	14
<b>East Rajasthan</b>						
Ajmer	42.3	-7	46.1	-5	58.3	48
Alwar	3.9	-92	28.7	-48	38.4	-18
Banswara	56.0	-9	63.9	10	95.4	22
Baran	48.5	-20	195.9	121	71.4	-3
Bharatpur	2.1	-96	57.4	19	42.9	-6
Bhilwara	54.1	5	33.2	-39	101.1	100
Bundi	21.9	-61	56.2	-19	49.2	-28
Chittorgarh	56.3	1	55.9	-3	158.4	125
Dausa	4.8	-93	60.6	-15	30.4	-42
Dholpur	0.0	-100	51.0	-2	19.7	-62
Dungarpur	78.8	52	72.5	67	74.7	31
Jaipur	13.6	-75	64.8	-1	42.5	-11
Jhalawar	48.1	-9	122.3	60	64.5	-14
Jhunjhunu	1.8	-95	57.3	12	62.1	114
Karauli	8.6	-84	69.2	2	61.3	5
Kota	47.4	-16	95.6	23	113.1	51
Pratapgarh	44.2	-21	85.0	42	101.0	37



Rajsamand	62.0	38	34.6	-14	70.9	61
Sawai Madhopur	13.4	-77	79.1	5	48.7	-25
Sikar	6.1	-84	83.3	45	86.3	156
Sirohi	35.2	-47	23.6	-69	198.5	114
Tonk	15.6	-72	69.4	6	89.1	72
Udaipur	62.2	28	79.2	75	126.7	152
<b>West Rajasthan</b>						
Barmer	0.4	-98	52.4	165	11.3	-47
Bikaner	0.4	-98	14.3	-48	49.5	169
Churu	2.2	-93	73.9	90	79.0	204
Hanumangarh	0.0	-100	28.9	1	36.2	68
Jaisalmer	0.0	-100	8.8	-41	15.7	17
Jalore	5.3	-85	56.5	75	37.4	-19
Jodhpur	5.2	-80	33.4	17	40.9	56
Nagaur	11.6	-67	71.4	33	64.2	160
Pali	40.8	4	38.8	-12	86.7	99
Sri Ganganagar	0.0	-100	16.2	-32	50.4	219
<b>Gujarat Region</b>						
Ahmedabad	18.8	-62	81.8	68	229.5	380
Anand	27.8	-54	135.6	107	311.4	357
Banaskantha	16.8	-67	47.0	8	67.3	15
Baroda	36.7	-49	85.4	7	166.3	110
Broach	24.9	-57	83.1	36	178.6	162
DNH	204.1	5	318.0	56	580.4	191
Dahod	30.4	-45	51.1	-16	105.1	33
Daman	378.2	94	235.0	15	439.0	120
Dangs	2.5	-98	163.0	4	311.5	46
Gandhinagar	7.3	-88	64.6	-2	218.2	245
Kheda	10.3	-85	58.6	-5	207.0	180
Mehsana	15.1	-75	75.4	46	145.2	173
Narmada	45.2	-51	73.4	-13	168.8	71
Navsari	87.5	-47	147.2	-5	314.7	86
Panchmahal	27.2	-63	78.3	23	158.6	83
Patan	13.1	-73	36.9	-14	68.3	36
Sabarkantha	47.3	-28	148.6	144	105.0	43
Surat	16.9	-85	101.9	-7	199.7	84
Tapi	4.0	-97	114.8	2	213.2	34
Valsad	181.2	-2	244.7	44	546.3	221
<b>S K &amp; Diu region</b>						
Amreli	59.5	40	50.5	9	59.7	51
Bhavnagar	28.7	-24	59.2	49	114.3	170
Diu	60.8	3	154.9	142	35.8	-33
Jamnagar	27.4	-37	70.0	23	65.3	67
Junagarh	84.4	29	78.5	-12	81.2	34
Kutch	0.9	-98	18.7	-52	76.4	123
Porbandar	99.6	64	41.6	-49	86.6	99
Rajkot	31.7	-36	57.5	5	75.9	52
Surendranagar	33.2	-1	53.7	15	111.5	199
<b>Maharashtra &amp; Goa</b>						

