



# *National Agromet Advisory Service Bulletin*



*Friday 22<sup>nd</sup> July 2016*

*(For the period 22<sup>nd</sup> to 26<sup>th</sup> July 2016)*



*Issued by*

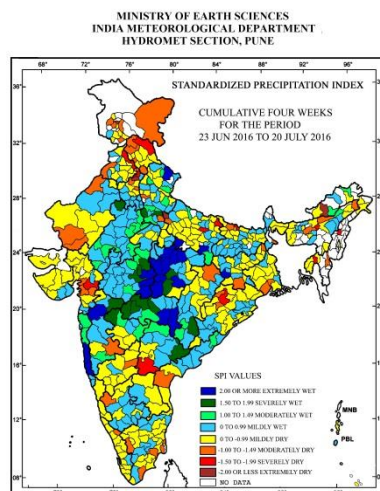
*National Agrometeorological Advisory Service Centre,  
Agricultural Meteorology Division,  
India Meteorological Department, Shivajinagar, Pune.*

**Weblink For**

**District AAS Bulletin:** <http://www.imdagrimet.gov.in/node/3545>

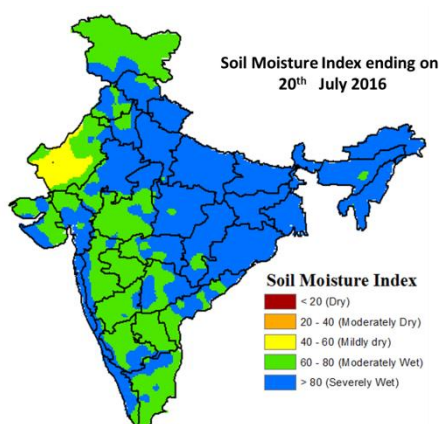
**State Composite AAS Bulletin:** <http://www.imdagrimet.gov.in/node/3544>

## Standardised Precipitation Index Four Weekly for the Period 23<sup>rd</sup> June to 20<sup>th</sup> July 2016



- Extremely/severely wet conditions experienced in few districts of Madhya Pradesh; Konkan & Goa; Maharashtra; Gumla district of Jharkhand; Banda, Mirzapur, Etah, Mathura districts of Uttar Pradesh; Chamoli district of Uttarakhand; Jhunjhunu district of Rajasthan; Bastar district of Chhattisgarh; Khammam district of Telangana.
- Extremely/Severely dry conditions experienced in East Kameng district of Arunachal Pradesh; Morigaon district of Assam; Kohima district of Nagaland; Dhalai district of Tripura; Sambalpur district of Odisha; Sitamarhi district of Bihar; Ambedkar Nagar, Farrukhabad, Kushi Nagar districts of Uttar Pradesh; Ambala, Kurukshetra districts of Haryana; Hoshiarpur, Sas Nagar Mohali districts of Punjab; Lahaul & Spiti district of Himachal Pradesh; Srinagar district of Jammu & Kashmir; Baroda district of Gujarat Region; Mahbubnagar district of Telangana.
- Moderately dry conditions experienced in few districts of Himachal Pradesh; Jammu & Kashmir; Kamrup, Karimganj, Shonitpur, Tinsukia districts of Assam; Aizwal district of Mizoram; South Dinajpur, East Midnapore, Kolkata districts of West Bengal; Jharsuguda, Sonepur districts of Odisha; Sahibganj, West Singhbhum districts of Jharkhand; East Champaran district of Bihar; Kannauj, Ghaziabad, Mainpuri districts of Uttar Pradesh; Kaithal, Panipat, Panchkula districts of Haryana; Ferozepur district of Punjab; Barmer, Sri Ganganagar, Jalore districts of Rajasthan; Broach, Anand, Narmada districts of Gujarat Region; Sholapur district of Maharashtra; Surguja district of Chhattisgarh; Prakasam district of Andhra Pradesh; Coimbatore, Nagapattinam, Pudukkottai, Tiruvarur, Toothukudi districts of Tamil Nadu; Yadgir, Shimoga districts of Karnataka; Wynad district of Kerala;
- Rest of the country experienced moderately wet/ mildly dry/mildly wet conditions.

### Soil Moisture Index for the week ending on 20<sup>th</sup> July 2016



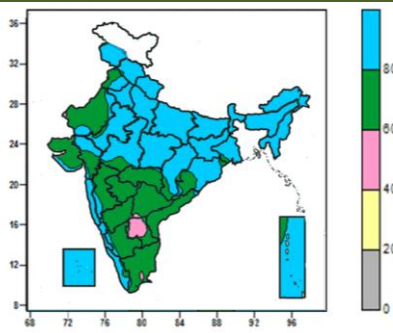
- Soil Moisture Index indicates moderately wet condition in many parts of West Madhya Pradesh, Madhya Maharashtra, Marathwada, Jammu & Kashmir, Saurashtra & Kutch, Tamil Nadu, Interior Karnataka, Rayalaseema, some parts of Gujarat region, Rajasthan, Vidarbha, Telangana, Coastal Andhra Pradesh and mild dry condition in some parts of West Rajasthan. Rest of the country shows severely wet condition.

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 20.07.2016	
Actual Mean Maximum Temperature (°C) in India for the week ending 20.07.2016	Mean Maximum Temperature (°C) Anomaly in India for the week ending 20.07.2016
<ul style="list-style-type: none"> <li>• Mean maximum temperature was between 36 to 40°C over some parts of West Rajasthan, Coastal Andhra Pradesh, Rayalaseema, Tamil Nadu and isolated pocket of Telangana.</li> <li>• Mean maximum temperature was between 28 to 36°C over rest of the country except some parts of Himachal Pradesh and isolated pockets of Jammu &amp; Kashmir, Konkan &amp; Goa and Madhya Maharashtra where it was between 24 to 28°C.</li> </ul>	<ul style="list-style-type: none"> <li>• Mean maximum temperature was above normal by 2 to 4°C over many parts of Telangana, some parts of, Coastal Andhra Pradesh and isolated pockets of Vidarbha and Chhattisgarh.</li> <li>• It was normal to near normal over rest of the country except some parts of Rajasthan, Madhya Pradesh, Uttar Pradesh and isolated pockets Punjab and Haryana where it was below normal by 2 to 4°C.</li> </ul>
Actual Mean Minimum Temperature (°C) in India for the week ending 20.07.2016	Mean Minimum Temperature (°C) Anomaly in India for the week ending 20.07.2016
<ul style="list-style-type: none"> <li>• Mean minimum temperature was between 12 to 20°C over some parts of Himachal Pradesh and Jammu &amp; Kashmir.</li> <li>• Mean minimum temperature was between 20 to 28°C over rest of the country except some parts of West Rajasthan, where it was between 28 to 32°C.</li> </ul>	<ul style="list-style-type: none"> <li>• Mean minimum temperature was above normal by 2 to 4°C over some parts of Andaman &amp; Nicobar Islands and isolated pocket of West Rajasthan.</li> <li>• Mean minimum temperature was normal to near normal over rest of the country except some parts of Jammu &amp; Kashmir, where it was below normal by 2 to 4°C.</li> </ul>



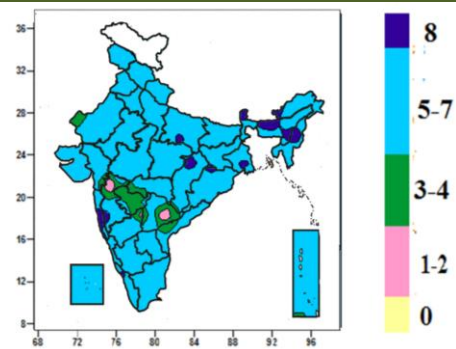
**Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 20.07.2016**

**Relative Humidity (%) over India for the week ending 20.07.2016**



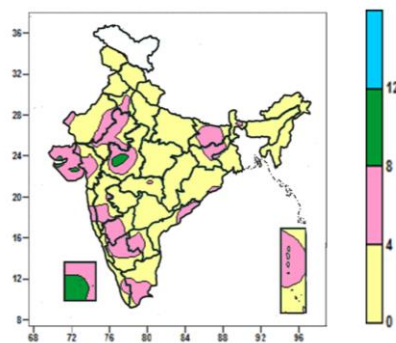
- Mean Relative Humidity was above 80% over Jammu & Kashmir, Uttarakhand, Haryana & Delhi, Uttar Pradesh, Bihar, Jharkhand, Sub-Himalayan West Bengal & Sikkim, North East India, Lakshadweep, many parts of Himachal Pradesh, Gangetic West Bengal, East Rajasthan, Madhya Pradesh, Chhattisgarh, Odisha, Konkan & Goa, Coastal Karnataka, Kerala, Andaman & Nicobar Islands, some parts of Punjab, West Rajasthan, Gujarat Region and isolated pockets of Saurashtra, Madhya Maharashtra, Vidarbha, Interior Karnataka, Coastal Andhra Pradesh and Tamil Nadu.
- Mean Relative humidity was between 60 to 80% over rest of the country except many parts of Rayalaseema, isolated pockets of West Rajasthan, Telangana and Tamil Nadu, where it was between 40 to 60%.

**Cloud amount (okta) over India for the week ending 20.07.2016**



- Sky remained overcast (8 okta) over Sikkim, many parts of Manipur, some parts of Assam & Meghalaya, Arunachal Pradesh, Konkan & Goa, isolated pockets of East Uttar Pradesh, Jharkhand, Odisha, Nagaland, Gangetic West Bengal, Chhattisgarh, Madhya Maharashtra and Kerala.
- Sky remained generally cloudy (5-7okta) over rest of the country except many parts of Marathwada, some parts of West Rajasthan, Madhya Maharashtra, Vidarbha, Telangana, isolated pockets of Gujarat Region, Chhattisgarh, Coastal Andhra Pradesh, North Interior Karnataka and Andaman & Nicobar Islands, where it was partly cloudy/mainly clear (3-4/1-2 okta).

**Wind speed (knots) over India for the week ending 20.07.2016**



- Mean wind speed was between 8 to 12 knots over many parts of Lakshadweep and isolated pockets of Saurashtra & Kutch, West Madhya Pradesh.
- Mean wind speed was between 0 to 4 knots over rest of the country except many parts of Bihar, Saurashtra & Kutch, Interior Karnataka, Andaman & Nicobar Islands, some parts of Haryana & Delhi, Rajasthan, West Madhya Pradesh, Jharkhand, Gujarat Region, Konkan, Madhya Maharashtra, Kerala, Rayalaseema, Coastal Andhra Pradesh, Tamil Nadu, Lakshadweep and isolated pockets of Vidarbha, West Bengal, Odisha, Coastal Karnataka where it was between 4 to 8 knots.

## Monsoon Watch

- Yesterday southwest monsoon was vigorous over North Interior Karnataka and active over Sub-Himalayan West Bengal & Sikkim, Konkan & Goa and Rayalaseema.

### Weather Forecast for next 5 days valid upto 0830 hours of 27<sup>th</sup> July 2016

- Meteorological sub-division wise detailed 5 day rainfall forecast is given below.

#### 5 Day Rainfall Forecast (MID DAY) 22<sup>nd</sup> July 2016

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

- 22 July (Day 1):** Heavy to very heavy rain very likely at a few places over Sub-Himalayan West Bengal & Sikkim; at isolated places over Bihar, Arunachal Pradesh, Assam & Meghalaya, Konkan & Goa; heavy at isolated places over Uttarakhand, Uttar Pradesh, East Madhya Pradesh, Vidarbha, Chhattisgarh, Jharkhand, Odisha, Nagaland, Manipur, Mizoram & Tripura, Madhya Maharashtra, Marathawada, Coastal Andhra Pradesh, Telangana, Coastal Karnataka & Interior Karnataka.
- 23 July (Day 2):** Heavy to very heavy rain very likely at a few places over Sub-Himalayan West Bengal & Sikkim; at isolated places over Bihar, Arunachal Pradesh and Assam & Meghalaya; heavy at isolated places over Uttarakhand, East Uttar Pradesh, Madhya Pradesh, Vidarbha, Chhattisgarh, Marathawada, Konkan &

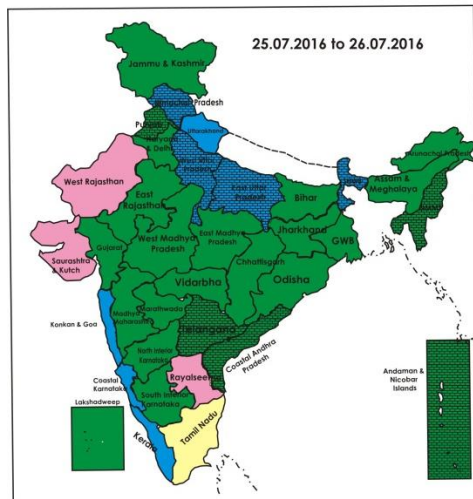
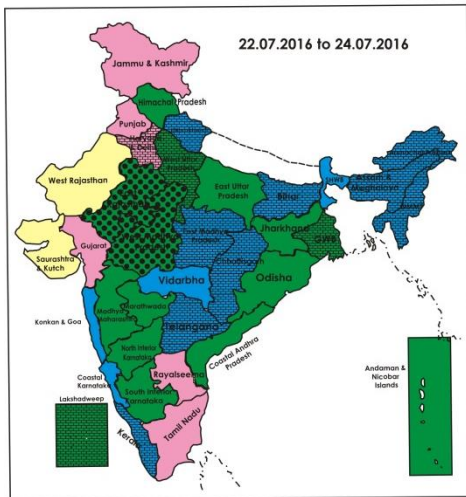
Goa, Coastal Andhra Pradesh, Telangana, Coastal Karnataka, Interior Karnataka.

- **24 July (Day 3):** Heavy to very heavy rain very likely at isolated places over Sub-Himalayan West Bengal & Sikkim and Coastal Karnataka; heavy at isolated places over Uttarakhand, East Uttar Pradesh, East Rajasthan, West Madhya Pradesh, Vidarbha, Bihar, Arunachal Pradesh, Assam & Meghalaya, Madhya Maharashtra, Marathwada, Konkan & Goa, Coastal Andhra Pradesh & Kerala.
- **25 July (Day 4):** Heavy to very heavy rain very likely at isolated places over Coastal Karnataka; heavy at isolated places over Uttarakhand, East Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Madhya Maharashtra, Kerala, Konkan & Goa.
- **26 July (Day 5):** Heavy to very heavy rain very likely at isolated places over East Uttar Pradesh; heavy at isolated places over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Haryana, Chandigarh & Delhi, West Uttar Pradesh, Konkan & Goa, Coastal Karnataka & Kerala.

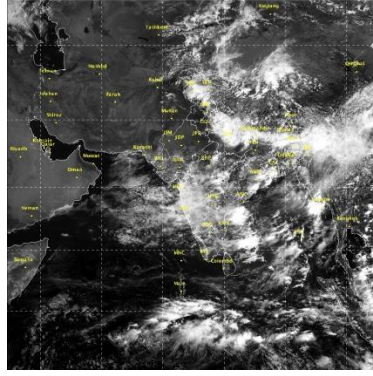
**Weather Outlook for subsequent 2 days from 27<sup>th</sup> to 29<sup>th</sup> July 2016**

- Rain at most places very likely along west coast and over most parts of northwest India.
- Rain at many places very likely over northeastern states, east, central & adjoining peninsular India.

**Weather Forecast Map (valid upto 0830 hours of 27<sup>th</sup> July, 2016)**



- Most places
- Most/Few places/Dry
- Most/ Few places
- Most / Many places
- Most/Many / Isolated places
- Most / Isolated places
- Most / Many/ Few places
- Most / Few / Isolated places
- Most/Many places/ Dry
- Most / Isolated places/ Dry
- Many places
- Many / Few places
- Many / Isolated places
- Many / Few / Isolated places
- Many / Few places/ Dry
- Many / Isolated places/Dry
- Many places/ Dry
- Few places
- Few / Isolated places
- Few/ Isolated places/Dry
- Few places/Dry
- Isolated places
- Isolated places/ Dry
- Dry



### Salient Advisories

- Utilising the realised and expected rainfall, undertake the following agricultural activities:
- In **Kerala**, continue direct sowing of rice (Uma Jyothy, Vyttila-6 varieties) in Alappuzha, Kottayam districts.
  - In **Coastal Karnataka**, complete transplanting of rice in Dakshina Kannada and Udupi districts of Coastal Zone. Continue transplanting in Uttar Kannada district.
  - In **South Interior Karnataka**, undertake transplanting of rice in Chikmagalur, Hassan, Shivamogga districts of Southern Transition Zone. Continue nursery preparation for ragi and also direct sowing of ragi. Complete sowing of red gram and sunflower and carry out sowing of short duration varieties of finger millet (Indaf-5, Indaf-9, and GPU-28.MR-01, MR-06 & ML-365) in Chitradurga, Davengere and Tumakuru districts of Central Dry Zone with realised and expected rainfall.
  - In **North Interior Karnataka**, complete sowing of green, black gram, soybean, maize, groundnut, sorghum and cotton in Dharwad, Belagavi and Haveri districts of North Transition Zone. In Vijayapura, Baglote and Gadag districts of North Dry Zone, in shallow black and red soils, complete sowing of groundnut, red gram, onion, castor, bajra, navane, cowpea and horse gram as solo crop.
  - In **Coastal Andhra Pradesh**, in East Godavari district, continue transplanting of ragi and rice. In West Godavari, Krishna, Prakasam, Guntur and Krishna districts, continue nursery sowing of rice, sowing of millets, maize and sowing of red gram, black gram, green gram and cotton.
  - In **Rayalaseema**, continue sowing of rainfed groundnut in Anantpur district. Continue sowing of groundnut, red gram, bajra, korra and castor in Kurnool district.
  - In **Telangana**, in Mahabubnagar, Nalgonda, Medak, Rangareddy, Khammam and Warangal districts (South Telangana Zone), undertake nursery preparation for sowing of rice (*Telangana Sona*) and continue sowing of short duration maize varieties under rainfed conditions and cotton, groundnut, green gram and red gram.
  - In **Assam**, continue transplanting of *Sali* rice and sowing of sesame.
  - In **Meghalaya**, undertake transplanting of *Sali* rice and sowing of groundnut, soybean, green gram, black gram and rajma.
  - In **Nagaland**, continue transplanting of TRC/WRC rice and in **Manipur**, continue transplanting of rice and continue sowing of groundnut and black gram.
  - In **Mizoram**, continue transplanting of *kharif* rice, sowing of *kharif* green gram, black gram and rajma.
  - In **Tripura**, continue transplanting of *kharif* rice and continue sowing of groundnut and maize.
  - In **West Bengal**, in Gangetic West Bengal, undertake transplanting of *Aman* rice and continue direct sowing of *Aman* rice in upland areas. In Sub-Himalayan West Bengal, continue transplanting of *Aman* rice. Continue seedbed preparation for early cabbage, broccoli etc after current spells of heavy rain.



