



# *National Agromet Advisory Service Bulletin*

*Friday 17<sup>th</sup> July 2015  
(For the period 17<sup>th</sup> to 21<sup>st</sup> July)*



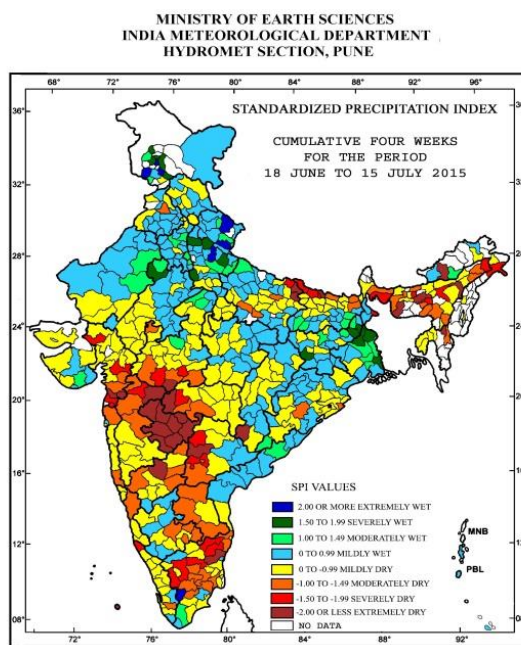
*Issued by  
National Agrometeorological Advisory Service Centre,  
Agricultural Meteorology Division,  
India Meteorological Department, Shivajinagar, Pune.*



## Monsoon Watch

- The southwest monsoon has been vigorous over Jharkhand and active over Gangetic West Bengal, Odisha, Bihar, Nagaland, Manipur, Mizoram & Tripura, East Uttar Pradesh and Himachal Pradesh during past 24 hours ending at 0830 hours IST of yesterday.

### Standardised Precipitation Index Four Weekly for the Period 18<sup>th</sup> June to 15<sup>th</sup> July 2015

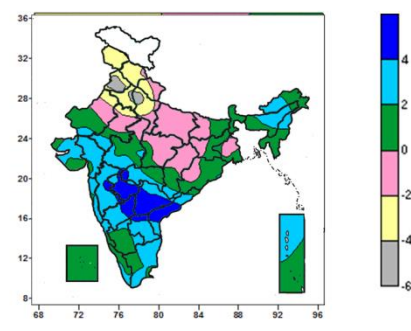
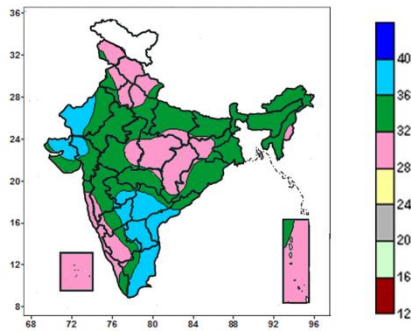


- Extremely/severely wet conditions experienced in few districts of Jammu & Kashmir; Birbhum, Murshidabad, North 24 Parganas districts of West Bengal; Dumka, Gumla, Pakur districts of Jharkhand; Bareilly, Bijnor, Mathura, Moradabad, Muzaffarnagar districts of Uttar Pradesh; Chamoli, Nainital districts of Uttarakhand; Sikar district of Rajasthan; Theni district of TamilNadu.
- Extremely/Severely dry conditions experienced in few districts of Arunachal Pradesh, Assam, Gujarat Region, Maharashtra and Telangana. West Garo Hills district of Meghalaya; Cooch Behar, South Dinajpur districts of West Bengal; East Champaran, West Champaran, Sitamarhi, Sheohar districts of Bihar; Deoria, Kushi Nagar, Maharajganj districts of Uttar Pradesh; Harda, Khargone, Burhanpur districts of Madhya Pradesh; Bijapur districts of Chhattisgarh; Coimbatore, Erode, Salem, Tiruvannamalai, Vellore, Viluppuram districts of Tamil Nadu; Bijapur district of Karnataka; Kasargod district of Kerala.
- Moderately dry conditions experienced in most districts of Meghalaya; few districts of Assam; Konkan & Goa; TamilNadu and Karnataka; Jalpaiguri district of West Bengal; Jagatsinghpur, Kandhamal districts of Odisha; Araria, Madhubani, Purnea districts of Bihar; Fatehpur, Kaushambi districts of Uttar Pradesh; Jalandhar district of Punjab; Betul, Dhar, Khandwa, Neemuch districts of Madhya Pradesh; Narmada, Tapi districts of Gujarat Region; Ahmednagar, Nashik, Nandurbar, Yeotmal, Washim districts of Maharashtra; Anantapur, Chittoor, Kurnool districts of Andhra Pradesh; Mahabubnagar district of Telangana; Pathanamthitta district of Kerala.
- Rest of the country experienced moderately wet/mildly dry/wet conditions.

**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 15.07.2015**

**Actual Mean Maximum Temperature (°C) in India for the week ending 15.07.2015**

**Mean Maximum Temperature (°C) Anomaly in India for the week ending 15.07.2015**

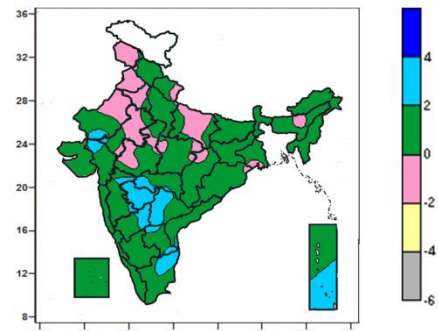
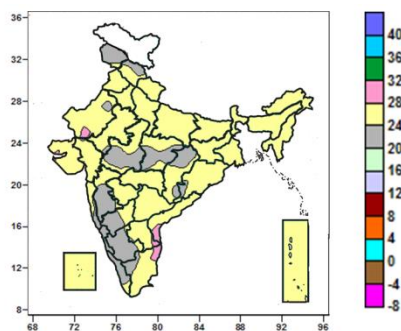


- Mean maximum temperature were between 36 to 40<sup>0</sup>C over Rayalaseema, many parts of West Rajasthan, Kutch, Coastal Andhra Pradesh, Telangana and Tamil Nadu, some parts of Saurashtra, Gujarat Region, North Interior Karnataka, Marathwada and isolated pockets of South Interior Karnataka and Madhya Maharashtra.
- It was below 36<sup>0</sup>C over remaining parts of the country.

- Mean maximum temperature were above normal by more than 4<sup>0</sup>C over many parts of Marathwada, Telangana, Coastal Andhra Pradesh, some parts of North Interior Karnataka and isolated pockets of Madhya Maharashtra, Vidarbha and Rayalaseema.
- Mean maximum temperature were above normal by 2 to 4<sup>0</sup>C over many parts of Gujarat, Konkan & Goa, Assam, Nagaland, Madhya Maharashtra, Vidarbha, North Interior Karnataka, Rayalaseema, Tamil Nadu and Andaman & Nicobar Islands, some parts of Arunachal Pradesh, Rajasthan, West Madhya Pradesh, Telangana, Coastal Andhra Pradesh, Coastal and South Interior Karnataka, Kerala and isolated pockets of Chhattisgarh and Odisha.
- Mean maximum temperature were below normal by 4 to 6<sup>0</sup>C over many parts of Punjab, some parts of West Uttar Pradesh and isolated pockets of Haryana.
- Mean maximum temperature were below normal by 2 to 4<sup>0</sup>C over Jammu & Kashmir, many parts of Himachal Pradesh, Haryana & Delhi, West Uttar Pradesh, some parts of Punjab, Uttarakhand and isolated pockets of Rajasthan.
- It was normal to near normal in remaining parts of the country.

**Actual Mean Minimum Temperature (°C) in India for the week ending 15.07.2015**

**Mean Minimum Temperature (°C) Anomaly in India for the week ending 15.07.2015**



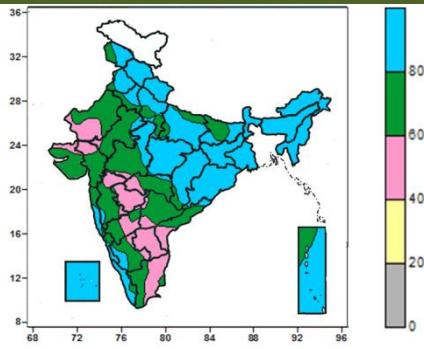
- Mean minimum temperature was 20 to 24<sup>0</sup>C over many parts of Jammu & Kashmir, Madhya Pradesh, Madhya Maharashtra, Goa, Karnataka, Kerala, some parts of Himachal Pradesh and Chhattisgarh and isolated pockets of West Rajasthan, Odisha, Konkan, Marathwada and Tamil Nadu.
- It was above 24<sup>0</sup>C over rest of the country.

- Mean minimum temperature was above normal by 2 to 4<sup>0</sup>C over many parts of Marathwada, Telangana, some parts of West Rajasthan, Gujarat Region, North Interior Karnataka, Tamil Nadu and Andaman & Nicobar Islands and isolated pockets of Madhya Maharashtra, East Rajasthan, Vidarbha, Coastal Andhra Pradesh and Rayalaseema,
- It was normal to near normal in remaining parts of the country.



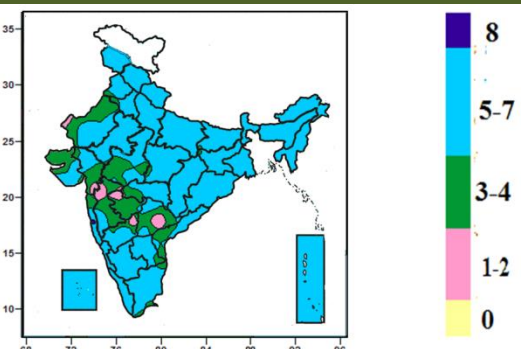
**Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 15.07.2015**

**Relative Humidity (%) over India for the week ending 15.07.2015**



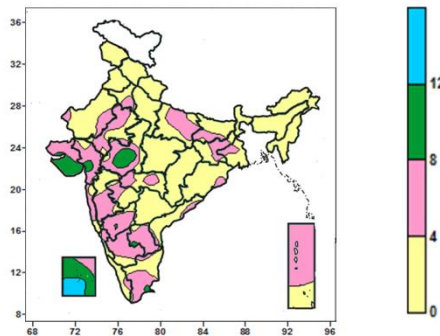
- Mean Relative humidity was above 80% over Himachal Pradesh, Uttarakhand, West Bengal & Sikkim, North East India, Jharkhand and Lakshadweep, many parts of Jammu & Kashmir, Punjab, Haryana & Delhi, Uttar Pradesh, Chhattisgarh, East Madhya Pradesh, Odisha, Konkan & Goa, Coastal Karnataka, Kerala and Andaman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

**Cloud amount (okta) over India for the week ending 15.07.2015**



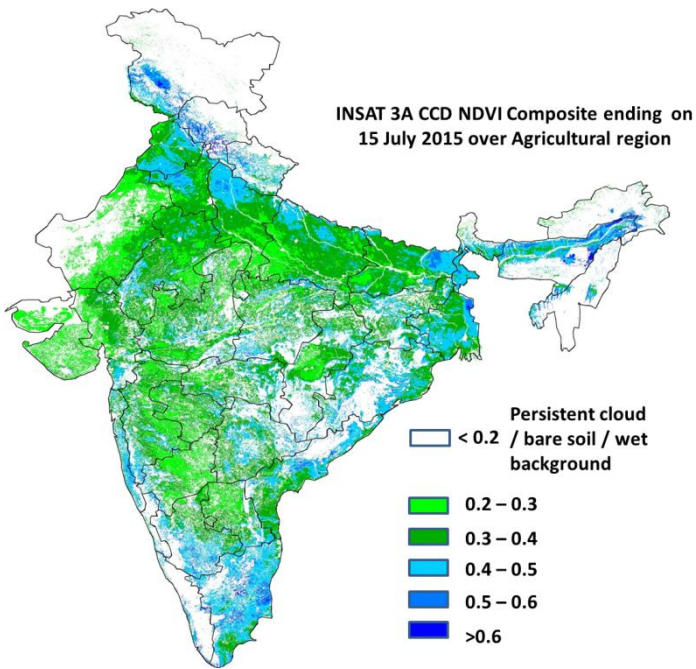
- Sky remained generally cloudy (5-7 okta) over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh, East India, North East India, Chhattisgarh, Coastal & South Interior Karnataka, Kerala, Lakshadweep and Andaman & Nicobar Islands, many parts of Punjab, Haryana & Delhi, Rajasthan, Madhya Pradesh,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

**Wind speed (knots) over India for the week ending 15.07.2015**



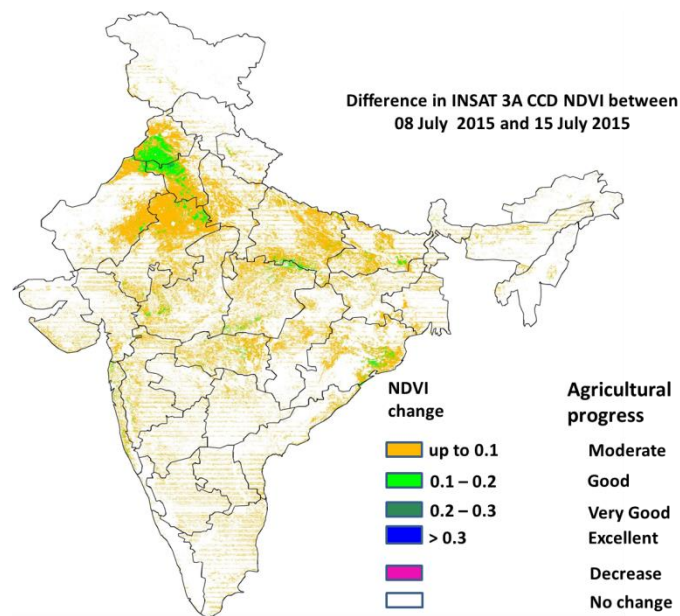
- Mean wind speed was more than 12 knots over some parts of Lakshadweep.
- Mean wind speed was 8 to 12 knots over many parts of Saurashtra and Lakshadweep, some parts of West Madhya Pradesh and isolated pockets of Gujarat Region, Interior Karnataka and Tamil Nadu.
- It was less than 8 knots over rest of the country.

