



# *National Agromet Advisory Service Bulletin*



*Friday 28<sup>th</sup> August 2015*

*(For the period 28<sup>th</sup> August to 1<sup>st</sup> September 2015)*



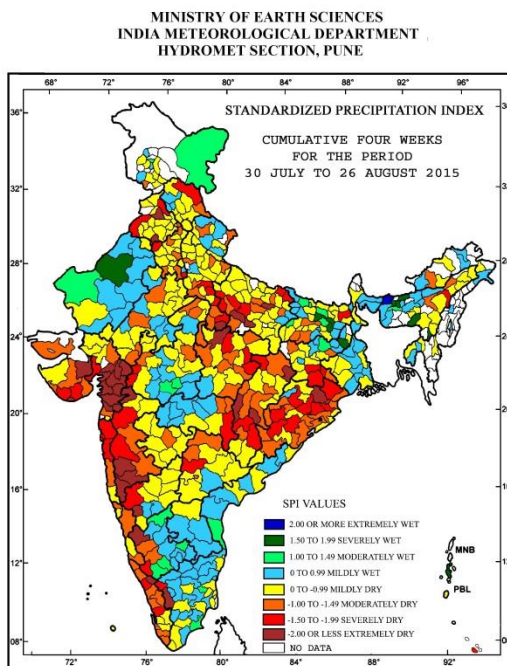
*Issued by*

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

## Monsoon Watch

- The southwest monsoon was active over Odisha, Chhattisgarh, North Interior Karnataka, South Interior Karnataka and Nagaland, Manipur, Mizoram & Tripura during past 24 hours ending at 0830 hours IST of yesterday.

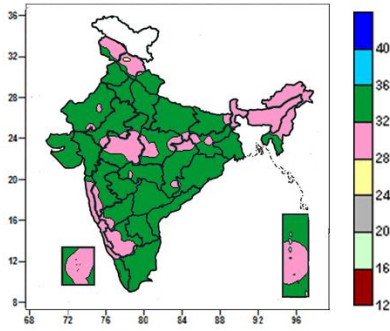
## Standardised Precipitation Index Four Weekly for the Period 30<sup>th</sup> July to 26<sup>th</sup> August 2015



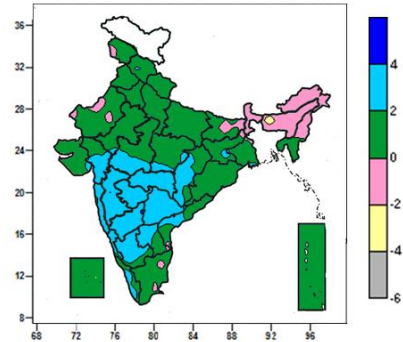
- Extremely/severely wet conditions experienced in few districts of Assam; East Khasi Hills, districts of Meghalaya; Dumka districts of Jharkhand; Khagaria, Monghyr, Samastipur, districts of Bihar; Bikaner district of Rajasthan.
- Extremely/Severely dry conditions experienced in many districts of Gujarat; few districts of Odisha; Maharashtra; Chhattisgarh; Golaghat district of Assam; West Singbhum, Seraikela-Khar, Khunti districts of Jharkhand; Purnea district of Bihar; Ambedkar Nagar, Fatehpur, Kannauj, Kanpur Dehat, Kaushambi, Kushi Nagar, Maharajganj, Rae bareli, Unnao, Auraiya, Etah, Hamirpur, Mainpuri, Mahoba districts of Uttar Pradesh; Ferozepur, Hoshiarpur, Jalandhar, Mansa districts of Punjab; Lahaul & Spiti district of Himachal Pradesh; Fatehabad and Palwal districts of Haryana; Jhabua, Alirajpur, Chhatarpur, Panna, Shahdol, Anuppur districts of Madhya Pradesh; Coimbatore and Nilgiri districts of Tamil Nadu; Medak district of Telangana; Belgam, Dharwad, Kodagu, Shimoga districts of Karnataka; Ernakulam, Kozhikode and Wayanad districts of Kerala.
- Moderately dry conditions experienced in few districts of Haryana; Odisha; Uttar Pradesh; Saurashtra, Kutch & Diu; Konkan & Goa; Chhattisgarh; East Kameng district of Arunachal Pradesh; Lakhimpur, Nagaon districts of Assam; Dhanbad, Palamu, East Singbhum districts of Jharkhand; Aurangabad, Gaya, Patna districts of Bihar; Pithoragarh and Garhwal Tehri districts of Uttarakhand; Kinnaur district of Himachal Pradesh; Jammu district of Jammu & Kashmir; Banswara, Bhilwara, Jaipur, Pratapgarh districts of Rajasthan; Gwalior, Morena, Ratlam, Vidisha, Balaghat, Dindori, Jabalpur, Katni, Rewa, Sagar, Sidhi districts of Madhya Pradesh; Valsad, Sabarkantha, Bhavnagar districts of Gujarat Region; Kutch, Rajkot, Porbandar districts of Saurashtra & Kutch; Ahmednagar, Ratnagiri, Sholapur, Parbhani, Bhandara, Gondia districts of Maharashtra; North Goa, Adilabad, Hyderabad districts of Andhra Pradesh; Nizamabad district of Telangana; Uttar Kannada, Dakshin Kannada, Chikmagalur and Hassan districts of Karnataka.
- Rest of the country experienced moderately wet/mildly dry/wet conditions.

**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 26.08.2015**

**Actual Mean Maximum Temperature (°C) in India for the week ending 26.08.2015**



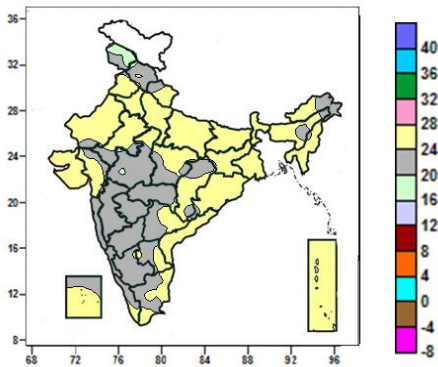
**Mean Maximum Temperature (°C) Anomaly in India for the week ending 26.08.2015**



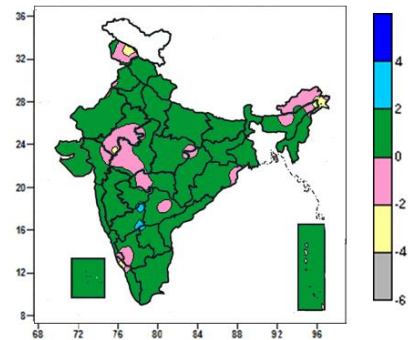
- Mean maximum temperature were between 32 to 36°C over Punjab, Haryana & Delhi, Uttar Pradesh, Gangetic West Bengal, Mizoram, Tripura, Gujarat State, Marathwada, Coastal Andhra Pradesh, Telangana, Rayalaseema, many parts of Uttarakhand, Rajasthan, Bihar, Jharkhand, Odisha, East Madhya Pradesh, Chhattisgarh, Madhya Maharashtra Vidarbha, North Interior Karnataka, Tamil Nadu, Kerala and Andaman & Nicobar Islands, some part of West Madhya Pradesh, Lakshadweep, South Interior Karnataka and isolated pockets of Jammu & Kashmir and Himachal Pradesh.
- It was below 32°C over remaining parts of the country.

- Mean maximum temperature were above normal by 2 to 4°C over Konkan & Goa, Madhya Maharashtra, Marathwada, Vidarbha, Telangana, North Interior Karnataka, many parts of Gujarat Region, Chhattisgarh, Coastal & South Interior Karnataka and Rayalaseema, some parts of West Madhya Pradesh, Coastal Andhra Pradesh, Kerala and isolated pockets of Himachal Pradesh, East Rajasthan, Saurashtra, Jharkhand, Gangetic West Bengal and East Madhya Pradesh.
- It was normal to near normal in remaining parts of the country.

**Actual Mean Minimum Temperature (°C) in India for the week ending 26.08.2015**



**Mean Minimum Temperature (°C) Anomaly in India for the week ending 26.08.2015**



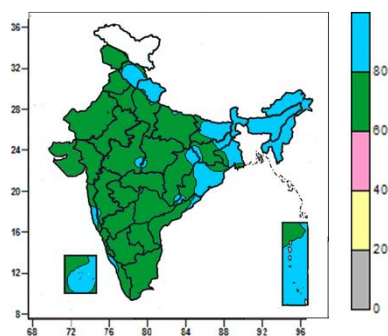
- Mean minimum temperature was between 16 to 20°C over many parts of Jammu & Kashmir and isolated pockets of Himachal Pradesh and West Madhya Pradesh.
- It was above 20°C over rest of the country.

- Mean maximum temperature were above normal by 2 to 4°C over isolated pockets of North Interior Karnataka and Rayalaseema.
- Mean minimum temperature was below normal by 2 to 4°C over some parts of Jammu & Kashmir and isolated pockets of Arunachal Pradesh, Assam, East Rajasthan and Kerala.
- It was normal to near normal in remaining parts of the country.



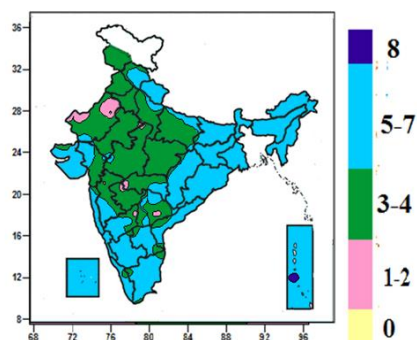
**Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 26.08.2015**

**Relative Humidity (%) over India for the week ending 26.08.2015**



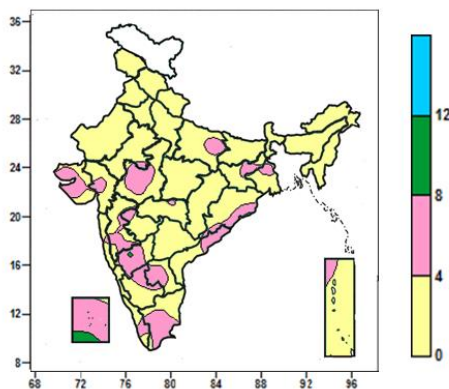
- Mean Relative humidity was above 80% over North East India, Sub-Himalayan West Bengal & Sikkim, many parts of Himachal Pradesh, Uttarakhand, Gangetic West Bengal, Bihar, Odisha, Lakshadweep and Andaman & Nicobar Islands, some parts of Jharkhand, Coastal Karnataka, Konkan & Goa and isolated pockets of Chhattisgarh, Madhya Pradesh, Madhya Maharashtra, Coastal Andhra Pradesh and Kerala.
- Mean Relative humidity was 60 to 80% over rest of the country.

**Cloud amount (okta) over India for the week ending 26.08.2015**



- Sky remained cloudy (8 okta) over isolated pockets of Andaman & Nicobar Islands.
- Sky remained generally cloudy (5-7 okta) over North East India, West Bengal & Sikkim, Uttarakhand, Odisha, Coastal Karnataka and Lakshadweep, many parts of Himachal Pradesh, Bihar, Gujarat State, Chhattisgarh, Konkan & Goa, Coastal Andhra Pradesh, Rayalaseema, Interior Karnataka, Tamil Nadu, Kerala and Andaman & Nicobar Islands, some parts of Vidarbha, Madhya Maharashtra and Telangana, isolated pockets of Uttar Pradesh, Rajasthan and West Madhya Pradesh.
- Sky remained partly cloudy/mainly clear (3 to 4 / 1 to 2 okta) over rest of the country.

**Wind speed (knots) over India for the week ending 26.08.2015**



- Mean wind speed was between 8 to 12 knots over isolated pockets of Lakshadweep.
- Mean wind speed was 4 to 8 knots over many parts of Saurashtra & Kutch, North Interior Karnataka, Rayalaseema, Tamil Nadu and Lakshadweep, some parts of West Madhya Pradesh, Gangetic West Bengal, Coastal Odisha, Coastal Andhra Pradesh, South Interior Karnataka, Madhya Maharashtra, Gujarat region, Kerala and isolated pockets of East Rajasthan, East Uttar Pradesh, Jharkhand, Marathwada, Vidarbha and Andaman & Nicobar Islands.
- It was less than 4 knots over rest of the country.

## Weather Forecast for next 5 days valid upto 0830 hours of 2<sup>nd</sup> September 2015

### 5 Day Rainfall Forecast (MORNING) 28<sup>th</sup> August 2015

Met Sub-divisions	28 Aug	29 Aug	30 Aug	31 Aug	01 Sep
1. Andaman & Nicobar Islands	FWS	FWS	SCT	SCT	SCT
2. Arunachal Pradesh	WS	WS	WS	FWS	FWS
3. Assam & Meghalaya	WS	WS	WS	FWS	FWS
4. N. M. M. & T.	FWS	FWS	FWS	FWS	FWS
5. S.H. West Bengal & Sikkim	WS	WS	WS	WS	WS
6. Gangetic West Bengal	SCT	FWS	FWS	FWS	FWS
7. Orissa	WS	FWS	FWS	FWS	FWS
8. Jharkhand	SCT	FWS	FWS	FWS	FWS
9. Bihar	FWS	FWS	FWS	FWS	FWS
10. East Uttar Pradesh	SCT	FWS	FWS	FWS	FWS
11. West Uttar Pradesh	ISOL	SCT	SCT	SCT	SCT
12. Uttarakhand	SCT	SCT	FWS	FWS	SCT
13. Haryana, Chd & Delhi	ISOL	ISOL	ISOL	ISOL	ISOL
14. Punjab	ISOL	ISOL	ISOL	ISOL	ISOL
15. Himachal Pradesh	SCT	SCT	ISOL	ISOL	ISOL
16. Jammu & Kashmir	SCT	ISOL	ISOL	ISOL	ISOL
17. West Rajsthan	DRY	DRY	ISOL	ISOL	ISOL
18. East Rajasthan	DRY	ISOL	ISOL	ISOL	ISOL
19. West Madhya Pradesh	SCT	FWS	FWS	SCT	SCT
20. East Madhya Pradesh	FWS	FWS	FWS	FWS	SCT
21. Gujrat Region	ISOL	ISOL	ISOL	ISOL	ISOL
22. Saurashtra & Kutch	ISOL	ISOL	ISOL	ISOL	ISOL
23. Konkan & Goa	FWS	FWS	FWS	FWS	FWS
24. Madhya Maharashtra	SCT	FWS	FWS	SCT	SCT
25. Marathwada	FWS	FWS	FWS	SCT	SCT
26. Vidharbha	FWS	FWS	FWS	SCT	SCT
27. Chhattisgarh	WS	WS	WS	FWS	SCT
28. Coastal Andhra Pradesh	WS	FWS	SCT	SCT	SCT
29. Telangana	WS	WS	FWS	SCT	ISOL
30. Rayalaseema	SCT	ISOL	ISOL	ISOL	ISOL
31. Tamilnadu & Puducherry	ISOL	ISOL	ISOL	ISOL	ISOL
32. Coastal Karnataka	FWS	FWS	FWS	FWS	FWS
33. North Interior Karnataka	SCT	ISOL	ISOL	ISOL	ISOL
34. South Interior Karnataka	FWS	SCT	SCT	SCT	ISOL
35. Kerala	FWS	FWS	FWS	FWS	FWS
36. Lakshadweep	FWS	FWS	FWS	FWS	FWS

#### % Station Reporting Rainfall

% Stations	Category	% Stations	Category
76-100	Widespread (WS/Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespread (FWS/ Many Places)	1-25	Isolated (ISOL)
No Rain	Dry		