- In **Odisha**, continue transplanting of rice. Continue wet bed nursery raising of *kharif* rice. Continue sowing of groundnut, arhar, castor and cotton green gram, black gram and sesame in uplands.
- In **Bihar**, complete direct sowing of scented and short duration rice varieties and continue transplanting of rice and in **Jharkhand**, complete transplanting of rice, sowing of maize, groundnut and pigeon pea.
- In **Konkan**, in north Konkan region, continue transplanting of 21-25 days old rice seedling. Continue transplanting of 28-30 days old finger millet seedlings. In south Konkan region, maintain 2-3 cm water level in early transplanted rice fields.
- In **Madhya Maharashtra**, continue transplanting of 21-25 days old rice seedling and 28-30 days old finger millet seedlings in Pune and Ahmednagar districts. In **Marathwada**, continue planting of *adsali* sugarcane.
- In **Vidarbha**, continue transplanting of 21-25 days old rice seedling in Gondia, Chandrapur and Gadchiroli districts. Continue cultivation of vegetables like bitter gourd, tinda and cluster bean in Buldana, Akola, Washim, Amravati, Nagpur and Yavatmal districts.
- In **East Madhya Pradesh**, continue transplanting of rice and sowing of green gram and black gram.
- Continue sowing of red gram, sesame, moong, urad and maize in **West Madhya Pradesh**
- In **Chhattisgarh**, continue transplanting of rice and continue direct sowing of rice. Continue sowing of red gram, soybean and maize.
- In **East Uttar Pradesh**, continue transplanting of rice and continue sowing of maize, urad and arhar.
- In **Jammu & Kashmir**, continue transplanting of rice and sowing of maize.
- In **Himachal Pradesh**, continue transplanting of rice and sowing of soybean and green gram.
- In **Uttarakhand**, complete sowing of green gram and black gram.
- In **West Uttar Pradesh**, continue sowing of maize and pigeon pea.
- In **Punjab**, complete transplanting of rice and in **Haryana**, continue transplanting of rice.
- In **Delhi**, continue sowing of maize, pigeon pea and continue sowing of cotton, green gram and black gram. Continue nursery sowing of rice.
- In **East Rajasthan**, continue sowing of bajra, sorghum and guar, groundnut and blackgram with realised and expected rainfall.
- In **West Rajasthan**, in Hanumangarh and Bikaner districts, continue sowing of bajra, mung, cluster bean sesame, castor and moth bean with realised rainfall.
- In **Gujarat**, complete transplanting of rice, complete sowing of red gram, millets, continue sowing of green gram, black gram and continue transplanting of chilli, brinjal, complete sowing of cucurbits like bottle gourd, ridge gourd, sponge gourd, bitter gourd in Navasari, Dangs and Valsad districts of South Gujarat Heavy Rainfall Zone. Continue sowing of pigeon pea, castor, maize, bajra and vegetable crops like bhindi, beans and cucurbits in Surat, Narmada, Tapi and Bharuch districts.
- In view of subdued rainfall activity over **Saurashtra and Kutch** which is likely to continue, following advisories are suggested:
  - Carry inter cultural operations, hand weeding and mulching in already sown crops like groundnut, cotton (early vegetative/vegetative stage) to conserve soil moisture.
  - Continue sowing of castor, pigeon pea, groundnut, cotton, pearl millet, sesame, green gram, black gram and cowpea with short duration varieties in Amreli, Rajkot, Surendranagar and Jamnagar districts of North Saurashtra Zone with realised rainfall.
  - In Kutch, due to subdued rainfall activity, undertake sowing of castor as normal crops could not be sown. Carry intercultural operations like hand weeding and mulching in already sown crops like groundnut and cotton to conserve soil moisture.



## Detailed Zonewise Agromet Advisories

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



*Banana*



*Rice*



*Sugarcane*



*Red gram*

- **Realised Rainfall:** : Rainfall occurred in all districts of Coastal Karnataka, Kalaburgi district of North Interior Karnataka, Chikaballapur, Chikkamagaluru, Kodagu, Ramanagara and Shivamogga districts of South Interior Karnataka, all districts of Kerala except Kollam, Thiruvananthapuram and Wyand, in Dharmapuri, Dindigul, Kanchipuram, Krishnagiri, Nilgiris, Sivaganga, Trichy and Vellore districts of Tamil Nadu, all districts of Coastal Andhra Pradesh except Nellore, Prakasam and Visakhapatnam, in Chittoor district of Rayalaseema, all districts of Telangana except Adilabad and Karimnagar. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - As rain/thundershowers likely at most places over Coastal Karnataka, at most/many places over Kerala, North Interior Karnataka and South Interior Karnataka during the period, over Coastal Andhra Pradesh and Telangana from 22<sup>nd</sup> to 25<sup>th</sup> July, farmers are advised to postpone irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Undertake rain water harvesting.
  - As heavy/heavy to very heavy rain is very likely at isolated places over Coastal Karnataka during the period, heavy rain is very likely at isolated places over Interior Karnataka on 22<sup>nd</sup> & 23<sup>rd</sup>, over Coastal Andhra Pradesh from 22<sup>nd</sup> to 24<sup>th</sup>, over Telangana on 22<sup>nd</sup> and 23<sup>rd</sup> and over Kerala from 24<sup>th</sup> to 26<sup>th</sup> July, provide adequate drainage in standing crop fields to avoid water stagnation.
  - **Kerala:**
    - In Kerala, continue sowing of rice (Uma, Jyothy, Vyttila-6 varieties) in Alappuzha and Kottayam districts and undertake tapping of rubber in Thiruvananthapuram district and take care to avoid waterlogging at the base of banana plant especially in low lying areas in Kollam district. .
    - In Kannur, Malappuram and Kozhikode districts, undertake planting of cultivars like Poovan, Palayankodan, Robusta.
    - Continue planting of brinjal, bhindi and chilli with adequate drainage in Alappuzha, Kottayam districts.
    - In Alappuzha and Kottayam districts, prevailing weather conditions (humid conditions) are congenial for incidences of leaf rot, rhinoceros beetle & red palm weevil in coconut. To control leaf rot, apply Contaf @ 2 ml / 300 ml of water and Ferterra@ 20gm + 200gm sand in leaf axil to control rhinoceros beetle & red palm weevil after current spells of rain.
    - In Kannur, Kasaragod, Malappuram and Kozhikode districts, persisting high soil moisture and relative humidity may cause the spread of collar rot and web blight diseases in cowpea (early growth stage). To control, remove severely infected plants, drench and spray Mancozeb® @ 2g/litre of water in and around the infected plants.
    - In Palakkad, Ernakulam and Thrissur districts, prevailing weather conditions are congenial for incidence of bud rot in coconut. To control, cut and remove all the affected tissues of the crown and apply Bordeaux paste and protect it from rain till normal shoot emergence.
    - In Thiruvananthapuram district, corrid bug may attack coconut tree and feed from buttons and white flies and green hoppers in cucurbits. To control the diseases, apply 2% Neem oil garlic emulsion at leaf axils and immature bunches at an interval of 45 days.
  - **Karnataka:**
    - In Coastal Karnataka, complete transplanting of rice in Dakshina Kannada, Udupi districts. Continue transplanting of rice and arecanut in Uttar Kannada districts. Carry out intercultural operations/weeding in 25-35 days old maize and cotton crop after current spells of rain. As heavy rain is very likely at isolated places from 22<sup>nd</sup> to 24<sup>th</sup>, provide adequate drainage in maize, turmeric and ginger fields.
    - Continue main field preparation and undertake transplanting of rice, continue sowing of pigeon pea, carry out sowing of fodder Sorghum, fodder Maize, fodder Bajra, fodder Cowpea as and when rain occurs in Bidar district of North East Transition Zone.
    - Carry out intercultural operations in 25-30 days old soybean, green gram, black gram, sorghum, maize and groundnut crops in Dharwad, Belagavi and Haveri districts of North Transition Zone.
    - In Vijayapura, Baglote and Gadag districts of North Dry Zone, in shallow black and red soils, complete sowing of groundnut, red gram, onion, castor, bajra, navane, cowpea and horse gram as solo crop; to make efficient use of available soil and water resources and to get higher returns, take up intercropping of bajra + redgram in 2:1 row proportion or bajra + castor in 2:1 row proportion. In medium black and deep black soils, take up sowing of

groundnut, red gram, chilli, onion, castor, bajra, navane, cowpea and horse gram as solo crop; to make efficient use of available soil and water resources and to get higher returns, take up intercropping of bajra + red gram in 2:1 row proportion or bajra + castor in 2:1 row proportion.

- Continue puddling in the main field for transplanting of rice, complete sowing of red gram, black gram, green gram, soybean, cotton and maize in Ballari, Kalaburgi, Koppal, Raichur and Yadgir district of North East Dry Zone. Complete sowing of sorghum, maize (African tall), cowpea and short duration bajra for fodder purpose.
- Continue sowing of medium to short duration crops like ragi (Indaf-5, 9, MR-6, GPU-28, 48, ML-365), maize (Ganga, Deccan, Vijaya composite and Composite NAC), groundnut (JL-24, KCG-2, GBBB-4), cowpea (C-152, KM-5 and PKB-4 for vegetable purpose) and green gram (PS-16, PDM-84 & 178) in Bengaluru Rural, Bengaluru Urban, Ramnagara, Chickaballapura and Kolar districts of Eastern Dry Zone with realised rainfall. Adopt crop rotation system instead of mono cropping. Start transplanting of rice in irrigated parts after release of water from major reservoirs.
- Undertake transplanting of rice in Chikmagalur, Hassan, Shivamogga districts of Southern Transition Zone. Continue nursery preparation for ragi and also direct sowing of ragi. Continue intercultural operations in already sown maize, groundnut and red gram fields after current spells of rain.
- Complete sowing of red gram and sunflower and carry out sowing of short duration varieties of finger millet (Indaf-5, Indaf-9, and GPU-28, MR-01, MR-06 & ML-365) in Chitradurga, Davengere and Tumakuru districts of Central Dry Zone with realised and expected rainfall.
- Continue nursery sowing of rice in some areas, carry out transplanting of rice, continue planting of black pepper in Kodagu, Mandya, Mysuru and Chamrajnagara districts of Southern Dry Zone utilizing realised and expected rainfall. Remove excess water from rice nurseries, vegetables, ginger and turmeric fields.
- Yellow mosaic is noticed in green gram and black gram in Bidar district; remove and destroy the affected plants. Install yellow sticky trap @ 10 per acre. Spray Imidacloprid 17.8 SL @ 0.5 ml or Triazophos 40 EC @ 1.5 ml per liter of water for control. Attack of aphid and thrips noticed in green gram and black gram; to control, spray Methyl Parathion 50 EC @ 1 ml or Dimethoate 30 EC @ 1.7 ml per litre of water after current spells of rain.
- There is chance of tube rot in ginger and turmeric in Sirsi district; treat the tubers with 3 g Copper Oxochloride per litre of water and remove excess water from the field.
- Due to cloudy weather there is chance of blast infection in rice nursery in Southern Dry Zone; to manage, spray fungicide Carbendazim 1g/litre or Tricyclozole @ 0.6 g/litre of water for control after current spells of rain.

#### ▪ **Andhra Pradesh:**

- In Srikakulam, Vizianagaram and Vishakhapatnam districts and continue nursery sowing and direct sowing of rice, planting of rainfed sugarcane and sowing of groundnut, pulses. Undertake pre-emergence spraying of Pretilachlor with safener @ 400 ml/acre within three days of sowing to control weed problem in direct sown rice.
- In East Godavari district, continue transplanting of ragi and rice. In West Godavari, Krishna, Prakasam, Guntur and Krishna districts, continue nursery sowing of rice, sowing of millets, maize, red gram, black gram, green gram and cotton.
- In Rayalaseema, continue thinning operation and inter cultivation/hand weeding in June sown castor and red gram crops and sowing of rainfed groundnut in Anantpur district. Continue sowing of groundnut, red gram, bajra, korra and castor in Kurnool district.
- In Nellore district, prevailing weather condition (partially cloudy) is congenial for incidence of root rot in kharif groundnut (flowering stage). To control, go for seed treatment with Tebuconazol @ 1g/kg of seed and spray Copperoxychloride 3g/litre of water. Care should be taken to spray at root and stem area after current spells of rain.
- In Anantapur and Kurnool districts, thrips incidence was noticed in cotton. For the control of the sucking pest, undertake stem application of cotton (Monocrotophos: water (1:4) @ 30, 45 DAS or Imidachloprid: water (1:20) @ 60 DAS) after current spells of rain. In the June first week sown crop of groundnut a very low incidence of the Aphids and also Collar rot and Stem rot incidence was noticed. If the attack is severe, undertake plant protection measures on a non rainy day.
- In West Godavari, Krishna, Prakasam, Guntur and Krishna districts, to prevent white mite incidence on sugarcane (vegetative to ripening stage), spray Malathion @ 3 ml/litre of water after current spells of rain.

#### ▪ **Telangana:**

- In Karimnagar, Nizamabad and Khammam districts (North Telangana Zone), undertake planting of tomato, bhindi and brinjal and continue nursery preparation for sowing of Telangana Sona rice and nursery sowing of rice (medium and short duration varieties).
- In Mahabubnagar, Nalgonda, Medak, Rangareddy, Khammam and Warangal districts (South Telangana Zone), undertake nursery preparation for sowing of Telangana Sona rice, and continue sowing of short duration maize varieties under rainfed conditions and nursery sowing of short duration varieties of rice, sowing of maize, cotton, groundnut, green gram and red gram. To prevent seed borne diseases, treat the seeds with fungicides before sowing and drench vegetable nursery bed with Copper-Oxy-Chloride @ 3 g/litre of water.
- In Mahabubnagar, Nalgonda, Medak, Rangareddy, Khammam and Warangal districts (South Telangana Zone), flea beetles incidence was noticed in black and green gram. To control, spray Quinalphos @ 2 ml/litre of water or Acephate @ 1.5 g/litre of water or monocrotophos @ 1.6 ml/litre of water after current spells of rain.

▪ **Tamil Nadu:**

- In Coimbatore, Tiruppur, Erode districts, harvest irrigated sorghum and cumbu during non rainy days and continue sowing of gourds.
- In Tuticorin, Virudhunagar and Tirunelveli districts, provide support to banana crop, remove the dry cane leaves and do double line propping with trash twist in seven month old sugarcane to prevent lodging.
- In Nilgiris district, continue planting of tea seedlings.
- In Kanyakumari district, continue grafting and cutting of horticultural crops and planting of rubber.
- In Coimbatore, Tiruppur, Erode districts, due to high humidity and low temperature, leaf spot disease may occur in turmeric. To control, spray Carbendazim fungicide @ 1 g/litre of water.
- In Pudukottai, Madurai, Dindigul, Theni, Ramanathapuram and Sivaganga districts, to control hairy caterpillar in groundnut, spray Emamectin Benzoate 5 SG @ 220 g/ha after current spells of rain.
- In Tuticorin, Virudhunagar and Tirunelveli districts, citrus canker is observed in citrus, due to high cloud cover and moderate humidity. To control citrus canker, immediately after pruning, give one spray of Copper oxychloride (COC) 0.3% followed by sprayings with Streptocyclin 100 ppm + COC 0.3 % at monthly intervals.
- In Namakkal, Salem, Dharmapuri and Krishnagiri districts, in the prevailing weather, occurrence of spider mite is observed in groundnut crops. The affected plant will die. Control the pest by foliar spray of *Propargite* @ 1.5 ml/litre of water along with 10 ml adjuvant during evening hours on a non rainy day.
- In Kanyakumari district, combined application of systemic and contact fungicides may be taken for banana crop to restrict spreading of sigatoka leaf spot diseases. To control, spray 0.2% Mancozeb followed by spraying of 0.1% Carbendazim on a non rainy day.
- Suitable varieties for sowing are given in Annexure II.

❖ **Animal Husbandry**

- In the Western Zone of Tamil Nadu, provide adequate drinking water to animals.
- In the Southern Zone of Tamil Nadu, do not allow the animals to graze on newly grown grasses.
- Vaccinate the animals for Black Quarter and foot and mouth diseases in Karnataka.