**INSAT 3A CCD NDVI COMPOSITE ENDING ON 15<sup>th</sup> July 2015 OVER AGRICULTURAL REGION OF INDIA**



- Agricultural vigour is very good in most parts of West Bengal, Punjab, some pockets of East Bihar, Haryana and South Interior Karnataka, Coastal Kerala, Northern parts of West Uttar Pradesh, patches in East Rajasthan, Gujarat, Telangana, Coastal Andhra Pradesh, Jharkhand where NDVI varies from 0.4 to 0.6. Agricultural growth was good over most parts of Uttar Pradesh and Bihar and some parts of Gujarat, Punjab and Haryana, Central Maharashtra, Coastal Odisha (NDVI: 0.3-0.4). NDVI remains within the range of 0.2 to 0.3 over most parts of rest of India.

**Difference in INSAT 3A CCD NDVI between 8<sup>th</sup> and 15<sup>th</sup> July 2015**



- Good change in NDVI (0.1 - 0.2) was observed in Punjab and Haryana, in some patches of Madhya Pradesh, Coastal Odisha and East Rajasthan. Moderate progress (up to 0.1) in NDVI was observed over some patches in Punjab, Rajasthan, West Uttar Pradesh, Madhya Pradesh, Maharashtra, Telangana, Coastal Andhra Pradesh, Bihar, eastern part of Odisha and North East.

- INSAT 3A CCD NDVI composite maps for the week ending on 15<sup>th</sup> July 2015 for different States are given below in Annexure II.

## Weather Forecast for next 5 days valid upto 0830 hours of 22<sup>nd</sup> July 2015

### 5 Day Rainfall Forecast (MORNING) 17<sup>th</sup> July 2015

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

#### % 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

- **17 July (Day1):** Heavy to very heavy rainfall would occur at a few places over Himachal Pradesh and at isolated places over Uttarakhand, Uttar Pradesh, Bihar and Odisha. Heavy rainfall would occur at isolated places over Jammu & Kashmir, Chhattisgarh, Jharkhand, Gangetic West Bengal, Sub-Himalayan West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura, Coastal Karnataka and Kerala.
- **18 July (Day 2):** Heavy to very heavy rainfall would occur at isolated places over Jammu & Kashmir, Himachal Pradesh, Odisha, Sub-Himalayan West Bengal & Sikkim, Nagaland, Manipur, Mizoram & Tripura, Coastal Karnataka and Kerala. Heavy rainfall would occur at isolated places over Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, East Rajasthan, East Madhya Pradesh, Chhattisgarh, Jharkhand, Gangetic West Bengal, Andaman & Nicobar Islands, Assam & Meghalaya and Konkan & Goa.
- **19 July (Day 3):** Heavy to very heavy rainfall would occur at isolated places over Uttarakhand, East Madhya Pradesh, Konkan & Goa, Coastal Karnataka and Kerala. Heavy rainfall would occur at isolated places over Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh, West Madhya Pradesh, Chhattisgarh, Andaman & Nicobar Islands, South Interior Karnataka and Lakshadweep.
- **20 July (Day 4):** Heavy to very heavy rainfall would occur at isolated places over East Madhya Pradesh,



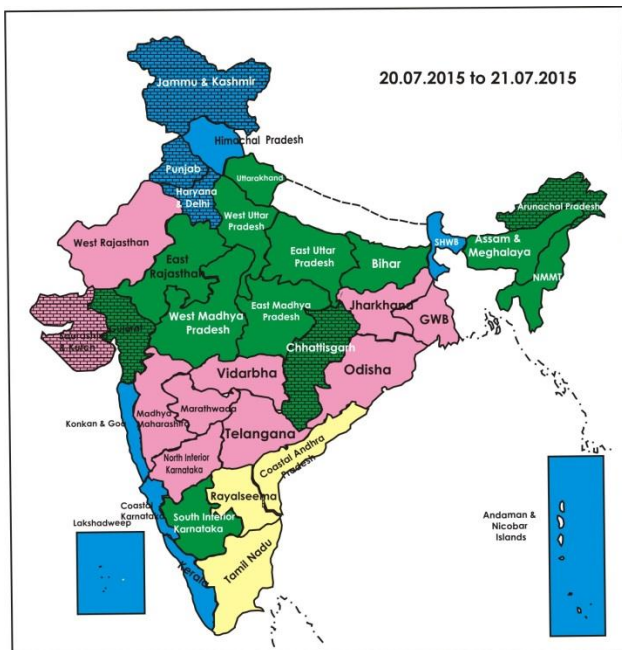
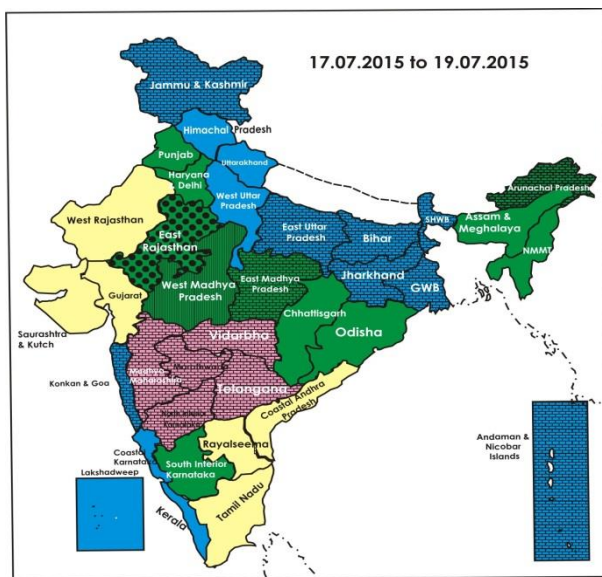
Konkan & Goa and Coastal Karnataka. Heavy rainfall would occur at isolated places over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, West Madhya Pradesh, Chhattisgarh, Andaman & Nicobar Islands, South Interior Karnataka, Kerala and Lakshadweep.

- **21 July (Day 5):** Heavy to very heavy rainfall would occur at isolated places over East Madhya Pradesh, West Madhya Pradesh, Coastal Karnataka, Kerala and Andaman & Nicobar Islands. Heavy rainfall would occur at isolated places over Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Konkan & Goa.

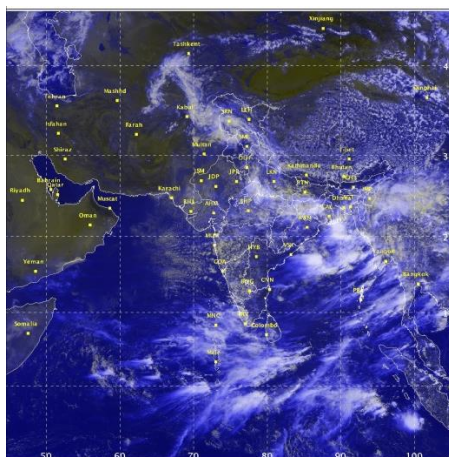
### Weather Outlook for subsequent 2 days from 22<sup>nd</sup> to 24<sup>th</sup> July 2015

- Rain/thundershowers would occur at many places over western Himalayan region, northern plains, central India, along west coast and northeastern states.
- Rain/thundershowers would occur at a few places over east and peninsular India.

### Weather Forecast Map (Valid upto 0830 hours of 22<sup>nd</sup> July, 2015)



## Satellite image dated, 17.07.2015 0600 UTC



## Salient Advisories

- In **North Interior Karnataka**, as there was deficient rain during last week and no significant rain is expected during next 5 days, provide protective irrigation to sugarcane and early sown crops and undertake the following contingency measures:
  - Undertake sowing of red gram/ sesamum/ horse gram/ foxtail millet/ Bajra
  - Use 25% higher seed rate in dry sowing of redgram or
  - Transplant 25-30 days old redgram seedlings of BSMR-736 and Asha varieties
  - Go for sowing of Short duration red gram varieties ( Pragathi).
  - Adopt intercropping of redgram + foxtail millet (1:5) / redgram + bajra (1:5)
- In **Telangana**, in view of the subdued rainfall activity during last few weeks, the following remedial measures are suggested:
  - Intercultural operation and mulching in already sown crops for conservation of soil moisture.
  - Light hoeing and weeding in early sown jowar, soybean and green gram and black gram.
  - Maintain 2-3 cm water level in rice field.
  - Instead of cotton, redgram, jowar, keep inputs ready for sowing of sole redgram (Maruti, Lakshmi, PRG 158 etc) adopting closer spacing of 90 x 30 cm.
  - Application of irrigation in sugarcane at frequent intervals.
  - Foliar spray of 2% KNO<sub>3</sub> during dry spells.
  - Provide supplementary irrigation by using micro-irrigation (sprinklers).
- In **Coastal Andhra Pradesh**, continue nursery sowing of rice and sowing of groundnut in North Coastal Zone. Avoid sowing of rainfed groundnut in Anantapur district and undertake further sowing after receipt of sufficient rainfall and continue sowing in areas having irrigation facilities in the Scarce Rainfall Zone.
- In **Konkan**, continue transplanting of rice and finger millet in South Konkan and undertake transplanting of rice and finger millet in North Konkan after receipt of sufficient rain.
- In **Madhya Maharashtra**, undertake light hoeing, mulch with crop residue to conserve soil moisture. Apply protective irrigation (drip or sprinkle method) to early sown crops like soybean, cotton, red gram and jowar. Apply irrigation to sugarcane by alternate furrow method or mulch with sugarcane trash.
- In **Marathwada**, undertake light hoeing, mulch with crop residue to conserve soil moisture. Apply protective irrigation (drip or sprinkle method) to earlier sown crops like soybean, cotton, red gram and jowar in view of prevailing water stress condition. In **Vidarbha**, undertake light hoeing, mulch with crop residue to conserve soil moisture. Apply protective irrigation to earlier sown crops like soybean, cotton, red gram and jowar in West Vidarbha. Undertake transplanting of rice in East Vidarbha utilizing the realized rainfall.
- In **Gujarat Region**, instead of regular varieties of crops, sowing of alternate crops like bajra (short duration: GHB 538, GHB 732, GHB 719, GHB-577), maize (GM-4, 6, Narmada Moti) and cotton (G.Cot-13, 21 and ADC-1) may be undertaken after receipt of sufficient rainfall and sowing of other alternate crops like green gram, forage sorghum, guar (cluster bean), sesame (semi *kharif*), vegetable crops ( chilli, brinjal , okra, cluster bean ) may also be undertaken after receipt of sufficient rainfall. Carry out gap filling, thinning, weeding and intercultural operations in early sown crops; apply light irrigation in cotton through micro irrigation system.
- In **North Saurashtra**, in view of prevailing dry spell conditions, sowing of alternate crops like groundnut bunch type (GG-2, GG-5, GG-9, TAG-24), sesamum (G.Til-3, G.Til-4), castor (GAUCH-1, GCH-4, GCH-6, GCH-7),



hybrid bajra (GHB-538, GHB-558, GHB-719, GHB-732, GHB-744), green gram (K-851, G.Mong-4), black gram (T-9, G.U.-1), pigeon pea (BDN-2, G.Tur-100), cowpea (GCH-4), fodder sorghum (Gundari, GFS-4, GFS-5), maize (African tall), cotton (short duration Bt. cotton varieties, GCH-8) is suggested for the areas in Surendranagar, Jamnagar districts where sowing of crops could not be done due to deficit rainfall.

In view of the subdued rainfall activity during last few weeks, the following remedial measures are suggested in early sown crops:

- Carry out light hoeing for creating soil mulch and removal of weeds in groundnut, cotton, sesame, pearl millet and pulses.
- Undertake mulching with wheat straw, groundnut shells and available farm residues to conserve soil moisture.
- Give protective irrigation to already sown groundnut, pearl millet, sorghum and cotton in order of preference by drip/sprinkler/micro irrigation system if irrigation supply is available.
- If irrigation water is not sufficient, spray 500 ppm solution of Cycocel/Cystocele (50 g in 100 litres of water) or Kaolin 4 % solution (4 kg in 100 litres of water) to reduce evapotranspiration.

## Detailed Zonewise Agromet Advisories

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



#### Land preparation/Sowing

#### Sugarcane

#### Chilli

#### Rice Nursery

- **Realised Rainfall:** Rainfall occurred in all districts of Coastal Karnataka; Bidar, Kalaburgi and Yadgir districts of North Interior Karnataka; Ballari, Chikkamagaluru, Kodagu and Shivamogga districts of South Interior Karnataka; all districts of Kerala except Thiruvananthapuram; Guntur and Prakasam districts of Coastal Andhra Pradesh. Weather remained mainly dry over rest of the region.

- **Advisories:**

- **Andhra Pradesh:**

- In North Coastal Zone, continue nursery sowing of rice and sowing of groundnut.
    - Avoid sowing of rainfed groundnut in Anantapur district and undertake further sowing after receipt of sufficient rain and continue sowing in areas having irrigation facilities in the Scarce Rainfall Zone. Continue sowing of rice, jowar, korra, irrigated maize and castor in Kurnool district under irrigation.
    - Undertake sowing of irrigated dry rice (MTU-1006) with gorru and continue sowing of maize, pulses (black gram, red gram and green gram), chilli and cotton under irrigation in the Krishna Godavari Zone. Already sown crops which is under moisture stress can be protected by spraying 2% urea in the evening.
    - In High Altitude Tribal Zone, complete sowing of rice and finger millet.
    - Due to prevailing dry weather and increase in temperature, provide protective irrigation to groundnut wherever possible and spray 2% urea solution and protect banana crops by spraying potassium nitrate @ 5g/litre of water twice a week at fruit formation stage with frequent irrigation in the Southern Zone.

- **Telangana**

- In view of the subdued rainfall activity during last few weeks, the following remedial measures are suggested:
      - Intercultural operation and mulching in already sown crops for conservation of soil moisture.
      - Light hoeing and weeding in early sown jowar, soybean and green gram and black gram.
      - Maintain 2-3 cm water level in rice field.
      - Instead of cotton, red gram, jowar, keep inputs ready for sowing of sole red gram with varieties like Maruti, Lakshmi, PRG 158 etc adopting closer spacing of 90 x 30 cm.
      - Application of irrigation in sugarcane at frequent intervals.
      - Foliar spray of 2% KNO<sub>3</sub> during dry spells.
      - Provide supplementary irrigation by using micro-irrigation (sprinkler).
    - Complete raising of rice nurseries of medium and long duration varieties and continue sowing of sunnhemp and dhaincha as in-situ green manure crop preceding to rice in regions under command areas and tanks.
    - Continue land preparation for transplanting of rice under irrigation in the Northern Telangana Zone.
    - Incidence of scale insect is noticed in sugarcane (vegetative stage) in prevailing weather conditions in the Northern Telangana Zone. To control, spray Dimethoate or Malathion @ 2 ml /litre of water on a non rainy day.