#### Weather Warning during next 5 days

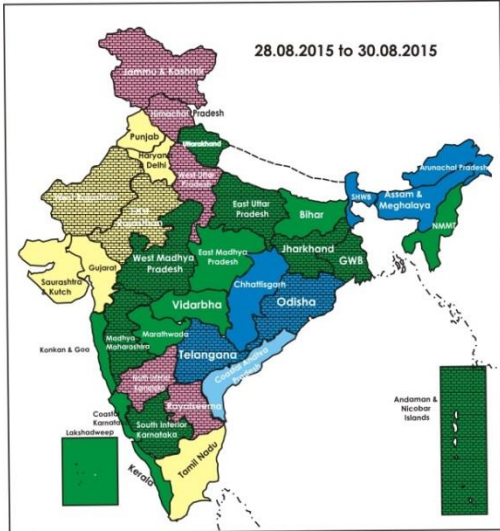
- **28 August (Day 1):** Heavy to very heavy rainfall would occur at isolated places over Chhattisgarh and Assam & Meghalaya. Heavy rainfall would occur at isolated places over Vidarbha, Odisha, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Konkan & Goa, Telangana and Coastal Andhra Pradesh.
- **29 August (Day 2):** Heavy to very heavy rainfall would occur at isolated places over Sub-Himalayan West Bengal & Sikkim, Chhattisgarh and Assam & Meghalaya. Heavy rainfall would occur at isolated places over West Madhya Pradesh, East Madhya Pradesh, Vidarbha, Arunachal Pradesh, Marathwada and Telangana.
- **30 August (Day 3):** Heavy to very heavy rainfall would occur at isolated places over Sub-Himalayan West Bengal & Sikkim. Heavy rainfall would occur at isolated places over West Madhya Pradesh, East Madhya Pradesh, Bihar, Arunachal Pradesh and Assam & Meghalaya.
- **31 August (Day 4):** Heavy to very heavy rainfall would occur at isolated places over Sub-Himalayan West Bengal & Sikkim and Arunachal Pradesh. Heavy rainfall would occur at isolated places over Assam & Meghalaya.
- **01 September (Day 5):** Heavy to very heavy rainfall would occur at isolated places over Sub-Himalayan West Bengal & Sikkim and Arunachal Pradesh. Heavy rainfall would occur at isolated places over Assam

& Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

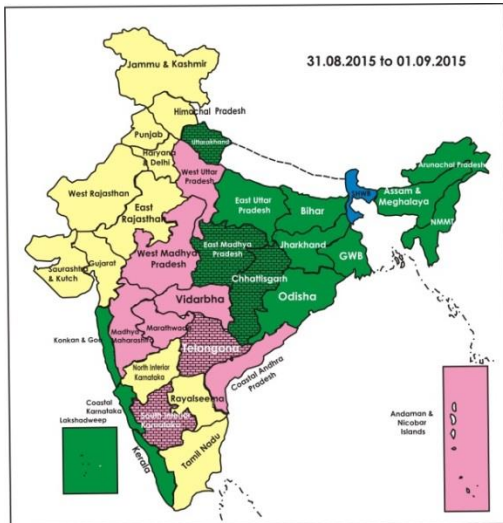
### Weather Outlook for subsequent 2 days from 2<sup>nd</sup> to 4<sup>th</sup> September 2015

- Rain/thundershowers would occur at many places over northeastern states, east and adjoining central India.
- Rain/thundershowers would occur at a few places along west coast.

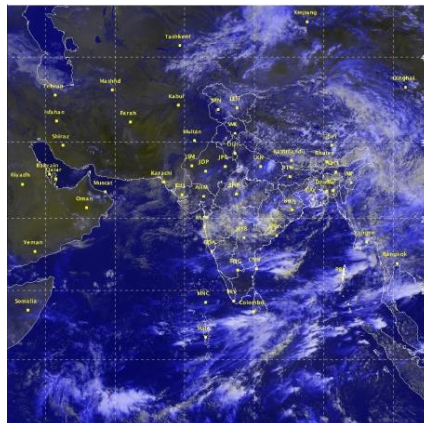
### Weather Forecast Map (Valid upto 0830 hours of 2<sup>nd</sup> September, 2015)



- Most places
- Most places/few places
- Most / Many places
- Most/many places/ isolated places
- Most / Isolated places
- Most / Many/ Few places
- Most / Few places/ isolated places
- Most / Few
- Many places
- Many / Few places
- Many / Isolated places
- Many / Few/ Isolated places
- Many / few/ Mainly dry
- Many / Isolated/ Mainly dry
- Few places
- Few / Isolated places
- Few / Isolated places/dry
- Few/Mainly Dry/Dry
- Isolated places
- Isolated / Mainly Dry / Dry
- Mainly Dry/Dry
- Dry



### Satellite image dated, 28.08.2015 0600 UTC



## Salient Advisories

- Under the influence of the low pressure area over Odisha and adjoining Jharkhand and associated upper air cyclonic circulation, rain/thundershowers would occur at most/many places over **Chhattisgarh, Odisha and Jharkhand** during the period, along with heavy to very heavy rainfall at isolated places during next two days. In view of the above, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Also arrange adequate drainage in standing crop fields to avoid water stagnation.
- In **Assam**, drain out excess water from standing crop fields in flood affected districts. In North Bank Plain Zone and Lower Brahmaputra Valley Zone, farmers in flood affected areas are advised to collect short duration HYV rice varieties like Luit, Kapili, Kolong, Dishang etc. These varieties can be transplanted or sown upto 1<sup>st</sup> week of September. Late and staggered planting after receding flood with 60 to 80 days old seedlings of the varieties like Prafulla (80 days) and Gitesh (60 days) is also suggested up to mid of September. The old seedlings of other improved long duration variety like Monohar Sali, Salpona, Prasadbhog, Gobin bhog etc. can be transplanted up to mid of September. Continue sowing of *kharif* sesame, green gram, black gram, early cauliflower and radish after current spells of heavy rain.
- In **Nagaland**, maintain proper drainage in ginger crop fields to avoid rhizome rot in view of likely occurrence of heavy rainfall.
- In **Tripura**, maintain proper drainage particularly in groundnut and banana crop fields in medium and lowlands.
- In Coastal Saline Zone of **West Bengal**, complete transplanting of *Aman* rice at the earliest. Apply 12 kg urea as top dressing after 10 days of transplanting. Where transplanting is not possible due to deep water, after receding of flood water, prepare the fields for cultivation of early mustard and black gram. In uplands where rice could not be cultivated, undertake sowing of red amaranthus, spinach, coriander etc.
- In **South Interior Karnataka**, in areas where sowing is yet to be done, continue sowing of ragi (GPU-28, HR-911), sunflower (Morden, KBSH-1, KBSH-41, KBSH-42, KBSH-44 and KBSH-53), maize (Deccan-103, Vijaya composite and Ganga-11), Cowpea (C-152, KM-5 and PKB-4 for vegetable purpose) utilising the realized and expected rainfall.
- In **North Interior Karnataka**, continue sowing of sunflower at wider spacing of 90 x 20 cm. Also undertake sowing of fodder crops like jowar, maize, bajra with realized rainfall. Follow moisture conservation techniques for dry land such as compartmental bunding, ridges and furrow and scooping in fields spared for *rabi* sowing.
- In **Rayalaseema**, continue sowing of contingency crops like green gram and korra in Anantpur and Karnool districts utilising the realised rainfall. Continue sowing of red gram (LRG 30, LRG 41, TRG 22) as monocrop using the realized rainfall in Kadapa district in the Southern Zone.
- In **Telangana**, continue sowing of contingency crops like castor, red gram (medium duration varieties) and sunflower in South Telangana Zone and continue sowing of contingency crops like red gram and sunflower in North Telangana Zone utilizing the realized and expected rainfall.
- In **Madhya Maharashtra**, maintain 5 cm water level in rice fields in Western ghat region of Nasik, Pune and Kolhapur districts. Complete planting of *adsali* sugarcane and continue intercropping of *adsali* sugarcane with onion depending on availability of water in Ahmednagar, Pune, Satara and Sangli districts. Undertake compartmental bunding in the fields for sowing of *rabi* jowar and safflower.
- In **Marathwada**, undertake compartmental bunding to conserve soil moisture wherever *kharif* sowing could not be undertaken so far. Continue weeding and hoeing in cotton and red gram fields on a non-rainy day.
- In **Vidarbha**, maintain 5 cm water level in transplanted rice field. Continue weeding and hoeing in cotton and soybean fields (except flowering stage) to conserve soil moisture after current spells of rain.
- In **Gujarat**, in view of prevailing mainly dry weather, apply supplementary irrigation in cotton and groundnut crops in Jamnagar and Surendranagar districts of North Saurashtra Zone and apply irrigation in sugarcane, banana and vegetables crops in South Gujarat Zone and rice, pulses in Middle Gujarat Zone.
- Heavy infestation of semilooper in castor and heavy infestation of heliothis in groundnut and pulses is observed in **North Saurashtra Zone**; spray Chlorpyrophos @ 30 ml in 10 litres of water for control of semilooper and spray Beauveria Bassiana @ 40 g in 10 litres of water or 250 larval unit of NPV solution per acre or Renaxypyr @ 3 ml in 10 litres of water for control of heliothis.



## *Detailed Zonewise Agromet Advisories*

### SOUTH INDIA [TAMIL NADU, TELANGANA, ANDHRA PRADESH, KARNATAKA, KERALA]



*Sowing*

*Groundnut*

*Greengram*

*Rice transplanting*

- **Realised Rainfall:** Rainfall occurred in all districts of Coastal Karnataka; Kalaburgi and Vijayapura districts of North Interior Karnataka; Chikaballapura, Kodagu, Mandya, Mysuru and Shivamogga districts of South Interior Karnataka; all districts of Kerala except Idukki, Kollam, Malappuram and Thiruvananthapuram; all districts of Coastal Andhra Pradesh except East Godavari; all districts of Rayalaseema; Nalgonda and Rangareddy districts of Telangana; Cuddalore, Dharmapuri, Kancheepuram, Karaikal, Krishnagiri, Perambalur, Puducherry, Salem, Tiruvallur, Tiruvannamalai, Tiruvarur, Vellore and Villupuram districts of Tamil Nadu. Weather remained mainly dry over rest of the region.

- **Advisories:**

- **Andhra Pradesh:**

- In North Coastal Zone, continue transplanting of rice (medium and short duration varieties) and finger millet utilizing the realised and expected rainfall.
    - Continue nursery sowing of short duration rice varieties, maize and pulses (black gram, red gram and green gram) using the realised rainfall in the Krishna Godavari Zone. Formation of weeds is a major problem in direct seeded rice due to last week rains. Apply Namini gold 80-100 ml per acre in 200 litres of water to manage weed intensity.
    - In Scarce Rainfall Zone, continue sowing of green gram and korra utilising the realised rainfall.
    - Undertake land preparation for sowing of kidney bean/French bean and niger in the High Altitude Tribal Zone.
    - Continue sowing of red gram (LRG 30, LRG 41, TRG 22) as monocrop using the realised rainfall in Kadapa district in the Southern Zone.
    - Prevailing weather conditions are congenial for incidence of helicoverpa in vegetable crops like tomato, bhendi and brinjal in the Southern Zone. To control, spray 5% Neem decotion. In areas where the incidence is more, spray Thiodicarb @ 1g/litre of water or Novuluron @ 1ml/litre of water.
    - Prevailing weather conditions are congenial for incidence of tikka leaf disease in groundnut in the North Coastal Zone. To control, Carbendazim @ 1.0 g/litre of water on a non rainy day.
    - Present weather conditions (intermittent rains) are congenial for incidences of stem borer in maize crop in the Krishna Godavari Zone. Place Prorate or Thimmate grannules on the whorls on a non rainy day to control the incidence.

- **Telangana:**

- In the Southern Telangana Zone, continue sowing of contingency crops like castor, red gram (medium duration varieties) and sunflower utilising the realised and expected rainfall.
    - In the North Telangana Zone, continue sowing of contingency crops like red gram and sunflower utilizing the realized and expected rainfall.
    - In the Northern Telangana Zone, stem borer and sporadic incidence of gall midge is noticed in rice in some districts. Apply Chlorantraniliprole granules 0.4 WG @ 4 kg/ac or Carbofuran granules 3G @ 10 kg/ac to control stem borer and apply Carbofuran 3G @ 10 kg acre at 15 DAT in 1– 2 inches of standing water or undertake spraying of Monocrotophos @ 1.6 ml /litre of water to control gall midge after current spells of rain.
    - In the Southern Telangana Zone, incidence of powdery mildew, mite in okra and leaf blight in tomato is noticed in the prevailing weather conditions. Spray Wettleable Sulphur @ 3g/litre of water or Calyxin @ 1ml/ litre of water to control powdery mildew and Carbendazim 12 % + Mancozeb 63% WP @ 2 g or Mancozeb + Metalaxyl @ 2 gm/litre of water to control leaf blight after current spells of rain.

- **Karnataka:**

- In the Eastern Dry Zone, in areas where sowing is yet to be done, continue sowing of ragi (GPU-28, HR-911), Sunflower (Morden, KBSH-1, KBSH-41, KBSH-42, KBSH-44 and KBSH-53), Maize (Deccan-103, Vijaya composite and Ganga-11), Cowpea (C-152, KM-5 and PKB-4 for vegetable purpose).
    - Continue the following contingency measures in early sown crops to mitigate the deficit rainfall conditions in North East Transition Zone:
      - Thin out excess and weak seedlings by removing alternate rows as the moisture stress is severe.
      - Take up repeated inter-cultivation and earth up the rows.
      - Keep the crops free from weeds.
      - Open conservation furrow after two rows in wider spaced crops and after every 8<sup>th</sup> row in narrow spaced crops.
      - Undertake spraying of 1 % Potassium Nitrate to already sown crops where slight soil moisture is available so as to induce drought resistance in the crops.



- In the North East Dry Zone, continue sowing of sunflower at wider spacing of 90 x 20 cm and fodder crops like jowar, maize, bajra with realized rainfall.
- In North Dry Zone, follow moisture conservation techniques for dry land such as compartmental bunding, ridges furrow and scooping in fields spared for rabi sowing.
- In Hill Zone, continue spraying of Planofix @ 0.25 ml/litre to reduce the square/flower bud/flower drop in cotton on a non rainy day.
- Incidence of spittle bug was noticed in green gram in the North East Transition Zone. To control, spray Imidacloprid 17.8 SL @ 0.2 ml or Lambda cyhalothin 5 E.C @ 0.5 ml/litre of water on a non rainy day.
- **Kerala:**
  - Continue planting of tapioca and transplanting of Brinjal in the Problem Area Zone.
  - Prevailing weather conditions are congenial for incidence of bacterial leaf blight in rice in the Problem Area Zone. Spray Streptocyclin @ 6gm/25 litres of water after current spells of rain.
  - Prevailing high relative humidity is congenial for increase in incidence of sucking insects in vegetables in the Central Zone. Apply Ekalux @ 25 EC 2 ml/litre of water after current spells of rain.
  - Prevailing weather conditions are congenial for fungal diseases in young budded rubber plants in the Southern Zone. To control fungal diseases, spray Copper Oxy Chloride or Bordeaux mixture. Pink disease can be controlled by chiseling out the affected bark and apply Bordeaux paste after current spells of rain.
- **Tamil Nadu:**
  - In the Cauvery Delta Zone, continue land preparation for nursery sowing of Samba rice varieties (CR 1009 and ADT 50).
  - Undertake nursery sowing of long duration varieties of rice like CR 1009 and KKLR 1 for ensuing samba season in Karaikal and Puducherry.
  - Undertake cultivation of drought resistant multi-cut fodder sorghum (CoFS 29) under rainfed condition in the North Western Zone.
  - Considering the high cloud cover and high relative humidity, micro nutrient deficiency in turmeric may occur in the Western Zone. Spray twice at 25 days interval with 375 g of each Borax, Ferrous Sulphate, Zinc sulphate and Urea in 250 litres of water/ ha to overcome the deficiency. Continue sowing of winter Cambodia cotton. Due to high cloud cover, top dressing of nitrogen through soil application will not be effective. Hence spray 1% urea on Kuruvai season rice.
  - In the Southern Zone, prevailing weather is conducive for attack of jassid in lady finger, brinjal and chilli. To control, spray Dimethoate 30 EC @ 2 ml/litre of water.
  - Suitable varieties for sowing are given in Annexure II.
- **Animal Husbandry**
  - Prevailing weather conditions are congenial for Enterotoxaemia in livestock in Northern Telangana and sheep pox in sheep in Southern Telangana. To prevent the diseases, vaccinate the animals.