<b>Konkan &amp; Goa</b>						
Mumbai City	691.3	335	83.4	-54	145.3	-9
Mumbai Suburban	522.6	229	135.4	-26	349.7	119
North Goa	522.0	111	272.5	-4	179.1	-34
Raigad	449.6	82	313.9	16	379.8	37
Ratnagiri	565.3	130	330.2	20	292.4	5
Sindhudurg	646.5	191	249.5	-4	174.1	-33
South Goa	517.3	131	183.0	-26	142.4	-39
Thane	265.5	12	245.1	17	519.7	154
<b>Madhya Maharashtra</b>						
Ahmednagar	6.9	-69	12.5	-45	43.8	77
Dhule	33.2	-16	71.5	87	121.2	210
Jalgaon	52.6	22	83.4	96	99.4	108
Kolhapur	181.1	18	280.7	61	192.9	25
Nandurbar	21.0	-70	77.5	12	168.4	134
Nasik	23.1	-69	127.7	83	183.1	140
Pune	34.5	-51	139.5	107	146.1	106
Sangli	27.7	-13	74.9	109	64.4	95
Satara	47.3	-15	130.1	114	94.5	68
Solapur	11.3	-46	6.2	-72	12.2	-57
<b>Marathwada</b>						
Aurangabad	37.3	13	35.2	0	41.1	-7
Beed	9.6	-64	6.7	-78	17.7	-55
Hingoli	23.1	-57	29.6	-43	21.2	-66
Jalna	30.0	-14	23.9	-34	20.4	-56
Latur	24.9	-37	7.9	-83	17.1	-75
Nanded	24.9	-49	16.5	-71	22.8	-66
Usmanabad	32.7	21	3.9	-89	14.1	-69
Parbhani	20.4	-50	11.1	-76	14.5	-76
<b>Vidarbha</b>						
Akola	33.4	-38	154.8	153	55.3	14
Amraoti	63.3	4	193.0	225	99.4	66
Bhandara	85.2	-5	295.8	277	59.5	-32
Buldhana	34.2	-19	77.6	69	40.3	-10
Chandrapur	94.2	6	142.7	83	43.4	-50
Gadchiroli	128.7	20	213.4	100	39.6	-63
Gondia	123.0	29	345.9	271	42.9	-55
Nagpur	126.4	73	225.9	229	39.2	-41
Wardha	112.7	64	193.2	229	57.8	-10
Washim	25.6	-57	99.6	68	34.8	-29
Yeotmal	43.0	-34	101.3	60	43.1	-27
<b>Odisha</b>						
Angul	114.8	53	205.6	131	75.2	16
Balasore	100.5	96	192.6	118	87.2	21
Bargarh	160.9	103	244.8	193	121.8	37
Bhadrak	102.3	63	137.0	104	41.5	-27
Bolangir	112.1	22	205.7	123	104.4	26
Boudh	154.5	127	178.0	123	124.3	79
Cuttack	130.7	89	202.8	159	94.2	9