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



*Banana*



*Rice*



*Groundnut*



*Jute*

- **Realised Rainfall:** Rainfall occurred in Changlang East Kameng, East Siang, Lohit, Lower Dibang Valley, Papumpara, Tawang, Tirap, Upper Siang, Upper Subansari, West Kameng and West Siang districts of Arunachal Pradesh, Baksa, Barpeta, Bongaigaon, Cachar, Chirang, Dhubri, Dibrugarh, Goalpara, Golghat, Hailakandi, Jorhat, Kamrup(Rural), Kamrup(Metro), Karimganj, Kokrajhar, Lakhimpur, Morigaon, Nowgaon, Nalbari, Sonitpur, Sibsagar, Tinsukia and Udalgiri districts of Assam, East Garo Hills, East Khasi Hills, Ri-Bhoi, West Garo Hills and West Khasi Hills districts of Meghalaya, Saiha and Sechhip districts of Mizoram, Imphal East and Imphal West districts of Manipur, Dimapur, Kohima and Phek districts of Nagaland and Dhalai, West Tripura and South Tripura districts of Tripura. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - As rain/thundershowers likely at most/many places over Arunachal Pradesh, Assam & Meghalaya during the period and over Nagaland, Manipur, Mizoram and Tripura from 22<sup>nd</sup> to 25<sup>th</sup> July, it is advised to postpone irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops.
  - As heavy to very heavy rain likely at isolated places over Assam & Meghalaya and Arunachal Pradesh from 22<sup>nd</sup> to 24<sup>th</sup> and over Nagaland, Manipur, Mizoram and Tripura on 22<sup>nd</sup> July, provide adequate drainage in standing crop fields to avoid water stagnation.
- **Assam, Meghalaya & Arunachal Pradesh:**
  - In Karimganj, Hailakandi and Cachar districts of Barak valley Zone of Assam, continue transplanting of Sali rice and banana sucker.
  - In Baksa, Barpeta, Bongaigaon, Chirang, Dhubri, Goalpara, Kamrup(Rural), Kamrup(Metro), Kokrajhar and Nalbari districts of Lower Bramhapurtra Valley Zone of Assam, continue transplanting of rice. Farmers of flood prone areas are advised to collect the submerge tolerance rice variety like Swarna Sub 1. Continue sowing of sesame. To control lodging in sugarcane use bamboo or 4 to 5 stem of sugarcane plant can be tie together with their leaf to control lodging during this season.
  - In Dibrugarh, Golghat, Jorhat, Sivsagar and Tinsukia districts of Upper Bramhaputra Valley Zone, continue



transplanting of Sali rice and sowing of sesame. Drain out excess water from early sown sesame fields.

- In Karbi Anglong and NC Hills districts of Hill Zone and Nagaon and Marigaon districts of Central Brahmaputra Valley Zone of Assam, continue sowing of arhar and sesame. Continue transplanting of *Sali* rice. Proper drainage system should be maintained in orchards, vegetable, ginger and turmeric fields to avoid yellowing of plants. Undertake nursery sowing of early cauliflower. To avoid damping off of seedlings of cauliflower, the seed beds should be drenched with 0.01% Captan or 4% Formalin solution before sowing. Seed treatment with Captan or Brassicol @ 3g/kg of seed should be done.
- In Dhemaji, Darrang, Lakhimpur, Sonitpur and Udalgiri districts of North Blank Plain Zone of Assam, continue transplanting of long duration *Sali* rice (varieties like Ranjit, Mahsuri etc.) in the main fields and complete the transplanting within July. Farmers are advised the following contingency measures in case of flood:
  - If there is total damage of seedlings of Sali rice in the main fields, farmers are advised to sow seeds for replanting with medium to short duration varieties like - Monohar Sali, Salpona, Prasadbhog, Gobin bhog etc. in nursery bed within 1<sup>st</sup> week of August. Initiative should be taken for raising community nursery for late planting with old seedlings of the varieties like Profulla and Gitesh (If more than 50% damaged).
  - It is suggested to use 21-25 days old seedlings and adopt closer spacing of 15 cm for transplanting with the late sown seedlings as mentioned above. When planted with relatively aged seedlings, the farmers were to be suggested to use more number of seedlings (4-5 seedlings per hill) with closer spacing of 20 cm x 15 cm and ensure application of at least recommended dose of fertilizer.
  - Also wet seeding with sprouted seeds @ 75-80 kg/ha of short to medium duration varieties like Disang, Luit, (100 days) Kapili, Kalong (120 days). Late and staggered planting with the old seedlings (50-60 days old seedlings) of the varieties like Profulla and Gitesh (If the field is heavily damaged).
  - Direct seeding with the photo insensitive short duration variety like Luit. Adoption of submergence tolerance varieties like Jalashree and Jalkuwari for repeat flood prone areas.
- In East Garo Hills, East Khasi Hills, Jaintia Hills, Ri-Bhoi, South Garo Hills, West Garo Hills and West Khasi Hills districts of Meghalaya, continue transplanting of *Sali/kharif* rice. Undertake replanting of dead hills or gap filling with seedlings of similar age within 7-10 days of transplanting. Undertake harvesting of matured cobs of maize.
- In Anjaw, Changlang, Dibang Valley, East Kameng, East Siang, Kurung Kumey, Lohit, Lower Dibang Valley, Lower Subansari, Papumpara, Tawang, Tirap, Upper Siang, Upper Subansari, West Kameng and West Siang districts of Arunachal Pradesh, continue transplanting of Wetland rice. Before transplanting, follow seedling root-dip treatment in Chlorpyrifos 20 EC @ 2ml/10 litre for 12 hrs. Vegetable nursery should be raised inside well covered structure with raised bed.
- In Arunachal Pradesh, for management of soft rot in ginger, undertake drenching of Metalaxyl-8% + Mancozeb 64% WP @ 2.5 g per litre of water after current spells of rain.
- In Hill Zone of Assam, to control sap sucking insects (aphids/mealy bug/scales) in khasi Mandarin, spray Malathion (0.1%) after current spells of rain.
- In Dhemaji, Darrang, Lakhimpur, Sonitpur and Udalgiri districts of North Blank Plain Zone of Assam, as pesticide application is not feasible in rainy weather, to control semi-looper/ hairy caterpillar in *Olitorius jute*, so arrangement of bamboo perch for predatory birds as an effective measure to control the hairy caterpillar and semi-looper is advised.
- In Lower Brahmaputra Valley Zone of Assam, due to high humidity and rainfall, there is chance of incidence of fruit fly and leaf hopper in gourd. Apply Malathion @ 2ml + jaggery @ 10g per litre of water after current spells of rain.
- In Barak valley Zone of Assam, due to high relative humidity, there is chance of attack of blast disease in *ahu* rice (direct seeded). For control, spray of Carbendazim @ 1 ml/litre of water at tillering stage. Subsequently give two more sprays of Ediphenphos @ 1 ml/litre of water, one at panicle initiation stage and the other when the tip of the panicle just comes out.
- In Meghalaya, spray Malathion 5% dust @ 6.25kg/ha against Rice Gundhi bug and Chlorpyrifos @ 0.02% or Monocrotophos @ 0.04% against stem borer in *Jhum* rice at booting stage. Undertake plant protection measures after current spells of rain.
- **Nagaland, Manipur, Mizoram and Tripura:**
- In Dimapur, Kephire, Kohima, Longleng, Mokokchung, Mon, Paren, Phek, Tuensang, Wokha and Zunheboto districts of Nagaland, continue transplanting of TRC/WRC rice. Continue sowing of soybean. Avoid water logging in ginger fields to prevent rhizome rot.
- In Bishnupur, Chandel, Churachandpur, Imphal East, Imphal West, Senapati, Tamenglong, Thoubal and Ukhrul districts of Manipur, continue transplanting of main kharif rice, sowing of soybean and nursery raising of early cauliflower. Maintain water level of 5-8 cm about 7 days after transplanting of rice. For replanting in the flood affected fields, prepare rice nurseries in raised beds with RC- Maniphou 7.
- In Aizwal, Champhai, Chhimituipui, Kolasib, Lawngtlai, Lunglei, Mamit, Saiha and Serchhip districts of Mizoram, continue transplanting of *kharif* rice and planting of khasi mandarin/acid lime.
- In Dhalai, North Tripura, South Tripura and West Tripura districts of Tripura, continue transplanting of *Aman* rice. Adopt suitable techniques for transplanting. Before transplanting the roots of the uprooted seedlings should be washed thoroughly and then dipped into 0.02% solution of Chloropyrophos along with 1% urea as protection measure against stem borer, gall midge and hoppers. Continue sowing of kharif vegetables like ladies finger,



cucurbits.

- In Manipur, to prevent rhizome rot in turmeric at vegetative/rhizome formation stage, spray Redomil MZ 72 W.P. @ 2 g/ litre of water after current spells of rain.
- In Mizoram, weather is conducive for attack of rice yellow stem borer in pre-*kharif* rice. Apply insecticide like Imidacloprid @ 0.5 ml or Phosolone @ 1.5 ml or Dimethoate 2 ml/litre of water. Apply insecticide like Imidacloprid 0.5 ml or Phosolone 1.5 ml or Acephate 1.0 g or Dimethoate 2 ml/litre of water against turmeric shoot borer in turmeric at vegetative stage. Apply insecticide like Imidacloprid 0.5 ml or Phosolone 1.5 ml or Acephate 1.0 g or Dimethoate 2 ml/litre of water against aphid and bug in *kharif* pulses like green gram, black gram and rajma. Undertake plant protection measures after current spells of rain.
- In Tripura, due to cloudy and humid weather, there is chance of infestation of sheath blight in *jhum* rice at panicle initiation. Spray Surf @ 1g per litre of water. Also apply 0.2% foliar spray of Zinc with 2.5kg lime against stem borer in maize. Also apply Imidacloprid @ 2ml per litre of water against the attack of leaf curl disease in summer brinjal, chilly etc. Undertake plant protection measures after current spells of rain.
- Suitable varieties for sowing are given in Annexure II.
- ❖ **Animal Husbandry**
- In Upper Brahmaputra Valley Zone of Assam, during monsoon season the calves are infected more by worms. To reduce the problem, it is advised to give Piperzine or Mebendazole at recommended dose in consultation with veterinary doctor.
- In Barak valley Zone of Assam and Tripura, prevailing humid weather condition may lead to gastrointestinal parasites infection to the poultry. Keep good sanitary conditions in poultry sheds. If birds are infected, they should be immediately separated from rest of the flock.
- ❖ **Fishery**
- In Central Brahmaputra Valley Zone of Assam, apply cowdung at the rate of 500 gm per sq m. at least 15 days ahead of releasing fingerlings into the tanks. Farmers may release fish prawn in their ponds during this period.

## WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



Maize



Groundnut



Rice



Red gram

- **Realised Rainfall:** Rainfall occurred in all districts of Konkan & Goa, Jalgaon, Kolhapur, Nasik and Pune districts of Madhya Maharashtra, Bhandara, Gadchiroli, Gondia, Nagpur and Yeotmal districts of Vidarbha, all districts of Gujarat Region except Banaskantha, Baroda, Dahod, Mehsana and Patan, in Diu, Jamnagar, Junagarh and Porbandar districts of Saurashtra & Kutch. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - As rain/thundershowers likely at most places over Konkan & Goa, at many places over Madhya Maharashtra Marathwada and Vidarbha during the period and over Gujarat Region on 25<sup>th</sup> & 26<sup>th</sup> July, postpone irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops.
  - As heavy to very heavy rain/heavy rain very likely at isolated places over Konkan & Goa during the period, heavy rain very likely at isolated places over Madhya Maharashtra on 22<sup>nd</sup>, 24<sup>th</sup> & 25<sup>th</sup>, over Marathwada from 22<sup>nd</sup> to 24<sup>th</sup> over Vidarbha on 23<sup>rd</sup> & 24<sup>th</sup> July, provide adequate drainage in standing crop fields.
  - **Maharashtra:**
    - In Konkan, in south Konkan region, maintain 2-3 cm water level in early transplanted rice fields. In north Konkan region, farmers are advised to continue transplanting of 21-25 days old rice seedlings. Continue transplanting of 28-30 days old finger millet seedlings. Undertake fertilizer application in standing crop fields after current spell of rain.
    - In Madhya Maharashtra, continue transplanting of 21-25 days old rice seedling in Kolhapur, Pune and Ahmednagar districts. Continue transplanting of 28-30 days old finger millet seedling in Pune and Ahmednagar districts. Continue planting of *adsali* sugarcane.
    - In Marathwada, undertake gap filling in vegetable crops like brinjal, chilli, lady's finger and cluster bean in Nanded, Parbhani and Aurangabad districts. Continue planting of *adsali* sugarcane.
    - In Vidarbha, continue transplanting of 21-25 days old rice seedling in Gondia, Chandrapur and Gadchiroli districts. Continue cultivation of vegetables like bitter gourd, tinda, cluster bean, cowpea and gourds in Buldana, Nagpur, Akola, Washim, Amravati, Wardha and Yeotmal districts. Undertake intercultural operations like hand weeding and hoeing in early sown crops for control of weeds in Buldana, Akola, Washim, Amravati, Wardha and Yeotmal districts. In unsown areas, undertake intercropping systems of pigeon pea + soybean (1:2/2:4), sunflower +

pigeonpea (2:1) or in soybean after every 6 or 9 rows one row of pigeonpea may be sown.

▪ **Gujarat:**

- In Kutch, due to subdued rainfall activity, undertake sowing of castor as normal crops could not be sown. Carry intercultural operations like hand weeding and mulching in already sown crops like groundnut and cotton to conserve soil moisture.
- Continue sowing of castor, pigeon pea, groundnut, cotton, pearl millet, sesame, green gram, black gram and cowpea with short duration varieties in Amreli, Rajkot, Surendranagar and Jamnagar districts of North Saurashtra Zone with realised and expected rainfall. Sow groundnut only for seed purpose. Continue transplanting tomato, chilli, brinjal and early cauliflower, complete sowing of cucurbits (bottle gourd, bitter gourd, ridge gourd and pumpkin), lady's finger, cluster bean, kidney bean, cowpea, tur and amaranthus.
- Continue sowing of pigeon pea, castor, soybean and sesame in Porbandar and Junagadh districts of South Saurashtra Zone with realised rainfall.
- Complete sowing of green gram, groundnut, sesame, maize, cluster bean and cowpea in Banaskantha, Mehsana, Gandhinagar, Patan and Sabarkantha districts of North Gujarat Zone with realised rainfall. Select short duration crops and varieties for sowing. Take short duration pulse crops as intercrops in new orchards. Carry out hand weeding and inter cultural operations in already sown groundnut and cotton to conserve soil moisture.
- Complete transplanting of rice, sowing of pearl millet, groundnut, sesame, cluster bean, green gram and cowpea, continue transplanting of vegetable crops like tomato, brinjal and chilli in Bhavnagar and Ahmedabad districts. Carry out intercultural operation in cotton to conserve soil moisture.
- Complete transplanting of rice, complete sowing of red gram, millets, continue sowing of green gram, black gram and continue transplanting of chilli, brinjal, complete sowing of cucurbits like bottle gourd, ridge gourd, sponge gourd, bitter gourd in Navasari, Dangs and Valsad districts of South Gujarat Heavy Rainfall Zone. Drain out excess water from rice and vegetable nurseries.
- Continue sowing of pigeon pea, castor, maize, bajra and vegetable crops like bhindi, beans and cucurbits in Surat, Narmada, Tapi and Bharuch districts. Provide adequate drainage in vegetable crops.
- Continue transplanting of rice, sowing pearl millet (GHB-744 moderate duration and GHB- 538, GHB-719 for early maturity), groundnut, cotton, maize, green gram, black gram in Dahod, Kheda, Vadodara, Anand and Panchmahals districts Take green gram, pigeon pea, guar as intercrop in pearl millet.
- Suitable varieties for sowing are given in Annexure II.

❖ **Animal Husbandry**

- In Gujarat, spray phenyl in the animal shed to avoid flies, mosquitoes. Keep fodder in safe place to avoid spoilage due to rain.

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



**Red gram**



**Okra**



**Maize**



**Rice**

- **Realised Rainfall:** Rainfall occurred in all districts of Odisha, all districts of Bihar, all districts of Jharkhand except Sahebganj and West Singhbhum, in South Andaman district of Andaman & Nicobar Islands, all districts of Gangetic West Bengal except East Midnapur, Howrah and Kolkata, all districts of Sub-Himalayan West Bengal & Sikkim except West Sikkim. Weather remained mainly dry over rest of the region.

• **Advisories:**

- As rain/thundershowers likely at most/many places over Sub-Himalayan West Bengal & Sikkim, Jharkhand, Odisha and Bihar during the period, over Gangetic West Bengal on 22<sup>nd</sup>, 25<sup>th</sup> & 26<sup>th</sup>, and 26<sup>th</sup> and over Andaman & Nicobar Islands from 22<sup>nd</sup> to 25<sup>th</sup> July, it is advised to postpone irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Undertake rain water harvesting.
- As heavy to very heavy rain very likely at a few/isolated places over Sub-Himalayan West Bengal & Sikkim during the period, at isolated places over Bihar on 22<sup>nd</sup> to 24<sup>th</sup> and heavy rain very likely at isolated places over Jharkhand and Odisha on 22<sup>nd</sup> July, provide adequate drainage in standing crop fields.

▪ **Odisha:**

- In East and South Eastern Coastal Plain Zone, continue transplanting of rice. Continue wet bed nursery raising of *kharif* rice. Continue sowing of groundnut, arhar, castor and cotton green gram, black gram and sesame in uplands.
- In Naupara and Kalahandi districts, continue nursery sowing of medium duration rice varieties in medium land and medium late duration varieties in low land. Continue sowing of cotton, maize and arhar utilizing the realized and

expected rainfall. In Gajapati, Kandhamal and Raigad districts, continue planting of cashewnut trees.

- In Koraput and Nawarangpur districts, continue sowing of maize and other non paddy crops in upland condition.
- In Mayurbhanj and Keonjhar districts, continue sowing of groundnut, ragi, arhar, maize, green gram, black gram and sesame and planting ginger and turmeric in uplands areas. Undertake planting of fruit trees and sowing of rainy season vegetables like Bhindi (Lady's finger), Bean, French bean, Tomato, Cauliflower, Cabbage etc.
- In Balasore, Bhadrak and Jajpur districts, continue sowing of direct seeded rice in low lands.
- In East and South Eastern Coastal Plain Zone, fruit and shoot borer has been found in brinjal. To control it install Pheromone traps and spray Sevin WP @ 4 g or Malathion @ 2 ml in 1 litre water alternatively. Also to control fruit fly in bitter gourd, spray Sevin WP @ 3 ml in 1 litre of water after current spells of rain.
- In Western Undulating Zone, there may be attack of early shoot borer in sugarcane crop at tillering stage. Spray Triazophos/Profenophos @ 2ml/litre of water after current spells of rain.