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



*Sowing*

*Banana*

*Okra*

*Rice transplanting*

- **Realised Rainfall:** Rainfall occurred in all districts of Arunachal Pradesh except Anjaw, Dibang Valley, Kurung Kumey and Lower Subansari; all districts of Assam except Darrang, Golghat and Jorhat; all districts of Meghalaya; Aizwal and Serchhip districts of Mizoram; Imphal East and Imphal West district of Manipur; Dimapur, Kohima and Mokokchung district of Nagaland and all districts of Tripura. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - **Assam & Meghalaya, Arunachal Pradesh:**
    - In Assam, drain out excess water from standing crop fields in flood affected districts.
    - In North Bank Plain Zone and Lower Brahmaputra Valley Zone, farmers in flood affected areas are advised to collect short duration HYV rice varieties like Luit, Kapili, Kolong, Dishang etc. These varieties can be transplanted or sown upto 1<sup>st</sup> week of September. Late and staggered planting after receding flood with 60 to 80 days old seedlings of the varieties like Prafulla (80 days) and Gitesh (60 days) is also suggested up to mid of September. The old seedlings of other improved long duration variety like Monohar Sali, Salpona, Prasadbhog, Gobin bhog etc. can be transplanted up to mid of September. Complete the transplanting at the earliest for non flood affected areas. Continue sowing of *kharif* sesame, green gram, black gram, early cauliflower and radish after current spells of heavy rain.

- In Hill Zone, continue sowing of green gram and black gram after current spells of heavy rain.
- In Barak Valley Zone and Upper Brahmaputra Valley Zone of Assam, continue nursery sowing of mid cauliflower and radish after current spells of heavy rain.
- In Barak Valley Zone, avoid water stagnation in the field of banana to protect the banana plant from wilting or panama disease.
- In Central Brahmaputra Valley Zone of Assam, continue sowing of *kharif* pulses like black gram/green gram, nursery raising of cole crops and early radish after current spells of heavy rain.
- In Lower Brahmaputra Valley Zone of Assam, undertake transplanting of finger millet after current spells of heavy rain.
- In Meghalaya, maintain water level of 3-5 cm in the rice fields. Continue sowing of pea, red gram, black gram, green gram and nursery raising of cauliflower after current spells of heavy rain. Remove excess water and maintain proper drainage facilities in the fields of groundnut, soybean, ginger and turmeric crop fields
- In North Bank Plain Zone, Lower Brahmaputra Valley, Upper Brahmaputra Valley Zone, Barak Valley Zone, Central Brahmaputra Valley Zone and Hill Zone of Assam, due to cloudy and humid weather there is chance of attack of rice hispa and stem bore in *Sali* rice. Spray Chloropyriphos 20 EC (0.02%) or Quinalphos @ 2 teaspoon/5 litre of water or or Monocrotophos 40EC @ 1.5ml per litre of water against rice hispa and Carbofuran 3G @ 30 kg/ha or Phorate 10G @ 10kg/ha against stem borer after current spells of rain.
- In Meghalaya, spray/drench with 1% Bordeaux mixture or Dithane M-45 (2.5g/litre of water in turmeric/ginger to prevent rhizome rot. Also, due to cloudy and humid weather, there is chance of attack of yellow stem borer in *Sali* rice and leaf spot in groundnut. To manage the attack, spray Imidachloprid @ 2.0 ml or per litre of water and spray Carbendazim (0.05%) + Mancozeb (0.2%) against leaf spot in groundnut. Apply the pesticides after current spells of rain.
- In Arunachal Pradesh, due to humid and cloudy weather, there is chance of attack of yellow stem borer in *Jhum* rice and blast/bacterial leaf blight in normal rice. Spray Triazophos 40 EC@ 4ml/litre water against yellow stem borer and spray copper fungicide (Blitox 0.3%) alternately with Streptocycline (250ppm) against blast/bacterial leaf blight after current spells of rain.
- **Manipur, Mizoram, Nagaland and Tripura:**
  - In Manipur, continue sowing of onion in the upland areas after current spells of heavy rain.
  - In Mizoram, continue sowing of cowpea after current spells of heavy rain.
  - In Nagaland, maintain proper drainage in ginger crop fields to avoid rhizome rot in view of likely occurrence of heavy rainfall.
  - In Tripura, maintain proper drainage particularly in groundnut and banana crop fields in medium upland and lowlands.
  - In Manipur, due to humid and cloudy weather, there is chance of attack of stem borer in *kharif* rice and tikka disease in groundnut. Spray Chlorantraliniprol 23.5% @ 40 ml/ha for control of stem borer and spray Carbendazim @ 1g/ litre of water to control tikka disease after current spells of rain.
  - In Nagaland, if infestation of caseworm occurs in rice field, drain out water from the rice field and keep it dry for 3 or 4 days.
  - In Tripura, due to cloudy and humid weather, there is chance of attack of leaf blight in maize. Spray Zineb @ 3gm per litre of water. There may be attack of yellowstem borer in *aman* rice. To manage the attack spray Imidachloprid @ 2.0 ml or per litre of water after current spells of rain.
  - Suitable varieties are given in Annexure II.
- **Animal Husbandry**
  - In Northeastern states, carry out vaccination (RDF1) against Ranikhet disease in one week old chicks and against Gamboro disease in two weeks old chicks. The cows and goats should not be allowed to feed on submerged rotten grasses. Vaccinate domestic live stocks against BQ, HS, Foot and mouth as well as anthrax diseases. Keep pig shed/sty dry and avoid dampness during rainy days.
  - In Barak Valley Zone of Assam, there is chance of gastrointestinal parasites infestation in poultry. Keep the poultry shed clean and maintain in good sanitary conditions.
  - In Meghalaya, high relative humidity is favourable for development of coccidiosis disease in poultry. Regularly check the dropping of birds. Farmers are advised to keep chicks warm by giving proper heat through electric bulbs. Provide plenty of fresh and clean drinking water and coccidiostatic like Amprolium @ 25-65 mg/kg feed once a day as a preventive measure against coccidiosis. For Ranikhet disease vaccinate the poultry birds with F1/Lasota vaccine.
- **Fishery**
  - In Manipur and in low lying areas of Assam, encircle fish ponds with *happa* net barrier in the low lying areas to prevent out flow of fishes from the ponds and also to check inflow of predatory fishes during flooding.

## WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



### *Banana*

### *Sugarcane*

### *Rice*

### *Sowing*

- **Realised Rainfall:** Rainfall occurred in all districts of Konkan & Goa except Mumbai City and Mumbai Suburban; Latur district of Marathwada; Valsad district of Gujarat Region. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - **Maharashtra:**
    - In Konkan, maintain water level upto 5 cm in transplanted rice fields at tillering stage. Apply second dose of fertilizers i.e. 870 gms of Urea per 0.25 hectare after current spells of rain. Before application of fertilizers, complete weeding operation. After application of fertilizers store water in the field. Apply second dose of nitrogenous fertilizers i.e.800 gms of urea per 0.25 hectare on *nagli* crop with intercultural operations after current spells of rain. Complete earthing up operation in 35 to 40 days old groundnut crop after current spells of rain. Undertake weeding and earthing up in pulses and vegetables and drain out excess water from the fields; also undertake pruning of diseased/affected leaves in vegetables.
    - In Madhya Maharashtra, maintain 5 cm water level in rice fields in Western ghat region of Nasik, Pune and Kolhapur districts. Complete planting of *adsali* sugarcane and continue intercropping of *adsali* sugarcane with onion depending on availability of water in Ahmednagar, Pune, Satara and Sangli districts. Undertake compartmental bunding in the fields for sowing of *rabi* jowar and safflower.
    - In Marathwada, undertake compartmental bunding to conserve soil moisture wherever *kharif* sowing could not be undertaken so far. Continue weeding and hoeing in cotton and red gram fields on a non-rainy day.
    - In Vidarbha, maintain 5 cm water level in transplanted rice field. Continue weeding and hoeing in cotton and soybean fields (except flowering stage) to conserve soil moisture after current spells of rain.
    - Due to subdued rainfall in Central Vidarbha and Marathawada region, there may be attack of stem fly in soybean; spray Chloropyriphos @ 25 ml per 10 litres of water.
    - Due to subdued rainfall since July in Marathwada and Madhya Maharashtra, there may be attack of white wooly aphids on sugarcane; use bioagents like *Dipha aphidivora*.
    - Prevailing cloudy weather is congenial for the incidence of downy mildew in cucurbitaceous vegetables in Vidarbha, Marathwada and Madhya Maharashtra; spray solution of Metalaxyl 8 % + Mancozeb 64 % @ 20 g in 10 litres of water.
  - **Gujarat:**
    - In view of prevailing mainly dry weather, apply supplementary irrigation in cotton and groundnut crops in Jamnagar and Surendranagar districts of North Saurashtra Zone.
    - As there was no significant rain during last few weeks and mainly dry weather is likely to continue, apply irrigation in sugarcane, banana and vegetables crops in South Gujarat Zone and rice, pulses in Middle Gujarat Zone.
    - In North Gujarat Zone and North West Zone, complete transplanting of fennel, brinjal, tomato, chillies and other vegetables and plantation of sapling of different fruit crops (sapota, papaya, lemon, pomegranate, custard apple).
    - In North Gujarat Zone and North West Zone, carryout gap filling and thinning to maintain plant population in maize/pearl millet.
    - Complete intercropping of soybean with two rows of castor to get more income and more production in South Saurashtra Zone.
    - In South Gujarat Heavy Rainfall Zone, maintain 5 cm water level in transplanted rice fields.
    - Heavy infestation of heliothis is observed in groundnut and pulses in North Saurashtra Zone; spray Beauveria Bassiana @ 40 g in 10 litres of water or 250 larval unit of NPV solution per acre or Renaxypyr @ 3 ml in 10 litres of water.
    - Heavy infestation of semilooper is observed in castor in North Saurashtra Zone; spray Chlorpyrophos @ 30 ml in 10 litres of water for control.
    - Cloudy weather and humid condition is favourable for incidence of sucking pests (whitefly, aphid and jassid etc.) in vegetables in North and South Gujarat Zone and North West Zone; spray Imidachoprid or Thiomethoxam @ 4 ml / 10 litres of water for their control.
    - Due to cloudy and humid weather condition, there are chances of infestation of heliothis in pulses in Middle, North Gujarat Zone and North West Zone; spray Endoxacarp 0.015% @ 5ml in 10 litres of water or Quinalphos 25EC @ 20ml in 10 litres of water.
- **Animal Husbandry**
  - In Gujarat, undertake vaccination in animal for the prevention of FMD and other diseases; for the control of tick and



other parasites, spray Deltamethrin or Aemita @ 2 ml in 1 litre of water.

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



**Groundnut**

**Cotton**

**Sowing**

**Rice transplanting**

- **Realised Rainfall:** Rainfall occurred in all districts of Andaman & Nicobar Islands except Nicobar; all districts of Sub-Himalayan West Bengal & Sikkim; all districts of Gangetic West Bengal except Purulia; all districts of Bihar except Bhabua, Bhojpur, Buxar, Gaya, Jahanabad, Nalanda, Nawada, Rohtas and Saran; Dumka, Giridih, Godda, Jamatra, Pakur, Simdega and West Singhbhum districts of Jharkhand; all districts of Odisha except Angul, Dhenkanal, Gajapati, Ganjam, Kandhamal, Keonjhar and Rayagada. Weather remained mainly dry over rest of the region.

- **Advisories:**

- Under the influence of the low pressure area over Odisha and adjoining Jharkhand and associated upper air cyclonic circulation, rain/thundershowers would occur at most/many places over Odisha and Jharkhand during the period, along with heavy to very heavy rainfall at isolated places during next two days. In view of the above, postpone irrigation, inter-cultural operation and application of plant protection measures and fertilizers to the standing crops. Also arrange adequate drainage in standing crop fields to avoid water stagnation.

- **West Bengal:**

- In Coastal Saline Zone, complete the transplanting of *Aman* rice at the earliest. Apply 12 kg urea as top dressing after 10 days of transplanting. Where transplanting is not possible due to deep water, after receding of flood water, prepare the fields for cultivation of early mustard and black gram. In uplands where rice could not be cultivated, undertake sowing of red amaranthus, spinach, coriander etc.
- In Hill Zone, maintain proper drainage system in soybean, vegetable and ginger fields in view of likely occurrence of heavy rainfall.
- In Old Alluvial Zone, undertake nursery sowing of cabbage and cauliflower and sowing of black gram after current spells of heavy rain.
- In Old Alluvial zone, protect seedbed of early cauliflower and cabbage from heavy rain by using white polythene sheets. Provide adequate drainage to prevent water stagnation in the seedbed.
- In New Alluvial Zone, due to cloudy weather condition combined attack of downy mildew and mosaic may be seen in bitter gourd and pointed gourd. Apply Redomil - MZ (@ 2 gm per litre of water after current spells of rain to control the attack.
- In Old Alluvial Zone, in prevailing weather condition, there is chance of sheath blight in rice. If observed, spray Validamycin @ 2ml/litre of water or Hexaconazole 5% EC @ 1.5ml/litre of water after current spells of rain.

- **Andaman and Nicobar Islands:**

- In North and Middle and South Andaman, crown and fruit rot disease may occur in Arecanut. For control, undertake prophylactic spray with 1 % Bodo mixture in crown portion of Arecanut plantation.

- **Odisha:**

- In East and South Eastern Coastal Plain Zone, in uplands, continue sowing of green gram, black gram, horse gram and sesame.
- In North Eastern Ghat Zone, continue sowing of groundnut, sesame and ragi.
- In North Central Plateau Zone, continue sowing of green gram, black gram and cowpea.
- In Western Undulating Zone, continue sowing of improved varieties of black gram vari. Sarala, Ujala, PU-30, T-9, Prasad, green gram varieties like Tarm-1, Dhauri, Durga, Kamdev Jyoti, PDM-54, PDM-11, Samrat, PM-1, PM-2 @ 6-8kg/acre and cow pea vari. Utkala manika, Pusa Barsati and SEB- 2 @ 8kg/acre in fallow uplands.
- In Western Undulating Zone, sucking pests like aphids and jassids may infest the cotton crop during this period. Spray neem oil 3ml/litre of water. If the infestation increases, spray Imidacloprid @ 1ml in 4litres of water or Acephate @ 2g/litre of water after current spells of rain.
- In Western Undulating Zone, Bacterial Leaf blight infestation is noticed in rice in some areas in main fields. Spray Steptocycline @ 0.1g or Plantomycin @ 1g per litre of water rice after current spells of rain.
- In Eastern Ghat High Land Zone, due to humid weather conditions, there may be increase in population of insect pests in cotton. Farmers are advised to install pest specific pheromone traps in the fields for monitoring the insect. If sucking pest's population is above ETL than spraying of Imidacloprid 17.8 % SC @ 1.0 ml/3 litre or Trizophos 40 EC @ 1.0 ml/litre of water and spraying of Spinosad 1.0 ml/3 litre of water is advised against all type of borers after current spells of rain.