Deogarh	104.2	20	175.0	76	80.4	-15
Dhenkanal	124.3	90	197.3	112	64.6	-10
Gajapati	118.8	118	115.4	61	65.3	4
Ganjam	47.5	-6	161.8	206	60.5	4
Jagatsingpur	117.5	83	210.4	171	46.7	-39
Jajpur	78.8	22	173.5	145	31.5	-55
Jharsuguda	112.4	21	160.4	61	39.4	-49
Kalahandi	85.4	8	259.4	172	167.0	108
Kandhamal	130.3	92	270.3	239	64.7	-7
Kendrapara	67.3	16	192.0	212	32.7	-39
Keonjhar	62.8	4	250.9	238	43.9	-33
Khurda	69.2	-1	162.1	98	47.9	-35
Koraput	190.6	122	95.0	1	278.3	209
Malkangiri	279.4	225	96.6	-27	115.8	12
Mayurbhanj	85.5	19	145.4	46	87.7	30
Nawapara	75.5	3	317.4	295	63.5	-9
Nawarangpur	139.9	93	290.1	123	102.7	14
Nayagarh	85.4	27	178.7	115	59.7	-17
Puri	96.4	84	191.4	229	92.0	25
Rayagada	110.3	60	244.6	164	90.6	14
Sambalpur	92.2	6	168.2	69	75.4	-20
Sonepur	153.6	106	261.5	192	160.4	87
Sundargarh	79.6	-11	231.1	166	35.0	-58
<b>West Bengal &amp; Andaman Nicobar Islands</b>						
<b>A &amp; N ISLAND</b>						
Nicobar	47.3	-26	4.3	-94	28.2	-60
North & Middle Andaman	268.2	149	27.5	-73	170.0	54
South Andaman	168.5	79	88.6	-14	115.5	17
<b>GWB</b>						
Bankura	70.2	6	67.5	-1	43.4	-36
Birbhum	32.5	-63	92.9	33	56.3	-10
Burdwan	38.0	-47	35.0	-53	62.1	3
East Midnapore	100.0	102	95.7	44	35.2	-44
Hooghly	52.6	-21	44.2	-43	51.7	-25
Howrah	31.5	-54	45.7	-48	43.1	-38
Kolkata	40.5	-48	26.4	-69	32.2	-61
Murshidabad	24.0	-70	16.2	-77	44.7	-34
Nadia	43.5	-35	52.3	-23	18.2	-65
24 Pargana (N)	28.3	-62	71.1	-7	79.2	17
Purulia	58.7	-13	64.1	-8	64.6	12
24 Pargana (S)	70.0	-28	98.3	-9	59.7	-43
West Midnapore	53.5	-22	32.4	-58	51.9	-39
<b>SHWB &amp; Sikkim</b>						
Cooch Behar	35.7	-84	59.8	-66	51.3	-67
Darjeeling	117.0	-32	91.8	-51	110.4	-38
East Sikkim	121.3	4	107.1	-7	103.3	-18
Jalpaiguri	79.6	-61	73.0	-66	58.9	-66
Malda	23.6	-69	42.9	-37	22.1	-70

North Dinajpur			68.4	-6	45.3	-41
North Sikkim	112.7	22	101.2	-9	115.4	1
South Dinajpur	86.8	-4	46.9	-36	38.1	-54
South Sikkim	86.0	-26	104.2	-9	98.7	-22
West Sikkim	50.0	-46	73.0	-35	54.0	-53
<b>Karnataka</b>						
<b>Coastal Karnataka</b>						
Dakshin Kannada	470.0	76	268.0	-9	211.0	-22
Udupi	450.2	54	356.1	5	170.9	-43
Uttar Kannada	383.2	69	278.1	3	248.0	16
<b>N I Karnataka</b>						
Bagalkote	12.2	-22	12.1	-28	10.4	-51
Belgaum	51.6	12	89.8	86	67.4	67
Bidar	33.5	-8	5.8	-88	17.3	-66
Bijapur	6.6	-63	8.6	-54	13.8	-54
Dharwad	25.2	-31	51.9	57	51.8	70
Gadag	20.8	22	18.8	24	22.6	22
Gulbarga	18.6	-36	3.2	-92	25.1	-44
Haveri	45.7	15	68.1	68	80.8	153
Koppal	31.6	107	5.9	-69	5.8	-77
Raichur	11.2	-50	3.4	-86	9.4	-73
Yadgir	12.1	-58	3.0	-92	23.8	-50
<b>S I Karnataka</b>						
Bangalore Rural	31.5	57	1.7	-93	14.4	-42
Bangalore Urban	28.2	47	4.0	-84	13.1	-44
Bellary	40.1	136	14.0	-15	19.5	-19
Chamarajnagar	17.9	47	3.4	-80	4.6	-70
Chichballapur	5.8	-71	6.5	-69	11.8	-51
Chickmagalur	205.5	41	289.8	98	159.7	22
Chitradurga	26.0	118	20.9	61	31.4	104
Davangere	26.0	17	33.0	27	48.2	93
Hassan	63.3	43	79.0	72	44.6	6
Kodagu	376.3	99	307.6	61	193.6	10
Kolar	13.0	-24	1.7	-91	11.3	-45
Mandya	4.5	-56	4.2	-66	5.4	-57
Mysore	38.2	101	15.5	-26	21.5	13
Ramnagara	3.1	-80	1.9	-92	9.1	-58
Shimoga	282.6	107	370.9	147	261.5	120
Tumkur	9.8	-37	3.1	-82	8.4	-54
<b>Kerala</b>						
Alappuzha	143.2	18	79.7	-32	58.6	-41
Kannur	414.7	78	233.2	1	206.3	-1
Ernakulam	287.5	86	148.1	1	114.9	-15
Idukki	411.3	147	214.5	33	177.6	-1
Kasaragod	380.6	46	101.3	-61	110.4	-51
Kollam	116.3	34	66.8	-21	37.6	-55
Kottayam	184.9	34	130.3	2	94.0	-14
Kozhikode	440.4	103	300.8	46	242.7	20
Malappuram	265.3	51	288.5	68	182.2	11