▪ **Karnataka:**

- Continue transplanting of rice in Coastal Karnataka and in Hill Zone utilising the realised and expected rainfall.
- In the Eastern Dry Zone, undertake sowing of groundnut after seed treatment and red gram in areas which have received sufficient rainfall.
- In the North East Transition Zone, provide protective irrigation to sugarcane and already sown crops and undertake the following contingency measures in laterite red soil and shallow to medium black soils:
  - Undertake sowing of red gram / sesamum/ horse gram/ foxtail millet/ Bajra
  - Use 25% higher seed rate in dry sowing of redgram or
  - Transplant 25-30 days old redgram seedlings of BSMR-736 and Asha varieties
  - Go for sowing of short duration red gram varieties ( Pragathi).
  - Adopt intercropping of redgram + foxtail millet (1:5)/ redgram + bajra (1:5)
- In the North Transition Zone, weed infestation is more during early stages of the crops. Keep the fields free from weeds, provide irrigation, spray Urea (2.0% ) on maize, undertake surface mulching and foliar application of Nitrogen & K during dry spells to avoid early moisture stress.
- In North Interior Karnataka, as there was no sufficient rain during last week & no significant rain is expected during next 5 days, undertake sowing of contingent crops like medium duration sunflower, red gram, bajra and bunch type groundnut after receipt of sufficient rainfall. Undertake the following measures in already sown crops:
  - Thinning may be done in early sown *kharif* crops.
  - Light hoeing and mulching with crop residue may be done.
  - Apply light irrigation to standing crops in the evening.
- In the North East Dry Zone, following contingency measures may be undertaken:
  - Select medium duration red gram varieties for sowing.
  - Follow dry sowing practice in redgram with ridges and furrows at 90 cm apart
  - Use 25% higher seed rate in redgram with 90 x 20 cm spacing
  - Transplant the 25-30 days old red gram seedlings of BMSR-736 variety
  - Sow sunflower and castor at 90 x 20 cm
- Incidences of aphid and thrips were noticed in blackgram and green gram in the North East Transition Zone. To control, spray Methyl parathion 50 EC @ 1 ml or Dimethoate 30 EC @ 1.7 ml per litre of water on a non rainy day.

▪ **Kerala:**

- Continue planting of rooted cuttings of pepper in the Problem Area Zone after current spells of heavy rain.
- Prevailing high humidity is congenial for Kokkan disease in banana in the Northern Zone. Apply Rogor 1½ ml/1 litre of water to control the vector after current spells of rain.
- Due to cloudy and humid weather corrod bug attack may be on coconut trees in the Southern Zone. Apply 2% neem oil garlic emulsion on leaf axil and immature bunches at an interval of 45 days after current spells of rain.
- In the prevailing weather is congenial for stunted growth in chillies and mite incidence in ladies finger in the Central Zone. Spray 2% neem oil-garlic-soap emulsion to prevent stunted growth and leaf curling and apply Oberon at the rate of 0.75ml/ litre of water to control mite incidence after current spells of rain.

▪ **Tamil Nadu:**

- Continue transplanting of *kuruvai* rice with irrigation and transplanting of rice by SRI technique in the Cauvery Delta Zone.
- In the Western Zone, protect banana crop of more than 5 months from lodging. Undertake land preparation for sowing of gourds.
- Undertake cultivation of dry crops like ragi, thenai, samai, panivaragu and sesame in areas where additional irrigation facilities are available in Karaikal.
- Undertake basin preparation for planting of pepper, clove, nutmeg and cinnamon in the High Rainfall Zone.
- In the Western Zone, severe infestation from slug caterpillar is noticed in coconut trees and leaf spot disease is noticed in curry leaf. To control slug caterpillar, either spray Dichlorvos 76 WSC at 2ml/ litre of water and spray Carbendazim @ 1g/ litre of water to control leaf spot.
- Suitable varieties for sowing are given in Annexure III.

• **Animal Husbandry**

- Prevailing weather conditions are congenial for Enterotoxaemia in livestock in Northern Telangana and sheep pox in sheep in Southern Telangana. To prevent the diseases, vaccinate the animals.



**Land preparation/Sowing**

**Banana**

**Okra**

**Rice nursery**

- **Realised Rainfall:** Rainfall occurred in Changlang, East Siang, Lohit, Lower Dibang Valley, Papumpara, Tawang, Tirap, Upper Siang, Upper Subansari, West Kameng and West Siang districts of Arunachal Pradesh; all districts of Assam except Baksa, Darrang, Golaghat and Kamrup (Rural); all districts of Meghalaya except Ri-Bhoi and West Garo Hills; Aizwal, Saiha and Serchhip districts of Mizoram; Imphal East, Imphal West and Thoubal districts of Manipur; Dimapur and Kohima districts of Nagaland and all districts of Tripura.

- **Advisories:**

- **Assam & Meghalaya, Arunachal Pradesh:**

- In Assam, continue transplanting of 21days seedling for short duration varieties, 30-35 days seedling for medium duration varieties and 35-40 days seedling for long duration varieties of *sali* rice in the main fields.
    - In Hill Zone of Assam, replanting of dead hills or gap filling with seedlings of similar age of *Sali* rice should be done within 7-10 days of transplanting. Continue sowing of arhar and sesame after current spells of heavy rain.
    - In Upper Brahmaputra Valley Zone of Assam, complete the transplanting of medium duration rice seedlings at the earliest.
    - In Lower Brahmaputra Valley Zone, continue sowing of sesame in upland areas after current spells of heavy rain.
    - In Arunachal Pradesh, continue transplanting of *kharif* rice.
    - In Meghalaya, continue transplanting of *kharif* rice. Replanting of dead hills or gap filling with seedlings of similar age should be done within 7-10 days of transplanting. Continue sowing of red gram after current spells of heavy rain
    - In Hill Zone of Assam, there is chance of attack of sap sucking insects (aphids/mealy bug/scales) in khasi mandarin due to cloudy weather. Spray Malathion (0.1%) after current spells of rain.
    - In Barak Valley Zone of Assam, due to high relative humidity, there is chance of attack of fungal disease like brown spot and blast in the nursery bed of *sali* rice. Maintain proper sanitation in the rice nursery and remove stagnant water. Also spray Carbendazim + Mancozeb @ 2.5 g per litre of water after current spells of rain.
    - In Arunachal Pradesh, due to humid and cloudy weather, there is chance of attack of stem borer and blast in *jhum* and WRC rice. Spray foliar spray of Tricyclazole 75WP @ 0.6g/litre or Propiconazole 25EC@1ml/litre after current spells of rain.
    - In Meghalaya, due to high relative humidity, there is chance of attack of hairy caterpillar/semilooper/leaf roller in soybean at vegetative stage. Spray Dichlorvos 100 EC @ 0.5 ml/litre or Chlorpyrifos 20 EC @ 1 ml/litre. Also high relative humidity with intermittent rain is favourable for development of blast in rice, spray Mancozeb @ 2g/litre or Carbendazim @ 1g/litre after current spells of rain.

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

- In Manipur, complete transplanting of *kharif* rice.
    - In Nagaland, continue transplanting of rice. Replanting of dead hills should be done within 7-10 days of transplanting with seedlings of same age. In areas where cultivation of rice is not possible due to deficient rain, undertake sowing of alternative crops like maize, oilseed crops and pulses.
    - In Mizoram, continue transplanting of rice and sowing of *kharif* pulses like green gram, black gram, rice bean and rajma.
    - In Tripura, continue transplanting of *aman* rice and sowing of *kharif* vegetables like ladies finger, cucurbits etc.
    - In Tripura, high humidity is favourable for attack of stem borer on maize. Undertake foliar spray of Zinc 0.2% with 2.5kg lime. Also due to cloudy and humid weather, there may be attack of Leaf Curl disease in brinjal and chilli. To manage the attack, apply Imidachloprid @ 2ml per litre of water after current spells of rain.
    - Suitable varieties are given in Annexure III.

- **Animal Husbandry**

- In Assam, keep animals indoor during heavy rainfall periods. Also keep animal sheds dry and avoid dampness during rainy days. Also undertake regular immunization of cattle & buffaloes against Foot & Mouth disease, Haemorrhagic Septicaemia & Black Quarter. Vaccinate pigs against swine fever, poultry against RD and IBD. Avoid grazing of animals during heavy rain.
  - In Tripura, monsoon weather could lead to gastrointestinal parasites infection. It is advised to maintain good sanitary conditions in piggery and poultry sheds.
  - In Assam and Mizoram, present weather is congenial for development of diseases like Coccidiosis in poultry, so as a preventive measure gives Amprolium @ 25-65 mg/kg feed once a day.



## WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



### Banana

### Sugarcane

### Rice transplanting

### Land preparation/Sowing

- **Realised Rainfall:** Rainfall occurred in North Goa, Raigad, Ratnagiri, Sindhudurg and South Goa districts of Konkan & Goa; Bhandara, Gadchiroli and Gondia districts of Vidarbha; Weather remained mainly dry over rest of the region.
- **Advisories:**
  - **Maharashtra:**
    - In Konkan, continue transplanting of rice and finger millet in South Konkan and undertake transplanting of rice and finger millet in North Konkan after receipt of sufficient rain. Continue sowing of vegetable crops like okra, cucumber, snake gourd and ridge gourd with improved varieties on raised beds.
    - In Madhya Maharashtra, as no significant rain is expected during the period, undertake light hoeing, mulch with crop residue to conserve soil moisture. Apply protective irrigation (drip or sprinkle method) to early sown crops like soybean, cotton, red gram and jowar. Apply irrigation to sugarcane by alternate furrow method or mulch with sugarcane trash. Undertake weeding in rice nursery in Western ghat, Kolhapur region and Pune (western parts). Due to subdued rain and high temperature in Western Maharashtra Scarcity zone, early sown cotton during May might be affected by wilt. Prepare the mixture of 1.5 kg Urea + 1.5 kg P<sub>2</sub>O<sub>5</sub> /100 litres of water and apply 150 to 200 ml of this mixture for the affected plant. Apply light irrigation wherever water is available. Continue land preparation for planting of *adsali* sugarcane.
    - In Marathwada, as no significant rain is expected during the period, undertake light hoeing, mulch with crop residue to conserve soil moisture. Apply protective irrigation (drip or sprinkle method) to earlier sown crops like soybean, cotton, red gram and jowar in view of prevailing water stress condition. Undertake weeding in green gram and black gram. Apply irrigation to sugarcane by alternate furrow method or mulch with sugarcane trash.
    - In Vidarbha, as no significant rain is expected during the period, undertake light hoeing, mulch with crop residue to conserve soil moisture. Apply protective irrigation to earlier sown crops like soybean, cotton, red gram and jowar in West Vidarbha. Undertake the transplanting of rice in East Vidarbha utilizing the realized rainfall.
    - Due to humid and warm weather in Madhya Maharashtra and Marathwada region, infestation of blight in vegetable crops is likely to increase; spray Mancozeb @ 25 g per 10 litres of water. Also for control of sap sucking pest; spray Thiomethoxan @ 4 g per 10 litres of water on a non rainy day.
  - **Gujarat:**
    - In Middle Gujarat Zone, instead of regular varieties of crops, sowing of alternate crops like bajra (short duration: GHB 538, GHB 732, GHB 719, GHB-577), maize (GM-4, 6, Narmada Moti) and cotton (G.Cot-13, 21 and ADC-1) may be undertaken after receipt of sufficient rainfall and also undertake green gram, pigeon pea and guar as intercrop in bajra for getting more income. Sowing of other alternate crops like green gram, forage sorghum, guar (cluster bean), sesame (semi *kharif*), vegetable crops ( chilli, brinjal , okra, cluster bean ) may also be undertaken after receipt of sufficient rainfall. Carry out gap filling, thinning, weeding and intercultural operations in early sown crops; apply light irrigation in cotton through micro irrigation system.
    - In North Saurashtra Zone, in view of prevailing dry spell conditions, sowing of alternate crops like groundnut bunch type (GG-2, GG-5, GG-9, TAG-24), sesamum (G.Til-3, G.Til-4), castor (GAUCH-1, GCH-4, GCH-6, GCH-7), hybrid bajra (GHB-538, GHB-558, GHB-719, GHB-732, GHB-744), green gram (K-851, G.Mong-4), black gram (T-9, G.U.-1), pigeon pea ( BDN-2, G.Tur-100), cowpea (GCH-4), fodder sorghum (Gundari, GFS-4, GFS-5), maize (African Tall), cotton (short duration Bt. cotton varieties, GCH-8) is suggested for the areas in Surendranagar, Jamnagar districts where sowing of crops could not be done due to deficit rainfall. In view of the subdued rainfall activity during last few weeks, the following remedial measures are suggested in early sown crops:
      - Carry out light hoeing for creating soil mulch and removal of weeds in groundnut, cotton, sesame, pearl millet and pulses.
      - Undertake mulching with wheat straw, groundnut shells and available farm residues to conserve soil moisture.
      - Give protective irrigation to already sown groundnut, pearl millet, sorghum and cotton in order of preference by drip/sprinkler/micro irrigation system if irrigation supply is available.
      - If irrigation water is not sufficient, spray 500 ppm solution of Cycocel/Cystocele (50 g in 100 litres of water) or Kaolin 4% solution (4 kg in 100 litres of water) to reduce evapotranspiration.
    - In South Gujarat Heavy Rainfall Zone, in view of the subdued rainfall activity during last few weeks, carry out intercultural operations and hand weeding after vapsa condition in earlier sown pulse crops; undertake hand weeding, carry out mulching with the help of dry leaves and apply light irrigation in sugarcane, if required. Continue

transplanting of *kharif* rice if irrigation facilities are available; use SRI technique for transplanted paddy in case of nursery failure. Farmers are also advised to use sprouted seeds techniques for paddy cultivation.

- In Bhal and Coastal Zone, in view of the subdued rainfall activity during last three weeks and also no significant rainfall is expected, select short duration crop varieties of crops like green gram (Guj. Mungbean-4, K-851); sesame (Purva-1), sorghum (GFS-4 & GFS-5), castor (GAU-CH-1, GCH-6), pigeon pea (BDN-2), cotton (G-cot 13, G-cot 15, G-cot 21) for sowing. Carry out intercultural operations, weeding and gap filling in already sown cotton, green gram and sesame. Following contingent crop planning is also suggested:
  - Paddy: Follow the SRI technique where tube well or canal irrigation is possible.
  - Cotton: Sowing of short duration varieties of cotton (Cot13, 21 and ADC1) with higher seed rate and wider spacing.
  - Castor: Sowing of castor crop (GCH-2, 4, 5, 7) in remaining fallow land / field during this week if sufficient soil moisture is available for germination.
  - Fodder: Follow the sowing of fodder crops like sorghum for fodder purpose with high seed rate.
- In North West Zone, select moderate duration variety (GHB-744) and short duration early maturity varieties (GHB-538, GHB-719) for sowing of bajra. Take green gram, pigeon pea, guar as an intercrop in bajra for getting more income.
- In South Saurashtra Zone, carry out thinning and gap filling in cotton and intercultural operations, hand weeding in groundnut, pigeon pea and soybean to conserve moisture; apply irrigation through micro irrigation system.
- In North Gujarat and North West Zone, carryout intercultural operations and hand weeding in early sown groundnut, H.B./B.T. cotton and vegetable crops to conserve soil moisture.
- Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
- Give dry and green fodder and lukewarm water; keep animals in shade in Gujarat.