- In East and South Eastern Coastal Plain Zone, swarming caterpillars has been found in rice. Apply Chloropyriphos around the bunds of the affected fields to prevent the entry of pest to the unaffected fields. Spray Chloropyriphos @ 400 ml in 200 litre water per acre in the afternoon hour. Also hairy caterpillar has been found in groundnut. For control, spray Beam 1 g and 1.5 g Hinosan in 2 litres of water twice after current spells of rain at 15 days interval.
- In East and South Eastern Coastal Plain Zone, hairy caterpillar and leaf minor has been found in groundnut. Spray DDVP @ 200 ml per acre for control of hairy caterpillar and spray Chloropyriphos @ 2 ml/litre of water to control leaf minor after current spells of rain.
- **Bihar:**
  - In North West Alluvial Plain Zone, continue transplanting of *kharif* onion, tomato, chilli and cauliflower on raised beds. Continue sowing of cluster bean, bitter gourd and radish.
  - In South Bihar Alluvial Zone, complete transplanting of *kharif* onion and continue planting of mango, litchi, guava and papaya plants in already made pits and undertake sowing of pigeon pea, black gram and sesame. Continue sowing of tobacco & sweet potato.
  - In North West Alluvial Plain Zone, present weather is conducive for the occurrence of red pumpkin beetle in cucurbitaceous vegetable crops, to control, spray Dichlorvos 76 EC @ 1 ml/litre of water after current spells of rain.
  - In North West Alluvial Plain Zone, present weather is conducive for the occurrence of attack of leaf folder and stem borer in paddy crops, for control, broadcasting of Cartap Hydrochloride (Caldan) 4% granules @ 10 kg/acre is advised after current spells of rain.
  - In South Bihar Alluvial Zone, present weather is conducive for attack of shoot borer in maize, for control, apply Carbofuran @ 3-4 pellets per plant in the shoot of the plants after current spells of rain.
- **Jharkhand:**
  - In South Eastern Plateau Zone, complete transplanting of finger millet, undertake cultivation of vegetables like tomato, early cabbage & cauliflower and planting of custard apple, banana, papaya & guava, complete sowing of maize, arhar, green gram, black gram, urd, groundnut, soybean and sesame. Undertake cultivation of upland spices, yam, & forage crops like jowar & maize.
  - In North Eastern Plateau Zone, continue sowing of improved varieties of urad, horse gram, niger, til & sweet potato and undertake cultivation of improved varieties of green pea, tomato, cabbage and cauliflower.
  - In Western Plateau Zone, undertake preparation of fields for cultivation of early potato and green peas and continue sowing of improved varieties of urad, maize, kulthi and niger in uplands after current spells of heavy rain.
  - In South Eastern Plateau Zone, present weather is conducive for the occurrence of leaf folder and hairy caterpillar in groundnut, to control, spray Chlorpyriphos @ 1 ml per litre of water mixing Teepol @ 0.5 ml per litre of water after current spells of rain.
  - In North Eastern Plateau Zone, present weather is conducive for occurrence of blast & yellow spot disease in rice. To control, spray Carbendazim @ 0.1% or Tricyclazole (75 WP) @ 0.06% per litre of water after current spells of rain.
  - In North Eastern Plateau Zone, present weather is conducive for occurrence of shoot and fruit borer in okra, the infected fruit and shoot should be removed regularly and buried in the soil and spray Dichlorvos @ 2 ml/litre of water or Cypermthrin @ 2 ml/litre of water after current spells of rain.
  - In Western Plateau Zone, prevailing weather is conducive for the attack of leaf spot/tikka disease in groundnut and stem borer in rice crops. For control, spray Endofil M-45 @ 5 gm + Bavistin @ 1 gm in 4 litre of water for leaf spot/tikka disease and spray Monocrotophos 36 E.C. @ 1-2 ml per litre of water for stem borer after current spells of rain.
  - Suitable varieties for sowing are given in Annexure II.
- **Animal Husbandry**
  - In Sub-Himalayan West Bengal, keep animal sheds dry and clean and avoid water stagnation in and around the cattle sheds.

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



*Rice*



*Greengram*



*Okra*



*Soybean*

- **Realised Rainfall:** Rainfall occurred in Umaria district of East Madhya Pradesh; Bastar, Dantewada, Raigarh and Surguja districts of Chhattisgarh. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - **Madhya Pradesh:**
    - Continue sowing of niger and kodo millet and little millet in Satpura Plateau Zone and nursery sowing of early winter vegetables in Malwa Plateau Zone. Continue sowing of niger in Kymore Plateau and Satpura Hill Zone.



- As rain/thundershowers would occur at many places over East Madhya Pradesh from 28<sup>th</sup> to 31<sup>st</sup> August and over West Madhya Pradesh on 29<sup>th</sup> & 30<sup>th</sup> August, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- Due to humid weather there are chances of attack of sucking pests in moong and urad in Grid Zone and Vindya Plateau Zone, spray Trizophos @ 1ml per litre of water or Thiamethoxam 25 WP @ 10 gm in 500 litre of water per hectare after current spells of rain.
- Due to cloudy weather there are chances of incidence of yellow mosaic in urad and soybean in Bundelkhand Zone, spray Methyl Demeton @ 2 ml per litre of water after current spells of rain.
- Due to cloudy weather there are chances of attack of white fly in okra and chilli in Kymore Plateau and Satpura Hill Zone, spray Dimethoate 30 EC @ 700-750 ml/hectare after current spells of rain.
- **Chhattisgarh:**
- As rain/thundershowers would occur at most/many places over Chhattisgarh from 28<sup>th</sup> to 31<sup>st</sup> August along with heavy to very heavy rainfall at isolated places, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Also arrange adequate drainage in standing crop fields to avoid water stagnation.
- In North Hill Zone continue sowing of kulthi, niger, sunflower, urad, arhar, horse gram and vegetable crops in the upland areas after current spells of heavy rain.
- Continue sowing of niger, horse gram, black gram and green gram in Bastar Plateau Zone after current spells of heavy rain.
- Due to humid weather there are chances of attack of stem borer in rice in North Hill Zone, spray Monocrotophos 36 E.C. @ 1-2 ml per litre of water after current spells of rain.
- Suitable varieties are given in Annexure II.
- **Animal Husbandry**
- Keep animal sheds clean, dry and create smoke to prevent from mosquitoes in Madhya Pradesh and Chhattisgarh. Keep animals indoor during heavy rainfall period in Chhattisgarh.

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



*Cotton*



*Rice transplanting*



*Sowing*



*Cabbage*

- **Realised Rainfall:** Rainfall occurred in Jammu, Srinagar, Rajouri, Reasi, Samba, Kathua districts of Jammu & Kashmir; Amritsar, Fatehgarh Sahib, Gurdaspur, Ludhiana, Ropar, Sas Nagar (Mohali) districts of Punjab; Ambala, Yamuna Nagar, Panchkula and Chandigarh districts of Haryana; New Delhi, Central Delhi, South Delhi and South West Delhi districts of Delhi; Bairaich, Balrampur, Basti, Faizabad, Farrukhabad, Ghazipur, Gonda, Gorakhpur, Hardoi, Kheri, Kushi Nagar, Maharajganj, Shrawasti Nagar, Siddharth Nagar and Sitapur districts of East Uttar Pradesh; Aligarh, Badaun, Bareilly, Bijnor, Bulandshahar, Firozabad, Gautam Buddha Nagar, Jyotiba Phule Nagar, Kanshiram Nagar, Mahamaya Nagar, Meerut and Shahjahanpur districts of West Uttar Pradesh; Champawat, Dehradun, Hardwar, Nainital, Pithoragarh and Udham Singh Nagar districts of Uttarakhand; all districts of Himachal Pradesh except Chamba, Kinnaur, Kullu, Lahaul & Spiti and Shimla. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - **Jammu & Kashmir:**
  - In Valley temperate Zone of Jammu & Kashmir, continue sowing of root vegetables preferably on ridges. Also continue transplanting of cole crops. Also undertake harvesting of baby corn.
  - In Sub-tropical Zone, undertake sowing of mixed fodder i.e. legume + cereal (maize, cowpea & chari).
  - In Sub-tropical Zone, due to humid weather condition, there may be attack of blister beetle and stalk rot in maize. To control blister beetle, spray Carbaryl @ 0.1 % and for stalk rot, spray Zinebor Mancozeb @ 0.25%.
  - In Intermediate Zone of Jammu & Kashmir, in the prevailing weather conditions, there are chances of stem borer in maize and blast attack in rice. To control stem borer, apply Carbufuron @ 750 g/kanal and to control blast, spray Tricyclazole (beam) @ 6 ml/10 litres of water. Also there is chance of attack of hairy caterpillars in *kharif* pulses. To control, collect and destroy young gregarious caterpillars or apply Chlorpyrifos 20 EC @ 2 ml per liter of water.
  - In Sub-tropical Zone, in the prevailing weather conditions, there are chances of rice blast and brown spot in rice crops. To control blast, spray Tricyclazole @ 0.06% and to control brown spot, spray Mancozeb @ 0.25% 2-3 sprays at 15 days interval.



▪ **Uttarakhand:**

- In Hill Zone of Uttarakhand, weather conditions are favourable for sowing of vegetable pea and toria in mid hills.
- Due to rise in temperature during the week, there are more chances of attack of stem borer in rice in Bhabar and Tarai Zone (Nainital). Broadcast Phipronil-0.3 GR @ 10kg or Cartap-4GR @ 8 kg per acre. If the incidence is more than 10 percent then broadcast Keldan -4G granules @ 8 kg per acre. For effective control of these insects, keep shallow water in the fields.
- In Bhabar and Tarai Zone, due to water stagnation and prevailing temperature, bacterial leaf blight (BLB) and bacterial leaf streak diseases may occur in some varieties of rice like Pant Dhan-4, Pusa Basmati-1, Jaya etc. To control, spray Blitox-50 @ 200 g and 6 g Streptocycline dissolved in 200 litres of water per acre crop area two times at 10 days interval after current spells of rain.

▪ **Himachal Pradesh:**

- In Sub-Montane and Low Hills Sub-Tropical Zone, continue nursery sowing of mid season cauliflower and cabbage in poly house in mid hill and lower region and transplanting of ageti cauliflower and cabbage in fields. Continue transplanting of, tomato, brinjal, capsicum, chilli and direct sowing of okra and sowing of radish and turnip in lower rainfed areas. In mid hill region undertake nursery sowing of Chinese cabbage and direct sowing of raddish, carrot, broccoli and lettuce.
- In Sub-Montane and Low Hills Sub-Tropical Zone and Mid Hills sub-Humid Zone, keep the basins of the orchard plants free from weeds and well drained.
- In Mid Hills sub-Humid Zone, continue nursery sowing of cauliflower, cabbage (Pride of India, golden achor and hybrid), sowing of carrot and radish at a distance of 30x10cm. Undertake, sowing of carrot and cruciferous vegetables and early variety of pea at a distance of 30x10cm, transplanting of onion and early variety of cauliflower at a distance of 45x30cm.
- Under humid weather condition, there are chances of incidence of blast and hispa in rice in mid hills region of Sub-Montane and Low Hills Sub-Tropical Zone. For control of blast, spray Bavistin @ 0.01 or Beam 75 WP @ 0.06% and repeat at 10-15 days interval and for rice hispa, spray Cypermethrin 10 EC @ 1ml or Chlorpyrifos 20 EC @ 2.5ml per litre of water on a non rainy day.
- Under humid weather condition there are chances of attack of fruit borer in tomato, brinjal and okra in Sub-Montane and Low Hills Sub-Tropical Zone, spray Cypermethrin (Ripcord 10 EC) @ 565 ml or Cypermethrin (Symbush 25 EC) @ 225 ml or Deltamethrin (Deasis 2.8 EC) @ 750 ml per 750 ml water per ha on a non rainy day.
- Under humid weather condition there are chances of incidence of fruit rot and leaf spot disease in tomato and capsicum in Mid Hills Sub-Humid Zone. Spray Ridomil gold @ 25g or Streptocyclin @ 1g or Blitox @ 30g per 10litres of water on a non rainy day.
- Under cloudy and humid weather condition, there are chances of incidence of sooty blotch and fly speck diseases and attack of wooly aphids in apple in Mild Hills Sub-Humid Zone. For control of sooty blotch and fly speck diseases, spray Ziram @ 600 ml per 200 litres of water. For the control of wooly aphids, spray Actara @ 200 g or Dursban @ 200 ml or Marshal @ 200 ml per 200 litres of water on a non rainy day.

▪ **Rajasthan:**

- In Flood Prone Eastern Plain Zone and Semi Arid Eastern Plain Zone of Rajasthan, continue nursery of cauliflower and also continue sowing of radish.
- In Southeastern Humid Plain Zone, continue sowing of moong and urad and transplanting of rice seedlings of three weeks old.
- In Sub Humid Southern Plain and Aravali Hill Zone, continue weeding and hoeing in cotton, groundnut, maize, moong and urad crop.
- In Transitional Plain Zone of Inland Drainage, continue plantation of fruit plants like ber, aonla, pomegranate and beel and continue planting of kinnow saplings in Irrigated Northwestern Plain Zone.
- In Arid Western Plain Zone, undertake hoeing and weeding operation in *kharif* pulses and cluster bean to conserve moisture.
- Due to cloudy and humid weather there are chances of attack of leaf borer in sesame in Flood Prone Eastern Plain Zone and attack of stem borer in paddy in Southern Humid Plain Zone, spray Monocrotophos 36 WSC @ 1 litre/ha to control both the pests.
- In Semi Arid Eastern Plain Zone of Rajasthan, due to continuous cloudy sky, there are chances of incidence of leaf spot disease on groundnut and yellow mosaic disease in okra, spray Bavistin @ 0.5 gm or Mencozeb @ 2 gm per litre water for leaf spot and spray Malathion 50 EC @ 1.0 ml per litrewater for yellow mosaic.
- In Irrigated Northwestern Plain Zone, attack of white fly is observed in ageti moong and guar, spray Trizophos 40 EC @ 2ml per litre of water for moong and Trizophos @ 2.5ml per litre of water for guar. Also attack of spotted bollworm on desi cotton is observed, spray Indoxocarb 14.5 SC @ 1ml per litre of water for control.
- In South eastern Humid Plain Zone, due to partly cloudy and humid weather, there are chances of attack of white fly in soybean, spray Imidacloprid 17.8 SL @ 600 ml/ha.

▪ **Punjab, Haryana and Delhi:**

- In Central Plain Zone of Punjab, continue sowing of maize and in Western Zone of Punjab, continue transplanting of brinjal in raised beds and continue planting of onion.
- In Undulating Plain Zone of Punjab, continue transplanting of tomato, onion and chilli on ridge and drain out the excess water from vegetable crop fields.