Palakkad	211.6	61	172.1	35	155.5	22
Pathanamthitta	158.5	25	85.5	-25	69.5	-34
Thiruvananthapuram	50.8	4	22.3	-55	20.0	-55
Thrissur	216.5	25	129.9	-21	117.9	-25
Wayanad	410.4	78	329.4	42	204.8	-13
<b>Tamil Nadu</b>						
Ariyalur	0.0	-100	0.0	-100	0.0	-100
Chennai	18.2	-37	10.1	-49	11.8	-61
Coimbatore	90.7	854	61.9	544	51.7	335
Cuddalore	2.2	-85	0.0	-100	12.2	-45
Dharmapuri	0.0	-100	0.6	-97	0.9	-96
Dindigul	2.2	-81	0.7	-95	1.5	-89
Erode	4.0	-55	0.0	-100	0.5	-95
Kanchipuram	14.0	-49	1.6	-94	3.5	-87
Kanyakumari	20.4	-10	3.1	-87	2.0	-90
Karikal	0.0	-100	0.0	-100	0.0	-100
Karur	0.0	-100	0.0	-100	0.0	-100
Krishnagiri	10.4	-36	1.1	-94	6.6	-67
Madurai	1.1	-93	0.0	-100	0.1	-99
Nagapattinam	0.0	-100	0.0	-100	9.1	-48
Namakkal	0.0	-100	0.0	-100	1.1	-94
Nilgiris	121.7	129	83.6	46	68.5	22
Perambalur	0.0	-100	0.0	-100	0.0	-100
Puducherry	10.3	-11	1.8	-93	31.8	1
Pudukottai	1.9	-92	2.7	-83	1.5	-92
Ramanathapuram	0.0	-100	0.1	-99	0.1	-99
Salem	4.4	-79	4.1	-82	1.6	-93
Sivaganga	0.0	-100	0.0	-100	4.3	-80
Thanjavur	1.3	-91	0.0	-100	0.1	-99
Theni	38.8	582	10.9	24	10.0	25
Tirunelveli	8.6	15	2.0	-77	1.9	-78
Tirupur	1.9	-69	0.0	-100	0.2	-96
Tiruvallur	28.9	10	2.4	-90	5.6	-79
Tiruvannamalai	16.1	-24	0.0	-100	3.8	-84
Tiruvarur	0.4	-97	0.0	-100	0.0	-100
Toothukudi	0.1	-96	0.0	-100	0.0	-100
Trichy	0.0	-99	0.0	-100	0.0	-100
Vellore	15.8	-27	0.1	-99	2.1	-92
Villupuram	9.2	-38	1.8	-92	7.5	-72
Virudhunagar	0.3	-96	0.0	-100	0.0	-100
<b>Andhra Pradesh</b>						
<b>Coastal Andhra Pradesh</b>						
East Godavari	43.6	-1	18.3	-62	50.3	7
Guntur	6.3	-76	3.6	-90	74.9	101
Krishna	16.1	-60	3.7	-93	92.0	67
Nellore	15.1	-19	2.9	-87	17.4	-24
Prakasam	7.0	-58	3.2	-88	31.2	23
Sirkakulam	108.1	139	68.6	49	57.1	31
Visakhapatnam	51.0	42	27.8	-42	35.0	-17