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



**Sugarcane**

**Jute**

**Land preparation/Sowing**

**Onion**

- **Realised Rainfall:** Rainfall occurred in all districts of West Bengal & Sikkim and Andaman & Nicobar Islands; all districts of Bihar except Aurangabad, Bhojpur, Gaya, Jahanabad, Madhubani, Nalanda, Nawada, Purnea, Sheikhpura and Sheohar; all districts of Jharkhand except Chatra and Dhanbad; all districts of Odisha except Gajapati, Ganjam, Kendrapara and Nayagarh.
- **Advisories:**
  - **West Bengal:**
    - In Coastal Saline Zone, undertake transplanting of *aman* rice in low land areas where water level is adequate. Before uprooting the seedlings from nursery bed, apply granulated Carbofuran @ 3g/sq.m.
    - In New Alluvial Zone and Laterite and Red soil Zone, undertake land preparation and transplanting of rice. Use 21-25 days old seedlings for transplanting. Incorporate FYM or compost manure at the time of first ploughing. At the time of final puddling, apply 8.5 kg Urea, 25kg SSP and 6.7 kg MOP/bigha as basal application.
    - In Old Alluvial Zone and Terai Zone, continue field preparation for transplanting of *kharif* rice.
    - In Hill Zone, continue land preparation for transplanting of *aman* rice and continue sowing of soybean after current spells of heavy rain.
    - In Laterite and Red soil Zone, prevailing high humid weather condition is congenial for Yellow mite attack in jute crop at flowering stage. Remove and destroy the affected plant parts. Spray Lime-Sulphur @ 4ml/litre after current spells of rain.
  - **Andaman and Nicobar Islands:**
    - In North and Middle and South Andaman, undertake transplanting the rice seedlings treated with recommended chemicals/Bio-pesticides to prevent seed borne diseases. Keep the rice field bunds open at 15 cm height.
  - **Odisha:**
    - In East and South Eastern Coastal Plain Zone, continue direct seeding of rice in medium and deep low lands. Continue dry bed and wet bed nurseries of rice in low lands. In uplands, complete sowing of cotton, groundnut, castor, arhar and tuber crops. Also continue sowing of sesame and planting of cashewnut.
    - In Western Undulating Zone, continue nursery sowing of rice, sowing of maize, cotton and arhar and sowing of *kharif* pulses in upland areas. Also continue line sowing of rice followed by early beushaning and weeding.



- In North Eastern Plateau Zone, continue nursery sowing of rice, direct sowing of rice in medium and uplands and continue sowing of groundnut, maize and arhar in uplands.
- In Mid Central Table Land Zone, continue line sowing of direct seeded rice in lowlands and nursery raising of rice.
- In North Eastern Coastal Plain Zone, current weather favours attack of swarming caterpillar in rice nurseries. In case of attack, spray Chloropyriphos or Choloropyriphos + Cypermethrin @ 2ml/litre of water after current spells of rain.
- **Bihar:**
- In North East and North West Alluvial Plain Zone, complete nursery sowing of upland rice varieties after current spells of heavy rain and continue transplanting of 20-25 days old rice seedling in the prepared fields medium & low land. Continue sowing of *kharif* maize after current spells of heavy rain. Continue plantation of horticulture crops like mango, lichi, guava & papaya. Provide adequate drainage in ginger and turmeric crop fields and in rice and vegetable nurseries.
- In North West Alluvial Plain Zone, continue sowing of sunflower, pigeon pea & kulthi in the upland areas, complete sowing of til and urd.
- In South Bihar Alluvial Zone, undertake transplanting of *kharif* onion and long/medium duration rice varieties which is 21-25 days old, complete nursery sowing of early brinjal, chilli, cauliflower.
- In North East Alluvial Plain Zone, present weather condition is favourable for attack of fruit & shoot borer in brinjal and fruit borer in tomato, for control, apply Emamectin Benzoate @ 1g/3 litres of water after current spells of rain.
- In South Bihar Alluvial Zone, present weather condition is favourable for leaf curl in chilli. Uproot the infected plants and bury in the soil.
- **Jharkhand:**
- In South Eastern Plateau Zone, complete nursery bed preparation for long (140-150 days) duration rice varieties and complete sowing of direct seeded upland rice and pigeon pea. Continue transplanting of finger millet, complete sowing of maize, arhar green gram, black gram, urad, groundnut, soybean, sesame and rainy season vegetables. Continue cultivation of turmeric, ginger and yam and raising of saplings of mango (grafting), guava and litchi (air layering).
- In North Eastern Plateau Zone, continue transplanting of medium and low land rice, continue sowing of high yielding variety of maize, urad and til and inter cropping of short duration variety of arhar.
- In Western Plateau Zone, continue nursery raising of upland rice, continue transplanting of long duration varieties of rice in low land. Complete sowing of urad, groundnut, arhar, maize and *kharif* vegetables and transplanting of finger millet.
- In South Eastern Plateau Zone, present weather is conducive for the attack of fruit and shoot borer in brinjal and okra and fruit fly in cucurbitaceous vegetables. For control, spray Malathion @ 2 ml per liter of water after current spells of rain.
- Suitable varieties for sowing are given in Annexure III.
- **Animal Husbandry**
- In Sub-Himalayan West Bengal, Odisha and Bihar, keep cattle/goats indoor during heavy rainfall period.

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



*Rice nursery*

*Land preparation/Sowing*

*Okra*

*Onion*

- **Realised Rainfall:** Rainfall occurred in all districts of East Madhya Pradesh; Ashoknagar, Bhind, Bhopal, Datia, Guna, Gwalior, Hoshangabad, Mandasaur, Morena, Raisen, Rajgarh, Sheopur, Shivpuri and Vidisha districts of West Madhya Pradesh; all districts of Chhattisgarh except Bijapur and Dantewada. Weather remained mainly dry/dry over rest of the region.
- **Advisories:**
  - **Madhya Pradesh:**
  - Continue transplanting of rice and complete sowing of soybean, sorghum, maize, sesame and red gram in Kymore Plateau and Satpura Hill Zone.
  - Continue sowing of *kharif* crops like soybean, maize, green gram and red gram and planting of sugarcane in Vindhya Plateau Zone.
  - Continue sowing of vegetables like okra, bottle gourd, cucurbits, sponge gourd, bitter gourd and beans utilising the realised rainfall in Bundelkhand Zone. Also continue sowing of black gram, red gram, maize and soybean and nursery sowing of rice.



- Continue transplanting of vegetables and sowing of early varieties of guar and bajra in Grid Zone.
- Continue transplanting of *kharif* vegetables in Malwa Plateau Zone.
- As rain/thundershowers would occur at many places during the period, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- **Chhattisgarh:**
  - In Chhattisgarh, continue transplanting of rice. Provide adequate drainage in rice and vegetable nurseries in view of likely occurrence of heavy rain.
  - Continue nursery sowing of vegetables and line sowing of rice and complete sowing of tuber crops, soybean, maize, urad, moong and red gram in Plain Zone after current spells of heavy rain.
  - Continue sowing of soybean, groundnut and sesame in Bastar Plateau Zone and continue transplanting of vegetables in North Hill Zone after current spells heavy of rain.
  - Suitable varieties are given in Annexure III.
- **Animal Husbandry**
  - Provide balanced food and fresh water two times in a day to milch animals in Madhya Pradesh.

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



*Cotton*

*Sugarcane*

*Land preparation/Sowing*

*Cabbage*

- **Realised Rainfall:** Rainfall occurred in all districts of Delhi, West Uttar Pradesh and Uttarakhand; all districts of Himachal Pradesh except Kinnaur and Lahaul & Spiti; all districts of Jammu & Kashmir except Ganderbal and Ladakh (Leh); all districts of Haryana except Hisar, Mahendragarh and Sirsa; all districts of Punjab except Faridkot, Ferozepur, Jalandhar, Mansa, Mogha, Muktsar and Taran Taran; all districts of East Rajasthan except Ajmer, Banswara, Bhilwara, Dausa, Dungarpur, Pratapgarh, Sawai Madhopur, Sirohi and Udaipur; Churu and Nagaur districts of West Rajasthan; all districts of East Uttar Pradesh except Ambedkarnagar, Balia, Balrampur, Chandauli, Deoria, Kanpur City, Khusinagar, Maharajganj, Shrawasti and Siddharthnagar. Weather remained mainly dry over rest of the region.

- **Advisories:**

- **Jammu & Kashmir:**

- In Sub-humid Sub-tropic Zone, drain out the excess water from the vegetable crop fields under water stagnated condition. Drain out excess water from orchards and keep the basin area clean. Postpone sowing of maize crop till the soil reaches optimum moisture condition.
- In Intermediate Zone and Valley temperate Zone, complete transplanting of rice after current spells of heavy rain and apply Butachlor granules 5G @ 30 Kg/ha 2-5 days after transplanting.
- In Intermediate Zone, due to cloudy weather condition, there may be chances of cut worm in maize crop. To control, spray Chlorpyrifos 30 E.C. @ 3 litres in 1000 litres of water per hectare after current spells of rain.
- In Cold Arid Zone, present weather is congenial for attack of cutworm in vegetables, to control, apply Chlorpyrifos 20EC @ 2 ml/litre of water after current spells of rain.
- In Sub-humid Sub-tropic Zone, due to heavy rain, there may be incidence of fruit fly in cucurbits. To control spray Malathion @ 1.5ml/litre, after current spells of rain.

- **Uttarakhand:**

- In Sub-humid Sub-tropic Zone, undertake transplanting of rice and continue sowing of cotton and bajra after current spells of heavy rain. Complete sowing of soybean and groundnut and continue transplanting of tomato in Bhabar and Tarai Zone after current spells of heavy rain. Provide adequate drainage in rice and vegetable nurseries and already sown crop fields in view of likely occurrence of heavy rainfall.
- In Hill Zone, undertake transplanting of rice, continue sowing of maize crops var. maize-9, Kanchan, Navin, Bhavetha, V.L. maize 16 and V.L maize 88 after current spells of heavy rain.
- In Sub-humid Sub-tropic Zone, present weather is congenial for fruit and shoot borer in brinjal, to control, spray Malathion @ 0.05% or Cabaryl 0.1% after current spells of rain.

- **Himachal Pradesh:**

- In Sub-Montane and Low Hills Sub-Tropical Zone, continue transplanting of rice, tomato, brinjal, capsicum and chilli, sowing of moong, mash, kulthi, okra, French bean, cucumber, bitter gourd, bottle gourd, ridge gourd, maize after current spells of heavy rain. Complete direct sowing of rice, sowing of maize in rainfed areas and planting of ginger, turmeric, colocasia and elephant foot (at a spacing of 30-45cm between rows and 20 cm within rows) after current spells of heavy rain. Provide adequate drainage in rice and vegetable nurseries and already sown crop fields in view of

likely occurrence of heavy very heavy rainfall.

- In Mild Hills sub-Humid Zone, make arrangements for effective drainage of water in apple orchards to avoid water stagnation in view of likely occurrence of heavy to very heavy rainfall.
- Under cloudy and humid weather condition, there are chances of attack of white flies in vegetables like capsicum, brinjal and tomato in Mid Hills Sub Humid Zone. Spray *Metasystox* @ 15ml in 15 litres of water after current spells of rain.
- Due to humid weather condition, there is chance of premature leaf fall in apple in Mild Hills sub-Humid Zone, spray *Antracol* @ 600g per 200 litres of water after current spells of rain.

▪ **Rajasthan:**

- Continue sowing of guar, pearl millet, sesamum, moong, moth, castor and continue transplanting of rice in Irrigated Northwestern Plain Zone. Undertake thinning in cotton. Maintain plant to plant distance 25 to 30 cm.
- In Arid Western Plain Zone, keep inputs ready for sowing of pearl millet, moth bean and cluster bean crops after receipt of sufficient rain. Use improved short duration varieties of bajra, moong, moth and guar for sowing and pearl millet and sorghum for fodder purpose.
- In Semi Arid Eastern Plain Zone, undertake nursery raising of mid season cauliflower, continue sowing of cucurbits like khira, bottle gourd, ridge gourd, bitter gourd and cucumber; complete sowing of *kharif* crops like pearl millet, sorghum, maize, green gram, moth bean, cowpea & cluster bean utilising the expected rainfall.
- Complete sowing bajra, jowar, sesame and moong in Flood Prone Eastern Plain Zone. Also dig pit for new planting of ber, aonla, pomegranate.
- In Southeastern Humid Plain Zone, continue transplanting of nursery rice of three weeks old and continue sowing of soybean, maize, moong and black gram utilising the expected rainfall.
- In Southern Humid Plain Zone, in the prevailing temperature, there is chance of attack of stem borer in maize. Apply *Forate* grannuels 10G @ 5-7.5 kg/ha in the soil after current spells of rain.

▪ **Punjab, Haryana and Delhi:**

- In Punjab, continue transplanting of rice in Undulating Plain Zone, Central Plain Zones and Western Zone of Punjab. Also continue sowing of maize and planting of papaya in Central Plain Zone.
- In Western Zone of Punjab, continue sowing of okra, sponge gourd, bottle gourd, cluster bean and also sowing of brinjal in raised nursery beds.
- In Western Plain Zone of Punjab, complete transplanting of rice and undertake transplanting of early varieties of cauliflower.
- In Central Plain, Western Plain and Undulating Plain Zone of Punjab, undertake planting of fruit plants viz citrus, mango, litchi, guava, loquat, ber, amla and papaya.
- In Western Zone of Haryana, continue sowing of desi cotton, bajra and pigeon pea and continue transplanting of tomato and chilli and transplanting of rice utilising the realised and expected rainfall.
- In Western Semi-Arid Zone of Delhi, continue transplanting of rice and continue nursery preparation for sowing early cauliflower. Continue sowing of ladies finger, pigeon-pea and cotton and nursery sowing of vegetables like chilli, tomato and brinjal. Continue sowing of maize, bajra, soybean, guar, radish, cluster bean, beans, spinach and amaranths.
- In Western Plain Zone of Punjab, due to warm and humid conditions, bacterial blight may occur in cotton, spray *Blitox 50 (WP)* @ 500 g along with 3.0 g *Streptomycin* per acre after current spells of rain.