- In Central Plain Zone and Western Plain Zone of Punjab, continue the sowing of fodder crops maize + cowpea, sorghum + guar.
- In Central Plain, Western Plain and Undulating Plain Zone of Punjab, continue planting of fruit plants viz citrus, mango, litchi, guava, loquat, ber, amla and papaya.
- In Western Zone of Haryana, continue transplanting of tomato, onion chilli and early cauliflower on ridge and transplanting of rice utilising the realised rainfall. Complete the planting of fruits crops like acid lime, mango, jack fruit and jamun.
- In Western Semi-Arid Zone of Delhi, continue transplanting of *kharif* onion, chilli, brinjal, tomato and early cauliflower on ridges. Continue sowing of radish, coriander, spinach. Undertake sowing of sweet corn and baby corn in this week and short varieties of urad and moong.
- Due to humid weather conditions in there may be increase in population of sucking pests in cotton in Western Semi-Arid Zone of Delhi. Install pest specific pheromone traps in the fields. If sucking pest's population is above ETL, spray Imidacloprid 17.8 % SC @ 1.0 ml/3 litre of water.
- Incidence of sheath blight is noticed in rice crop in Western Zone of Punjab, spray Folicur 25 EC (Tebuconazole) @200 ml or Tilt 25 EC (Propiconazole) @ 200ml in 200 litres of water/acre. Also due to partly cloudy weather, white fly and jassid may occur in cotton, if reaches ETL level then spray Oberon @ 200 ml/acre for white fly and 80g/acre Ulala for the management of Jassid.
- In Western Zone of Haryana, weather conditions are favourable for infestation of white fly and sucking pest in cotton. Spray Dimethoate 30 E.C./Metasystoc 25 EC @ 300 ml in one liter neem based insecticide (Neembicidine/Achuk) with 250 liters of water.
- **Uttar Pradesh:**
  - In Central Plain Zone, complete sowing of bajra, green gram, black gram, sesame, tomato and nursery sowing of cabbage. Undertake nursery sowing/transplanting of capsicum, chilli and cauliflower and sowing of pointed gourd and parwal gourd.
  - In Bundelkhand Zone, continue nursery sowing of early cauliflower, tomato, chilli and brinjal on raised beds and undertake sowing in field. Apply light irrigation in groundnut, soybean, sesame, vegetables and fodder crops.
  - In Eastern Plain Zone, undertake sowing of radish and spinach. Undertake planting of *kharif* onion at a distance of 15x10cm, nursery sowing of cauliflower, cabbage, tomato and chilli and sowing of okra, lobia and cucurbits. Complete sowing of fodder crops like jowar, bajra, maize, chari and lobia.
  - Under cloudy and humid weather condition there are chances of incidence of yellow powdery mildew disease in green gram and black gram in Central Plain Zone. Spray Dimethoate 30 EC or Methyl-O-Demeton 25 EC @ 1 litre per 1000 litres of water after current spells of rain and repeat at an interval of 10-15 days.
  - Due to humid weather condition, there are chances in increase in the incidence of yellow mosaic disease in black gram, green gram and soybean in Bundelkhand Zone. Remove the diseased plants and spray Diamathoate 30 EC @ 1litre per 700 litres of water on a non-rainy day.
  - Due to humid weather condition, there is chance of attack of top borer in sugarcane in Northeastern Plain Zone. Spray Corazine @ 150 gm per 200 litres of water per acer. For control of top borer in maize, spray Quinalphos @1.5 g or Imidachloprid @ 1g per litre of water after current spells of rain.
  - In Western Plain Zone, weather is conducive for the incidence of blast in rice. Spray Beam @ 120 g per 200 litres of water on a non rainy day.
  - Suitable varieties for sowing are given in Annexure II.
- **Horticulture**
  - In Uttar Pradesh, undertake planting of mango, litchi, papaya, guava, ber and *aonla*.
  - Under humid weather condition, there are chances of incidence of leafspot disease in strawberry in Mid Hills Sub Humid Zone of Himachal Pradesh. Spray Hexaconazole or Carbendazim @ 100g per 200 litres of water on a non rainy day.
  - Under humid weather condition, there are chances of attack of mealy bug and stem girdler in mango in Central Plain Zone of Uttar Pradesh. Spray Methyl Parathion @ 1 ml or Dimethoate @ 1.5 ml per litre of water at an interval of 15 days.
- **Floriculture**
  - Undertake weeding in gladiolus and sowing of late varieties of gladiolus and marigold on a non rainy day in Mid Hills Sub Humid Zone of Himachal Pradesh.
  - Blue beetle attack is seen in Balsam, Zenia, Cleome and rose in Sub Montane and Low Hills Sub Humid Zone of Himachal Pradesh. For control spray Cypermethrin @ 20 ml per 10 litres of water on a non rainy day.
- **Poultry**
  - In view of increasing humidity in Sub-Montane and Low Hills Sub-Tropical Zone of Himachal Pradesh, replace the poultry houses with fresh litter to avoid wetting and keep the houses clean and ensure clean drinking water to the birds. Weather is congenial for incidence of Ranikhet disease. Undertake vaccination for IBD and Ranikhet disease.

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

**Annexure I**

**Week by week Rainfall Distribution**

Sub-Divisions	12.08.15		19.08.15		26.08.15	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>						
Anjaw	**	**	**	**	**	**
Changlang	98.2	61	82.9	-20	80.3	43
Dibang Valley	**	**	**	**	**	**
East Kameng	2.8	-95	43.3	-18	64.3	-3
East Siang	26.7	-83	440.6	150	107.1	-33
Kurung Kumey	**	**	**	**	**	**
Lohit	13.8	-84	138.9	25	60.7	-38
Lower Dibang Valley	120.8	376	430.6	818	221.6	444
Lower Subansari	**	**	**	**	**	**
Papumpara	101.0	-15	61.1	-32	146.5	15
Tawang	49.0	-69	65.0	-50	105.0	-25
Tirap	21.8	-78	4.0	-97	55.4	-56
Upper Siang	35.6	-53	174.2	38	195.6	93
Upper Subansari	12.2	-68	21.5	-60	105.2	176
West Kameng	151.2	-3	135.2	5	210.8	51
West Siang	12.0	-79	159.0	113	150.0	28
<b>Assam&amp;Meghalaya</b>						
<b>Assam</b>						
Baksa	17.7	-82	136.1	7	241.7	61
Barpeta	46.9	-52	303.7	138	305.9	104
Bongaigaon	14.6	-83	342.4	219	466.2	191
Cachar	136.7	9	46.3	-58	126.0	38
Chirang	29.8	-65	340.6	217	447.2	179
Darrang	**	**	**	**	**	**
Dhemaji	24.0	-81	67.0	-37	127.0	17
Dhubri	70.6	-11	89.7	-4	256.2	127
Dibrugarh	41.3	-58	91.9	-4	85.9	-8
Goalpara	68.8	4	154.9	94	376.7	331
Golghat	51.5	-27	39.8	-31	13.1	-81
Hailakandi	202.0	107	108.4	3	230.7	189
Jorhat	63.7	-29	69.0	-5	**	**
Kamrup(Rural)	8.7	-83	82.4	18	187.1	223
Kamrup(Metro)	24.8	-52	56.1	-20	93.9	62
Karbi Anglong	63.6	19	34.0	-20	38.8	-16
Karimganj	241.5	127	60.5	-33	375.5	221
Kokrajhar	43.0	-72	313.1	147	505.8	194
Lakhimpur	58.9	-54	93.7	-12	88.9	-18
Morigaon	71.8	-4	152.0	139	82.5	19
N.C.Hills	66.3	20	39.9	-8	37.8	-33
Nowgong	14.0	-78	50.5	-15	47.3	-37
Nalbari	56.2	-15	108.6	57	139.9	79
Sonitpur	75.9	-2	115.5	35	131.8	57
Sibsagar	63.5	-31	49.2	-28	62.6	-20
Tinsukia	34.7	-61	131.7	30	85.4	10



Udalgiri	42.1	-33	67.1	17	144.7	126
<b>Meghalaya</b>						
East Garo Hills	0.0	-100	390.0	336	357.7	323
East Khasi Hills	48.1	-74	1214.7	397	491.2	86
Jaintia Hills	29.0	-84	334.0	68	173.0	-35
Ribhoi	79.3	-17	98.9	0	103.9	20
South Garo Hills	119.0	56	124.0	50	41.0	-57
West Garo Hills	100.6	32	78.2	-5	309.0	223
West Khasi Hills	91.0	-30	572.0	522	230.0	28
<b>NMMT</b>						
<b>Mizoram</b>						
Aizwal	84.2	-20	54.3	-54	190.2	60
Champhai	**	**	**	**	**	**
Kolasib	6.0	-94	**	**	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	**	**	**	**	**	**
Mamit	**	**	**	**	**	**
Saiha	32.0	-59	23.0	-75	3.0	-97
Serchhip	46.8	-48	117.2	-3	92.6	-9
<b>Manipur</b>						
Bishnupur	**	**	**	**	**	**
Chandel	**	**	**	**	**	**
Churachandpur	**	**	**	**	**	**
Imphal east	70.5	-8	16.2	-74	42.3	-32
Imphal west	151.1	106	74.6	30	53.6	16
Senapati	**	**	**	**	**	**
Tamenglong	**	**	**	**	**	**
Thoubal	12.0	-72	6.0	-91	25.0	-39
Ukhrul	**	**	**	**	**	**
<b>Nagaland</b>						
Dimapur	39.6	-51	15.2	-64	46.2	-32
Kephire	**	**	**	**	**	**
Kohima	126.6	40	25.2	-74	241.0	192
Longleng	**	**	**	**	**	**
Mokokchung	51.0	-55	9.0	-83	54.0	-41
Mon	**	**	**	**	**	**
Parent	**	**	**	**	**	**
Phek	**	**	**	**	**	**
Tuensang	**	**	**	**	**	**
Wokha	**	**	**	**	**	**
Zunheboto	**	**	**	**	**	**
<b>Tripura</b>						
Dhalai	43.5	-39	104.2	15	68.5	21
North Tripura	63.5	-30	42.4	-54	65.8	-14
South Tripura	30.3	-57	128.0	29	147.9	57
West Tripura	14.5	-77	104.8	24	77.6	7
<b>Himachal Pradesh</b>						
Bilaspur	156.6	81	35.5	-49	56.2	12
Chamba	95.9	-33	32.0	-70	13.7	-84
Hamirpur	254.2	175	19.5	-79	58.2	-30
Kangra	292.9	67	80.4	-44	95.8	-18

Kinnaur	2.9	-86	13.1	-33	0.1	-99
Kullu	50.8	17	11.2	-70	9.1	-73
Lahaul and Spiti	0.0	-100	1.0	-97	0.0	-100
Mandi	201.8	107	22.5	-75	34.4	-51
Shimla	84.4	81	42.4	0	18.5	-52
Sirmaur	124.9	3	89.7	-23	43.3	-59
Solan	121.2	39	32.0	-59	43.9	-31
Una	264.5	251	24.4	-69	77.5	23
<b>Punjab</b>						
Amritsar	9.8	-80	52.2	-1	22.0	-33
Barnala	24.0	-23	4.5	-85	13.0	-38
Bhatinda	28.7	9	6.3	-79	6.7	-64
Faridkot	25.0	-6	35.0	28	25.0	10
Fatehgarh Sahib	42.6	-20	3.3	-91	49.4	37
Ferozpur	0.6	-98	2.1	-93	4.9	-76
Gurdaspur	119.3	25	52.8	-32	32.2	-44
Hoshiarpur	73.8	4	21.5	-64	7.3	-83
Jalandhar	16.1	-69	2.3	-95	14.8	-59
Kapurthala	7.7	-79	46.9	34	22.3	-16
Ludhiana	57.6	18	7.9	-82	44.4	25
Mansa	0.0	-100	0.0	-100	0.0	-100
Moga	15.6	-60	0.0	-100	2.2	-92
Muktesar	16.5	-35	0.0	-100	4.5	-83
Nawashahar	52.9	-19	35.6	-32	20.1	-60
Patiala	47.6	-18	12.5	-71	24.3	-45
Ropar	89.7	47	26.3	-57	73.0	66
Sangrur	28.5	-21	20.5	-47	28.1	-3
Mohali	87.5	62	0.0	-100	58.7	40
TarnTaran	1.0	-96	1.3	-95	8.0	-62
<b>Haryana,Chd,Delhi</b>						
<b>Haryana</b>						
Ambala	58.8	-31	18.2	-78	30.9	-53
Bhiwani	16.3	-52	54.8	81	0.0	-100
Chandigarh	50.0	-39	0.0	-99	50.5	4
Faridabad	44.4	-14	92.0	102	7.7	-88
Fatehabad	0.5	-98	0.0	-100	1.0	-94
Gurgaon	71.2	45	62.8	43	4.0	-89
Hissar	16.9	-36	39.0	39	1.0	-96
Jhajar	42.2	18	49.7	30	7.4	-76
Jind	23.3	-20	47.2	24	7.6	-75
Katihah	21.4	-32	12.4	-65	5.7	-81
Karnal	39.0	-16	30.6	-46	4.3	-93
Kurukshetra	58.7	37	9.5	-83	12.3	-74
Mahendragarh	35.1	-12	7.0	-79	0.0	-100
Mewat	47.0	-8	9.8	-78	4.3	-88
Palwal	15.8	-61	17.3	-61	0.0	-100
Panchkkula	78.5	-9	18.7	-77	35.2	-49
Panipat	25.2	-44	22.1	-57	29.4	-41
Rewari	44.4	-6	26.4	-39	0.2	-99
Rohtak	36.3	-35	35.6	-9	5.0	-87
Sirsa	10.6	-41	22.0	12	0.0	-100

Sonepat	35.4	-24	18.7	-64	26.0	-42
Yamunanagar	81.0	14	50.4	-33	32.4	-57
<b>Delhi</b>						
Central Delhi	105.0	61	9.0	-83	38.0	-27
East Delhi	115.0	76	44.0	-18	4.0	-92
New Delhi	97.4	49	23.2	-57	57.7	10
North Delhi	139.0	113	25.0	-54	17.4	-67
North East Delhi	45.0	-31	34.0	-37	17.0	-68
North West Delhi	173.5	165	14.5	-73	6.0	-89
South Delhi	274.4	320	32.4	-40	107.2	104
South West Delhi	125.4	92	65.9	23	37.3	-29
West Delhi	103.0	57	43.0	-20	17.0	-68
<b>Jammu &amp; Kashmir</b>						
Anantnag	2.1	-90	4.6	-66	18.9	40
Badgam	0.0	-100	3.4	-68	11.9	2
Bandipore	**	**	**	**	**	**
Baramula	0.6	-98	1.8	-90	13.8	10
Doda	2.0	-92	34.2	45	17.2	12
Ganderbal	0.5	-97	1.0	-92	4.3	-61
Jammu	118.0	18	13.9	-81	36.2	-41
Kargil	**	**	**	**	**	**
Kathua	216.3	100	47.3	-48	31.4	-48
Kistwar	**	**	**	**	**	**
Kulgam	0.0	-100	0.4	-97	1.2	-91
Kupwara	5.4	-72	13.0	29	2.1	-80
Ladakh(Leh)	0.0	-100	0.0	-100	0.1	-97
Poonch	**	**	**	**	**	**
Pulwama	0.0	-100	14.9	22	12.5	-5
Rajouri	50.0	-22	2.8	-96	33.0	-25
Ramban	11.2	-57	4.4	-81	4.3	-72
Reasi	267.2	107	15.1	-84	60.3	-30
Samba	81.8	-18	6.8	-91	55.9	-8
Shopian	**	**	**	**	**	**
Srinagar	0.0	-100	12.9	-2	44.7	303
Udhampur	191.1	48	1.2	-99	20.7	-76
<b>East Madhya Pradesh</b>						
Anuppur	21.7	-76	75.4	-21	3.0	-96
Balaghat	42.6	-59	70.2	-41	27.0	-72
Chhatarpur	10.0	-90	74.4	-10	0.2	-99
Chindwara	128.0	127	56.1	-15	7.5	-85
Damoh	51.5	-47	121.1	41	0.0	-100
Dindori	37.4	-63	91.6	-10	4.9	-94
Jabalpur	48.0	-51	42.0	-58	10.4	-87
Katni	38.6	-58	83.8	-8	0.0	-100
Mandla	40.1	-62	90.6	-25	2.7	-97
Narsingpur	50.6	-41	62.2	-39	2.7	-96
Panna	38.2	-64	96.8	7	18.4	-76
Rewa	45.0	-45	77.6	8	8.3	-89
Sagar	61.5	-36	74.0	-23	0.0	-100
Satna	70.6	-21	103.6	28	8.1	-88
Seoni	83.3	16	73.2	-11	3.5	-94