Vizianagram	55.7	53	67.2	44	25.1	-36
West Godavari	46.6	-10	6.1	-89	159.5	183
<b>Royalaseema</b>						
Anantapur	18.5	35	2.0	-87	6.8	-63
Chittoor	15.1	-34	0.6	-98	2.8	-88
Cuddapah	21.3	9	1.1	-96	7.1	-74
Kurnool	45.6	97	6.4	-74	20.4	-41
<b>Telangana</b>						
Adilabad	28.1	-59	41.3	-47	47.3	-40
Hyderabad	8.8	-73	11.5	-76	26.7	-44
Karimnagar	24.3	-56	27.4	-53	69.3	10
Khammam	80.3	43	22.1	-68	110.5	50
Mehabubnagar	45.6	56	3.8	-90	30.6	-33
Medak	19.7	-58	15.0	-73	30.5	-51
Nalgonda	7.9	-71	1.9	-96	29.4	-25
Nizamabad	18.5	-67	16.5	-76	62.8	-18
Rangareddy	18.9	-49	4.5	-90	20.9	-60
Warangal	42.2	-23	22.9	-66	69.9	7

#### 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 II List of varieties

#### Andhra Pradesh:

**Castor:** PCH-111, PCH-222, Kranti, GCH-4, Haritha

**Irrigated groundnut:** Kadiri-6, Kadiri-9, Narayani and dharani

**Red gram:** black soils LRG-41, ICPL-85063 and for red soils PRG-158, PRG-100.

#### Tamil Nadu:

**Kuruvai rice :** ADT 36, ADT 43, ADT 45 and ADT 47

**Samba rice :** CR 1009/Savithri/Ponmani and ADT 50

#### Karnataka:

**Redgram :** TTB -7, BRG -01, BRG- 02, HYD -3C, BSMR 736, TS-3R

**Medium to Long Duration Varieties of redgram:** PT-221, GS-1, ICP-8863 (Maruti), ICPL-87119 (Asha) WRP-1, **Short Duration Varieties of redgram:** ICPL-87(Pragati), Selection-31(irrigated areas ), GCS-11-39