▪ **Uttar Pradesh:**

- Provide adequate drainage in rice and vegetable nurseries and already sown crop fields in view of likely occurrence of heavy rainfall in Uttar Pradesh.
- In Central Plain Zone, continue transplanting of 20 to 25 days old rice. Continue sowing of jowar, moong, urad, bajra, sesame, soybean, arhar, barley, maize, okra, direct sowing of rice and planting of banana after current spells of heavy rain.
- In Bundelkhand Zone, continue nursery sowing of rice, cauliflower, tomato, chilli and brinjal and sowing of urad, soybean, moong, arhar, jowar, bajra, sesame, groundnut and maize. Undertake planting of mango, papaya, neem, ber, guava, lemon and horticultural crops.
- In Western Plain Zone, continue transplanting of rice, sowing of maize, urd, moong, lobia and sowing of jowar, lobia, dhaincha for fodder. Dig pit for plantation of fruit crops like mango, ber, amla, papaya, litchi and guava.
- In Eastern Plain Zone, undertake transplanting of scented basmati rice, sowing of short duration varieties of urad and moong where normal sowing was not done earlier after current spells of heavy rain. Also undertake sowing of long duration varieties of pigeon pea with a planting distance of 60-75cm and planting of banana.
- In North Eastern Plain Zone, continue sowing of maize, pigeon pea, groundnut, urad and moong.
- In Central Plain Zone, due to cloudy and humid weather condition, there are chances of incidence of sooty mould in mango and litchi. For control, spray *Blightox* @ 0.3% after current spells of rain.
- Suitable varieties for sowing are given in Annexure III.

• **Horticulture**

- In Sub-Montane and Low Hills Sub-Tropical zone of Himachal Pradesh, continue planting of like citrus, mango, guava and papaya. Litchi and guava can be multiplied through air layering also.
- In Mid Hills Sub-Humid Zone and Mild Hills Sub-Humid Zone of Himachal Pradesh, due to humid weather condition,

there is chance of incidence scab in apple orchards. Spray Myclobutanil @ 80g per 200 litres of water after current spells of rain.

- In Sub-Montane and Low Hills Sub-Tropical zone of Himachal Pradesh, due to humid weather condition there is chance of occurrence of blight in gladiolus. Spray Dithane M45 (Mancozeb) @ 25 g per 10 liters of water after current spells of heavy rain. For control of Mite in carnation, spray Omite or Pyromite @ 1ml per litre of water or Dicofol @ 2ml per litre of water after current spells of rain.
- **Animal Husbandry**
- In Sub-Montane and Low Hills Sub Humid Zone of Himachal Pradesh, undertake deworming livestock for ecto- and endo-parasites and vaccination against H.S. and BQ disease.
- Keep the cattle under shed during heavy rainfall periods in Himachal Pradesh, Jammu & Kashmir, Uttar Pradesh and Uttarakhand.
- **Floriculture**
- Due to humid and cloudy weather condition, blight is expected in marigold in Sub-Montane and Low Hills Sub Humid Zone of Himachal Pradesh. For control, spray Bavistin @ 2g per litre of water after current spells of rain.
- **Fisheries**
- In Sub-Montane and Low Hills Sub Humid Zone of Himachal Pradesh, ensure over flow of water from fish ponds in the event of heavy rains and provide protection by putting wire mesh on the boundary of the pond to prevent fish from escaping.
- **Poultry**
- In Uttarakhand, ensure proper ventilation in poultry houses. Replace the poultry houses with fresh litter and keep the houses clean and provide plenty of drinking water to the birds.

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

### Annexure I

#### Week by week Rainfall Distribution

Sub-Divisions	01.07.15		08.07.15		15.07.15	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
<b>Arunachal Pradesh</b>						
Anjaw	**	**	**	**	**	**
Changlang	76.3	-39	37.8	-64	71.2	-33
Dibang Valley	**	**	**	**	**	**
East Kameng	13.0	-86	15.0	-82	11.6	-87
East Siang	199.9	0	235.6	13	202.2	-18
Kurung Kumey	**	**	**	**	**	**
Lohit	111.3	-17	47.5	-64	86.3	-37
Lower Dibang Valley	247.5	130	156.4	84	184.1	483
Lower Subansari	**	**	**	**	**	**
Papumpara	128.4	-25	127.8	-28	228.7	65
Tawang	90.0	-52	45.0	-73	92.0	-56
Tirap	19.8	-88	44.0	-75	84.2	-56
Upper Siang	58.4	-62	150.8	-14	97.6	-30
Upper Subansari	156.0	65	**	**	38.2	-32
West Kameng	52.1	-72	171.4	3	145.0	-30
West Siang	56.0	-53	33.0	-73	131.0	-14
<b>Assam &amp; Meghalaya</b>						
<b>Assam</b>						
Baksa	52.6	-67	94.3	-62	19.7	-86
Barpeta	68.9	-56	103.0	-58	87.0	-39
Bongaigaon	73.0	-53	131.0	-46	85.2	-47
Cachar	63.2	-48	31.3	-73	153.5	29
Chirang	146.0	-7	106.8	-56	82.6	-48



Darrang	**	**	**	**	**	**
Dhemaji	88.0	-35	74.0	-52	68.0	-56
Dhubri	83.5	-28	45.7	-58	68.3	-51
Dibrugarh	45.5	-58	61.8	-45	63.7	-51
Goalpara	56.3	-62	72.9	-45	79.8	-30
Golghat	35.7	-42	12.9	-82	23.3	-70
Hailakandi	57.1	-40	49.2	-43	63.3	-36
Jorhat	88.0	21	24.0	-74	63.6	-32
Kamrup(Rural)	31.0	-58	55.5	-40	5.0	-94
Kamrup(Metro)	26.5	-64	42.3	-54	73.8	-15
Karbi Anglong	43.9	-11	21.2	-61	39.2	-28
Karimganj	37.7	-76	37.4	-75	88.6	-48
Kokrajhar	70.8	-68	288.9	6	182.8	13
Lakhimpur	43.9	-67	113.9	-26	100.6	-34
Morigaon	51.5	-40	104.8	12	76.2	-19
N.C.Hills	62.6	-4	17.6	-64	60.8	-4
Nowgong	47.4	-29	43.7	-30	30.5	-66
Nalbari	30.0	-68	80.3	-40	46.4	-59
Sonitpur	46.0	-48	80.1	-18	111.1	20
Sibsagar	33.0	-50	43.7	-59	52.6	-39
Tinsukia	58.3	-38	50.2	-53	96.8	-27
Udalgiri	21.9	-74	58.7	-31	83.7	-6
<b>Meghalaya</b>						
East Garo Hills	51.6	-44	20.4	-78	56.6	-41
East Khasi Hills	183.6	-50	258.5	-29	159.4	-61
Jaintia Hills	83.0	-71	166.0	-63	99.0	-77
Ribhoi	38.7	-61	35.0	-62	21.7	-77
South Garo Hills	76.0	-33	213.0	96	200.0	86
West Garo Hills	28.6	-75	18.6	-83	26.0	-76
West Khasi Hills	25.0	-90	51.0	-86	41.0	-79
<b>NMMT</b>						
<b>Mizoram</b>						
Aizwal	11.5	-89	33.0	-63	33.7	-70
Champhai	**	**	**	**	**	**
Kolasib	30.0	-70	15.0	-80	8.0	-91
Lawngtlai	**	**	**	**	**	**
Lunglei	**	**	**	**	**	**
Mamit	**	**	**	**	**	**
Saiha	102.0	3	62.0	-34	117.0	17
Serchhip	53.2	-35	85.2	-22	72.2	-29
<b>Manipur</b>						
Bishnupur	**	**	**	**	**	**
Chandel	**	**	**	**	**	**
Churachandpur	**	**	**	**	**	**
Imphal east	123.0	48	45.5	-42	36.7	-56
Imphal west	29.3	-60	51.5	-5	230.8	308
Senapati	**	**	**	**	**	**
Tamenglong	**	**	**	**	**	**
Thoubal	133.0	163	5.0	-85	73.0	45

Ukhrul	**	**	**	**	**	**
<b>Nagaland</b>						
Dimapur	45.0	48	29.7	-23	51.4	-19
Kephire	**	**	**	**	**	**
Kohima	64.8	-19	48.6	-33	31.4	-63
Longleng	**	**	**	**	**	**
Mokokchung	**	**	**	**	**	**
Mon	**	**	**	**	**	**
Paran	**	**	**	**	**	**
Phek	**	**	**	**	**	**
Tuensang	**	**	**	**	**	**
Wokha	**	**	**	**	**	**
Zunheboto	**	**	**	**	**	**
<b>Tripura</b>						
Dhalai	43.1	-42	186.5	105	70.3	-12
North Tripura	30.8	-65	55.8	-31	72.0	-31
South Tripura	116.9	15	135.4	3	102.3	-13
West Tripura	64.3	-26	103.5	16	82.5	-13
<b>Himachal Pradesh</b>						
Bilaspur	30.0	-36	48.5	-15	58.4	-14
Chamba	31.5	-45	48.7	-35	77.4	-39
Hamirpur	51.7	-21	41.5	-36	89.5	16
Kangra	41.9	-43	70.0	-21	116.4	-15
Kinnaur	26.4	187	0.5	-97	15.1	-1
Kullu	24.2	13	21.3	-27	80.0	97
Lahaul and Spiti	12.3	-24	1.0	-97	16.8	-52
Mandi	33.6	-51	54.7	-11	95.7	10
Shimla	26.1	-23	37.1	1	96.6	83
Sirmaur	25.0	-62	24.4	-73	106.8	-10
Solan	13.2	-76	35.2	-47	102.0	10
Una	35.7	-4	81.7	11	76.5	-8
<b>Punjab</b>						
Amritsar	14.9	-26	0.0	-100	38.5	-16
Barnala	27.0	75	10.0	-60	37.1	21
Bhatinda	10.8	-36	27.0	49	31.0	36
Faridkot	35.4	174	45.0	125	14.0	-42
Fatehgarh Sahib	6.0	-73	13.0	-69	177.8	166
Ferozpur	15.1	8	24.2	32	8.2	-76
Gurdaspur	34.8	16	24.2	-53	75.5	-3
Hoshiarpur	16.3	-57	22.3	-61	56.1	-8
Jalandhar	16.9	-34	3.8	-90	24.2	-56
Kapurthala	24.2	29	9.5	-71	79.0	117
Ludhiana	11.5	-51	35.8	-8	135.1	125
Mansa	23.8	143	13.1	-27	23.5	-15
Moga	26.6	108	1.5	-94	29.0	-12
Muktesar	16.5	59	35.5	88	6.5	-78
Nawashahar	9.6	-78	31.3	-55	178.3	95
Patiala	26.3	9	6.7	-85	99.4	46
Ropar	18.6	-50	33.7	-26	77.4	-5

Sangrur	31.9	38	15.4	-48	87.3	99
Mohali	12.0	-62	42.5	-1	129.3	73
TarnTaran	7.0	-33	0.0	-100	8.0	-67
<b>Haryana, Chd, Delhi</b>						
<b>Haryana</b>						
Ambala	9.0	-78	45.4	-15	92.7	7
Bhiwani	8.9	-31	14.9	-23	31.8	1
Chandigarh	8.7	-81	65.2	11	80.6	6
Faridabad	19.8	-3	63.8	115	133.6	139
Fatehabad	5.9	-56	11.0	-38	32.6	24
Gurgaon	6.0	-70	22.0	-16	122.2	146
Hissar	25.4	67	24.1	22	13.1	-54
Jhajar	5.3	-73	13.1	-44	95.8	123
Jind	26.2	40	10.3	-59	68.9	50
Katihai	11.3	-17	18.0	17	53.2	30
Karnal	23.4	-9	18.1	-51	166.7	138
Kurukshetra	11.1	-56	1.6	-95	100.6	65
Mahendragarh	28.3	56	32.0	52	25.2	-39
Mewat	2.5	-91	7.2	-67	138.2	193
Palwal	9.8	-43	21.5	-8	113.3	167
Panchkkula	7.7	-85	24.8	-55	74.3	-8
Panipat	28.8	34	10.0	-61	120.0	90
Rewari	33.4	83	9.4	-40	75.8	87
Rohtak	2.4	-91	10.2	-66	59.5	16
Sirsa	4.2	-42	36.0	96	11.9	-41
Sonepat	24.4	13	6.7	-73	145.2	154
Yamunanagar	10.8	-77	48.7	-15	127.6	93
<b>Delhi</b>						
Central Delhi	23.0	-16	17.0	-50	174.0	187
East Delhi	18.0	-34	40.0	17	33.0	-46
New Delhi	20.3	-26	44.5	30	175.3	189
North Delhi	11.9	-56	26.6	-22	164.8	172
North East Delhi	12.0	-56	56.0	63	126.0	108
North West Delhi	15.7	-43	37.3	9	184.0	204
South Delhi	11.0	-60	66.0	92	185.0	205
South West Delhi	9.2	-66	59.1	72	173.3	186
West Delhi	7.7	-72	40.1	17	235.0	288
<b>Jammu &amp; Kashmir</b>						
Anantnag	78.1	435	3.8	-77	82.0	429
Badgam	46.4	473	0.1	-98	37.2	195
Bandipore	**	**	**	**	**	**
Baramula	61.0	384	4.6	-74	43.1	124
Doda	49.6	267	18.8	-2	81.6	194
Ganderbal	33.3	311	1.0	-91	29.7	150
Jammu	82.3	250	51.0	0	172.1	131
Kargil	**	**	**	**	**	**
Kathua	44.2	48	44.6	-26	83.4	-1
Kistwar	**	**	**	**	**	**
Kulgam	114.5	684	7.5	-54	50.3	225