Shahdol	22.0	-76	42.0	-50	0.0	-100
Sidhi	0.0	-100	132.0	66	1.6	-98
Singrauli	24.0	-61	78.0	15	3.0	-95
Tikamgarh	28.0	-69	146.5	80	0.0	-100
Umaria	32.7	-65	126.6	20	32.3	-63
<b>West Madhya Pradesh</b>						
Agar	212.8	71	86.6	-3	0.2	-99
Alirajpur	4.9	-91	16.3	-69	7.5	-88
Asoknagar	73.5	1	125.8	62	0.0	-100
Badwani	42.1	-10	19.8	-48	0.0	-100
Betul	89.9	33	34.1	-52	2.5	-95
Bhind	73.9	-3	52.2	-21	0.8	-98
Bhopal	80.2	4	105.3	34	0.0	-100
Burhanpur	103.2	71	42.2	-16	2.2	-96
Datia	41.3	-48	128.5	73	0.0	-100
Dewas	152.7	118	75.0	-1	0.8	-99
Dhar	17.3	-71	20.2	-60	3.1	-94
Guna	40.8	-50	164.3	118	0.0	-100
Gwalior	29.1	-65	120.3	73	0.0	-100
Harda	179.0	116	77.8	-25	0.0	-100
Hosangabad	81.7	-20	167.6	45	1.7	-98
Indore	43.1	-31	22.7	-59	0.0	-100
Jhabua	8.9	-85	12.2	-73	0.0	-100
Khandwa	146.3	120	20.7	-68	1.0	-98
Khargone	92.5	74	12.9	-71	0.3	-99
Mandsaur	71.6	13	71.9	23	3.3	-94
Morena	17.1	-77	107.7	49	1.1	-98
Neemuch	52.4	-9	84.4	31	0.0	-100
Raisen	113.3	25	146.5	47	3.2	-96
Rajgarh	66.4	-10	114.6	58	0.0	-100
Ratlam	31.4	-50	25.2	-59	2.0	-97
Sehore	69.0	-13	65.9	-27	0.6	-99
Shajapur	161.5	142	59.0	-20	0.0	-100
Sheopur Kalani	107.0	42	47.1	-32	0.0	-100
Shivpuri	95.7	25	124.2	102	0.0	-100
Ujjain	66.0	11	54.8	-11	0.2	-99
Vidisha	64.7	-17	112.7	20	2.6	-97
<b>Chhattisgarh</b>						
Bastar	35.2	-58	108.2	21	69.3	-2
Bijapur	64.8	-51	123.3	20	26.0	-71
Bilaspur	27.2	-67	101.4	19	10.5	-84
Dantewara	116.6	14	87.4	13	38.2	-47
Dhamtari	15.0	-78	30.4	-65	20.0	-70
Durg	60.9	-20	74.4	-3	8.1	-88
Janjgir	9.7	-91	86.9	-15	17.8	-80
Jashpurnagar	12.4	-88	80.5	-15	11.9	-86
Kanker	79.2	-8	32.8	-69	28.0	-64
Korba	17.1	-84	175.3	70	16.1	-82
Koriya	4.0	-96	78.2	-21	14.1	-83
Kawardha	58.9	-10	57.5	-15	0.0	-100
Mahasumund	18.6	-74	115.7	26	21.6	-64

Narayanpur	65.7	-38	130.7	32	24.1	-69
Raigarh	43.2	-48	40.8	-54	41.0	-39
Raipur	28.7	-63	66.1	-20	21.2	-67
Rajandgaon	51.1	-32	31.6	-59	2.7	-96
Surguja	62.8	-34	70.4	-19	36.2	-54
<b>East Uttar Pradesh</b>						
Allahabad	5.3	-93	71.5	24	8.8	-87
Ambedkar Nagar	8.0	-89	20.0	-68	10.0	-84
Azamgarh	99.8	37	70.4	10	6.5	-90
Bahraich	65.5	2	68.1	1	72.4	-4
Ballia	58.3	-15	108.7	109	25.2	-59
Balrampur	35.0	-52	91.0	18	30.2	-59
Banda	49.2	-45	31.8	-61	20.8	-66
Barabanki	19.3	-70	60.7	-17	20.9	-66
Basti	55.8	-14	60.8	-11	48.7	-25
Chandauli	35.6	-53	129.2	91	0.0	-100
Deoria	32.5	-52	86.0	14	21.5	-69
Faizabad	17.9	-74	43.2	-45	48.4	-31
Farrukhabad	30.1	-63	53.9	-28	41.4	-26
Fatehpur	0.5	-99	25.1	-62	2.7	-96
Gazipur	108.8	28	87.6	37	31.0	-51
Gonda	50.8	-31	53.9	-10	75.0	-9
Gorakhpur	40.3	-59	62.4	-30	30.5	-64
Hardoi	13.6	-79	86.1	40	43.9	-33
Jaunpur	61.9	-15	71.2	34	13.0	-80
Kannauj	11.0	-86	28.9	-62	4.8	-93
Kanpur City	35.9	-51	15.8	-77	12.9	-78
Kanpur Dehat	25.8	-69	16.6	-76	6.3	-89
Kaushambi	12.6	-84	40.0	-37	3.4	-95
Kheri	35.9	-44	103.0	46	36.8	-50
Kushi nagar	23.6	-70	6.5	-94	39.8	-55
Lucknow	20.6	-68	55.7	-13	20.5	-62
Maharajganj	44.8	-45	9.3	-92	44.0	-46
Mau	28.0	-61	19.0	-75	29.0	-65
Mirzapur	0.3	-99	85.7	52	3.2	-94
Pratapgarh	43.3	-42	54.3	-14	5.3	-93
RaiBareilly	14.9	-78	37.7	-37	10.4	-83
Sahuji Maharajnagar	11.5	-85	67.0	-11	9.0	-89
Sant Kabirnnagar	21.0	-69	74.0	8	17.0	-73
Sant Ravidas Nagar	3.0	-96	136.0	101	0.0	-100
Shrawasti	43.9	-32	70.9	6	74.2	-2
Sidharthnagar	20.2	-73	25.8	-65	89.6	25
Sitapur	37.5	-45	47.7	-25	30.4	-53
Sonbhadra	7.3	-90	122.2	84	19.2	-69
Sultanpur	18.4	-73	31.3	-49	14.5	-79
Unnao	20.3	-74	29.1	-58	11.0	-83
Varanasi	18.5	-73	86.1	44	14.7	-79
<b>West Uttar Pradesh</b>						
Agra	34.7	-55	50.8	-25	7.1	-86
Aligarh	73.2	19	83.9	29	47.1	-18
Auraiya	15.6	-79	41.9	-35	2.9	-95

Badaun	57.8	-16	38.0	-43	70.4	5
Baghpat	61.3	14	47.5	-10	17.5	-64
Bareilly	36.4	-50	41.4	-29	52.2	-27
Bijnor	53.9	-33	41.0	-45	80.5	17
Bulandsahar	84.2	51	48.9	-25	84.4	35
Etah	17.1	-74	31.0	-46	21.1	-62
Etawah	60.3	-30	79.1	7	17.0	-63
Firozabad	33.4	-50	98.1	43	32.5	-34
GBNagar	73.0	13	82.0	62	40.0	-33
Ghaziabad	56.6	-9	19.3	-64	18.8	-70
Hamirpur	50.5	-47	20.5	-72	0.0	-100
Jalaun	42.0	-58	70.5	-4	3.0	-93
Jhansi	65.6	-27	45.3	-39	2.1	-96
Jotiba Phule Nagar	74.0	3	28.0	-63	62.0	-9
Kanshiramnagar	31.0	-51	66.0	-3	76.0	16
Lalitpur	27.5	-74	58.5	-24	0.0	-100
Mahamaya Nagar	26.5	-60	20.8	-67	41.5	-14
Mahoba	0.0	-100	0.0	-100	0.0	-100
Mainpuri	25.8	-64	42.0	-37	12.0	-72
Mathura	70.8	19	29.8	-55	4.3	-91
Meerut	49.2	-32	20.5	-72	40.9	-45
Moradabad	57.9	-28	22.7	-70	25.2	-63
Muzzaffarnagar	72.4	3	26.0	-62	11.0	-82
Pilibhit	20.9	-73	34.3	-53	6.7	-92
Rampur	15.6	-81	2.2	-97	22.8	-67
Saharanpur	138.2	98	6.7	-92	12.3	-79
Shahjahanpur	8.4	-89	99.1	50	49.0	-37
<b>Uttarakhand</b>						
Almora	54.5	-20	38.9	-45	15.0	-74
Bageshwar	86.5	27	17.5	-75	28.6	-51
Chamoli	105.1	17	89.0	9	7.6	-87
Champawat	118.5	22	71.5	-15	52.0	-44
Dehradun	166.0	-4	95.7	-37	128.3	-13
Garhwal Pauri	115.7	5	89.7	-13	25.9	-71
Garhwal Tehri	116.6	27	15.8	-81	18.4	-74
Haridwar	44.4	-54	97.3	10	45.1	-45
Nainital	154.8	63	40.3	-61	37.2	-70
Pithorgarh	71.9	-43	75.2	-39	37.4	-68
Rudraprayag	123.3	-21	107.0	-35	21.5	-85
Udham Sing Nagar	85.9	0	27.9	-67	31.0	-67
Uttarkashi	133.2	36	97.4	-5	15.3	-80
<b>Bihar</b>						
Araria	56.0	-25	72.9	-2	120.8	31
Arwal	13.2	-78	112.7	92	77.0	22
Aurangabad	7.2	-87	69.9	22	32.5	-46
Banka	15.8	-69	60.3	0	112.9	108
Begusarai	14.6	-71	54.0	33	325.2	383
Bhabua	36.1	-50	115.2	94	5.5	-93
Bhagalpur	10.5	-79	75.1	21	160.1	144
Bhojpur	73.7	43	22.3	-67	17.1	-76
Buxar	28.2	-55	164.4	175	14.6	-76

Darbhanga	55.9	-8	54.7	-15	237.6	219
East Champaran	138.4	138	132.8	92	201.8	147
Gaya	19.9	-68	44.5	-31	12.5	-80
Gopalganj	79.1	24	71.9	-2	64.5	-24
Jahanabad	7.4	-87	146.6	149	12.2	-78
Jamui	33.2	-44	58.2	7	80.0	44
Kathihar	33.2	-38	81.4	43	58.1	-22
Khagadia	39.3	-33	109.0	60	331.1	386
Kishanganj	56.8	-46	161.4	59	174.4	57
Lakhisarai	6.5	-89	81.7	52	92.6	34
Madhepura	84.5	32	63.0	3	93.5	12
Madhubani	52.5	-18	26.3	-65	150.9	93
Monghyar	15.2	-74	67.2	25	296.2	329
Muzaffarpur	44.9	-27	36.6	-42	112.6	37
Nalanda	16.3	-74	115.5	96	18.9	-69
Nawada	57.7	-17	55.9	-10	25.6	-61
Patna	11.8	-80	73.7	35	41.6	-48
Purnea	9.2	-87	35.0	-49	61.6	-24
Rohtas	7.4	-88	54.7	-8	16.3	-75
Saharsha	32.2	-68	66.2	-25	132.3	63
Samstipur	36.8	-43	134.0	69	300.7	358
Saran	100.2	62	117.6	70	25.9	-69
Sheikpura	3.1	-94	104.9	112	97.8	64
Sheohar	66.6	4	19.8	-73	310.4	261
Sitamarhi	24.0	-63	17.5	-76	169.2	97
Siwan	66.3	-3	108.2	63	69.1	-7
Supaul	58.3	10	65.2	19	103.7	25
Vaishali	63.4	-5	43.2	-27	53.2	-33
West Champaran	91.7	36	63.4	-19	189.0	77
<b>Jharkhand</b>						
Bokaro	0.0	-100	27.2	-55	19.5	-68
Chatra	11.0	-86	49.6	-36	15.1	-75
Deoghar	0.6	-99	60.1	0	25.0	-59
Dhanbad	0.1	-99	33.7	-51	22.1	-64
Dumka	18.6	-73	30.2	-61	51.9	-22
East Singbhum	17.9	-78	69.6	5	3.1	-95
Garhwa	**	**	0.0	-100	0.0	-100
Giridih	0.5	-99	90.5	45	38.8	-30
Godda	44.1	-11	61.7	8	100.3	39
Gumla	40.4	-51	53.4	-41	15.3	-78
Hazaribagh	3.1	-96	66.1	14	28.0	-56
Jamtara	4.0	-95	65.6	-22	55.1	-27
Khunti	4.5	-95	10.0	-86	10.5	-86
Koderrna	13.4	-80	55.2	-8	16.3	-73
Latehar	1.5	-98	25.1	-55	26.5	-58
Lohardagga	3.0	-96	43.6	-15	4.2	-93
Pakur	2.4	-97	38.7	-57	82.3	8
Palamau	5.0	-93	73.5	7	15.6	-75
Ramgarh	0.6	-99	7.5	-89	5.8	-90
Ranchi	1.8	-98	43.5	-48	7.4	-88
Sahebganj	0.0	-100	**	**	0.0	-100



Saraikela	7.8	-90	21.7	-68	12.7	-80
Simdega	4.9	-95	105.1	16	30.9	-64
West Singhbhum	0.0	-100	43.4	-43	45.2	-33
<b>East Rajasthan</b>						
Ajmer	69.3	104	37.9	-11	0.0	-100
Alwar	76.1	37	36.2	-27	5.2	-88
Banswara	40.4	-40	49.9	-18	1.9	-97
Baran	93.6	18	176.7	144	0.0	-100
Bharatpur	31.5	-44	92.1	76	12.7	-75
Bhilwara	29.2	-38	43.5	-23	0.0	-100
Bundi	130.2	141	71.1	17	0.0	-100
Chittorgarh	69.0	21	69.3	7	0.0	-100
Dausa	78.8	24	18.2	-67	6.5	-86
Dholpur	71.2	-1	96.9	43	0.2	-99
Dungarpur	34.0	-28	45.2	-2	0.0	-100
Jaipur	36.0	-24	24.3	-47	0.0	-100
Jhalawar	80.5	9	98.0	17	0.1	-99
Jhunjhunu	34.7	-2	55.5	71	0.0	-100
Karauli	96.9	6	54.3	-18	0.0	-100
Kota	147.4	118	89.8	34	0.0	-100
Pratapgarh	27.0	-49	39.7	-42	1.4	-98
Rajsamand	56.0	31	45.1	-1	0.0	-100
Sawai Madhopur	79.7	-3	44.8	-26	0.0	-100
Sikar	23.9	-29	62.8	86	0.0	-100
Sirohi	12.1	-84	70.3	-9	0.0	-100
Tonk	87.3	76	39.5	-27	0.0	-100
Udaipur	46.6	3	52.9	24	0.0	-100
<b>West Rajasthan</b>						
Barmer	0.1	-99	22.9	6	0.0	-100
Bikaner	15.8	3	42.5	120	0.0	-100
Churu	19.6	-22	51.9	139	0.0	-100
Hanumangarh	0.3	-99	7.1	-64	10.3	-31
Jaisalmer	0.0	-100	36.2	80	0.0	-100
Jalore	10.4	-70	55.8	58	0.8	-97
Jodhpur	3.6	-84	37.7	57	0.0	-100
Nagaur	19.1	-30	33.4	23	0.0	-100
Pali	20.8	-43	42.0	15	0.1	-99
Sri Ganganagar	0.9	-95	7.1	-61	0.5	-95
<b>Gujarat Region</b>						
Ahmedabad	0.1	-99	16.5	-62	5.2	-83
Anand	0.0	-100	8.0	-87	0.8	-98
Banaskantha	0.6	-99	32.0	-22	0.0	-100
Baroda	2.5	-97	13.6	-80	2.0	-96
Broach	2.3	-96	8.8	-82	1.2	-97
DNH	16.7	-89	55.9	-62	196.9	82
Dahod	7.9	-89	27.2	-52	0.0	-100
Daman	3.2	-98	30.2	-79	179.0	66
Dangs	18.0	-87	21.0	-83	20.5	-82
Gandhinagar	0.0	-100	23.3	-48	1.4	-96
Kheda	0.3	-99	23.7	-58	0.1	-99
Mehsana	2.9	-94	42.6	4	0.1	-99