▪ **West Bengal:**

- In Gangetic West Bengal, undertake transplanting of *Aman* rice. In direct seeded rice, give proper bunding to hold the water in the field. First Weeding operation should be done at 25 days after sowing of the crop.
- In Sub-Himalayan West Bengal, in South Dinajpur and Malda districts of Old Alluvial Zone, continue transplanting of *Aman* rice in the main fields with skip row technique. Keep 2-3 seedlings per hill. Continue seedbed preparation for early cabbage, brocolli etc after current spells of heavy rain. Before sowing the seed should be treated with Trico-derma Viride.
- In Darjeeling district, undertake land preparation for transplanting of *Aman* rice. Proper drainage system should be maintained in the fields of turmeric, ginger, cardamom and in Mandarin orange gardens to prevent water stagnation during heavy rain. Avoid water stagnation to manage collar rot in round chilli.
- In Coastal Saline Zone, there is chance of chital disease due to high humidity and dump weather in betel vine, apply 0.5% Bordeaux mixture at 15-20 days interval.
- In Laterite and Red Soil Zone, to control blast disease in direct seeded rice at tillering stage, spray Carbendazim @ 1g/litre of water after current spells of rain.
- In Gangetic West Bengal, due to cloudy weather and high humidity, fungal collar-rot may be seen in surankand/elephant foot yam. Keep the field weed-free and clean. Apply Carbendazim (1 gm) and Thiram (2 gm) together per litre of water. Also there is chance of fungal and bacterial diseases in maize at vegetative stage. For fungal attack, spray Mancozeb (2.5g) and in case of bacterial rot, spray Streptocycline (0.1g) as a control. Undertake plant protection measures after current spells of rain.

➤ **Andaman and Nicobar Islands:**

- In Andaman and Nicobar, clear the channel to avoid stagnation of water in vegetable field to prevent incidence of damping off diseases.
- In North, Middle and South Andaman, to avoid stem borer attack in rice, apply Trichogramma japonicum @ 5 ml /ha at weekly interval.

▪ **Bihar:**

- In South Bihar Alluvial Zone, continue transplanting of rice with 20-25 days old seedlings. Complete sowing of cucurbits, pigeon pea and maize. Undertake planting of the mango, litchi and guava plants in already prepared pits.
- In Araria, Katihar, Khagaria, Kishanganj, Madhepura, Purnea, Saharsa and Supaul districts in North East Alluvial Zone, continue transplanting of 20-25 days old paddy seedling in prepared fields with spacing of 20 x 15 (R x P) cm. Prepare drainage channel to remove excess water from the field of jute, ginger & turmeric, vegetables and *kharif* maize. Continue planting of horticulture crops like mango, litchi, guava and papaya.
- In Begusarai, Darbhanga, East Champaran, Gopalganj, Samastipur, West Champaran districts of North West Alluvial Plain Zone, continue transplanting of rice in medium and low land area and undertake planting of mango and banana.
- In North East Alluvial Zone, in the present weather situation, attack of shoot borer may be enhanced in sugarcane. Spray Fipronil 0.3% GR @ 33 Kg/ha or spray Fipronil 5 SC @ 2ml/litre of water to control borer after current spells of rain.
- In South Bihar Alluvial Zone, use of bait trap (mixing jaggary with Malathion 10 % and putting at different corners of the field) against fruit fly in cucurbitaceous crops. Spraying of Phosmite @ 1.5 - 2 ml per litre of water is advised to control mite and spraying of Dimethoate 30 EC @ 2 ml/liter of water is advised against jassid in cucurbitaceous crops.

▪ **Jharkhand:**

- In Saraikela, East & West Singhbhum districts in South Eastern Plateau Zone of Jharkhand, complete transplanting of rice by end of July. continue sowing of direct seeded upland rice, maize, groundnut and pigeon pea.
- In Western Plateau Zone, continue transplanting of rice, continue sowing of groundnut, arhar, black gram, maize and sowing of rainy season vegetables like Bhindi, Bean, French bean etc. Make channels in the field of different vegetables and other crops to keep the field well drained. Complete direct sowing of rice, sowing of maize, arhar, urd and groundnut etc. in uplands using recommended varieties and methods.
- In Central and North Eastern parts of Jharkhand, continue transplanting of rice and sowing arhar, groundnut, marua, maize and plantation of new trees. Repair the broken bunds of the field to conserve rain water and incorporate, daincha or sunhemp in soil for green manuring in the standing crop.
- In South Eastern Plateau Zone, in cucurbitaceous crops, if attack of red pumpkin beetle is found, spraying of



Diclorvos 76 EC (DDVP) @ 1 ml/litre of water is advised after current spells of rain.

➤ Suitable varieties for sowing are given in Annexure II.

❖ **Animal Husbandry**

- In Coastal Saline Zone of West Bengal, there may be attack of foot and mouth disease in Cattle due to rainy weather. Wash the wound with Potassium per Manganate solution.
- In North East Alluvial Zone of Bihar, provide vaccination against Anthrax, Black Quarter and Galghontu disease to animals.
- In Old Alluvial Zone of West Bengal, carry out deworming of cattle and poultry during this season.
- In Andaman and Nicobar Islands, carry out deworming of all the livestock followed by mineral mixture supplement @ 1% of the feed.

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



**Maize**



**Rice**



**Okra**



**Red gram**

- **Realised Rainfall:** Rainfall occurred in all districts of East Madhya Pradesh except Chhindwara, Jabalpur and Shahdol, in Bhind, Bhopal, Gwalior, Morena, Raisen, Sehore, Shajapur, Sheopur and Shivpuri districts of West Madhya Pradesh, in all districts of Chhattisgarh except Dantewada, Kanker, Kondagaon and Narayanpur. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - As rain/thundershowers likely at most/many places over East Madhya Pradesh and Chhattisgarh during the period and at many places over West Madhya Pradesh from 24<sup>th</sup> to 26<sup>th</sup> July, it is advised to postpone irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops.
  - As heavy rain very likely at isolated places over East Madhya Pradesh on 22<sup>nd</sup> & 23<sup>rd</sup>, over Madhya Pradesh on 23<sup>rd</sup>, over West Madhya Pradesh on 24<sup>th</sup> and over Chhattisgarh on 22<sup>nd</sup> & 23<sup>rd</sup> July, provide adequate drainage in standing crop fields.
  - **Madhya Pradesh:**
    - In East Madhya Pradesh, continue transplanting of rice. Drain out excess water from already sown maize and soybean crop fields. Continue sowing of moong and urad and complete sowing of red gram at optimum soil moisture condition. Undertake transplanting of vegetables.
    - In Indore and Ujjain districts, continue gap filling in maize crops. Continue transplanting of vegetables. Undertake intercultural operations in soybean and maize after current spells of rain.
    - In Hoshangabad and Narsinghpur districts, continue transplanting of rice. Drain out excess water from soybean and red gram fields. Undertake intercultural operations in soybean, red gram and vegetable fields after current spells of rain.
    - In Bhopal, Vidisha, Raisen, Sehore, Sagar and Damoh districts, complete transplanting of rice and sowing of red gram and maize.
    - In Chhatarpur, Tikamgarh and Datia districts, continue sowing of vegetables like lady finger, bottle gourd, cucurbits, sponge gourd, bitter gourd and beans. Continue sowing of red gram, soybean, sesame, moong, urad, maize and groundnut at optimum soil moisture condition. Continue transplanting of rice.
    - In Jhabua, Alirajpur and Dhar districts, complete transplanting of rice. Continue transplanting of vegetables. Provide adequate drainage in crop fields. Undertake intercultural operations in soybean, black gram and maize after current spells of rain.
    - In Vindhya Plateau Zone, due to cloudy weather there are chances of attack of sucking pests in brinjal, tomato and chilli, spray Thiamethoxam @ 0.35 g/litre of water after current spells of rain.
  - **Chhattisgarh:**
    - In North Chhattisgarh, complete transplanting of rice. Continue line sowing of rice. Continue planting of orchard crops like Papaya, Guava, Mango, Litchi and Pomegranate. Undertake nursery sowing of brinjal, early tomato, chilli and onion in upland areas.
    - In Central Chhattisgarh, continue line sowing of rice. Continue sowing of red gram, sesame, soybean and maize. Continue nursery preparation for vegetables. Continue transplanting of rice. Undertake intercultural operations in rice, sugarcane and vegetables after current spells of rain.
    - In South Chhattisgarh, continue transplanting of rice, line sowing of rice and sowing of tuber crops. Continue sowing of soybean, groundnut and sesame. Continue nursery preparation for planting of orchards of papaya and custard apple.



- Suitable varieties for sowing are given in Annexure II.
- ❖ **Animal Husbandry**
- In Madhya Pradesh, to improve immunity of cattle's, supply food mixed with vitamins and energy food material along with calcium content. Vaccinate cattle for control of FMD and HS disease.
- In Chhattisgarh, farmers are advised to carry out vaccination of their animals against Black Quarter, HS and Anthrax disease.

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



*Groundnut*

*Maize*

*Rice*

*Okra*

- **Realised Rainfall:** Rainfall occurred in all districts of Himachal Pradesh except Bilaspur, Kinnaur, Lahaul & Spiti and Una, all districts of Delhi except East Delhi and North West Delhi, in Amritsar, Faridkot, Gurdaspur, Jalandhar, Kapurthala, Mansa, Muktesar, Nawashahar and Ropar districts of Punjab, Jammu, Kathua, Rajouri, Reasi, Samba and Udhampur districts of Jammu & Kashmir, all districts of Uttarakhand, in Bhiwani, Faridabad, Fatehabad, Gurgaon, Hissar, Jhajar, Karnal, Mahendragarh, Mewat, Palwal, Rewari, Rohtak, Sonapat and Yamunanagar districts of Haryana, all districts of East Uttar Pradesh except Farrukhabad and Kannauj, all districts of West Uttar Pradesh except Ghaziabad, all districts of East Rajasthan except Banswara, Dungarpur, Jhalawar and Pratapgarh, in Churu district of West Rajasthan. Weather remained mainly dry over rest of the region.
- **Advisories:**
  - As rain/snow is very likely at most/many places over Uttarakhand and Himachal Pradesh during the period and over Jammu & Kashmir on 25<sup>th</sup> & 26<sup>th</sup> July, rain/thundershowers would occur at most/many places over East Uttar Pradesh during the period over West Uttar Pradesh from 23<sup>rd</sup> to 26<sup>th</sup>, over Punjab on 26<sup>th</sup>, over Haryana, Chandigarh & Delhi on 25<sup>th</sup> & 26<sup>th</sup> and over East Rajasthan from 24<sup>th</sup> to 26<sup>th</sup> July, it is advised to postpone irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops.
  - As heavy to very heavy/heavy rain very likely at isolated places over East Uttar Pradesh from 23<sup>rd</sup> to 26<sup>th</sup> and heavy rain likely at isolated places over Uttarakhand during the period, over Uttar Pradesh on 22<sup>nd</sup>, over East Rajasthan on 24<sup>th</sup>, over Jammu & Kashmir, Himachal Pradesh, Haryana, Chandigarh & Delhi and West Uttar Pradesh on 26<sup>th</sup> July, provide adequate drainage in standing crop fields to avoid water stagnation.
  - **Jammu & Kashmir:**
    - In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, complete transplanting of rice at the earliest. Strengthen and raise the height of field bunds of already transplanted paddy to retain optimum water level. Due to heavy rainfall during the last week in the districts, farmers are advised to make arrangements to drain out excess water from the maize, mash, fodder and vegetable fields. Postpone the sowing of maize crop till the soil reaches optimum moisture condition where sowing is still it is not completed.
    - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, complete transplanting of rice seedlings at 4-6 leaf stage in the main fields. Do the first weeding and hoeing after 15 days of transplanting. Complete sowing of maize.
    - In Srinagar, Badgam, Kupwara and Baramulla districts of Valley Temperate Zone, complete transplanting of paddy in the main fields. Apply first dose of Nitrogen @ 3.35kg Urea per kanal after 15-18 days of transplanting. Open drainage channels to avoid water stagnation in maize, pulses and saffron fields.
    - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, to avoid wilting in chilli, tomato and brinjal, farmers are advised to avoid water logging in the fields. Apply foliar spray of Carbendazim @ 1 g/litre of water after current spells of rain. Repeat the foliar spray after 7 - 10 days with copper oxychloride @ 2 g/litre of water to prevent the crop from soft rot.
    - In Leh district of Cold Arid Zone, continue harvesting of turnips, knolkhol, lettuce, kale, Chinese cabbage, broccoli, summer squash and radish in clear weather. Apply third top dressing with Nitrogenous fertilizers in tomatoes in green houses.
  - **Uttarakhand:**
    - In Nainital district of Bhabar and Tarai Zone, undertake thinning in maize and soybean crops after weeding and hoeing. Undertake transplanting of cabbage and knoll-khol and seedlings should be treated with 1 g Streptocycline chemical in 1 litre of water before transplanting. Avoid the water logging in the field of tomato, capsicum and brinjal by providing adequate drainage in the mid hills. Undertake sowing of radish and turnip in hilly regions.
    - In Udham Singh Nagar district of Bhabar and Tarai Zone, continue transplanting of paddy. Transplanting of early

maturing variety of paddy should be completed by third week of July.

- Complete sowing of okra crop at the earliest. If soybean crop sown in the month of June has damaged due to the water logging in the field; it is advised that resowing may be done. Drain out excess water in the vegetable fields.
- In Dehradun, Pauri and Haridwar districts of Sub Humid Sub Tropic Zone, due to heavy rainfall in the last week, farmers are advised to drain out excess water in pigeon pea, sugarcane, fodder and vegetable fields.
- In Tehri Garhwal, Uttarkashi, Chamoli, Rudraprayag, Pithoragarh, Bageshwar, Champawat and Almora district of Hill Zone, complete transplanting of irrigated paddy during the week where it is not completed. Continue transplanting of cauliflower and cabbage. Complete sowing of finger millets and maize after current spells of heavy rain. Drain out excess water from vegetable fields. Undertake sowing of French bean, okra and radish.
- In Nainital district of Bhabar and Tarai Zone, due to prevailing weather, if *Parnjalak* insects appears in Amaranth crop, spray the solution of Methyl-O- Dematon or Dimethoate @ 1ml/litre of water after current spells of rain.

▪ **Himachal Pradesh:**

- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, continue transplanting of rice.. Complete sowing of *kharif* pulses mung, mash, soybean, cowpeas and kulthi. In mid hill areas, complete transplanting of tomato, brinjal, chilli and capsicum. Continue sowing of cucurbits such as cucumber, bitter gourd, bottle gourd and summer squash, ageti okra, French bean and radish. Continue planting of ginger, turmeric.
- In Mid Hills Sub-Humid Zone of Himachal Pradesh, in Bilaspur, Solan, Shimla and Sirmaur districts, complete sowing of bhindi, cucurbits, French bean, moong and mash and nursery raising and transplanting of tomato, chilli, capsicum and brinjal. Continue sowing of fodder crops like maize, cowpea and soybean.
- In High Hills Temperate Dry Zone of Himachal Pradesh, in Kinnaur and Lahaul & Spiti, continue nursery sowing of vegetables.
- In Una, Hamirpur, Kangra and Chamba districts, prevailing weather is conducive for attack of blast and brown spot in paddy, for contro,l spray Carbendazim @ 2.0 g per litre of water after current spells of rain.
- In Kullu and Mandi districts, weather is conducive for attack of alternaria leaf spot in apple, for control spray Hexaconazole (Contaf) in 200 litres of water after current spells of rain.
- In Sub-Montane and Low Hills Sub-Tropical Zone, prevailing weather is conducive for attack of red pumpkin beetle in cucurbitaceous crops, for control spray Dichlorvos 76 EC (DDVP) @ 1 ml per litre of water after current spells of rain.
- In Mild Hills Sub-Humid Zone, weather is conducive for attack of aphid in pomegranate, for control spray Emidacloprid @ 60 ml per 200 litres of water after current spells of rain.

▪ **Rajasthan:**

- In East Rajasthan, Bhilwara, Chitorgarh, Rajsamand, Sirohi, Udaipur districts of Sub Humid Southern Plain and Aravali Hill Zone, continue sowing of groundnut and maize and continue nursery sowing of brinjal, tomato, rainy onion, cauliflower and chilli with realized and expected rainfall.
- In Alwar, Bharatpur, Dhaulpur, Karauli, Sawaimadhopur districts of Flood Prone Eastern Plain Zone, complete sowing of sorghum, pearl millet, guar, sesame, mung, urad, maize. Treat bajra, sorghum, sesame, cluster bean and maize with Thiram @ 3g/kg seed and green gram, groundnut with Carbendazim @ 2 g/kg seed. After treating with fungicide also treat cluster bean, green gram and groundnut with Rhizobium culture and bajra, sorghum, maize and sesame with Azotobactor. One culture packet (200-250 g) is sufficient for 1 acre (2.5 bigha) field.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, continue sowing of pearl millet, sorghum, maize, green gram, cowpea, moth and khira, bottle gourd, ridge gourd, bitter gourd, cucumber & cluster bean. Continue nursery preparation of kharif onion.
- In Jhalawar, Kota, Bundi, Baran of Southern Humid Plain Zone, continue transplanting of paddy. Continue sowing of soybean, maize, urad, mung.
- In Arid Western Plain Zone, in Jaisalmer and Bikaner districts, continue sowing of bajra, mung, cluster bean, moth and Guar, bhindi and pearl millet and sorghum as green fodder crops. Mix the seed of cowpea and cluster bean along with pearl millet and sorghum at the time of sowing, to get balanced green fodder production. In Arid Western Plain Zone, In Barmer, Churu, Jalore, Jodhpur, Pali districts, continue sowing of short duration bajra variety and moth, moong, sesame.
- In Irrigated North Western Plain Zone, continue sowing of guar, bajra, sesame, mung, moth, and castor in Hanumangarh district with realised rainfall.
- In Irrigated North Western Plain Zone, Hanumangarh and Sriganganagar, prevailing weather condition is congenial for attack of termite, stem borer and root borer in Sugarcane. For control of termite, apply Chlorpyriphos 20 EC @ 4 litres or apply Emidacloprid 200 SL @ 500 ml. per hectare with irrigation; for control of stem borer and root borer spray dust Furadan 3% @ 6 kg. per bigha or Foret 10 % @ 4 Kg per bigha on a non rainy day.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of leaf spot in groundnut, for control spray Bavistin @ 0.5 gm or Mencozeb @ 2 gm per litre of water on a non rainy day.
- In Arid Western Plain Zone, in Barmer, Churu, Jalore, Jodhpur, Pali districts, prevailing weather condition is congenial for attack of termite in groundnut, for control apply Chlorpyriphos 20 EC @ 4 litres per hectare along with irrigation on a non rainy day.