Kupwara	31.1	205	2.3	-85	97.9	850
Ladakh(Leh)	0.5	-52	0.3	-86	9.5	172
Poonch	**	**	**	**	**	**
Pulwama	65.3	696	0.0	-100	65.7	417
Rajouri	20.0	45	15.0	-68	164.5	218
Ramban	122.9	810	29.7	55	147.0	429
Reasi	41.1	-7	45.1	-40	165.6	66
Samba	34.1	45	52.0	2	119.4	60
Shopian	**	**	**	**	**	**
Srinagar	59.4	633	13.5	27	53.9	353
Udhampur	23.7	-47	55.8	-26	100.7	1
<b>East Madhya Pradesh</b>						
Anuppur	14.1	-79	59.7	-35	84.6	-6
Balaghat	47.8	-43	28.2	-70	96.1	-15
Chhatarpur	66.6	28	56.4	-16	65.3	4
Chindwara	5.2	-91	4.3	-94	80.5	26
Damoh	63.1	1	44.0	-39	90.5	20
Dindori	16.6	-80	81.2	-10	71.4	-33
Jabalpur	61.7	13	33.3	-59	203.0	164
Katni	43.6	-23	39.7	-45	61.4	-32
Mandla	61.1	-22	38.3	-59	142.3	39
Narsingpur	33.8	-29	38.4	-53	219.4	177
Panna	41.6	-30	37.1	-52	85.6	17
Rewa	102.2	59	82.9	45	95.1	49
Sagar	60.7	10	22.6	-72	79.6	0
Satna	62.2	-4	41.8	-34	161.1	179
Seoni	11.6	-82	35.5	-55	106.0	27
Shahdol	27.0	-52	45.2	-42	152.0	107
Sidhi	111.2	84	55.2	-26	95.0	31
Singrauli	11.5	-78	30.5	-43	116.5	101
Tikamgarh	28.0	-47	44.0	-23	61.0	1
Umaria	53.1	-10	56.5	-23	83.3	14
<b>West Madhya Pradesh</b>						
Agar	59.7	-35	0.0	-100	18.4	-84
Alirajpur	46.9	-2	0.1	-99	0.0	-100
Asoknagar	53.5	30	8.8	-86	105.0	79
Badwani	8.8	-75	0.0	-100	0.0	-100
Betul	1.3	-98	0.0	-100	3.4	-95
Bhind	24.8	-22	31.8	-22	85.0	58
Bhopal	4.9	-90	0.0	-100	72.7	16
Burhanpur	1.0	-98	9.4	-80	3.7	-92
Datia	7.7	-79	32.5	-31	103.9	91
Dewas	5.5	-90	0.0	-100	0.0	-100
Dhar	22.4	-52	0.1	-99	0.0	-100
Guna	77.2	60	0.0	-100	118.6	82
Gwalior	20.9	-46	4.7	-90	203.7	247
Harda	3.5	-93	0.0	-100	0.0	-100
Hosangabad	33.5	-53	0.5	-99	87.0	-9
Indore	7.4	-85	0.0	-100	0.0	-100

Jhabua	41.0	1	0.0	-100	0.0	-100
Khandwa	1.3	-97	0.0	-100	0.0	-100
Khargone	10.3	-78	0.0	-100	0.0	-100
Mandsaur	43.8	16	0.0	-100	31.9	-42
Morena	84.0	150	26.8	-20	100.0	92
Neemuch	25.1	-37	0.0	-100	5.9	-89
Raisen	49.3	-13	6.6	-92	154.7	103
Rajgarh	36.5	-11	0.0	-100	176.8	160
Ratlam	72.7	40	0.0	-100	0.0	-100
Sehore	5.6	-89	0.0	-100	14.8	-81
Shajapur	37.5	-2	0.0	-100	12.0	-80
Sheopur Kalani	47.0	14	4.5	-90	31.8	-56
Shivpuri	36.6	-9	23.5	-53	80.9	43
Ujjain	45.6	8	0.0	-100	0.0	-100
Vidisha	96.0	93	6.8	-91	61.1	-15
<b>Chhattisgarh</b>						
Bastar	20.2	-74	1.1	-99	94.1	30
Bijapur	12.1	-83	0.5	-99	20.2	-77
Bilaspur	13.7	-82	48.5	-39	84.7	6
Dantewara	27.5	-60	8.1	-90	19.2	-79
Dhamtari	63.2	-11	4.8	-94	98.9	36
Durg	38.4	-52	33.4	-61	77.8	24
Janjgir	46.1	-40	15.5	-83	114.9	27
Jashpurnagar	27.4	-70	121.5	17	84.1	-1
Kanker	37.0	-57	10.2	-88	86.3	10
Korba	22.9	-74	85.5	-9	102.5	12
Koriya	57.8	-21	42.2	-52	154.3	63
Kawardha	27.0	-51	20.8	-69	121.3	97
Mahasumund	38.1	-38	9.6	-88	102.2	53
Narayanpur	10.7	-86	4.4	-94	32.8	-61
Raigarh	41.4	-40	47.0	-48	146.8	83
Raipur	38.0	-47	21.0	-76	75.3	-5
Rajandgaon	31.6	-57	7.5	-90	73.5	-8
Surguja	20.9	-73	136.3	64	133.7	42
<b>East Uttar Pradesh</b>						
Allahabad	81.5	91	34.4	-30	61.8	-11
Ambedkar Nagar	5.0	-86	35.0	-35	18.0	-76
Azamgarh	78.5	72	16.2	-75	74.6	-9
Bahraich	150.0	131	73.4	35	53.4	-36
Ballia	95.0	118	47.5	-11	24.6	-70
Balrampur	165.7	219	99.6	80	15.4	-84
Banda	37.3	-33	71.7	38	40.1	-36
Barabanki	97.9	77	34.0	-32	85.3	-2
Basti	154.0	186	73.3	24	45.9	-34
Chandauli	84.2	133	15.2	-73	25.4	-68
Deoria	33.5	-43	9.0	-84	25.5	-69
Faizabad	74.0	38	81.8	41	36.9	-61
Farrukhabad	50.3	24	82.4	86	60.1	-16
Fatehpur	0.0	-100	24.2	-50	30.3	-60

Gazipur	131.9	207	30.9	-40	64.1	-6
Gonda	87.5	50	71.4	37	41.3	-52
Gorakhpur	104.5	63	40.5	-34	31.8	-67
Hardoi	37.1	-24	76.6	67	134.8	87
Jaunpur	69.1	41	18.1	-69	72.4	-14
Kannauj	51.2	64	48.7	9	118.0	70
Kanpur City	37.3	-3	37.0	4	27.4	-48
Kanpur Dehat	19.0	-52	19.1	-45	52.0	-3
Kaushambi	23.7	-40	6.6	-87	32.5	-58
Kheri	211.2	331	110.9	69	65.6	-13
Kushi nagar	39.0	-38	23.5	-66	8.5	-92
Lucknow	54.4	10	23.8	-38	95.9	29
Maharajganj	63.7	-2	55.2	-28	12.8	-88
Mau	73.0	60	39.0	-32	91.2	7
Mirzapur	134.4	205	36.8	-37	49.0	-34
Pratapgarh	57.0	24	33.3	-44	66.0	-1
RaiBareilly	22.9	-38	22.1	-57	50.6	-29
Sahuji Maharajnagar	29.0	-54	22.0	-64	44.0	-24
Sant Kabirnnagar	105.0	119	105.0	91	31.0	-68
Sant Ravidas Nagar	137.0	280	3.0	-95	103.0	28
Shrawasti	162.5	150	60.8	12	21.2	-75
Sidharthnagar	141.3	176	52.0	-6	23.3	-76
Sitapur	76.6	55	82.4	62	101.9	48
Sonbhadra	95.1	64	34.9	-44	84.3	20
Sultanpur	23.3	-46	21.2	-62	96.9	12
Unnao	36.5	-23	46.8	18	101.3	53
Varanasi	161.8	222	34.2	-44	99.3	22
<b>West Uttar Pradesh</b>						
Agra	18.0	-50	12.3	-68	37.8	-28
Aligarh	19.4	-25	41.8	9	44.9	-14
Auraiya	36.1	23	14.7	-62	58.2	-4
Badaun	96.2	180	71.6	50	164.0	161
Baghpat	9.3	-58	19.4	-40	96.5	63
Bareilly	194.5	369	65.4	34	163.2	116
Bijnor	135.0	214	87.7	61	120.9	45
Bulandsahar	38.8	28	24.3	-38	131.6	141
Etah	45.0	37	31.3	-13	59.0	12
Etawah	30.8	-8	4.0	-89	97.4	87
Firozabad	22.5	-46	15.1	-59	80.1	44
GBNagar	38.0	72	48.0	39	85.0	77
Ghaziabad	40.1	76	39.2	2	123.7	117
Hamirpur	12.3	-73	27.5	-33	76.5	41
Jalaun	9.8	-75	19.4	-59	90.7	70
Jhansi	8.9	-81	42.1	-25	88.4	39
Jotiba Phule Nagar	65.5	142	67.0	29	142.0	84
Kanshiramnagar	75.0	159	80.0	98	116.0	104
Lalitpur	19.5	-61	9.0	-87	41.3	-34
Mahamaya Nagar	57.5	86	10.5	-68	48.0	-21
Mahoba	4.0	-91	11.4	-75	81.8	72



Mainpuri	17.2	-50	17.8	-54	71.1	24
Mathura	114.0	312	5.5	-85	132.1	196
Meerut	64.2	150	67.9	30	83.4	18
Moradabad	206.4	406	103.9	75	151.1	120
Muzzaffarnagar	98.3	226	100.0	98	85.9	6
Pilibhit	110.2	141	47.6	-25	80.9	4
Rampur	88.8	126	30.3	-50	89.1	11
Saharanpur	35.7	-24	25.3	-47	164.3	89
Shahjahanpur	46.6	-2	99.8	66	144.5	110
<b>Uttarakhand</b>						
Almora	157.9	289	83.8	36	91.1	32
Bageshwar	177.8	338	82.8	34	74.3	8
Chamoli	192.7	360	62.2	13	81.1	30
Champawat	275.0	206	135.0	50	56.5	-52
Dehradun	98.9	13	136.8	13	154.8	1
Garhwal Pauri	106.1	70	54.3	-31	88.4	-25
Garhwal Tehri	127.8	117	39.2	-36	105.7	21
Haridwar	79.3	84	71.5	20	89.6	2
Nainital	292.7	270	193.3	93	135.7	5
Pithorgarh	190.2	82	65.9	-44	86.5	-23
Rudraprayag	170.4	97	16.2	-84	130.3	14
Udham Sing Nagar	167.1	232	80.5	3	73.4	-35
Uttarkashi	54.9	-6	30.9	-56	108.3	25
<b>Bihar</b>						
Araria	65.8	-23	61.4	-28	77.5	-27
Arwal	157.1	179	92.4	84	32.5	-53
Aurangabad	155.7	222	209.6	268	15.5	-80
Banka	149.2	203	73.6	31	93.6	22
Begusarai	161.1	236	38.9	-40	75.7	-12
Bhabua	149.5	152	77.4	26	79.6	-4
Bhagalpur	155.7	123	153.4	128	73.0	-6
Bhojpur	77.9	57	32.3	-51	23.9	-74
Buxar	106.2	147	33.0	-40	57.8	-34
Darbhanga	39.6	-38	95.1	58	33.5	-54
East Champaran	18.5	-71	60.2	-11	38.7	-47
Gaya	144.8	128	102.7	77	29.5	-63
Gopalganj	16.0	-72	99.4	46	48.3	-42
Jahanabad	144.3	230	87.2	69	20.9	-75
Jamui	103.7	31	118.7	79	49.2	-41
Kathihar	144.4	86	146.1	97	49.7	-47
Khagadia	135.9	99	54.7	-26	55.2	-39
Kishanganj	42.7	-65	161.2	32	115.1	-22
Lakhisarai	156.4	148	114.9	65	34.1	-58
Madhepura	65.1	-2	115.2	36	33.2	-68
Madhubani	62.5	-13	45.6	-48	28.9	-63
Monghyar	183.2	190	62.7	-10	68.2	-15
Muzaffarpur	16.6	-76	92.2	41	44.9	-42
Nalanda	101.0	75	125.5	125	24.7	-68
Nawada	87.1	43	85.3	16	15.6	-80

Patna	51.1	-9	108.2	54	33.9	-62
Purnea	64.4	-19	85.4	-2	25.9	-80
Rohtas	113.7	154	157.1	212	59.1	-23
Saharsha	105.6	5	92.8	-37	34.6	-70
Samstipur	100.1	40	45.6	-21	47.3	-46
Saran	77.8	28	62.6	-16	62.0	-31
Sheikpura	170.4	133	124.6	106	15.3	-83
Sheohar	24.0	-72	32.0	-64	27.6	-58
Sitamarhi	16.4	-81	41.6	-54	32.6	-50
Siwan	70.5	12	21.0	-74	48.5	-42
Supaul	49.9	-15	75.1	-8	69.3	-25
Vaishali	38.7	-38	116.0	58	49.0	-48
West Champaran	52.2	-39	66.6	-18	37.1	66
<b>Jharkhand</b>						
Bokaro	60.3	5	140.6	123	72.4	10
Chatra	103.0	36	94.1	32	6.7	-92
Deoghar	162.6	178	69.0	14	132.0	84
Dhanbad	62.9	-14	65.8	-17	27.1	-60
Dumka	166.5	140	127.9	83	132.2	60
East Singbhum	54.7	-23	126.4	103	33.7	-52
Garhwa	79.9	34	50.6	-9	82.2	45
Giridih	80.2	5	68.6	-3	61.2	-22
Godda	185.3	214	90.7	51	76.8	-7
Gumla	41.4	-41	168.8	84	165.5	101
Hazaribagh	157.8	118	109.2	77	68.3	-8
Jamtara	104.3	39	84.3	2	134.7	65
Khunti	67.0	-23	85.4	-2	125.0	54
Koderrna	114.3	86	28.1	-54	47.0	-27
Latehar	22.5	-64	185.9	194	33.6	-55
Lohardagga	20.6	-70	88.7	83	52.8	-23
Pakur	122.5	90	135.8	77	150.2	40
Palamau	45.8	-16	63.0	7	60.6	-20
Ramgarh	105.0	43	85.8	37	48.0	-33
Ranchi	58.8	-28	48.5	-39	108.6	26
Sahebganj	147.6	55	110.0	17	63.2	-40
Saraikelela	55.7	-27	154.5	117	62.1	-9
Simdega	21.0	-75	154.1	61	249.1	141
West Singbhum	52.9	-21	90.1	14	45.6	-33
<b>East Rajasthan</b>						
Ajmer	23.2	3	1.3	-95	15.4	-61
Alwar	28.8	36	30.6	7	60.0	27
Banswara	58.0	30	0.3	-99	0.0	-100
Baran	74.8	109	1.5	-97	83.9	37
Bharatpur	33.4	72	47.4	67	76.2	63
Bhilwara	37.8	31	0.3	-99	25.1	-49
Bundi	69.3	137	10.2	-76	68.2	22
Chittorgarh	30.0	-15	0.0	-100	32.1	-42
Dausa	64.1	123	17.6	-45	29.8	-52
Dholpur	59.7	90	19.5	-47	67.2	30