Narmada	4.7	-95	14.2	-80	2.6	-96
Navsari	8.7	-93	29.0	-74	16.7	-79
Panchmahal	3.6	-96	36.9	-43	0.2	-99
Patan	0.0	-100	36.6	5	0.0	-100
Sabarkantha	5.5	-92	45.1	-16	0.2	-99
Surat	6.3	-93	23.7	-67	4.9	-91
Tapi	6.8	-95	5.0	-94	4.6	-94
Valsad	12.1	-90	33.6	-72	121.5	40
<b>S K &amp; Diu region</b>						
Amreli	0.5	-99	9.1	-69	2.2	-90
Bhavnagar	0.4	-99	23.1	-25	13.4	-45
Diu	2.6	-93	3.1	-91	1.5	-89
Jamnagar	0.1	-99	13.6	-38	3.4	-73
Junagarh	0.5	-99	7.3	-82	2.9	-86
Kutch	0.1	-99	6.5	-72	0.2	-98
Porbandar	0.8	-98	2.5	-92	4.6	-69
Rajkot	0.3	-99	22.0	-25	0.6	-97
Surendranagar	0.0	-100	4.4	-86	0.0	-100
<b>Maharashtra &amp; Goa</b>						
<b>Konkan &amp; Goa</b>						
Mumbai City	48.0	-61	36.2	-67	21.3	-81
Mumbai Suburban	53.1	-57	41.4	-63	17.3	-84
North Goa	162.8	-22	85.8	-46	53.6	-59
Raigad	88.6	-56	66.1	-68	93.7	-43
Ratnagiri	125.9	-43	50.2	-75	76.1	-52
Sindhudurg	194.2	5	63.9	-58	76.0	-44
South Goa	174.4	-7	68.4	-50	68.4	-35
Thane	41.1	-77	51.6	-65	107.9	-14
<b>Madhya Maharashtra</b>						
Ahmednagar	10.3	-39	1.7	-89	2.2	-92
Dhule	22.3	-31	10.1	-62	0.7	-97
Jalgaon	35.6	-29	17.1	-60	0.9	-98
Kolhapur	57.7	-56	18.9	-83	25.4	-70
Nandurbar	5.9	-90	8.8	-82	1.8	-96
Nasik	28.5	-56	17.4	-70	19.5	-60
Pune	15.6	-73	8.6	-84	12.5	-68
Sangli	5.8	-80	1.5	-93	5.1	-76
Satara	22.2	-51	6.8	-83	11.2	-62
Solapur	7.6	-60	0.8	-96	10.2	-63
<b>Marathwada</b>						
Aurangabad	44.1	27	5.4	-82	0.3	-99
Beed	23.9	-17	18.2	-35	9.5	-72
Hingoli	86.5	57	19.5	-68	7.8	-87
Jalna	64.9	87	17.1	-43	4.0	-90
Latur	29.6	-33	20.6	-60	35.6	-35
Nanded	50.6	-6	40.9	-22	18.5	-70
Usmanabad	42.9	46	9.4	-70	23.0	-46
Parbhani	26.0	-37	19.3	-60	7.7	-87
<b>Vidarbha</b>						
Akola	49.4	-11	23.0	-42	0.0	-100
Amraoti	75.2	20	40.9	-25	1.3	-97

Bhandara	33.8	-66	147.0	73	20.8	-74
Buldhana	44.5	-8	21.8	-44	2.5	-94
Chandrapur	52.9	-35	133.8	57	20.5	-74
Gadchiroli	60.2	-41	95.6	-6	14.3	-84
Gondia	58.0	-44	107.7	13	10.6	-88
Nagpur	51.5	-16	167.4	174	12.1	-77
Wardha	55.4	-16	48.2	-17	6.5	-88
Washim	63.9	-8	12.1	-78	0.4	-99
Yeotmal	54.4	-14	30.6	-47	8.4	-85
<b>Odisha</b>						
Angul	5.2	-94	45.2	-51	19.3	-66
Balasore	14.4	-83	37.6	-54	36.6	-39
Bargarh	16.5	-80	56.2	-41	36.0	-50
Bhadrak	17.7	-79	26.0	-69	73.5	25
Bolangir	13.3	-84	54.3	-37	36.4	-48
Boudh	13.7	-85	44.9	-48	68.1	-11
Cuttack	21.6	-74	59.7	-29	66.3	-13
Deogarh	13.9	-88	81.7	-33	43.8	-47
Dhenkanal	4.6	-95	77.7	-13	26.0	-62
Gajapati	28.0	-54	64.9	3	30.0	-46
Ganjam	34.6	-32	57.1	1	26.3	-52
Jagatsingpur	31.3	-55	77.0	-15	67.6	-4
Jajpur	13.7	-82	44.7	-45	42.9	-42
Jharsuguda	18.0	-83	46.0	-54	96.6	22
Kalahandi	19.2	-77	57.8	-42	50.7	-36
Kandhamal	11.9	-87	39.2	-55	28.9	-62
Kendrapara	13.5	-85	36.3	-62	125.5	119
Keonjhar	12.8	-83	49.2	-42	23.3	-53
Khurda	23.6	-70	84.4	5	49.3	-30
Koraput	66.1	-35	113.0	11	32.6	-60
Malkangiri	101.0	-4	202.0	59	70.6	-18
Mayurbhanj	14.4	-85	46.2	-48	48.4	-18
Nawapara	32.4	-47	67.7	-8	36.1	-54
Nawarangpur	43.5	-56	131.1	-4	36.8	-46
Nayagarh	14.4	-81	75.4	-11	35.0	-46
Puri	48.5	-40	96.5	32	63.2	-12
Rayagada	27.6	-54	109.8	70	29.7	-55
Sambalpur	11.0	-91	45.4	-63	53.9	-35
Sonepur	6.5	-94	65.3	-39	45.0	-38
Sundargarh	25.7	-67	44.2	-56	61.0	-10
<b>West Bengal &amp; Andaman Nicobar Islands</b>						
<b>A &amp; N ISLAND</b>						
Nicobar	35.8	-48	17.3	-71	16.8	-72
North & Middle Andaman	232.6	111	21.4	-79	274.2	161
South Andaman	138.3	21	18.9	-80	126.9	48
<b>GWB</b>						
Bankura	8.9	-87	32.4	-54	32.7	-39
Birbhum	6.7	-91	47.7	-30	77.3	27
Burdwan	26.1	-59	32.5	-51	57.5	-1
East Midnapore	12.7	-80	55.6	-28	70.8	14

Hooghly	9.8	-82	15.7	-73	51.1	-15
Howrah	22.0	-71	11.6	-84	65.4	42
Kolkata	35.6	-49	42.9	-40	95.9	38
Murshidabad	25.5	-47	50.0	-27	83.9	50
Nadia	0.1	-99	9.4	-86	30.3	-33
24 Pargana (N)	23.7	-59	63.1	-19	50.1	-23
Purulia	9.3	-88	34.7	-49	26.1	-55
24 Pargana (S)	23.6	-74	93.3	11	37.9	-58
West Midnapore	39.4	-50	22.3	-69	46.1	-25
<b>SHWB &amp; Sikkim</b>						
Cooch Behar	46.2	-75	216.2	23	269.9	71
Darjeeling	134.7	-13	127.5	-7	158.2	-4
East Sikkim	51.3	-55	49.1	-42	89.6	-15
Jalpaiguri	127.8	-17	325.9	125	202.7	18
Malda	9.4	-83	145.2	130	80.3	-1
North Dinajpur	44.6	-34	101.7	47	85.5	15
North Sikkim	110.2	31	105.4	2	115.3	8
South Dinajpur	4.3	-90	90.5	38	86.5	26
South Sikkim	48.5	-58	90.3	7	101.5	-4
West Sikkim	24.0	-71	73.0	-29	63.0	-41
<b>Karnataka</b>						
<b>Coastal Karnataka</b>						
Dakshina Kannada	257.6	29	124.2	-40	61.4	-64
Udupi	273.4	19	105.2	-52	70.9	-62
Uttara Kannada	165.6	-9	64.1	-61	51.1	-57
<b>N I Karnataka</b>						
Bagalkote	11.0	-37	9.0	-36	1.9	-89
Belagavi	22.3	-37	6.0	-78	9.5	-57
Bidar	21.3	-47	22.3	-53	23.3	-51
Dharwad	12.2	-56	3.7	-84	7.8	-59
Gadag	4.6	-74	26.9	99	20.0	11
Haveri	30.0	-1	12.4	-53	12.7	-39
Kalaburgi	49.0	52	7.2	-83	30.2	-23
Koppal	21.3	5	20.8	24	21.6	8
Raichur	13.9	-48	9.6	-62	22.4	-22
Vijayapura	12.5	-22	2.9	-85	32.8	49
Yadgir	19.6	-40	16.9	-55	23.2	-41
<b>S I Karnataka</b>						
Ballari	12.5	-37	52.2	196	26.8	35
Bangalore Rural	24.9	20	35.6	17	16.4	-41
Bangalore Urban	16.4	-38	35.6	10	24.9	-12
Chamarajanagar	4.0	-68	31.7	113	27.7	64
Chikaballapur	5.2	-76	23.3	-2	79.7	211
Chikkamagaluru	76.7	-34	53.3	-51	28.5	-62
Chitradurga	12.6	-8	20.1	74	29.4	121
Davangere	14.5	-35	24.8	24	18.0	-2
Hassan	16.5	-48	47.0	43	29.4	17
Kodagu	131.7	-7	82.4	-39	37.9	-63
Kolar	3.3	-83	6.9	-68	25.4	15



Mandya	3.7	-59	58.7	328	32.4	99
Mysuru	12.6	-7	37.5	133	45.2	233
Ramanagara	8.1	-59	70.5	176	22.5	-16
Shivamogga	118.9	14	64.7	-37	38.5	-48
Tumakuru	3.5	-78	47.0	143	21.6	21
<b>Kerala</b>						
Alappuzha	71.4	-13	64.9	-8	32.1	-63
Kannur	173.4	31	59.1	-52	48.5	-55
Ernakulam	87.2	-19	71.4	-20	41.6	-49
Idukki	118.7	-9	77.9	-40	29.5	-73
Kasaragod	167.0	5	73.2	-48	49.0	-62
Kollam	31.3	-44	65.3	21	25.5	-61
Kottayam	93.7	-3	119.5	35	40.4	-52
Kozhikode	115.6	-10	52.3	-55	38.0	-62
Malappuram	136.8	49	68.2	-28	29.9	-62
Palakkad	102.2	25	65.8	-27	31.5	-53
Pathanamthitta	89.4	4	118.8	54	35.0	-56
Thiruvananthapuram	5.3	-84	41.9	33	20.4	-38
Thrissur	132.5	20	67.6	-35	47.9	-47
Wynad	76.6	-50	94.7	-31	32.7	-72
<b>Tamil Nadu</b>						
Ariyalur	2.0	-91	10.4	-62	27.6	-22
Chennai	15.6	-53	6.4	-81	18.5	-50
Coimbatore	13.8	70	28.4	209	14.5	32
Cuddalore	3.0	-89	6.8	-75	40.9	17
Dharmapuri	0.0	-100	63.6	188	44.2	48
Dindigul	2.3	-81	18.3	18	12.4	-36
Erode	0.4	-96	41.5	258	10.7	-35
Kanchipuram	10.5	-71	17.2	-56	39.5	-6
Kanyakumari	3.7	-80	20.6	10	8.2	-52
Karikal	10.0	-44	0.0	-100	37.7	37
Karur	0.3	-97	11.7	1	19.1	19
Krishnagiri	1.1	-93	57.4	144	46.4	81
Madurai	0.6	-96	53.4	177	4.8	-80
Nagapattinam	3.3	-81	3.0	-86	28.1	13
Namakkal	3.9	-81	22.4	3	28.4	14
Nilgiris	19.1	-55	38.7	-18	25.4	-29
Perambalur	0.0	-100	28.3	59	52.0	119
Puducherry	11.1	-63	38.6	35	62.5	87
Pudukottai	1.6	-93	18.4	-26	25.2	-13
Ramanathapuram	0.6	-92	44.3	334	2.9	-73
Salem	8.5	-62	36.3	31	36.3	11
Sivaganga	0.0	-100	76.0	366	6.0	-72
Thanjavur	0.3	-98	51.2	140	21.0	-35
Theni	9.4	36	27.0	218	3.4	-54
Tirunelveli	1.5	-75	8.8	35	0.0	-100
Tirupur	1.1	-81	20.6	232	7.8	-14
Tiruvallur	2.7	-91	0.6	-98	68.8	114
Tiruvannamalai	7.0	-75	61.4	95	61.5	67

Tiruvarur	0.0	-100	16.6	-23	30.8	17
Toothukudi	0.4	-83	10.5	238	0.0	-100
Trichy	0.2	-99	35.6	133	11.7	-49
Vellore	6.8	-74	49.6	63	63.8	80
Villupuram	3.6	-85	33.7	21	42.8	17
Virudhunagar	0.1	-99	25.2	125	0.7	-94
<b>Andhra Pradesh</b>						
<b>Coastal Andhra Pradesh</b>						
East Godavari	58.7	15	52.0	26	4.0	-91
Guntur	30.5	2	27.8	-28	56.7	48
Krishna	38.8	-11	35.8	-22	45.7	1
Nellore	29.2	37	13.6	-39	65.7	171
Prakasam	29.4	76	29.0	49	40.5	48
Sirkakulam	41.3	-6	40.9	-15	35.3	-22
Visakhapatnam	69.5	79	70.1	68	34.4	-15
Vizianagram	49.0	33	87.1	86	36.7	-28
West Godavari	52.5	-15	66.4	33	32.1	-33
<b>Rayalaseema</b>						
Anantapur	3.3	-77	22.9	55	51.2	161
Chittoor	2.6	-90	27.7	11	57.9	115
Cuddapah	10.6	-56	23.3	-2	95.9	239
Kurnool	19.5	-20	12.8	-56	32.1	6
<b>Telangana</b>						
Adilabad	58.9	-16	43.0	-37	29.8	-52
Hyderabad	10.9	-75	31.9	-34	17.9	-53
Karimnagar	74.9	32	29.8	-44	20.5	-55
Khammam	54.9	-13	50.1	-10	12.9	-75
Mehabubnagar	43.9	40	12.9	-67	27.3	-23
Medak	35.2	-20	17.2	-70	10.9	-74
Nalgonda	42.4	39	46.3	34	44.0	40
Nizamabad	55.5	-19	39.4	-45	27.8	-59
Rangareddy	40.2	10	22.8	-53	33.0	-17
Warangal	53.5	0	53.5	-3	18.2	-56

#### 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

#### North Inerior Karnataka

**Groundnut:** Bunch type of varieties, JL-24 and TMV-2, S-230, Mardur local

**Paddy:** short duration varieties Amrut, MGD-101, MTU-1001 in low lands, BR-2655, Tunga.

**Sesame:** E8,DS1, DSH9.

**Maize:** Arjun, 900 M.

**Pearl millet:** ICTP 8203 and ICMV 221

**Pigeon pea:** Maruti, TS 3 R.

**Red gram:** BRG-1, BRG2, TTB-7

#### Tamil Nadu

**Banana:**poovan, rasthali, monthan, karpooravalli and neypoovan.

**Kuruvai rice:**ADT 36, ADT 43, ADT 45 and CO 51.

#### Andhra Pradesh

**Rice:** MTU-1010, Nellore masuri, Dharani, Shwetha.Sannalu, Swarna, Vasundhara, Suraksha, Vijetha.

**Varieties for Early Kharif Rice Plantings -** Pushkala, Rasi, IR64.

**Groundnut:** Kadiri-6, Kadiri-9, Narayani and dharani.

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

#### Telangana

**Red gram:** PRG-158, Asha,LRG-41.

**Sunflower:** KBSH-1, NDSH-1, DRSH-1, APSH-66 hybrids

#### Assam

**Sali/ kharif rice:** Long duration high yielding varieties: Ranjit, Bahadur, Peoli, Moniram, Pankaj, Kushal , Swarna sub-1, Gitesh, Pankaj, Mashuri (for growing in typical lowland paddy area).