▪ **Punjab, Haryana and Delhi:**

- In Punjab, in Fazilka, Ferozepur and Faridkot districts, complete the transplanting of short duration varieties of rice and sowing of cotton. Continue sowing of okra, maize and planting of sugarcane. Continue transplanting of chilli and cucurbits on the ridges. Complete the sowing of moong.
- In Moga, Bhatinda, Barnala, Mutsar, Sangrur and Mansa districts, continue transplanting of chilli, tomato, bell pepper. Continue sowing of cucurbits, round gourd, sponge gourd, okra, and cluster bean. Complete sowing of cotton, transplanting of paddy and undertake sowing of fodder crops. Drain out the excess water from the cotton fields.
- In Central Plain Zone of Punjab, complete the transplanting of basmati varieties and undertake sowing of fodder crops.
- In Gurdaspur district of Punjab, continue transplanting of rice and continue sowing of maize. Drain out excess water from field of maize after rainfall.
- In Ajitgarh, Rupnagar and SBS Nagar, undertake sowing of maize, mash, okra, cucurbits, cowpea and nursery raising of early varieties of cauliflower.
- In Western Zone of Haryana, continue transplanting of rice, sowing of arhar, green gram and black gram. Complete the sowing of guar/bajra and sowing of leafy vegetables, bottle gourd, cucumber, ridge gourd summer radish. Undertake intercultural / hoeing operations in cotton crops for conserving the moisture and removing the weeds on a non rainy day.
- In Eastern Zone of Haryana, continue transplanting of rice and continue sowing of fodder crops such as guar, maize and bajra.
- In Western Semi-Arid Zone of Delhi, continue sowing of maize, pigeon pea, onion and continue sowing of cotton, green gram and black gram. Continue nursery sowing of rice, sowing of okra, French bean, cluster bean, baby corn and fodder crops such as sorghum, bajra, cluster bean and maize. Undertake transplanting of early cauliflower, tomato, chilli and brinjal and sowing of cucurbits, bottle gourd, bitter melon, pumpkin, ridge gourd and cucumber. Undertake sowing of soybean and bajra. Undertake weeding-hoeing in the standing crops for effective weed control and to conserve the soil moisture.
- Due to warm and humid conditions, bacterial blight may occur in cotton in Western Plain Zone of Punjab, spray Blitox 50 (WP) 500 g along with 3g Streptomycin per acre.
- In Western Zone of Haryana, there is chance of infestation of white fly on cotton, spray 1 liter Nimbecidine mixed with 250 liter water per acre after current spells of rain and in rice for the protection of Bakani disease spread/broadcast 1 gram Carbendazim per square meter mixed with sand in the nursery before 7 days of transplanting .
- In Western Semi-Arid Zone of Delhi, monitor the cucurbitaceous crops against attack of fruit fly, use 'Methyl Eugenol trap, if symptoms seen, spray Rogor @ 2 ml + 10 g sugar or jaggery/litre water at 50 litres/ha after current spells of rain.

▪ **Uttar Pradesh:**

- In Central Plain Zone of East Uttar Pradesh, continue transplanting of paddy. Continue sowing of maize, arhar, jowar, bajra, urad, mung, moth, soybean, sesame, groundnut, kharif sunflower. Continue sowing of lobia, jowar, maize, bajra, guar, and multicutting M.P. Chari for green fodder. Undertake sowing of bhindi, lobia and transplanting of nursery of early maturing varieties of brinjal, chilli, cauliflower. Continue sowing of spinach, lobia, lousi, torai and tinda.
- In Eastern Plain Zone of East Uttar Pradesh, continue transplanting of paddy. Continue direct sowing of short duration variety of rice. Continue sowing of arhar, jowar, bajra, urad, mung, maize.
- In North Eastern Plain Zone of East Uttar Pradesh, continue transplanting of paddy and sowing of kharif maize, pigeon pea, urad, mung, sesame, groundnut, jowar and cowpea.
- In Western Plain Zone of Uttar Pradesh, continue transplanting of paddy and sowing of pigeon pea, maize. Continue transplanting of tomato, chilli and sowing of bhindi, cucurbits and sowing of sunflower, urad, mung.
- In Bundelkhand Zone of West Uttar Pradesh, continue sowing of *kharif* crops, long duration varieties of groundnut, soybean, jowar, arhar, maize, urad, bajra, mung, sesame. Continue nursery sowing of early maturing varieties of tomato, cabbage, brinjal, chilli, cauliflower and transplanting of brinjal, chilli, tomato, cabbage, cauliflower. Continue sowing of jowar, maize, bajra, guar, and chari for green fodder and dhaincha for manuring. Continue transplanting of paddy in irrigated areas.
- In North Eastern Plain Zone of East Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of aphid & blight in bottle gourd, for control spray 0.2 % Mancozeb @ 400 gm. or 0.2 % Carbendazim @ 400 gm and 0.2 % Monocrotophos @ 200 ml in 200 liters of water in one acre after current spells of rain.
- In Bundelkhand Zone of West Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of yellow mosaic in urad, mung and groundnut, for control spray Monocrotophos @ 1.5 litres in one hectare after current spells of rain.
- Suitable varieties for sowing are given in Annexure II.

❖ **Horticulture:**

- In Central Plain Zone of East Uttar Pradesh and Bundelkhand Zone of West Uttar Pradesh undertake planting of new orchard of mango, guava, ber, lichi, aonla, lemon, ber, papaya.
- In Central Plain Zone of East Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of



aphids in Anola orchard, for control spray Monocrotophos @ 0.04% on a non rainy day.

- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, undertake plantation of mango, litchi, guava, citrus, laquat and amla.
- In Udham Singh Nagar district of Bhabar and Tarai Zone, undertake planting of mango and guava in the orchard.
- In Nainital district of Bhabar and Tarai Zone of Uttarakhand, fruit plants like mango, guava, lemon, papaya, litchi should be planted in this month.
- ❖ **Animal Husbandry**
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, animals may be attacked by external & internal parasites. To control internal parasites give Albendazole or Fenbendazole under the guidance of Veterinary Doctor. To control attack of external parasites like ticks, flies, mosquitoes etc. spray Butox on animal surrounding & body.
- In Bhabar and Tarai Zone of Uttarakhand, farmers are advised to give vaccination for Black Quarter and H S fever in animals. Before the vaccination, deworming should be given to the animals.
- In sub tropical Zone of Jammu Kashmir, give supplementary mineral mixture with 50 gm iodized salt regularly to the milking and pregnant animals. Give vaccination against BQ and HS. Ensure green fodder to the livestock.
- ❖ **Floriculture**
- In Sub Tropical Zone of Jammu and Kashmir, continue transplanting of the seedlings of rainy seasonal annuals (gaillardia, balsam, cosmos, portulaca, kochia, sunflower, morning glory, gomphrena, celosia etc.) till weather gets clear.
- ❖ **Apiculture:**
- In Himachal Pradesh, to control mites attack on honeybees, dust Sulphur on sealed brood in the colony and not on larvae. Also insert empty frame /combs for egg laying to the queen as the population starts builds up.
- In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone , examine colonies at regular intervals for wax moth management. Artificial feeding should be given to colonies. Provide ventilation by placing a small stock in between brood chamber. Kill wasps with a wooden flap and dusting or spraying with insecticides. Keep colonies in stand to give protection against ants.

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

### Annexure I

#### Week by week Rainfall Distribution

Sub-Divisions	06.07.16		13.07.16		20.07.16	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>						
Anjaw	**	**	**	**	**	**
Changlang	67.7	-39	11.8	-89	131.0	27
Dibang Valley	**	**	**	**	**	**
East Kameng	37.7	-61	16.5	-81	36.4	-51
East Siang	252.4	23	52.7	-75	311.4	25
Kurung Kumey	**	**	**	**	**	**
Lohit	115.6	-18	39.3	-71	195.5	20
Lower Dibang Valley	334.7	294	23.9	-44	516.6	727
Lower Subansari	**	**	**	**	**	**
Papumpare	290.1	46	224.8	51	204.9	42
Tawang	86.0	-54	102.0	-45	147.0	-16
Tirap	131.8	-34	32.8	-80	86.4	-60
Upper Siang	328.8	88	110.4	-24	137.8	4
Upper Subansari	112.4	70	108.6	93	65.0	18
West Kameng	205.2	10	65.6	-65	145.3	-17
West Siang	131.4	1	59.0	-52	80.4	-45
<b>Assam&amp;Meghalaya</b>						
<b>Assam</b>						



Baksa	22.4	-91	87.5	-47	159.0	3
Barpeta	253.3	6	116.8	-29	117.3	-24
Bongaigaon	216.8	-7	83.4	-54	165.0	4
Cachar	85.6	-29	102.7	-9	136.0	7
Chirang	199.2	-15	165.0	-8	274.0	73
Darrang	**	**	**	**	**	**
Dhemaji	**	**	**	**	**	**
Dhubri	111.2	8	24.5	-83	126.5	15
Dibrugarh	99.0	-14	57.7	-54	74.8	-39
Goalpara	316.4	116	10.3	-91	104.0	4
Golaghat	119.5	66	115.5	60	52.6	-33
Hailakandi	133.2	52	65.2	-29	51.2	-47
Jorhat	90.8	1	102.7	13	143.6	50
Kamrup(Rural)	27.0	-68	71.9	-21	122.5	47
Kamrup(Metro)	37.3	-56	71.2	-22	137.3	65
Karbi Anglong	91.0	96	95.8	60	5.7	-87
Karimganj	110.0	-36	66.5	-57	103.1	-27
Kokrajhar	122.8	-55	40.5	-79	164.3	0
Lakhimpur	189.6	20	146.4	-3	291.5	130
Morigaon	47.8	-46	23.2	-76	102.0	32
N.C.Hills	50.4	-32	**	**	24.0	-58
Nagaon	22.9	-64	50.4	-39	58.5	-28
Nalbari	41.5	-70	106.1	-1	116.7	11
Sonitpur	73.7	-28	29.0	-68	64.0	-29
Sibsagar	78.0	-21	65.1	-30	92.8	32
Tinsukia	95.4	-9	76.9	-39	66.8	-43
Udalgiri	57.5	-35	32.8	-63	73.6	-10
<b>Meghalaya</b>						
East Garo Hills	331.6	252	88.8	7	433.0	211
East Khasi Hills	465.8	24	155.1	-63	1000.4	203
Jaintia Hills	**	**	8.0	-98	24.0	-89
Ribhoi	61.8	-36	25.5	-75	72.7	-27
South Garo Hills	8.0	-93	6.0	-95	8.0	-97
West Garo Hills	161.6	47	38.4	-65	131.8	30
West Khasi Hills	68.0	-79	36.0	-87	277.0	141
<b>NMMT</b>						
<b>Mizoram</b>						
Aizwal	58.4	-45	73.7	-20	17.3	-84
Champhai	**	**	**	**	**	**
Kolasib	**	**	**	**	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	**	**	**	**	**	**
Mamit	**	**	**	**	**	**
Saiha	131.0	27	106.0	16	69.0	-28
Serchhip	486.1	318	124.1	25	66.8	-34
<b>Manipur</b>						
Bishnupur	**	**	**	**	**	**
Chandel	**	**	**	**	**	**
Churachandpur	**	**	**	**	**	**

Imphal east	76.3	9	82.1	-9	59.5	-12
Imphal west	170.9	170	118.3	94	121.5	142
Senapati	**	**	**	**	**	**
Tamenglong	**	**	**	**	**	**
Thoubal	**	**	**	**	**	**
Ukhrul	**	**	**	**	**	**
<b>Nagaland</b>						
Dimapur	91.2	98	49.2	-11	59.6	139
Kephire	**	**	**	**	**	**
Kohima	61.0	-15	39.2	-54	63.0	-19
Longleng	**	**	**	**	**	**
Mokokchung	**	**	**	**	**	**
Mon	**	**	**	**	**	**
Paren	**	**	**	**	**	**
Phek	133.0	86	32.0	-63	122.0	56
Tuensang	**	**	**	**	**	**
Wokha	**	**	**	**	**	**
Zunheboto	**	**	**	**	**	**
<b>Tripura</b>						
Dhalai	37.3	-58	25.0	-71	66.5	-8
NorthTripura	64.7	-27	130.5	26	27.5	-68
SouthTripura	133.6	11	34.2	-72	181.9	57
West Tripura	85.6	-6	20.9	-78	155.1	79
<b>Himachal Pradesh</b>						
Bilaspur	61.9	19	9.4	-86	27.2	-65
Chamba	61.8	-8	35.0	-67	47.5	-71
Hamirpur	77.7	16	35.2	-47	52.7	-51
Kangra	136.6	57	68.3	-45	103.5	-30
Kinnaur	7.5	-49	1.6	-89	15.7	-19
Kullu	39.0	40	7.8	-81	42.6	-11
Lahaul and Spiti	5.1	-82	1.9	-94	1.9	-95
Mandi	85.2	41	61.7	-24	55.3	-47
Shimla	51.6	41	44.4	-11	54.3	-9
Sirmaur	54.2	-37	25.8	-78	140.8	16
Solan	152.5	147	13.8	-84	39.9	-57
Una	73.5	18	32.3	-65	23.6	-67
<b>Punjab</b>						
Amritsar	58.2	67	18.5	-59	93.2	73
Barnala	99.0	247	4.0	-86	5.0	-85
Bhatinda	25.0	16	38.0	84	23.9	-17
Faridkot	11.5	-48	23.4	23	32.6	-8
Fatehgarh Saheb	39.7	4	0.0	-100	22.7	-49
Ferozpur	0.7	-96	6.2	-82	22.0	-24
Gurdaspur	47.3	-8	36.2	-48	87.6	7
Hoshiarpur	21.6	-59	14.3	-78	4.2	-94
Jalandhar	57.1	61	3.6	-94	40.8	-8
Kapurthala	79.7	166	74.5	100	42.7	3
Ludhiana	75.7	103	10.0	-82	27.0	-42
Mansa	9.8	-37	30.4	19	58.0	78

Moga	10.6	-54	45.6	44	0.0	-100
Muktesar	55.6	170	31.2	4	47.0	75
Nawashahar	56.5	-3	21.8	-77	37.2	-34
Patiala	46.9	22	13.1	-81	12.2	-76
Ropar	52.6	12	7.4	-90	38.7	-41
Sangrur	46.8	34	51.2	47	26.9	-30
Mohali	43.0	21	0.0	-100	0.0	-100
TarnTaran	52.0	139	17.0	-36	12.5	-61
<b>Haryana,Chd,Delhi</b>						
<b>Haryana</b>						
Ambala	32.1	-31	1.0	-99	26.7	-56
Bhiwani	60.4	270	6.1	-81	73.4	143
Chandigarh	13.9	-74	0.5	-99	22.4	-64
Faridabad	29.7	23	32.2	-30	125.7	124
Fatehabad	33.7	80	11.0	-59	33.7	50
Gurgaon	23.3	-1	18.7	-54	84.6	63
Hissar	62.0	194	2.9	-90	48.6	87
Jhajar	33.0	33	22.1	-40	83.0	88
Jind	85.2	218	12.2	-72	24.3	-31
Katihah	21.0	38	6.4	-81	8.3	-74
Karnal	59.4	68	7.5	-88	33.0	-34
Kurukshetra	23.1	-18	0.0	-100	3.7	-92
Mahendragarh	56.5	164	9.4	-71	66.3	71
Mewat	42.2	69	38.1	-10	79.0	85
Palwal	40.0	96	12.0	-73	90.5	113
Panchkkula	44.5	-21	4.1	-95	8.1	-89
Panipat	14.2	-29	11.0	-81	13.8	-67
Rewari	58.0	245	14.8	-56	131.6	200
Rohtak	28.6	-26	14.6	-63	47.4	-16
Sirsa	39.8	126	0.0	-100	1.8	-93
Sonepat	10.8	-58	26.3	-52	36.7	-13
Yamunanagar	99.5	65	1.2	-98	208.9	212
<b>Delhi</b>						
Central Delhi	23.0	-23	78.0	47	123.0	108
East Delhi	**	**	**	**	4.0	-93
New Delhi	89.0	199	4.4	-92	142.2	141
North Delhi	97.5	228	63.8	20	113.2	92
North East Delhi	9.0	-70	3.0	-94	30.0	-49
North West Delhi	19.0	-36	49.0	-8	11.0	-81
South Delhi	46.4	56	30.8	-42	61.7	4
South West Delhi	48.8	64	18.8	-65	103.3	75
West Delhi	18.0	-39	118.0	123	144.0	144
<b>Jammu &amp; Kashmir</b>						
Anantnag	8.0	-59	4.9	-64	24.3	22
Badgam	0.5	-94	2.0	-76	13.8	-4
Bandipore	**	**	**	**	**	**
Baramula	7.7	-59	5.1	-66	7.0	-68
Doda	14.4	-30	30.0	18	29.4	-15
Ganderbal	6.8	-38	8.8	4	19.1	28