Dungarpur	64.2	80	0.0	-100	0.0	-100
Jaipur	62.9	139	13.8	-43	69.2	38
Jhalawar	72.2	87	0.0	-100	136.3	151
Jhunjhunu	60.3	244	37.1	88	50.6	35
Karauli	83.8	191	6.7	-73	39.0	-25
Kota	55.6	57	1.1	-97	84.4	57
Pratapgarh	43.0	-17	0.8	-99	0.0	-100
Rajsamand	8.4	-75	0.1	-99	35.7	-12
Sawai Madhopur	141.4	368	23.5	-36	18.5	-66
Sikar	49.7	154	29.3	22	142.6	295
Sirohi	101.1	198	3.0	-96	4.0	-94
Tonk	86.7	212	4.5	-86	63.2	24
Udaipur	32.4	-9	0.2	-99	1.6	-97
<b>West Rajasthan</b>						
Barmer	13.8	12	0.0	-100	13.1	-25
Bikaner	18.6	80	2.0	-85	19.9	7
Churu	29.5	127	54.9	177	65.8	106
Hanumangarh	7.4	-38	44.3	132	15.1	-38
Jaisalmer	9.1	1	1.2	-89	12.7	-16
Jalore	35.3	103	0.0	-100	0.9	-97
Jodhpur	11.3	-3	0.0	-100	29.3	26
Nagaur	48.8	155	29.1	35	55.6	81
Pali	20.6	2	0.0	-100	24.1	-27
Sri Ganganagar	7.7	-25	26.2	80	26.5	54
<b>Gujarat Region</b>						
Ahmedabad	50.5	25	0.1	-99	0.6	-99
Anand	67.7	28	0.3	-99	0.0	-100
Banaskantha	27.9	-19	0.0	-100	0.5	-99
Baroda	28.1	-54	0.3	-99	0.7	-99
Broach	53.7	-5	0.6	-99	2.7	-95
DNH	21.1	-85	3.1	-98	9.5	-95
Dahod	63.6	24	0.0	-100	0.0	-100
Daman	49.8	-65	0.0	-100	6.6	-96
Dangs	4.0	-96	0.0	-100	3.7	-98
Gandhinagar	87.4	165	0.2	-99	0.7	-99
Kheda	89.0	72	0.0	-100	0.0	-100
Mehsana	57.6	56	0.3	-99	0.0	-100
Narmada	47.4	-36	0.3	-99	2.1	-98
Navsari	27.8	-78	0.7	-99	2.5	-98
Panchmahal	104.6	88	0.0	-100	0.0	-100
Patan	12.3	-56	0.0	-100	0.0	-100
Sabarkantha	142.5	208	0.3	-99	0.0	-100
Surat	70.9	-26	1.8	-99	6.2	-94
Tapi	39.4	-57	2.0	-99	8.2	-93
Valsad	10.9	-93	1.6	-99	4.7	-97
<b>S K &amp; Diu region</b>						
Amreli	221.7	498	0.3	-99	0.0	-100
Bhavnagar	123.5	246	0.0	-100	1.9	-95
Diu	11.4	-85	0.0	-100	0.1	-99



Jamnagar	11.4	-70	0.1	-99	0.4	-99
Junagarh	17.7	-77	0.0	-100	0.2	-99
Kutch	5.0	-76	0.0	-100	0.0	-100
Porbandar	1.6	-97	0.0	-100	0.6	-99
Rajkot	85.7	113	0.0	-100	0.0	-100
Surendranagar	32.1	-15	0.1	-99	0.0	-100
<b>Maharashtra &amp; Goa</b>						
<b>Konkan &amp; Goa</b>						
Mumbai City	10.3	-94	6.6	-97	5.8	-96
Mumbai Suburban	21.1	-89	4.2	-98	11.1	-93
North Goa	116.7	-62	93.2	-63	165.2	-34
Raigad	81.5	-70	11.2	-96	42.1	-83
Ratnagiri	118.9	-61	15.8	-94	45.0	-82
Sindhudurg	155.5	-44	46.2	-81	77.1	-65
South Goa	85.3	-67	75.2	-65	158.3	-28
Thane	35.3	-80	4.0	-98	12.1	-95
<b>Madhya Maharashtra</b>						
Ahmednagar	6.9	-71	0.0	-100	0.0	-99
Dhule	0.2	-99	0.0	-100	0.0	-100
Jalgaon	1.5	-97	0.0	-100	0.2	-99
Kolhapur	65.5	-55	6.3	-96	21.7	-86
Nandurbar	9.0	-84	1.2	-98	4.6	-94
Nasik	23.8	-52	0.7	-99	4.1	-95
Pune	25.4	-55	1.3	-98	7.5	-90
Sangli	9.8	-67	0.7	-98	3.7	-89
Satara	25.3	-49	1.6	-97	4.9	-91
Solapur	1.6	-92	1.7	-90	0.1	-99
<b>Marathwada</b>						
Aurangabad	1.5	-96	0.0	-100	0.0	-100
Beed	2.4	-92	4.8	-82	0.7	-98
Hingoli	3.3	-95	5.1	-90	0.5	-99
Jalna	2.1	-94	0.3	-99	0.0	-100
Latur	4.9	-88	9.5	-79	7.7	-78
Nanded	6.7	-87	2.3	-95	1.3	-97
Usmanabad	0.1	-99	9.2	-72	2.5	-90
Parbhani	5.3	-89	2.6	-94	1.7	-96
<b>Vidarbha</b>						
Akola	1.8	-96	2.9	-93	0.0	-100
Amraoti	5.0	-90	2.0	-96	1.6	-97
Bhandara	25.2	-65	9.7	-89	56.9	-35
Buldhana	2.2	-95	0.2	-99	0.0	-100
Chandrapur	20.5	-75	6.5	-92	15.3	-83
Gadchiroli	18.8	-79	6.7	-93	36.6	-66
Gondia	23.8	-72	17.9	-81	81.3	-16
Nagpur	12.8	-79	11.2	-84	24.6	-68
Wardha	12.5	-78	8.0	-86	8.6	-88
Washim	38.4	-39	0.0	-100	0.0	-100
Yeotmal	12.6	-79	11.8	-79	0.4	-99
<b>Odisha</b>						

Angul	38.7	-31	30.7	-53	77.3	-1
Balasore	34.9	-49	40.6	-26	99.8	90
Bargarh	20.0	-70	8.5	-89	126.4	71
Bhadrak	24.7	-54	48.9	-18	106.4	83
Bolangir	52.2	-30	4.0	-95	107.9	22
Boudh	26.2	-60	17.9	-74	106.6	56
Cuttack	13.4	-79	28.9	-60	50.1	-25
Deogarh	78.1	-2	70.6	-30	114.0	30
Dhenkanal	34.5	-49	40.1	-35	68.1	6
Gajapati	41.9	3	27.8	-18	10.3	-80
Ganjam	10.6	-75	14.7	-58	27.2	-42
Jagatsingpur	8.0	-85	31.1	-34	65.4	10
Jajpur	33.9	-42	50.5	-12	59.3	-1
Jharsuguda	37.0	-48	90.6	-6	194.4	122
Kalahandi	37.3	-58	19.0	-78	99.1	28
Kandhamal	30.3	-53	24.6	-65	58.2	-15
Kendrapara	34.2	-38	33.0	-46	26.7	-52
Keonjhar	36.4	-37	40.8	-27	64.7	17
Khurda	15.9	-69	20.0	-65	68.1	3
Koraput	28.8	-61	14.9	-82	36.1	-55
Malkangiri	10.9	-87	19.2	-77	41.4	-53
Mayurbhanj	36.0	-54	42.4	-27	63.4	-19
Nawapara	78.8	10	19.8	-77	128.8	64
Nawarangpur	60.3	-27	24.2	-78	60.1	-15
Nayagarh	16.0	-66	22.1	-67	28.5	-49
Puri	11.2	-74	31.9	-47	38.1	-28
Rayagada	33.7	-22	35.9	-32	35.1	-44
Sambalpur	33.5	-58	60.0	-41	170.0	94
Sonepur	40.4	-44	33.8	-58	98.4	41
Sundargarh	34.3	-50	102.9	28	197.7	125
<b>West Bengal &amp; Andaman Nicobar Islands</b>						
<b>A &amp; N ISLAND</b>						
Nicobar	102.2	52	14.8	-73	38.9	-38
North & Middle Andaman	93.5	-4	48.0	-53	236.2	126
South Andaman	109.9	18	48.6	-42	97.9	7
<b>GWB</b>						
Bankura	46.4	-35	56.1	-22	124.4	90
Birbhum	156.9	104	73.2	9	185.8	119
Burdwan	107.2	66	76.5	27	180.6	149
East Midnapore	29.7	-58	34.3	-52	146.9	193
Hooghly	142.0	66	62.3	-11	214.4	216
Howrah	73.9	-2	48.0	-43	155.8	130
Kolkata	116.5	51	115.0	43	185.9	132
Murshidabad	195.6	141	113.2	46	152.6	98
Nadia	187.0	156	61.7	5	135.7	98
24 Pargana (N)	87.2	13	111.0	62	276.1	262
Purulia	47.5	-34	147.9	89	98.8	39
24 Pargana (S)	64.9	-24	85.7	-25	154.6	51

West Midnapore	30.9	-59	54.5	-27	129.7	90
<b>SHWB &amp; Sikkim</b>						
Cooch Behar	147.2	-13	139.2	-35	54.1	-76
Darjeeling	228.8	40	126.7	-14	157.5	-9
East Sikkim	181.9	56	107.6	6	154.5	32
Jalpaiguri	110.2	-42	170.7	-31	141.1	-34
Malda	124.4	85	75.2	-6	132.3	69
North Dinajpur	37.7	-53	146.5	86	130.4	22
North Sikkim	157.5	44	119.3	2	133.6	44
South Dinajpur	54.3	-21	15.2	-84	43.0	-50
South Sikkim	177.9	53	180.4	78	176.6	51
West Sikkim	159.1	45	86.5	-26	106.0	14
<b>Karnataka</b>						
<b>Coastal Karnataka</b>						
Dakshina Kannada	184.8	-38	78.7	-71	366.9	35
Udupi	255.2	-18	80.3	-74	473.6	58
Uttara Kannada	105.2	-56	47.3	-80	117.4	-49
<b>N I Karnataka</b>						
Bagalkote	8.0	-47	0.0	-100	10.6	-34
Belagavi	18.2	-62	6.4	-87	9.7	-80
Bidar	11.6	-70	8.3	-79	32.6	-7
Dharwad	13.3	-61	11.8	-65	18.5	-50
Gadag	7.6	-55	3.1	-76	1.5	-91
Haveri	17.9	-54	6.0	-85	8.3	-80
Kalaburgi	1.9	-94	3.9	-87	48.8	69
Koppal	15.4	19	0.5	-96	8.1	-46
Raichur	0.6	-97	9.9	-50	16.6	-25
Vijayapura	0.9	-95	1.0	-93	2.9	-84
Yadgir	1.5	-96	8.1	-69	30.5	10
<b>S I Karnataka</b>						
Ballari	12.1	-17	1.2	-91	33.8	106
Bangalore Rural	12.1	39	2.2	-83	6.1	-68
Bangalore Urban	1.8	-81	1.2	-93	10.6	-43
Chamarajanagar	9.6	-20	0.0	-100	2.0	-85
Chikaballapur	15.3	50	1.0	-95	4.4	-75
Chikkamagaluru	108.9	-29	26.5	-85	54.0	-64
Chitradurga	3.5	-62	6.4	-41	6.0	-49
Davangere	11.4	-44	8.0	-60	11.8	-46
Hassan	42.1	4	2.2	-96	8.8	-80
Kodagu	283.4	38	42.3	-82	98.2	-49
Kolar	1.9	-79	0.0	-100	4.5	-73
Mandya	10.2	88	2.0	-82	0.8	-92
Mysuru	38.4	121	3.5	-87	3.4	-83
Ramanagara	16.8	102	0.7	-96	3.8	-75
Shivamogga	153.3	15	56.4	-63	111.3	-21
Tumakuru	3.2	-59	0.5	-96	2.4	-83
<b>Kerala</b>						
Alappuzha	206.9	47	45.1	-69	73.2	-39
Kannur	265.5	0	61.5	-78	211.1	-13



Ernakulam	220.2	19	54.7	-68	96.9	-37
Idukki	238.4	17	48.4	-77	89.4	-46
Kasaragod	122.5	-54	49.0	-81	225.2	-16
Kollam	195.2	80	16.4	-84	49.0	-45
Kottayam	240.2	39	50.3	-68	86.8	-38
Kozhikode	321.9	28	61.9	-74	140.0	-37
Malappuram	203.1	-1	37.6	-82	96.6	-47
Palakkad	164.5	9	17.2	-89	68.1	-48
Pathanamthitta	190.6	35	14.8	-90	43.7	-65
Thiruvananthapuram	188.9	171	5.4	-91	13.4	-73
Thrissur	257.6	27	56.0	-73	103.2	-41
Wynad	254.6	-5	27.0	-91	60.4	-74
<b>Tamil Nadu</b>						
Ariyalur	0.0	-100	4.8	-62	10.8	-20
Chennai	9.1	-30	2.0	-90	22.0	-20
Coimbatore	21.6	151	1.4	-89	8.2	-19
Cuddalore	5.0	-24	5.8	-59	3.2	-79
Dharmapuri	4.7	-34	0.0	-100	0.7	-96
Dindigul	12.4	82	0.5	-96	0.1	-99
Erode	0.9	-76	0.0	-100	0.3	-97
Kanchipuram	6.5	-46	1.2	-93	18.0	-29
Kanyakumari	116.2	218	1.0	-97	9.5	-57
Karikal	0.3	-79	0.0	-100	0.7	-93
Karur	0.0	-100	0.0	-100	0.0	-100
Krishnagiri	4.8	-28	0.0	-100	0.0	-100
Madurai	6.4	-36	0.0	-100	0.0	-100
Nagapattinam	0.3	-94	5.4	-51	3.1	-75
Namakkal	0.4	-93	0.0	-100	0.7	-96
Nilgiris	58.9	3	5.5	-92	13.4	-74
Perambalur	0.0	-100	0.0	-100	0.0	-100
Puducherry	6.5	63	0.0	-100	22.8	80
Pudukottai	10.5	38	1.1	-93	0.0	-100
Ramanathapuram	5.5	121	0.0	-100	2.2	-58
Salem	3.1	-77	0.7	-97	0.1	-99
Sivaganga	42.5	574	4.6	-64	2.0	-87
Thanjavur	6.8	71	0.1	-99	0.3	-98
Theni	33.2	539	0.8	-90	2.4	-60
Tirunelveli	27.0	147	0.1	-99	3.8	-47
Tirupur	1.4	-57	0.7	-90	0.0	-100
Tiruvallur	8.9	-37	2.9	-88	18.0	-23
Tiruvannamalai	2.9	-66	0.0	-100	5.6	-73
Tiruvarur	0.0	-100	0.0	-100	0.8	-94
Toothukudi	0.8	-23	0.0	-100	0.0	-100
Trichy	1.2	-66	0.0	-100	0.1	-99
Vellore	7.6	-29	0.9	-96	7.2	-66
Villupuram	1.5	-83	0.0	-100	3.2	-76
Virudhunagar	13.5	461	0.0	-100	0.0	-100
<b>Andhra Pradesh</b>						