**Ragi:** GPU- 28,MR -01, 02 and 06, KMR-301

**Green gram :** Selection – 4, BGS-9, China mung, Pusa bisaki

**Black gram :** TAU – 1, DU – 1

**Soybean :** JS – 335

**Jowar :** DSV – 2, CSV-15, DSV-3, and DSV-6

**Maize:** Hybrid – DMH-2 and Arjun

#### **Groundnut:**

Bunch type – GPBD-4, JL-24 and TMV-2

Spreading type – DSG-1 and JSP-39

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

**Irrigated green gram:** VBN 2, VBN 3 and CO (Gg) 7

**Assam:**

**Sali rice:** Ranjit, Bahadur, Vasundhara, Kushal, Piyoli, Moniram, Rangali, Bhogali, Ketkijah

**Long duration varieties:** Pankaj, Mashuri, Manohar Sali and other tall varieties.

**Short duration varieties :** Vivek Dhan 82

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

**Pigeon pea :** T-21

**Seasame :** SP1181, GOURI, VINAYAK

**Meghalaya:**

**Red gram :** UPAS-120, ICPL 87 (short duration), WB 20, Pusa 9 & Sarita (long duration)

**Odisha**

**Rice:** Heera, ZHU-11-26, Pathara, Vandana, Khandagiri and Parijat

**Ragi:** Dibyasingh, Godavari, Subhra, Vairabi, Neelachala, Chilika

**Maize:** Navjot, Sakti-1, Decan-103, Ganga-5, Kargil

**Groundnut:** Smruti, TAG-26, TAG-24, ICGS-11, JL-24

**Sesame:** Kanak, Kalika, Uma, Usha, Tilotama, Nilima, Prachi

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

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

**Cowpea:** SEB-2, Pusa Barsati Niger: Deomali, Niger-1 and for Okra: Utkal Gourav.

**West Bengal**

**Aman rice:** BCC-17, BCC-33, BCC-02, BCC-01, BCC-09

**Banana :** Mortoman, Chapa, Kathali, Singapuri

**Tomato:** Avinash-2, 448

**Bihar**

**Kharif Maize:** Shaktiman 1, 2. Pusa agat sankar makka-3and ganga, hybrid: Shaktiman-1, Shaktiman-2, Pusa early hybrid maize-3, Ganga-11, and composite: Suawan and Devki.

**Rice:**short duration rice:Turanta, Prabhat, Richhariya, Saroj, Dhanlakshmi, Saketwork. Scented rice var. Sugandha, Kamini, Rajendra suwasini, Rajendra kasturi and Rajendra bhagwati

**Kharif finger millet:** GPU 45, 67, 28 and RAU 8

**Pigeon Pea:**arhar: Bahar, Pusa 9, Narendra Arhar 1

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

**Jharkhand:**

**Rice:** short duration: Birsa Dhan - 108, Birsa Vikas Dhan 109 & 110, Vandana etc.

**Maize:** short duration: Birsa maize-1, Birsa Vikas maize-2 etc

**Pigeon Pea:** Birsa Arhar-1, Narendra Arhar-1, Bahar, ICPH-2671

**Groundnut:** short duration: A.K.-12-24, Birsa Bol

**Urd:**T 9, Pant U 19, 30, 35 and Birsa urd 1

**Moong:** Pusa Vishal, S M L 668, K 885, P S 16, Pant Moong 2 and P D M 11.

**Arhar:**Birsa Arhar (210 days), Bahar (240 Days) and ICPH 2671 (210 days),

**Soybean:**Birsa soybean 1, Birsa safed soybean 2;

**Madhya Pradesh**

**Rice:** Short duration-JR-201, JRH -4, JRH-5, JRH -8

Medium- IR-36, IR-64, Pusa sugandha-5, MTU-1001, MTU-1010, MTU-81, Mahamaya

Late-Mahsuri, Safari-17, Syamla, Swarna

**Maize:** Short duration-JVM- 421, JM-12, JM-13, JM- 216, JS-20-29, JS-20-34.

Medium- Navjot, Arun, H-216, JM-13, Sartaj, Daccan 107

Late-Ganga-11, Prabhat, Trisulta, Daccan 103, Daccan 105

**Soybean:** Short duration-JS 95-60 (85 days), JS- 93-05(95 days), JS-97-52, JS-335,JS-20-29, JS-20-34

Medium-JS 335 (105 days), NRC 37( 110 days)

**Black gram:** JU 86, JU- 3, T- 9

**Jowar:** Jawahar- 741, Jawahar -938, Jawahar- 1022

**Arhar:** Early: TJT-501, JKM-189,

Medium : ICPL-87-119, ICPL88039

**Chhattisgarh**

Rice - MTU 1010, Mahamaya, IR 36, IR 64

Maize - Pusa early, Navjot 3, Chandana 3

Ragi - JPU 28, JPU 45, JK 155

### **Uttar Pradesh**

**Urd:** Uttara, Narendra urd-1, Pant Urd-30, Type-27,66, Shekhar-1,2,3, Azad-1,2,3, WBU-108

**Moong:** Pant-1,3,4, Samrat, Narendra Moong-1, Malaveey- Jyoti,-Janchetana, Janpriya, Jagruti, Jankalyani, Samrat, Asha, Neha, Shweta, MH-215, IPM-23