Jammu	73.9	57	19.1	-72	105.0	46
Kargil	**	**	**	**	**	**
Kathua	40.0	-27	26.2	-65	66.3	-17
Kistwar	**	**	**	**	**	**
Kulgam	2.6	-87	1.7	-87	7.8	-61
Kupwara	22.1	44	0.0	-100	7.2	-47
Ladakh(Leh)	0.0	-100	0.0	-100	1.4	-53
Poonch	**	**	**	**	**	**
Pulwama	5.0	-56	0.4	-96	11.6	-42
Rajouri	20.0	-37	21.8	-63	65.8	19
Ramban	13.0	-37	11.9	-54	19.1	-45
Reasi	144.2	108	9.4	-89	77.7	-38
Samba	20.5	-56	18.9	-72	144.7	101
Shopian	**	**	**	**	**	**
Srinagar	2.6	-76	3.2	-62	1.9	-87
Udhampur	69.0	0	2.2	-97	124.3	0
<b>East Madhya Pradesh</b>						
Anuppur	37.5	-53	57.3	-41	67.5	-28
Balaghat	98.1	8	139.8	30	41.8	-66
Chhatarpur	115.2	82	297.3	350	91.8	24
Chindwara	129.7	105	239.5	245	22.2	-65
Damoh	235.5	235	472.6	546	75.2	-13
Dindori	126.3	45	73.4	-29	76.7	-27
Jabalpur	173.4	139	319.5	301	11.9	-84
Katni	104.1	44	238.1	205	51.8	-36
Mandla	149.6	61	383.6	285	71.6	-27
Narsingpur	202.2	188	287.4	250	31.4	-60
Panna	253.2	243	127.2	68	84.5	-10
Rewa	155.9	151	82.8	36	45.4	-42
Sagar	226.4	222	331.7	307	37.9	-53
Satna	184.6	164	455.0	677	91.3	27
Seoni	189.9	155	241.4	179	37.3	-53
Shahdol	72.0	7	92.2	21	28.0	-66
Sidhi	124.7	88	18.0	-76	188.2	138
Singrauli	104.0	98	54.7	27	50.4	-27
Tikamgarh	41.3	-24	137.0	108	31.3	-54
Umaria	134.2	93	100.1	35	46.2	-48
<b>West Madhya Pradesh</b>						
Agar	104.2	-7	169.4	35	5.2	-96
Alirajpur	97.9	112	165.1	145	22.4	-59
Asoknagar	189.0	217	215.8	277	15.5	-81
Badwani	31.7	-10	90.4	99	14.9	-69
Betul	129.2	138	364.3	450	9.3	-85
Bhind	2.6	-92	29.0	-46	108.9	104
Bhopal	103.6	61	357.9	372	43.3	-34
Burhanpur	41.0	-11	182.5	308	24.0	-50
Datia	37.9	-1	38.7	-31	24.5	-61
Dewas	48.0	-13	169.5	158	9.2	-87



Dhar	78.0	75	114.2	95	17.9	-72
Guna	173.8	172	275.6	276	17.3	-75
Gwalior	16.3	-54	51.6	-21	67.4	6
Harda	73.5	29	245.9	216	5.0	-94
Hosangabad	213.0	160	732.1	657	26.4	-70
Indore	27.7	-44	192.1	242	14.5	-77
Jhabua	51.8	20	99.0	78	15.5	-73
Khandwa	54.7	13	195.0	225	18.0	-69
Khargone	28.1	-33	148.4	214	25.7	-51
Mandsaur	43.8	-4	177.6	231	17.6	-72
Morena	36.1	11	56.4	17	94.5	63
Neemuch	29.4	-37	96.1	91	17.8	-71
Raisen	216.1	203	362.6	338	31.1	-60
Rajgarh	151.8	214	227.1	217	19.5	-67
Ratlam	78.7	72	68.3	20	10.7	-84
Sehore	88.1	67	382.8	365	31.6	-58
Shajapur	55.0	8	239.0	287	30.0	-49
Sheopur Kalani	27.9	-32	26.3	-62	96.0	52
Shivpuri	118.2	154	153.8	150	59.9	-7
Ujjain	45.1	-12	210.6	256	5.0	-91
Vidisha	211.1	229	292.2	266	22.4	-71
<b>Chhattisgarh</b>						
Bastar	111.8	44	188.0	166	66.1	-16
Bijapur	130.4	57	311.9	230	48.9	-51
Bilaspur	74.7	-8	39.5	-49	100.1	15
Dantewara	119.1	63	124.8	36	29.4	-75
Dhamtari	47.2	-40	89.6	16	77.8	-12
Durg	74.6	-10	86.3	27	49.0	-34
Janjgir	137.8	57	32.3	-66	173.5	101
Jashpurnagar	184.7	88	31.3	-64	131.5	28
Kanker	179.0	124	201.6	140	23.6	-71
Korba	96.6	-1	35.7	-62	131.3	20
Koriya	78.3	-7	54.7	-42	130.0	35
Kawardha	59.0	-1	39.6	-40	**	**
Mahasumund	50.3	-30	83.1	11	62.9	-9
Narayanpur	145.4	99	215.0	157	26.3	-72
Raigarh	124.4	44	25.3	-71	138.2	57
Raipur	89.5	8	49.2	-38	50.3	-38
Rajnandgaon	86.5	16	89.6	17	41.4	-45
Surguja	74.0	1	24.4	-74	114.3	9
<b>East Uttar Pradesh</b>						
Allahabad	117.0	148	5.9	-91	58.7	-16
Ambedkar Nagar	0.0	-100	12.0	-83	44.0	-50
Azamgarh	60.6	-5	13.2	-82	240.9	142
Bahraich	212.7	331	30.4	-61	217.2	120
Ballia	57.5	15	25.6	-67	168.6	116
Balrampur	95.4	79	0.9	-99	172.3	46
Banda	215.5	275	78.3	32	190.8	191
Barabanki	76.9	86	21.1	-73	81.0	-5

Basti	187.7	228	10.3	-85	124.4	37
Chandauli	202.0	317	33.0	-54	76.0	-12
Deoria	25.5	-60	13.0	-81	238.0	177
Faizabad	81.8	57	3.6	-96	102.9	7
Farrukhabad	17.7	-52	11.0	-83	26.2	-60
Fatehpur	80.7	58	21.8	-70	41.4	-28
Gazipur	113.1	138	20.8	-68	144.8	114
Gonda	145.9	192	7.2	-90	102.5	4
Gorakhpur	85.5	32	8.1	-90	182.7	76
Hardoi	83.8	100	68.9	3	89.4	26
Jaunpur	82.4	33	7.1	-90	79.7	-6
Kannauj	46.8	19	5.6	-90	20.7	-69
Kanpur City	19.8	-45	36.0	-31	65.2	20
Kanpur Dehat	28.2	-9	33.0	-39	41.6	-33
Kaushambi	108.5	125	0.0	-100	34.7	-45
Kheri	169.8	221	50.4	-37	135.4	103
Kushi nagar	16.0	-80	1.5	-98	87.5	-11
Lucknow	34.2	0	18.9	-74	82.5	35
Maharajganj	106.5	32	11.0	-88	196.8	79
Mau	10.5	-82	16.0	-78	209.5	124
Mirzapur	210.3	270	14.2	-79	286.9	261
Pratapgarh	112.2	96	20.7	-68	83.8	17
RaiBareilly	52.0	16	5.7	-92	46.3	-17
Sahuji Maharajnagar	17.5	-75	33.0	-48	84.5	36
Sant Kabirnnagar	201.0	267	0.0	-100	218.0	112
Sant Ravidas Nagar	146.0	202	10.0	-86	101.0	17
Shrawasti	144.7	193	29.3	-63	201.3	104
Sidharthnagar	114.4	114	5.7	-93	86.8	-7
Sitapur	33.8	-15	19.3	-73	88.3	25
Sonbhadra	232.7	275	31.4	-52	120.3	66
Sultanpur	62.4	25	8.0	-90	74.5	4
Unnao	46.0	27	42.4	-35	55.6	-20
Varanasi	151.4	158	41.4	-45	113.7	26
<b>West Uttar Pradesh</b>						
Agra	7.7	-81	104.6	91	166.5	212
Aligarh	41.0	53	33.4	-39	179.5	235
Auraiya	42.4	48	27.5	-54	62.2	11
Badaun	79.6	119	55.0	-22	139.6	166
Baghpat	62.8	139	12.6	-77	45.2	-14
Bareilly	150.1	228	39.6	-45	157.6	119
Bijnor	112.4	139	11.5	-86	208.3	169
Bulandsahar	95.5	204	37.3	-33	80.3	48
Etah	31.3	3	84.3	45	212.4	346
Etawah	0.0	-100	14.7	-73	216.7	303
Firozabad	42.7	-6	29.4	-48	176.3	206
GBNagar	13.0	-60	12.0	-74	30.0	-38
Ghaziabad	15.8	-47	2.6	-95	23.5	-57
Hamirpur	59.8	60	68.2	18	120.3	102

Jalaun	72.2	80	25.6	-56	66.0	16
Jhansi	102.7	110	49.7	-27	34.4	-43
Jotiba Phule Nagar	87.5	111	31.5	-57	92.0	50
Kanshiramnagar	62.0	62	31.0	-47	233.0	343
Lalitpur	47.0	-28	268.0	315	39.5	-43
Mahamaya Nagar	45.5	34	40.0	-27	158.0	191
Mahoba	123.4	206	71.0	29	60.0	7
Mainpuri	3.6	-91	1.5	-97	91.6	85
Mathura	9.1	-70	51.3	15	268.4	426
Meerut	76.6	92	7.2	-90	99.2	65
Moradabad	112.7	143	81.2	9	71.8	15
Muzaffarnagar	51.8	28	5.0	-94	101.7	79
Pilibhit	80.7	48	24.9	-68	94.1	25
Rampur	59.1	25	59.3	-26	54.9	-30
Saharanpur	73.7	52	7.0	-91	134.3	122
Shahjahanpur	128.3	171	5.6	-92	133.7	82
<b>Uttarakhand</b>						
Almora	120.6	176	16.0	-78	210.4	190
Bageshwar	149.8	243	76.3	5	168.3	132
Chamoli	109.2	113	61.7	7	172.9	148
Champawat	189.5	145	56.9	-54	97.2	-11
Dehradun	171.9	62	29.7	-80	199.9	14
Garhwal Pauri	99.6	46	22.8	-80	110.3	9
Garhwal Tehri	85.3	39	6.8	-91	130.5	32
Haridwar	74.4	36	25.4	-71	332.3	410
Nainital	217.4	155	75.7	-40	290.2	132
Pithorgarh	155.0	31	77.0	-32	178.5	46
Rudraprayag	159.4	57	36.1	-68	247.0	86
Udham Sing Nagar	88.8	34	32.4	-68	66.4	-29
Uttarkashi	82.0	34	67.3	-21	136.0	35
<b>Bihar</b>						
Araria	47.5	-47	34.4	-65	298.4	163
Arwal	99.0	118	66.3	-13	134.7	143
Aurangabad	86.6	88	13.8	-83	185.8	148
Banka	118.8	93	56.0	-15	79.6	22
Begusarai	83.7	34	16.6	-81	109.4	79
Bhabua	104.8	73	25.4	-70	169.4	112
Bhagalpur	162.3	120	67.1	-10	59.8	-4
Bhojpur	110.3	78	25.4	-72	112.6	37
Buxar	85.8	53	21.4	-74	87.0	31
Darbhanga	42.0	-43	36.6	-48	181.0	171
East Champaran	3.3	-95	12.2	-85	124.4	46
Gaya	132.9	132	32.6	-58	187.6	153
Gopalganj	9.9	-85	0.9	-99	156.7	125
Jahanabad	55.4	19	34.7	-54	107.8	64
Jamui	166.1	108	46.6	-35	52.7	-30
Kathihar	109.6	30	25.1	-71	102.7	21
Khagadia	87.1	23	36.1	-62	64.2	-5
Kishanganj	127.3	-2	44.6	-70	281.4	105

Lakhisarai	81.1	8	75.3	0	71.1	5
Madhepura	115.3	36	24.1	-76	105.1	15
Madhubani	16.9	-82	13.0	-85	126.7	44
Monghyar	0.0	-100	**	**	**	**
Muzaffarpur	50.0	-34	32.2	-59	124.2	49
Nalanda	104.4	78	62.3	-15	150.9	114
Nawada	133.4	71	41.4	-47	69.3	-5
Patna	72.5	1	40.5	-51	134.5	54
Purnea	93.9	3	46.1	-62	132.7	20
Rohtas	131.0	231	29.8	-61	188.5	179
Saharsha	98.3	-36	2.6	-98	165.0	67
Samstipur	102.1	53	82.4	3	161.8	94
Saran	41.5	-46	11.2	-88	112.9	49
Sheikpura	104.7	49	41.7	-46	61.2	-19
Sheohar	23.4	-77	24.6	-67	135.8	47
Sitamarhi	15.1	-85	2.9	-96	109.8	19
Siwan	30.7	-61	5.6	-93	156.4	96
Supaul	38.1	-54	21.7	-76	127.4	46
Vaishali	67.7	-13	42.5	-56	140.0	54
West Champaran	80.0	-5	33.8	-66	157.2	54
<b>Jharkhand</b>						
Bokaro	84.0	41	37.0	-46	57.1	-27
Chatra	120.1	87	3.7	-96	45.5	-44
Deoghar	110.3	79	58.8	-19	72.3	9
Dhanbad	84.4	6	50.2	-31	40.1	-51
Dumka	55.6	-25	41.1	-47	95.1	15
East Singbhum	69.5	10	25.9	-62	130.4	77
Garhwa	54.0	-7	29.0	-48	105.0	49
Giridih	79.8	8	32.1	-60	77.6	-6
Godda	121.6	97	68.7	-17	44.7	-27
Gumla	143.7	68	82.9	2	126.1	56
Hazaribagh	131.7	95	51.3	-27	83.5	10
Jamtara	80.9	2	31.4	-64	109.9	35
Khunti	164.8	97	41.5	-49	115.0	31
Koderrna	127.4	100	44.9	-32	73.3	10
Latehar	123.8	100	10.3	-85	138.9	62
Lohardagga	108.5	140	21.9	-70	97.3	35
Pakur	51.4	-34	47.2	-53	75.4	-13
Palamau	165.9	200	10.3	-85	131.5	68
Ramgarh	83.4	55	49.2	-34	49.6	-41
Ranchi	136.5	83	16.3	-82	90.0	11
Sahebganj	95.6	-5	66.0	-37	26.4	-64
Saraikela	67.6	-2	51.4	-27	66.1	-7
Simdega	117.7	34	45.4	-55	100.5	-8
West Singbhum	76.2	1	53.7	-25	23.8	-66
<b>East Rajasthan</b>						
Ajmer	16.3	-37	41.9	27	39.3	-27
Alwar	57.2	117	53.4	23	120.4	129
Banswara	95.6	102	153.6	130	29.4	-53



Baran	113.1	159	173.9	212	78.2	10
Bharatpur	22.4	-7	46.5	4	189.9	288
Bhilwara	30.5	-24	76.1	79	47.1	-9
Bundi	29.7	-21	61.8	20	124.2	108
Chittorgarh	72.4	70	166.3	215	44.8	-20
Dausa	26.2	-15	78.2	55	174.8	129
Dholpur	25.5	-28	54.0	12	177.3	225
Dungarpur	116.4	153	144.0	152	19.9	-60
Jaipur	101.1	309	23.7	-41	80.4	17
Jhalawar	55.6	7	185.5	234	18.7	-69
Jhunjhunu	131.2	546	19.1	-44	108.8	135
Karauli	31.6	22	58.9	33	208.8	227
Kota	35.7	-18	95.0	90	43.9	-27
Pratapgarh	67.8	35	149.6	120	16.6	-72
Rajsamand	64.6	84	74.9	100	60.9	35
Sawai Madhopur	71.1	96	66.9	50	186.9	150
Sikar	121.4	467	11.7	-64	39.5	-24
Sirohi	61.2	-1	65.5	8	35.9	-57
Tonk	29.7	1	32.3	-21	141.5	113
Udaipur	108.7	145	89.9	91	34.8	-28
<b>West Rajasthan</b>						
Barmer	13.9	-27	0.9	-94	0.2	-99
Bikaner	11.0	-17	15.9	-9	23.0	-9
Churu	84.5	375	18.0	-40	53.0	68
Hanumangarh	53.9	198	5.7	-76	20.7	-13
Jaisalmer	1.2	-87	2.1	-83	2.9	-83
Jalore	10.3	-70	9.1	-65	7.1	-84
Jodhpur	21.2	19	11.6	-48	1.9	-94
Nagaur	26.7	38	31.0	4	7.3	-85
Pali	35.9	6	16.7	-45	13.6	-73
Sri Ganganagar	4.3	-72	2.1	-86	3.6	-83
<b>Gujarat Region</b>						
Ahmedabad	22.6	-48	29.4	-41	48.0	-19
Anand	21.9	-58	25.4	-61	40.0	-38
Banaskantha	18.0	-55	46.0	-14	17.8	-66
Baroda	23.3	-62	55.5	-30	18.1	-77
Broach	43.7	-32	16.7	-74	61.0	-3
DNH	284.4	58	299.7	55	219.4	10
Dahod	49.1	-6	97.5	48	22.2	-66
Daman	299.8	67	64.5	-67	165.6	-17
Dangs	130.5	5	449.0	169	125.1	-22
Gandhinagar	77.9	35	65.9	-1	51.2	-31
Kheda	47.6	-18	73.7	11	49.6	-30
Mehsana	41.0	-15	76.6	20	27.1	-58
Narmada	35.7	-53	70.2	-31	56.5	-40
Navsari	190.9	17	70.0	-58	133.0	-21
Panchmahal	124.5	130	133.0	68	34.7	-54
Patan	16.9	-57	68.7	61	25.1	-59
Sabarkantha	69.9	36	100.1	37	31.5	-54