Medium duration paddy varieties : Satya and Basundhara (in medium lowland area).

**Bau rice:** Maguri, Panikekua, Amona, Negheri, Kekua, Pani Kekua, Padmapani.

**Capsularis Jute:** JRC 212, JRC 321(Sonali), JRC 7447 (Shyamali) and UPC 94(Reshma).

**Olitorius Jute:** JRO 524 (Navin), JRO 785 (Basudev), JRO 632(Baisakhtissa), Set-2 (Bahagi) and Tarun.

**Papaya :** Ranchi, Washington, Halflong, Coorg Honeydew.

**Cowpea:** Yard long bean & Pusa Barsati.

**Broccoli:** Early Danish Giant, De Cicco Green Bud, Sparton Early, Coastal and Atlantic.

**Finger Millet:** INR1008, TANU-9, Banars and Local varieties.

**Black gram:** KU 301, USJD 113, PU 19, T9, T27, Pant U 19, T122, Saonia mah (SB123).

**Green gram:** SG 1(Pratap), SG 21-5 T44, Kopergaon, K851,ML56, ML131.

**Kharif sesame:** Gauri, Madhabi, ST-1683, Punjab Til No.1.

#### Manipur

**Soybean:** JS-335.

**Groundnut:** ICGS-76.

#### Meghalaya

**Sali/Kharif Rice:** High Yielding Varieties : Shahsarang -1, Lampnah, IR 64, Ranjit, RCPL 1-412, RCPL 1-410, RCPL 1-411.

Local varieties: Mendri, Manipuri.

**Groundnut:** ICGS 76, JL 24.

**Soybean:** JS 335, Bragg, Ankur, Pusa Soubean-1, Local JS 2.

#### Nagaland

**Lowland rice:**Short to medium duration HYV rice : CAU R1, CAU R3, RCM-9 and RCM-11.

**Maize :** DA 61A, RCM-75, RCM-76 and HQPM-1.

#### Tripura

**Groundnut:** TAG 24, TG 37A, ICGS 76.

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

#### West Bengal

**Dry Seeded rice:** Sabita Foundation, Swarna sub-1 certified, IR-64, Hira T.L.

**Mango:** Himsagar, Mallicka, Langra.

**Guava:** Safeda, L-49.

**Coconut:** Eastcoastal, Hazari

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

### Odisha

**Sunflower:** Morden, Sunrise, Surya and Hybrid varieties like KBSH-1, KBSH-3 and MSFH.

**Onion:** Nasik Red, Patna Red, Pune Red, Bellary Red, Pusa Ratnar, Pusa Madhavi, Arka Niketan ,Arka Pragati.

**Ragi:**HYVs. like Subhra, Vairabi, Dibyasingh, Nilachala, Subhra, Godavari and Chilka.

**Sesame:**Uma, Kalika, Kanak, Nirmala, Prachi, Usha.T.

**Turmeric:** Roma, Surama, Rang, Rashmi.

**Jute:**JRO-524(Naveen).

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

**Rice:**Early:Jogesh, Siddant, Hazaridhan, Mandakini, Jyotirmayee, Virendra.

Medium:Pratikshya, Manaswini, Tapaswini MAS, Konark, Surendra,Kharavela, Naveen, Abhisek

Late: Barsadhan, Ranidhan, Pooja, Mrinalini, RGL-2837, Moti, Ketakijoha, Padmini,Kanchana, Mahanadi,Jagabandhu.

Hybrid varieties: CR Dhan 701, NK 5251, JKRH 401, Ajay, Rajalaxmi, Arize 6444G.

### Bihar

**Moong:** Pusa Vishal, Samrat, SML-668, Sona varieties are recommended for moong.

**Urad:** Pant U-19 and Pant U-31,Ultra and Type-9 for Urad.

**Maize:** Suwan, Deevki, Ganga-11, Shaktiman-1 and Shaktiman-2.

**Turmeric:** Improved Varieties- Rajendran,Sonia, Rajender Sonali.

**Ginger:** Improved varieties - Maran ,Nadia

**Rice:** Low land:Rajshree, Satyam, Rajendra ,Mehsooril MTU 7029(Swarna) ,Swarna sub-1

Medium land:Sita, Kanak,IR 36,Rajendra,Shweta,Santosh,Shahbhagi.

Medium duration(Hybrid): P.H.B.71,Pusa R.H.10,K.R.H 2,P.A.644,Pant Sankardhan.

**Til:** Krishna., Kaakee safed,Kalika,Kalika,Pragati

### Jharkhand

**Green gram:**mung S.M.L. 668.

**Sugarcane:** BO 147.

**Rice:**Upland Rice: Birsa Dhan 108, Birsa Vikash Dhan109.110,111 & Vandana.

Medium land:Anjali,Sahbhagi,Naveen,Birsamati,Sugandha,BR-10,IR-36.

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

**Finger Millet:** Birsa marua 2,A-404,GPU 45,47.

**Urd Bean:** T9, Pant U19,30,35 & Birsa Urd 1.

**Arhhar:**BrisaArhar-1,Narendra Arhar-1,Bahar,ICPH-2671.

**Groundnut:**A.K-12-24,Birsa Bold.

**Sweet Potato:**Birsa Sakarkandi & Shreebhadra.

### Jammu & Kashmir

**Onion:** Agrifound Parvati, Pusa red, N-53.

**Rice :** IET-1410, K-39, Ratna, PC-19, Jaya, China-1039and Giza-14.

**Maize:** Vijay, Mansar, Him - 123, C 6 & C 8.

### Uttarakhand

**Tomato:** VL Tomato-3, Pant T-3, Him Sona, Him Shikhar.

**Capsicum:**California Vander, Pus Dipti, Anupam. Heera, Indira, Supriya & Bharat.

**Potato:**Kufri- Jyoti, Ashok, Anand.

**Moong:** Pant Moong-2, Pant Moong-4, Pant Moong-5, Pant Moong-6, Narendra Moong-1.

**Rice:**long duration varieties like Pusa-44, Jaya, NDR-359, Sarju-52, PR-113, PR-114, Pant Dhan-18 or Pant Dhan-19.

late varieties VL-Dhan-154, Vivek Dhan-62, Vivek Dhan-65, VL Dhan-81, Vivek Dhan-82 or VL-Dhan-85.

**Finger millets:** VL-Mandua-124 and VL-149. However, its short duration (i.e. 95 to 100 days) varieties like VL- Mandua-204,

Pant Mandua-3, PES-176, PES-110, VL- Mandua-146.

**Bajra:**PBN-83,YESHWANT (PBN-9), Pusa Composite 443, MP443.

**Maize:** Naveen, Sweta, Kanchan, Surya, Amar, Gaurav.

**Lobia:** Pant Lobia-1 or Pant Lobia-2, UPC-5286, UPC-622, UPC-625 etc.

**Cotton:** ANKUR-651,JAWAHAR TAPTI,SRUTHI,ANKUR-09 (WHH-09).

### Himachal Pradesh

**Cauliflower:** snowball and Giant snowball

**Radish, pea:** Arkal, VL-7.

**Cabbage:** India Golden, Hybrid Kismond

**Capsicum:** solan hyb-1,californiawonder,yolo wonder ,vlshimla mirch-2.

**Brinjal:**plr-1,azad (hybrid),ArkaNidhi, ArkaKeshav, HisarShaymal, PPC, F1 Chhaya, F1 Sandhya.

**Tomato:** solangola, Palam Pink, Palam Pride, F1 Avtar, F1 Rakshita.

**Chilli:** Surajmukhi.

**Moong:** PusaBaishakhi.



**Mash:**UG-218.

**Carrot:**Nantes and Chantenay.

**Palak:**Pusa Harit, Pusa Bharti.

**Garden pea:**PalamPriya, Azad P-1,PB-89, PalamSamool and Lincoln.

**Carrot:**Nantes and Chantenay.

**Palak:**PusaHarit, Pusa Bharti.

### **East Uttar Pradesh**

**Rice:** sarayu-52, narendra-359, pant dhan-4, indrasan, NDR-9, pant dhan-12, narendra-80, ratna or pusa-35, mahsuri, swarna, mahsuri, jallahri, type-9, type-100, narendra-359, malviy dhan-36, narendra dhan-2026, narendra dhan-2064, narendra dhan-3112, sarju-52, pant dhan-4, Swarna, Pant-10, T-3, Poosa Basmati and Haryana Basmati.

**Hybrid rice varieties:** eraes-6444,6201,J.K.R.H.-401,PHB-71,narendra sankar dhan-2,3, KRH-2,PRH-10,US-312, RH-312,VSR-202,RH-1531.Narendra-8002, NarendraMayank (2008) Narendra-97.

**Scented rice:** Type-3,pusa basmati-1,basmati-370,malviya sugandh-105, malviya sugandh-4-3, narendrasugandh,Narendrausar dhan-1,3,CLR-10, or narendra usardhan-2008.

**Kharif onion:** N-53, Agrifound red

**Sorghum:** Pusa chari-23, SSG-98-8MFSH-3, Pant-5 and MP chari

**Lobia:** Russian Joint , UPC-5286, UPC-5287, NP-3, Bundhel lobia-2, UPC-9202 and UPC-4200

**Maize:** hybrid varieties: Ganga-2, 5,7 ; composite: Kishan, African Tall and Vijay ;  
indigenous variety Type-41 for fodder

**Moong:**Narendra moong-1, Pant moong-1,3,4,PDM-11, Samrat, Malveey - Jyoti, Janchetana, Jagruti, Janpriya,Jankalyani, Asha, Shweta, Neha, TM-9937, MH-215.

**Urad:** Narendra urd-1, Pant U-35, 31, Azad urd-2,3, Shekhar-1,2,3.

**Sugarcane:** coj-64, cos-96268, cos-98231, cos-767, cos-84, cos-32, copant-84212, Ko.Sha.-88230, 95255, Ko.Sha.-95436, 01235.

**Tomato:** pusa early, pusa ruby, HS 101.

**Cauliflower:** pusa Dipali.

**Pearl Millet:** Raj WCC-75, ICMB-155, Pusa-322,23, ICMH-451.

**Seasame:** T-4,78, Shekhar, Pragati, Tarun.

**Pigeon Pea:**Bahar, Narendra Arhar-1, Azad, Pusa-9.

**Jute:** Jute Reshma, NDC (2007), NDC-2028, NDC-9102.

**Okra:** PusaSawani, VarsaUphar, Azad kranti.

**Brinjal:** Pant Samrat, Pant Rituraj, Pusa hybrid-6.

**Guava:**Sardar( Lucknow-49).

### **West Uttar Pradesh**

**Ladies finger:**VRO-6, VRO-5.

**Rice:**PRH 10, PB1, Pusa 1509, Sugandha5.

**Pigeon pea:**T-21, UPAS 120.

**Cotton:** H777, Dhanalakshami, HD107.

**For fodder Jowar:** JS 120, Lobia 88.

### **Punjab**

**Sugarcane:** CoJ-85, CoJ-83, CoJ-64 (early maturing), COH-119, CoJ-88, CoS-8436 for and CoJ-89.

**Rice:** Pusa-44, T.R-112 and T.R-113.

### **Delhi**

**Cotton:** H-777, H-974, H-1098.

**Pigeonpea:** Pusa 2001, Pusa991, Pusa992, Paras manak, UPAS 120.

**Bajra:** Hybrid Bajra Pusa-605, Hybrid Bajra Pusa-415, Composite Bajra Pusa-383, HSV-67.

**Maize:**AH-421, AH-58 or Composites: Pusa composite-3, Pusa composite-4.

**Guar:** PusaNavbahar, DurgaBahar.

**Radish:**PusaChetki.

**Cluster bean:**PusaKomal.

**Beans:** PusaSem 2, PusaSem 3.

**Spinach:** PusaBharti.

**Amaranths:** PusalalChaulai, PusaKiran.

**Ladyfinger:** Pusa A-4.

### **East Rajasthan**

**Sugarcane:** (late sown): COL8001.

**Groundnut:** RG 425, RG382, HNG10, GG20, TG37, TG39, M-13.

**Kharif Onion** N-53 , Agrifound Dark Red.

**Okra:** Ark abhay, Parbhani kranti, Pusa makhmali.

**Guar:** RGC-936,986,1002,1017,HG -365,563,Hg2-20. RGC-1003, RGC-1066.

**Green gram** RMG-62, RMG-268, K-851, G.M-4, RMG-492 & RMG-344 ML-131, IPM-02-03 (improved varieties).

**Cowpea:**FS-68, RC-19 and RC-101 (improved varieties).  
**Moth bean-**R.M.O-40, R.M.O-257, R.M.O-225 and CAZRI moth-2. RMO-40 and RMO-225(Maruvardan).  
**Sorghum:** CSH-6 (90-100 days), CSV-10 (100-110 days), CSV-15 (105-140 days).  
**Sesame :** RT-125, RT- 127, RT- 346, RT -351.  
**Pearl millet :** RHB-121, HHB-67.  
**Black gram:** Krishna, T 9, Pant U-19, 31, KU-96-3, Pratap Urd-1.  
**Guava:** Allahabad safeda, ArkaMradula and Lucknow 49  
**Pomegrante:** Ganesh, Jhalore Seedless  
**Lime:** Kagzi, Baramasi, Pramalini and Vikram  
**Aonla:** Kanchan, Banarasi, Krishana, NA9, NA10 and Chakaiya  
**Ber:** Sonor, Thornless, Katha Alwar, Gola and Umran  
**Papaya:** Kurg Honeydew, PusaNanha, Pusa Dwarf and Pusa Delicious

#### **West Rajasthan**

**Pearl millet:** HHB 67, RHB 121.  
**Cluster bean:** RGC 936, RGC 1002, RGC 1017 and RGC 1066.  
**Cowpea:** RC-101, RC19 and RCp 27.  
**Moong:** RMG 62, RMG 268, SML 668 and GM-4.  
**Moth bean:** RMO-40, RMO 435, RMO 257and CZM-2.

#### **Madhya Pradesh**

**Soybean:** JS 95-60 (early), JS 93 -05 (Medium), JS 335 (Late).  
**Redgram:** TJT 501, ICPL 87 (early) and JKM 189 (Medium).  
**Groundnut:** TG 22, TG 26, JGN 3.  
**Rice:** JR 345, JR-201, Poornima (short duration).  
IR-64, IR-54, Madhuri, Kanti, Mahamaya, Pusa basmatai (medium duration).  
**Black gram:** JU 86, JU 3, T 9.  
**Maize:** JVM 421, JM 12, JM 216.  
**Green gram:**TJM 3, JM 721, HUM 1.  
**Sugarcane:** KO Jawahar-86141, 86572.  
**Guar:** HG 365, HG 565.

#### **Chhattisgarh**

**Rice:**Purnima, Danteswari, Shabagi, MTU 1010,MTU 1001, Suwarna.  
**Brinjal:** Punjab Shadabahr, KS 331, PH 5, PH 6, KS 224, ARBH 543.  
**Tomato:** Pusa early dwarf, Sweet 72, Pusa rubi, Pusa Gurab, Mangala, Naveen, Laxmi 5005 & NS 815.  
**Soybean:** J.S. 335, Indira Soya-9, J.S. 80-21, J.S. 93-05.  
**Groundnut:** SB -11 (J 11), ICGS-37, ICGS-44, T.A.G- 24, T.A.G-28.  
**Sesame:** T.K.G-21, T.K.G-22, T.K.G-55, T.K.G-8.