**Groundnut:** TG-37A, Kaushal, Amber

**Jowar:** Bundela, CSV-13, 15,17; CSH-14, 16, 18, 23

**Bajra:** WCC-75, Raj-171, ICMB-155, Pusa-322, 23, ICMH-451

**Maize:** Azad Uttam, Shweta

**Arhar:** Upas-120, Narendra-1A, Bahar

**Soybean:**PK-472, JS-335, MAUS-47, NRC-37

**Lobia:** UPC-4200

### **Jammu & Kashmir:**

Mash : Pant U-19, Uttra, T-9)

Moong : ML-131,PDM-54,SML-668, PS-16.

Maize : Vivek-25,Vivek QPM-9 HM-5 and HQPM-1

### **Maharashtra**

**Kharif jowar:-** Hybrid- CSH5, CSH 9, CSH13, CSH14, CSH16, CSH17, CSH18, CSH2, Improved- SPV 462, CSV 13, CSV15, CSV17, PKV 801 for Pune region and CSH14, CSH16, CSH25 for Marathwada.

**Kharif bajra:-** Hybrid variety Shraddha (RHRBH 8609), Saburi (RHRBH 8924), Phule Shanti (RHRBH 9808) and Improved variety – ICTP 8203, ICMV – 155 for Pune region and GHB558, Shraddha, Saburi, Pratibha for Marathwada.

**Kharif groundnut** – SD 11, Phule Pragati, Phule Vyas, Phule Unnati, TPG 41, TG 26.

Red Gram – ICPL 87, Vipula, BSMR-853, BSMR-736, AKT8811, Amol for Madhya Maharashtra, ICPL-87119 (Asha), C-11 for Central Vidarbha and BSMR 736, BSMR 853, BDN 711 (for rain shadow area) for Marathwada.

**Sunflower** – EC-68414, SS-56 and Bhanu.

**Soyabean** – JS-335, Phule Kalyani (DS-228) for North Madhya Maharashtra, MAUS 71, JS-335 for Marathwada.

**Kharif Rice** – PKVHMT, PKV Khamang, PKV Makarand, PKV Ganesh, PKV Kisan, Sindewahi 2001, Sindewahi 1 for East Vidarbha.

**Kharif Cotton:** – Improved variety – AKA-5, AKA-7, AKA-8, American improved variety – AKH-081, PKV-Rajat, AKH-8828 and PKV DH-1 (hybrid) for Central Vidarbha Zone.

**Green Gram:** - Jalgaon 781, S8, Phule M2 for Western Maharashtra Scarcity Zone, BM-2002-1, BM 2003-2, AKM-4 and Green Gold for Marathwada.

### **Gujarat**

**Paddy:** GR-3, GR-4, IR – 28, Gurjary.

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

**Kharif groundnut:** GG-20, GG-11,13, GG-7, GAUG-10, Semi spreading- GG-2, GG-5, TAG-24, TG-37 A, TPG-41, TLG-45, TG-26.

**Cotton:** GCH-4,6, GCH-8, Agritop-444, Solar-76, Beejdhan-2, Ajit-155, Mallika, RCH-II, Vikram-5, Sankar-4,6,8,10.

**Green gram:** GM-3, GM-4, K-851.

**Black gram:** T-9, GU-1.

**Cowpea:** Gujarat cowpea-1,2,4, pusa falguni.

**Pigeon pea:** BDN-2, GT-100, GTH-1.

**Sesame:** GT-1, GT-2 or GT-3 variety.

**Soybean:** Gujarat soyabean-1, 2, 3.

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

**Maize:** Ganga safed-2, Ganga-5, African tall.

**Okra:** Gujarat Bhinda -2, Gujarat hybrid bhinda-1, Parbhani kranti

**Brijal:** PLR-1, PUSA hybrid-5,6 ,GBH-1,2.

**Tomato:** PUSA rubi, Gujarat Tameti-1,2, Hybrid-2,4, Pusa hybrid-2,4.