Surat	176.0	68	24.6	-80	59.6	-46
Tapi	164.2	47	66.1	-47	59.0	-52
Valsad	279.5	61	201.8	21	160.0	-23
<b>S K &amp; Diu region</b>						
Amreli	119.5	161	3.9	-89	15.2	-73
Bhavnagar	119.7	187	3.0	-91	18.2	-61
Diu	151.4	83	28.3	-55	32.1	-54
Jamnagar	13.1	-72	10.6	-64	39.8	-48
Junagarh	72.1	-21	25.3	-56	100.9	-3
Kutch	2.9	-91	6.1	-73	27.5	-44
Porbandar	10.5	-83	11.6	-80	95.2	42
Rajkot	28.1	-35	14.3	-61	16.2	-77
Surendranagar	32.3	2	17.5	-46	11.1	-75
<b>Maharashtra</b>						
<b>Konkan &amp; Goa</b>						
Mumbai City	238.2	12	38.4	-76	192.4	13
Mumbai Suburban	336.2	58	51.4	-68	176.0	-18
North Goa	426.2	53	156.1	-37	224.4	-19
Raigad	550.3	86	211.7	-15	308.8	8
Ratnagiri	630.0	110	314.5	25	321.7	15
Sindhudurg	469.0	78	249.4	14	233.4	-7
South Goa	324.2	32	65.8	-68	236.8	-6
Thane	469.3	112	178.6	-21	251.6	8
<b>Madhya Maharashtra</b>						
Ahmednagar	43.6	95	52.4	134	5.7	-76
Dhule	26.8	-21	77.1	78	6.9	-80
Jalgaon	52.0	34	132.7	212	32.5	-24
Kolhapur	215.6	30	405.7	142	61.5	-63
Nandurbar	88.4	68	114.2	54	28.7	-60
Nasik	122.8	120	258.4	240	55.4	-23
Pune	150.5	120	145.1	90	40.3	-43
Sangli	47.7	66	134.7	249	14.4	-61
Satara	122.4	126	176.3	197	26.7	-57
Solapur	10.6	-39	14.7	-28	3.6	-85
<b>Marathwada</b>						
Aurangabad	64.5	111	111.8	283	8.3	-77
Beed	32.8	22	24.2	-8	17.4	-43
Hingoli	82.8	43	120.3	145	9.3	-82
Jalna	67.2	102	115.0	236	3.2	-91
Latur	42.5	0	33.8	-16	10.7	-74
Nanded	81.7	71	170.8	242	15.0	-69
Osmanabad	24.2	-22	29.8	-1	16.3	-49
Parbhani	70.9	61	108.3	165	12.3	-69
<b>Vidarbha</b>						
Akola	75.5	80	200.6	331	18.5	-68
Amraoti	126.6	162	195.8	235	27.4	-55
Bhandara	114.7	35	181.3	119	37.7	-58
Buldhana	52.8	32	159.3	303	12.7	-71

Chandrapur	180.7	114	328.2	277	27.1	-66
Gadchiroli	179.3	98	401.8	299	46.6	-54
Gondia	160.2	69	170.8	81	59.9	-40
Nagpur	117.1	78	108.9	40	49.2	-32
Wardha	137.7	145	197.0	199	29.0	-53
Washim	67.9	26	128.2	124	23.7	-58
Yeotmal	97.4	73	190.0	205	33.1	-46
<b>Odisha</b>						
Angul	69.9	20	26.3	-66	95.2	21
Balasore	78.1	22	16.0	-68	51.0	-32
Bargarh	40.1	-48	38.8	-50	58.8	-28
Bhadrak	132.6	119	29.3	-49	48.1	-33
Bolangir	72.7	-9	64.8	-25	50.8	-50
Boudh	66.8	6	34.5	-56	63.5	-16
Cuttack	53.0	-22	85.8	21	83.9	15
Deogarh	39.5	-59	19.2	-78	89.1	-9
Dhenkanal	71.3	12	45.2	-31	141.1	73
Gajapati	76.0	115	41.3	-16	36.6	-36
Ganjam	39.5	-1	21.1	-52	56.5	8
Jagatsingpur	53.7	24	74.1	25	39.5	-39
Jajpur	94.3	70	38.7	-34	73.4	1
Jharsuguda	87.7	9	25.2	-74	55.9	-46
Kalahandi	81.2	9	128.3	55	98.5	7
Kandhamal	74.3	18	28.7	-64	37.7	-50
Kendrapara	29.3	-52	54.4	7	33.3	-49
Keonjhar	98.3	83	19.9	-64	44.0	-38
Khurda	70.2	26	50.7	-18	46.3	-43
Koraput	141.3	62	79.2	1	31.7	-59
Malkangiri	137.0	76	40.4	-54	87.0	-15
Mayurbhanj	61.9	5	19.9	-72	54.7	-36
Nawapara	47.8	-35	60.2	-28	72.6	-6
Nawarangpur	103.5	-3	141.8	76	39.5	-60
Nayagarh	55.8	-3	56.0	-1	74.0	-11
Puri	56.6	-2	18.9	-66	42.3	-24
Rayagada	83.3	69	93.5	48	31.4	-59
Sambalpur	61.9	-36	23.7	-73	69.3	-29
Sonepur	43.6	-56	40.6	-38	59.9	-33
Sundargarh	112.5	53	39.8	-55	112.8	31
<b>West Bengal &amp; Andaman Nicobar Islands</b>						
<b>A &amp; N ISLAND</b>						
Nicobar	50.8	-11	7.2	-88	22.9	-66
North & Middle Andaman	17.6	-84	130.4	34	23.0	-77
South Andaman	42.3	-48	155.7	67	61.1	-40
<b>GWB</b>						
Bankura	62.5	-14	79.4	21	40.5	-41
Birbhum	92.8	25	70.9	-12	96.3	39
Burdwan	81.6	22	60.7	-9	60.1	-14
East Midnapore	92.9	28	39.9	-34	24.3	-55

Hooghly	89.2	18	43.4	-38	43.5	-37
Howrah	130.6	70	10.7	-85	18.6	-77
Kolkata	69.5	-19	66.9	-10	24.7	-69
Murshidabad	147.5	63	53.5	-33	74.4	12
Nadia	89.0	39	67.1	-4	77.6	42
24 Pargana (N)	131.8	80	88.0	19	49.2	-28
Purulia	87.3	16	41.0	-43	42.1	-42
24 Pargana (S)	127.4	15	75.0	-28	119.8	33
West Midnapore	147.6	82	24.3	-64	73.8	-1
<b>SHWB &amp; Sikkim</b>						
Cooch Behar	116.4	-46	78.4	-66	213.6	13
Darjeeling	211.6	39	110.4	-34	277.1	48
East Sikkim	168.8	60	90.7	-24	181.9	89
Jalpaiguri	222.1	-11	76.1	-66	307.0	47
Malda	266.8	229	31.4	-58	88.8	28
North Dinajpur	70.3	-11	6.8	-94	76.4	11
North Sikkim	86.5	-33	54.7	-35	132.3	22
South Dinajpur	93.1	1	25.6	-70	74.4	-7
South Sikkim	168.2	59	74.7	-37	198.1	106
West Sikkim	196.0	52	8.0	-90	0.0	-100
<b>Karnataka</b>						
<b>Coastal Karnataka</b>						
Dakshina Kannada	312.6	3	247.2	-5	132.5	-51
Udupi	447.9	35	188.3	-34	153.0	-53
Uttara Kannada	322.6	28	86.1	-62	89.8	-65
<b>NI Karnataka</b>						
Bagalkote	4.9	-51	33.1	80	16.5	1
Belagavi	59.9	25	141.4	173	11.8	-75
Bidar	14.8	-61	26.5	-22	21.0	-54
Dharwad	34.1	1	37.8	-1	7.8	-78
Gadag	8.2	-29	15.7	-11	4.1	-74
Haveri	61.7	45	10.2	-76	3.7	-91
Kalaburgi	8.6	-73	15.6	-42	31.4	-11
Koppal	1.6	-81	6.7	-56	10.4	-40
Raichur	2.3	-87	4.9	-77	21.0	-16
Vijayapura	4.3	-66	18.3	-6	10.1	-48
Yadgir	3.1	-87	13.0	-54	28.2	-20
<b>SI Karnataka</b>						
Ballari	14.7	25	4.9	-69	0.0	-100
Bangalore Rural	1.5	-86	8.8	-48	29.7	31
Bangalore Urban	3.2	-74	7.1	-63	24.0	9
Chamarajanagar	1.3	-90	1.3	-92	17.5	24
Chikaballapur	17.5	25	8.4	-57	54.6	179
Chikkamagaluru	205.3	14	118.9	-22	35.3	-75
Chitradurga	21.8	130	10.2	-20	1.6	-87
Davangere	34.9	72	12.0	-44	3.4	-87
Hassan	65.9	27	47.8	-1	3.3	-93
Kodagu	251.5	-1	196.6	-3	48.9	-73
Kolar	6.3	-42	5.2	-70	13.2	-19



Mandya	12.0	62	15.9	39	20.5	83
Mysuru	20.5	-17	18.0	-19	16.9	-3
Ramanagara	6.7	-40	6.5	-66	36.0	85
Shivamogga	356.4	118	104.1	-26	51.0	-64
Tumakuru	10.9	9	7.4	-54	22.7	47
<b>Kerala</b>						
Alappuzha	69.3	-53	129.8	0	75.2	-34
Kannur	235.0	-19	235.7	-8	100.8	-54
Ernakulam	95.6	-48	232.4	47	141.3	-1
Idukki	93.1	-58	248.7	43	76.8	-51
Kasaragod	261.6	-6	183.4	-30	178.9	-26
Kollam	46.5	-57	123.7	32	26.9	-66
Kottayam	89.9	-46	189.0	27	66.3	-48
Kozhikode	188.6	-26	199.9	-13	131.3	-35
Malappuram	156.4	-29	146.6	-25	79.9	-50
Palakkad	106.2	-35	126.3	-11	68.1	-43
Pathanamthitta	50.5	-66	162.8	28	49.3	-58
Thiruvananthapuram	31.8	-52	64.4	23	2.1	-96
Thrissur	110.8	-49	164.2	-10	75.4	-54
Wyand	114.2	-64	137.6	-48	29.5	-86
<b>Tamil Nadu</b>						
Ariyalur	0.0	-100	0.0	-100	16.2	8
Chennai	3.6	-84	23.1	20	20.9	-22
Coimbatore	36.7	222	30.1	153	11.4	40
Cuddalore	0.9	-93	8.1	-48	12.7	-23
Dharmapuri	0.5	-95	0.5	-97	51.1	181
Dindigul	0.3	-97	3.1	-77	46.2	298
Erode	0.3	-95	0.3	-97	11.5	34
Kanchipuram	2.0	-90	11.6	-41	39.7	41
Kanyakumari	17.3	-51	32.4	22	0.0	-100
Karikal	0.3	-97	0.0	-100	8.7	20
Karur	0.0	-100	0.0	-100	16.0	95
Krishnagiri	4.5	-52	1.9	-91	35.7	117
Madurai	0.0	-100	0.0	-100	28.6	67
Nagapattinam	0.1	-99	3.8	-70	7.4	-40
Namakkal	1.6	-83	3.4	-79	21.3	50
Nilgiris	35.5	-48	51.6	-13	46.0	-12
Perambalur	0.0	-100	0.0	-100	16.0	32
Puducherry	0.0	-100	2.4	-82	1.4	-91
Pudukottai	1.8	-84	7.3	-67	6.2	-69
Ramanathapuram	0.2	-95	2.7	-41	6.1	-30
Salem	0.0	-100	2.8	-88	21.8	-3
Sivaganga	0.0	-100	0.0	-100	43.2	154
Thanjavur	0.1	-99	7.2	-60	24.3	85
Theni	6.6	7	16.0	101	13.5	98
Tirunelveli	10.5	2	9.6	0	0.6	-93
Tirupur	2.1	-63	0.5	-94	6.2	35
Tiruvallur	9.1	-62	8.7	-57	17.4	-36
Tiruvannamalai	2.3	-82	1.1	-95	27.3	9

Tiruvarur	0.0	-100	5.5	-64	4.5	-62
Toothukudi	0.0	-100	0.0	-100	0.6	-87
Trichy	0.0	-10	0.0	-100	44.4	236
Vellore	5.5	-68	5.1	-76	45.6	90
Villupuram	1.5	-89	5.6	-58	28.0	39
Virudhunagar	0.0	-100	0.2	-98	17.6	83
<b>Andhra Pradesh</b>						
<b>Coastal Andhra Pradesh</b>						
East Godavari	72.4	47	27.0	-36	35.3	-22
Guntur	11.5	-63	4.9	-82	37.0	17
Krishna	38.6	-20	10.2	-76	45.8	6
Nellore	10.8	-40	9.8	-46	17.9	-13
Prakasam	1.0	-95	5.7	-66	19.6	-15
Sirkakulam	53.7	24	22.3	-44	42.9	-2
Visakhapatnam	79.5	109	15.2	-56	12.1	-70
Vizianagram	93.3	112	24.0	-33	37.5	-4
West Godavari	71.5	36	17.4	-66	43.9	-12
<b>Rayalaseema</b>						
Anantapur	2.0	-77	3.6	-76	9.5	-36
Chittoor	7.3	-56	3.1	-85	38.1	56
Cuddapah	0.9	-94	4.1	-77	23.9	-7
Kurnool	6.3	-68	9.5	-61	13.6	-45
<b>Telangana</b>						
Adilabad	84.4	31	197.9	199	17.4	-74
Hyderabad	29.3	-11	15.7	-50	36.6	-6
Karimnagar	67.2	15	126.4	139	13.7	-74
Khammam	111.9	103	37.9	-33	91.7	54
Mehabubnagar	6.4	-79	20.6	-34	286.9	686
Medak	54.2	25	29.1	-36	674.0	1235
Nalgonda	25.2	-15	7.0	-74	464.6	1149
Nizamabad	76.7	24	91.4	58	115.2	104
Rangareddy	21.9	-40	24.8	-35	148.1	249
Warangal	91.9	63	55.3	2	200.7	253

#### 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

##### Assam

**Sali rice:** Ranjit, Bahadur, Satyaranjan, Basundhara, Kushal, Mahsuri, Bhogali, Rangilee, Ketekijoha.

Satyaranjan and Basundhara ( in double cropping areas having crop duration of 130-135 days).

Jalashree, Jalkunwari, Plawan ( for flood affected areas).

Ranjit, Gitesh, Bahadur, Kushal, Piolee (long duration).

Satyaranjan, Basundhara, T.T.B.-404, Mulagabharu, Kanaklata, Joymoti, IR-36, IR-64 etc and Disang, Luit, Kapilee, Dikhow (medium duration).

**Capsularis jute:** JRC 321 and UPC 94.

**Olitorious jute:** Navin (JRO 524), Basudev(JRO 7835), Baisakhtissa(JRO 632), Bahagi (sel-2) and Tarun.

**Okra:** Pusa Sawani, Arka Anamika, Parbhdani Kranti.

**Ridge gourd:** Pusa Nashdar or other local varieties like AAU-1, AAU-2, AAU-3 etc.

**Sponge gourd:** Pusa Chikni or other local varieties.

**Banana:** Dwarf Cavendish, Jahaji (Dwarf Cultivar), Cheni Champa, Malbhog, Chenichampa, Malbhog, Barjahaji (Medium Tall cultivars).

**Papaya:** Washington, Haflong, Rasi, Korg Honey Dew, Co-1, Co-2, Pusa Delicious, Pusa Majesty.

**Guava:** Alahabad Safeda, Lucknow-49, Chittidar, Seedless.

**Fodder crops:** Hybrid Napier, Setaria and Guinea.

### Meghalaya

**Salil kharif rice:** Shahsarang -1, Lampnah, IR 64, Ranjit, RCPL 1-412, RCPL 1-410, RCPL 1-411 & local varieties like Mendri, Manipuri.

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

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

### Nagaland

**Low land rice:** CAU R1, CAU R3, RCM-9 and RCM-11 (Short to medium duration), Gitesh (short duration variety).

### Tripura

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

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

### West Bengal

**Coconut:** Eastcoastal, Hazari

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

**Mustard:** Varuna, Sita and Bhagirathi.

**Jute:** Chaitali, Basudev, Naveen, Sonali, Sobujsona, Shyamali etc.

**Aman rice:** Medium duration MTU-7029, MTU1001, Pratiksha, and for long duration CR1017, CR1018, CR1019, Sabita.

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

### Odisha

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

Hybrid: Megan-G, Megan, MM-1107, Highshell, Prabal, Proagro 4643, Bio9681, Pinnacle, DMH-7705,

**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

**Cotton:** Suraj, Supriya, B.S.-30, B.S.-279, Surabhi, Sujata

Hybrid: Bunny, Diana, Bhaskra, Namaskara, Tulasi, Sigma, Chiruta, Takat

### Bihar

**Kharif onion:** Agri Found Dark Red (ADR), N-53, Bhima super, Arka kalia.

**Turmeric:** Rajendra Sonia and Rajendra Sonali.

**Ginger:** Maran and Nadia.

**Kharif Paddy:** Seeta, Santosh, Saroj, Rajshri, Prabhat, Rajendra suvasni, Rajendra kasturi and Rajendra bhagwati.

**Jute:** JRO 8432, JRO 66, JRO 128, JRO 204 and JRO 66.

**Bottle gourd:** Pusa Naveen, Pusa Samridhi,

**Bitter gourd:** Pusa Visesh, Pusa-2 mosumi, Pumpkin- Pusa Visvash, Pusa Vikash,

**Ridge gourd:** Pusa Chikni,

**Cucumber:** Pusa Uday, Pusa Barkha

### Jharkhand

**Rice:** Birsa Dhan 108, Birsa Vikash Dhan 109, 110, 111, Sahbhagi and Vandana, IR 36, 64, Lalat, Naveen,

Sahbhagi, BR 10, Kanak, Rajendra Dhan 202, Sughanda, Birsa Vikash Sugandh Dhan 2, Birsa Vikash Dhan 203.

**Maize:** Suwan Composite 1 (100 days) and hybrid variety- HQPM 1 (100 days), Composite variety- Birsa Makka 1 (80-85 days) and hybrid variety- Kanchan (80-85 days), Birsa vikash Makka 2 (70-80 Days).

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

**Groundnut:** AK 12-24, Birsa moongfali 1, 2, 3 and bold type – Birsa bold (BAU 13).

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

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

### Jammu & Kashmir

**Paddy (Sub Tropical Zone):** Basmati 370, Ranbir Basmati, China-1039, K-39, K-343, Giza-1.

**Maize:** Vivek-25, Vivek QOM-9 HM-5 and HQPM-1.

### Uttarakhand

**Sugarcane:** Pant 84211, Co-238, Co-241, Co Pant 3220, COS-8436, COS-88230 etc. and medium to late sown varieties like Co Pant 90223, Co Pant-96219, COS-97222, COS-767, COS-1148, COS-96268 etc.

**Okra (Bhabar and Tarai Zone):** Uphar, Punjab Padmini, Punjab-1, Punjab-7, Arka, Anamika, Abhay, Parbhani Kranti

**Paddy:** Sharbati, Pusa 1121, Pusa 1, Pusa 44, NDR 359.

**Groundnut:** TA-64, Chandras, Kaushal, Prakash, Ambar.

**Dwarfs variety of paddy:** Narendra-118, Narendra-97, Pant Sankar Dhan-1 and Pant Sankar Dhan-10.

**Pigeon pea:** Pant Arhar-3, Pant Arhar-291, UPAS-120, Pusa-992.

**Maize:** Tarun, Navin, Kiran, Navjot, Pratap maize-1, Pusa sankul-3& 4 Kg seed of chilly crop.

**Soyabean:** P.S.-1042, P.S.-1241, P.S.-1347, P.S.-1225, P.S.-19.

**Groundnut:** TA-64, Chandras, Kaushal, Prakash, Ambar.

**Okra:** Uphar, Punjab Padmini, Punjab-1, Punjab-7, Arka, Anamika, Abhay, Parbhani Kranti.

**Radish:** PushaChetki.

### **Himachal Pradesh**

**Cauliflower:** snowball and Giant snowball.

**Radish:** Japanese white, Chinese pink and mino early white

**Turnip:** PTWG-1

**Carrot:** Pusakesar

**Fenugreek :** I.C. 74, kasoori.

**Peas :** Mater ageta-6 (early variety).

**Cabbage:** Pride of India, golden achor and hybrid

### **East Uttar Pradesh**

**Kharif Maize:** ganga-11, sartaj, H.Q.P.M.-5, H.Q.P.M.-8, Pro-316, Bio-9681, Wai-1402 K, Prabhat, hybrid varieties G-1, 5 and selective varieties of Tarun, Navin, Kanchan, Sweta and Jaunpuri for early sowing.

**Rice:** Narendra-359, Malvia dhan-36, Narendra dhan-2026, Narendra dhan-2064, Narendra dhan-2065, Narendra dhan-3112, Sarju-52, Pant dhan-4, seeta, Jalamagna, jalanidhi, jalparia, chakia 59.

Hybrid varieties : Pro. Agro-6444(2001) Eraese, P.H.B.-71, Narendra sankar dhan-2,3, K.R.H.-2, P.R.H.-10, U.S.-312, R.H.-312, V.S.R.-202, R.H.-1531,

Scented varieties: Type-3, Pusa basmati-1, Malvia sugandh-105, Malvia sugandh-4-3, Narendra sugandh or Narendra usar dhan-1, Narendra usar dhan-2, C.L.R.-10, or Narendra usar dhan-2008

**Turmeric:** Kasturi, Paspu, Amlapuram, Madhukar, Sugna, Rajendra

**Ginger** -suprabha, suruchi, surbhi and Himgiri

**Urad Bean:** Pant U-19, Azad URD-1, KU 91-2, Shekhar-1, KU-301

**Arahar:** Bahar, Amar, Narendra Arahar-1,2, pusa-2001, pusa-991, pusa-992, paras manak, UPAS 120.

**Moong:** Type-27, 56

### **West Uttar Pradesh**

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

**Sugarcane:** ko.sha 88230, ko.sha 8436, ko 0238, ko.sha 07250 or U.P. 0512.

**Barseem:** V.L.1, V.L.10, maskavi, jai, K-8027, K-9565, Mandakini.

**Onion:** pusa red, pusa white.

**Sugarcane:** The mid and late maturing varieties of sugarcane: CO Pant 211, Co Sa 687 and Co Sa 8436.

The varieties recommended in areas with poor water drainage: B.O.54 and B.O.91.

**Baby corn:** M.H.-4.

### **Punjab**

**Sugarcane:** CoJ-85, CoJ-83, CoJ-64 (early maturing), COH-119, CoJ-88, CoS-8436 for and CoJ-89, CO118, COJ85, COJ64.

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

**Onion:** Punjab Naroya, Punjab White and PRO 6.

**Radish:** Punjab Pasand and Japanese white.

**Turnip:** L-1.

**Carrot:** Punjab Black Beauty, Punjab Carrot Red and PC-34.

**Tomato:** TH-1, Punjab Ratta, Punjab NR 7, Punjab Chuhara, Punjab Upma, Castle Rock.

**Rice: Hybrid varieties:** K. R. H 2, PHB 71, Pant hybrid Dhan1, Narendra hybrid dhan 1, P R H 10

**High yielding varieties:** Pusa 44, Pant Dhan-4, Pant Dhan-10, Pusa-834, Pusa basmati-1, Pusa basmati-1509, Pusa improved basmati, Pusa sugandha-5, Pusa sughanda-4 (Pusa 1121), Ranvir basmati and Taravadi basmati.

**Pigeon pea:** Pusa 2001, Pusa 992, Paras, Manak.

**Maize:** PMH1, Parbhat, PMH2

**Paddy :** PR-124, PR-123, PR-121, PR-122, PR-114, PR 113, PR-126, PR-115.

**Okra:** Punjab-8 and Punjab-7

### **Delhi**

**Oat :** J.H.O-822, O.L.-9, Pusa oat-5.

**Barseem:** Vardan, Buland Barseem-1, Masakavi, J.B-3;

**Radish:** Japanese White, Hill queen, French Radish;

**Spinach:** PusaBharti.

**Amaranth:** PusalalChaulai, PusaKiran.

**Ladyfinger:** Pusa A-4.

**Radish:** Japanese White, Hill queen, French Radish.

**Spinach:** All Green, PusaBharti;

**Fenugreek:** PusaKasuri;

**Coriander:** PantHaritama, Hybrids.

**Turnip:** Pusa Swati, Local Red variety.

**Bottle Gourd-** Pusa Naveen, PusaSamridhi

**Bitter Gourd-** PusaVisesh, Pusa-2 mosumi



**Pumpkin-** PusaVisvash, PusaVikash  
**Ridge Gourd-** PusaChikni  
**Cucumber-** PusaUday, PusaBarkha

#### **East Rajasthan:**

**pearl millet:** HHB 67, HHB 60, Raj 171, ICMH 356 and ICTP 8201( improved varieties)

Raj-171, ICTP-8203, RHB-173, RHB-177, RHB-121, HHB-67( improved varieties)

**Sorghum:** CSH-6, CSH-9, CSV-10, CSV-15.

TG37-A, DH-86, Pratap Mungfali-1.

**Rice:** P.R. 106, B.K.190, Mahisugandha( Basmati)

**kharif onion:** N-53 & Agrifound dark red

**Maize:** Aravali Makka-1, Pratap Makka-1, Pratap Makka-5, Pratap Hybrid Maize-1, Pratap Hybrid Maize-2 and bio-9637.

Hybrid varieties are-Mahi Dhawal, PEHM- 2, Pratap Hybrid Maize-1, Pratap Makka-3, Pratap Makka-5, Bio-9637, Bio-9681, Pratap HQPM-1, Pratap Hybrid Maize-3, Pratap Makka-9

Ageti-76, Bassi Selected, Mahi Kanchan

**Greengram:**RMG-62, RMG-268. RMG-492 & RMG-344, IPM-02-3.

**Cowpea:** FS-68, RC-19 and RC-101.

**Moth:** RMO-40, IPCMO-912, RMO-257, RMO-225, RMO-435 (Vikash) (improved varieties)

#### **West Rajasthan**

**Green fodder:** Jwar/Bajra mixed with guar. popular varieties for Jwar are Raj Chari-1, Raj Chari -2, MP Chari, SSG 59-3, MSFH-3, MSFH-4 and Hara Sona; for Bajra: Raj Bajra Chari-2, Co -8, AvikaBajra Chari-19 and Giant bajra; for Guar: RGC-986, Bundel guar-1, Bundel Guar-2 and Bundel Guar-3.

**Pearl millet:** R.H.B.-177, ICTP-8203, RHB-121, RHB-173, RHB-154, GHB-538, HHB-67( improved varieties)

**Bhindi:** Ark Anamika, varshauphar, Parbhanikranti, pusamakhmali.

**Groundnut:** HNG-123, HNG-69, ICHG-00440, HNG-10, TG-37 A, Girnar-2, R.G.-425, GG-20, TG-39.

**Sorghum:** Girnar-2, RG-425, HNG-10, GG-20, TG-37-A, TG-39.

**Narma cotton:**R.S.T.-9, R.S.-810, R.S.-2013, Bikanerinarma, R.S.875, MaruVikas( Raj. H.H.16)

**BT Narma cotton:**M.R.C.H.6304, M.R.C.H.6025, R.C.H.650, Bioseed-6588, Bioseed-6488, R.C.H.-314, J.K.C.H. 1947, M.R.C.-7017 ( BG-II) or N.E.C.H.6.

#### **Madhya Maharashtra**

**Soybean:**Phule kalyani, Phule agrani (K D S 344), J S 335, M A C S 11188.

**Sorghum:**Hybrid varieties – C S H 5, C S H 9, C S H 13, C S H 14, C S H 16, C S H 21, C S H 25,

Improved varieties – S P V 462, C S V 13, C S V 15, C S V 17, C S V 23.

**Groundnut:**Phule morana, Phule pragati, Phule vyas, Phule unnati, Phule R H R G 602.1.

**Rice:**Halava : Karjat 184, Ratnagiri 1, Karjat 4, Ratnagiri 711, Phule Radha.

Nimgarva : Jaya, Phule Maval, Phule samruddhi, Phule R G –N-6.

Garva : Ratnagiri 2, Karjat 2, Daranna, Suvarna.

Scented paddy : Basmati 370, Indrayani, Prabhavati, Sughandha.

Hybrid : Sahyadri 1, Sahyadri 2, Sahyadri 3, Sahyadri 4, Sahyadri 5, K R H 2.

#### **Gujarat**

**Rice:** NAUR-1, GNR-2 (Costal area), GNR-3 (N/V), GNR-4 (long duration), Jaya, Ghujari, GR-5, 7, 8, 9 (Oran) IR-28 and GAR-13).

**Cotton:** Bg-II GCH-8, 12 Jay Bt, Solar-66, 76, Sarju, Bg- II GCH-6, Mallika;hybrid cotton: G. cot. 6, 8, 10, Agritop-333, 777, 444, Jay, Beejadhan-2, Atom, Bhakti; Swapna.

**Groundnut:** GG-20 & 22, GUG-10, GG-2, 11, 13, TAG– 24, TAG-37 A, TPG-41, TLG-45; semi-spread - GG.20 or erect GG-2, GG.5, GG.7 and TG-26.

**Greengram:** GM-4, GM-4, K-851

**Blackgram:** T-9, GU-1.

**Cowpea:** Gujarat Cowpea-1,2,4, Pusa Falguni.

**Pigeonpea:** BDN-2, GT-100, GTH-1, Vaishali, GTH-1, BHSR-711 .

**Sesame:** GT-1, 2, GT-3, 10.

**Pearl millet:** GHB-528, GHB-577, GHB-316 GHB-183; late maturity - GBH-558, GBH-732 and for moderate maturity - GBH-744, GBH-905 and for early maturity - GHB-757, GHB-719, GHB- 538.

**Bottle Gourd:** Pusa Naveen, Pusa Samridhi.

**Bitter Gourd:** Pusa Visesh, Pusa-2 mosumi.

**Pumpkin:** Pusa Visvash, Pusa Vikash.

**Ridge Gourd:** Pusa Chikni.

#### **Madhya Pradesh**

**Soybean:** JS 335, JS 93-05, JS 95-60, JS 72-52, JS 90-41, JS 20-29.

**Red gram:** Jawahar -4, Ahsa (ICPL-87119), JKM-7,189,ICPL 88039, Pusa 2001,2002,992.

**Rice:** short duration (JR, 305, JR 201,Poornima,JD 201, JRH-5, JRH-8, Danteshwari).

medium duration (IR 64, IR 54,IR 36, Madhuri, Kranti, Mahamaya, Pusa Basmati).

**Sugarcane:** KO Jawahar-86141, 86572, 86032.

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

**Maize:** JM-8, JM-12, JM-216,Vivek-17, Navjot, HQPM-1,5, HM-4,10,11.

**Sesame:** TKG-21, TKG-22, TKG-55, TKG-306, JTS-8, RT-46.

**Groundnut:**AK 12-24, TG 124,TG 26, Jyoti, JL 24, UF70-103, JGN -3, GG 2, Ganga Puri .

### **Chhattisgarh**

**Rice:**Abaya, Mahamaya, Danteswari, Samleswari,Chandahasini, Indira Sona (Hybrid), Karma, Mashuri, Jaldoobi.,Pusa Basmati-1, Madhuri, Indira Sughandith Dhan-1.

**Soybean:**J.S. 335, Indira soya-9, J.S. 80-21, J.S.93-05.

**Sesame:**T.K.G. -21, T.K.G-22, T.K.G-55, and T.K.G - 8.

**Tomato:** Pusa early dwarf, Sweet 72, Pusa rubi, Pusa Gurab, Mangala, Naveen, Laxmi 5005 & NS 815.

**Brinjal:**Punjab Shadabahr, K S 331, P H 5, P H 6 ,KS224 ,A R B H -543.

### **Karnataka**

**Rice:** Jaya, Rasi, BPT-5204 (in North East Transition Zone), Intan, Abhilash and Hemavati (for low land); Amrut or Prasanna variety (for upland); BI.-33, KMP.-1, IET-8116, IR-30864, MTU-1010, 1001, Rashi, MAS-946-1, MAS-26..

**Jowar:**CHS-5, CSH-9, DSV – 2, Hybrids – CSH-14, CSH-16, CSH-18, CSH-30, CSV-4 and CSV-15, DSV-3, DSV-6 and SSV- 74.

**Groundnut:**Bunch type of varieties (JL-24 and TMV-2), JL-24, KCG-6, GPBD-4, GPBD-5, G-2-52, R-2001-3 (Ajay), DH-3-30, PRI-2, TMV-2, GPBD-4, Chinthamani-2.

**Cotton:** DHH-11, NCH-145, NHH-44, DHB-105, DHB-915, and Sahana.

**Green gram:** PS-16, PDM-84,178, Pusa Baisaki.

**Black gram:**TU-1, TAU-1, DU-1, DBGV-5. Karegav-3, T-9, LBG-625.

**Red gram:**TTB-7, BRG-1and 2, Hyd-3c, TS-3R, ICP-7035, BSMR 736, TS-3R.

**Ragi:** Indaf -9, ML-365, GPU-66, Indaf-5, GPU-28, MR-6, PR-202, HR-911, And KMR-301.

**Maize:** Hybrids – DMH-2, Arjun, GH-0727, Renuka (G-25) and Private hybrids, Ganga-11, Decon-101, Vijaya Composit, N.A.C-6002, N.A.C-6004, Nityashree, N.A.H-1137.

**Popcorn:** Ambar.

**Sesame:** Navile-1, T-7.

**Cowpea:** TVX-944, KBC-1, C-152, KM-5, PKB-4.

**Soybean:**JS-335, DSB-1, DSB-21, JS 93-05.

**Sugarcane:**S-4, Chainamung & Pusabaisaki, & DGGV-2, CO-419, CO-7804, CO-62175, COC-671, B-37172.

**Sunflower:** Morden, KBSH-1, 41, 42 & 44.

**Beans:** HA-3 & 4.

### **Andhra Pradesh**

**Maize:**DHM 111, DHM 117, DHM-119, KH 510, Bio 9637, KH 9541, MCH 2, Kohinoor, Prabhal and Bisco 855, DHM 111, DHM 117, DHM-119, KH 510, Bio 9637, KH 9541, MCH 2, Kohinoor, Prabhal and Bisco 855

**Ragi:**Bharati, Srichaitanya, Vaula

**Rice:** MTU 1010, MTU 1075, NLR 34449, Srikakulam Sannalu, Swarna, Vasundhara, Suraksha, Vijetha, Srikakulam sannalu, Pushyami, Sridruthi, Pushkala, Sri Satya

**Groundnut:** Kadiri-7Bold & Kadiri-8,Bold, Abhaya and Kadiri-9.

**Redgram:**LRG-41, PRG-158, PRG-176, Lakshmi, and Asha

**Bajra:**P.H.B-3, I.C.M.H-356, Dhanashakthi

**Korra:**Prasad,SIA-3085,Krishnadevaraya,Surya nandi, Narasimharaya, srilakshmi and SIA 3156 and **castor:**PCH-111, PCH-222, Haritha, Kiran

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

### **Telangana**

**Cotton:**American Cotton varieties,Desi Cotton varieties (G. arboreum. L and G. herbaceum. L, Intra- / Inter – specific Cotton hybrids,Bt. cotton