<b>Coastal Andhra Pradesh</b>						
East Godavari	6.4	-86	1.6	-96	12.6	-71
Guntur	3.9	-85	5.3	-84	30.6	20
Krishna	9.9	-77	7.4	-85	26.4	-35
Nellore	3.3	-75	0.2	-99	12.0	-27
Prakasam	9.6	-37	1.5	-93	32.4	112
Sirkakulam	31.3	-26	28.4	-24	19.9	-52
Visakhapatnam	15.7	-60	5.2	-86	27.4	-23
Vizianagram	23.6	-46	18.5	-56	21.1	-40
West Godavari	1.4	-97	8.8	-83	6.5	-87
<b>Rayalaseema</b>						
Anantapur	3.9	-52	1.0	-91	5.2	-61
Chittoor	9.2	-17	2.9	-85	9.9	-53
Cuddapah	7.2	-39	0.3	-99	21.6	16
Kurnool	6.1	-66	1.6	-93	24.1	2
<b>Telangana</b>						
Adilabad	15.5	-75	11.0	-83	9.0	-87
Hyderabad	1.1	-97	0.2	-99	28.6	-14
Karimnagar	9.3	-82	10.6	-82	4.0	-93
Khammam	28.8	-42	12.9	-78	10.8	-81
Mehabubnagar	3.3	-88	0.9	-97	20.0	-33
Medak	3.7	-92	2.6	-94	17.3	-62
Nalgonda	8.9	-71	12.9	-57	21.6	-20
Nizamabad	8.3	-85	6.8	-89	9.0	-84
Rangareddy	2.5	-93	4.9	-87	24.6	-36
Warangal	32.3	-38	13.3	-77	12.9	-77

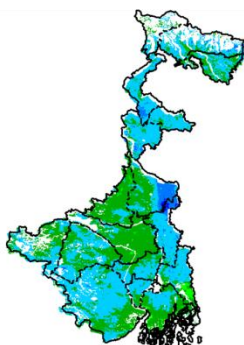
#### Legends

	(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

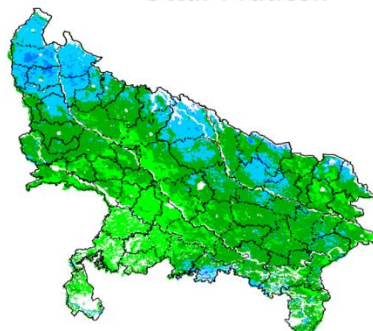
### INSAT 3A CCD NDVI COMPOSITE MAPS FOR THE WEEK ENDING ON 15<sup>th</sup> July 2015 FOR DIFFERENT STATES

**West Bengal**



Agricultural vigour is very good over the parts of West Bengal, whereas eastern parts of West Bengal shows good over the parts of West dominantly higher values of NDVI varying from 0.4-0.6. NDVI values are normal over remaining part of state.

**Uttar Pradesh**



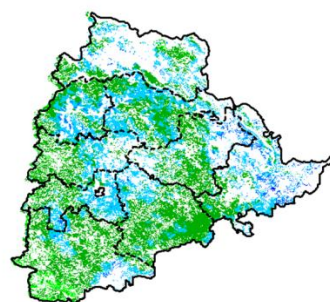
Agricultural vigour is normal over the entire state of Uttar Pradesh where NDVI value varies from 0.2 -0.4. Except for north western part were slightly higher values (0.4-0.5) of NDVI are observed.

**Uttarakhand**



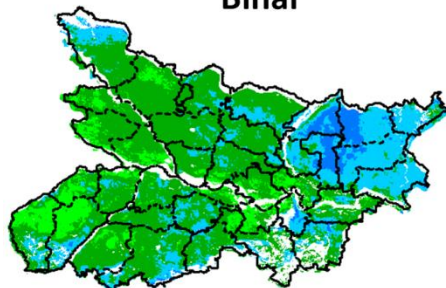
Agriculture vigour is very good over central parts of Uttarakhand with NDVI value varying between 0.4-0.5, whereas isolated patches with normal value of NDVI are observed over remaining parts of the state.

**Telangana**



NDVI values vary from 0.2 - 0.4 over Telangana. Higher (> 0.4) values are seen in some patches over eastern and central parts of Telangana.

**Bihar**



Eastern part of Bihar shows comparatively a high value (0.4 -0.5) of NDVI, whereas normal value of NDVI is observed over the remaining parts of the state.

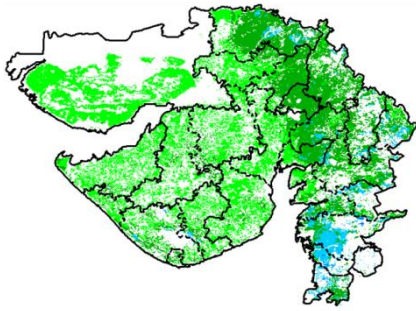
**Delhi**



Agriculture vigour is normal all over Delhi where NDVI value lies between 0.2-0.3.

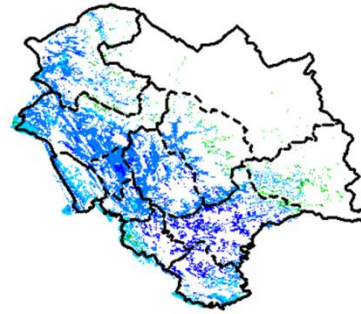


### Gujarat



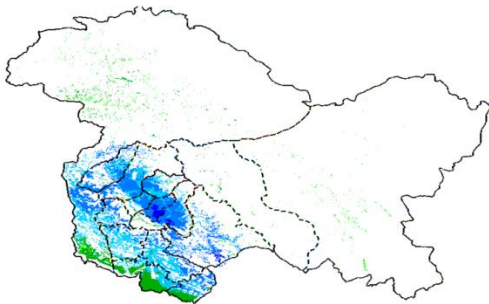
Agriculture vigour is normal (NDVI 0.2-0.4) over entire Gujarat, except few patches in south Gujarat which show higher NDVI values.

### Himachal Pradesh



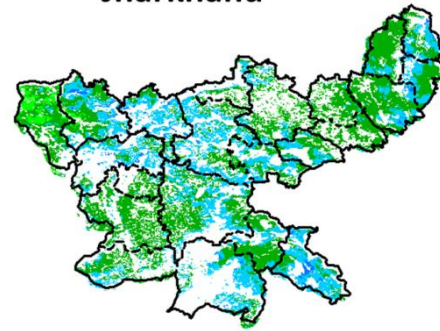
Agriculture vigour is very good over south and south western parts of Himachal Pradesh with NDVI value varying between 0.5-0.6, whereas isolated patches of normal NDVI are observed over remaining parts of the state.

### Jammu & Kashmir



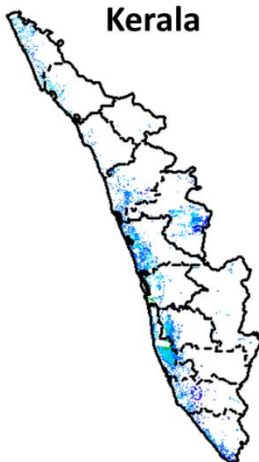
Agriculture vigour is normal all over Jammu and Kashmir. NDVI value varies in between 0.4-0.6 in south western parts.

### Jharkhand



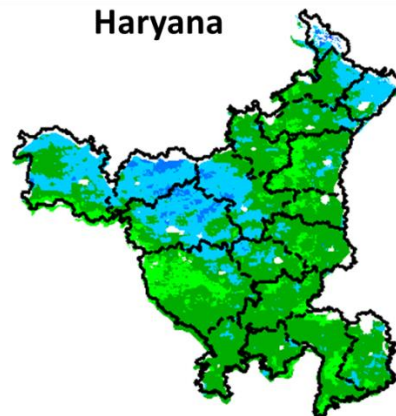
NDVI values vary from 0.2 - 0.4 over Jharkhand. Higher (> 0.4) values are seen in some patches over eastern and central parts of Jharkhand.

### Kerala



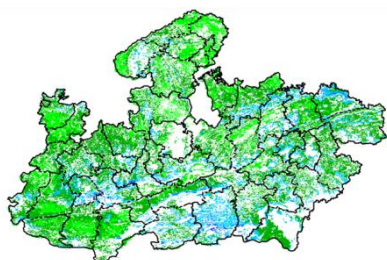
Central and coastal regions of Kerala shows increased NDVI values varying from 0.4 to 0.5, whereas rest of agricultural vigour of Kerala shows good values of NDVI.

### Haryana



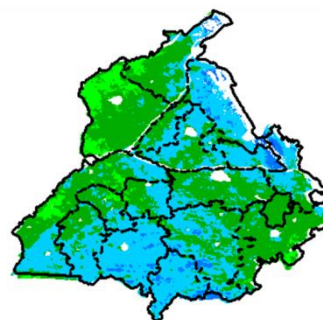
Agriculture vigour is normal over the state of Haryana. NDVI values varies between 0.2- 0.3 over the state. Except few patches in northern and western region where NDVI values in between 0.4-0.5.

### Madhya Pradesh



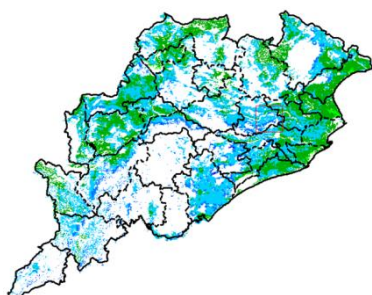
Agriculture vigour is normal (0.2-0.3) over entire state Madhya Pradesh.

### Punjab



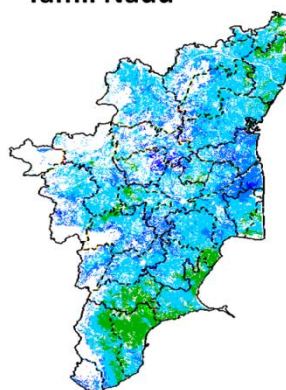
Agricultural vigour is good over entire state of Punjab, showing NDVI value ranges from 0.4-0.6. Western and Eastern part shows normal values between 0.2-0.4.

### Odisha



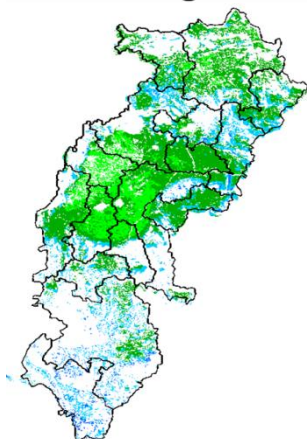
Agricultural vigour is good in eastern coastal and few pockets in western and central parts of Odisha with NDVI value ranging between 0.4 - 0.6. The remaining parts show normal NDVI values.

### Tamil Nadu



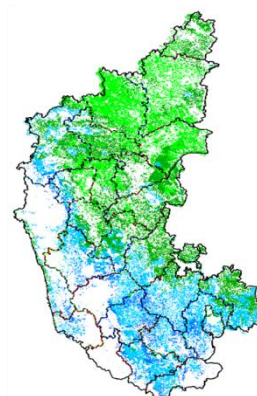
Agricultural vigour is good over Tamil Nadu with NDVI values varying from 0.4 - 0.6. Except South Eastern part, showing normal NDVI value ranges from 0.3-0.4.

### Chhattisgarh



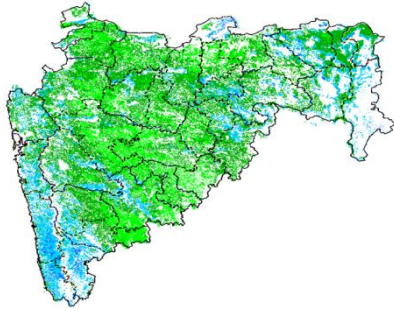
Agriculture vigour is Normal in central part of Chhattisgarh where NDVI value lies in between 0.2-0.3. South part of state shows increased NDVI values in some pockets.

### Karnataka



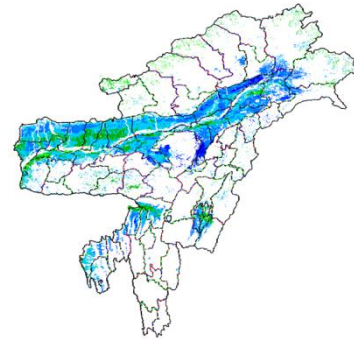
Agricultural vigour is good over south interior part of Karnataka between 0.4-0.6. Rest of the parts shows normal NDVI values from 0.2-0.3

### Maharashtra



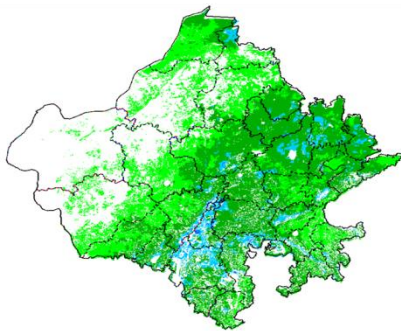
Agricultural vigour is good over south west part and few patches from central Vidarbha with NDVI values from 0.4 - 0.5, whereas NDVI is normal over parts of Marathwada, Vidarbha and Madhya Maharashtra region.

### North East Region



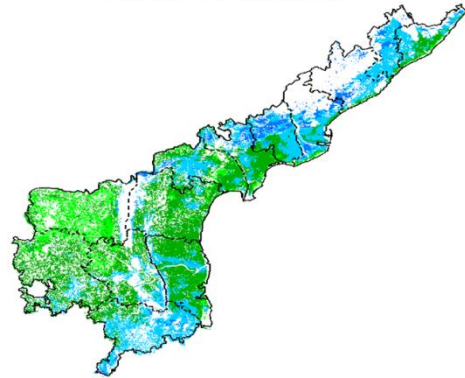
Agriculture vigour is good in valleys of North-East states which cover parts of Assam. NDVI values vary from 0.4-0.6. Normal NDVI conditions are observed all over NE region.

### Rajasthan



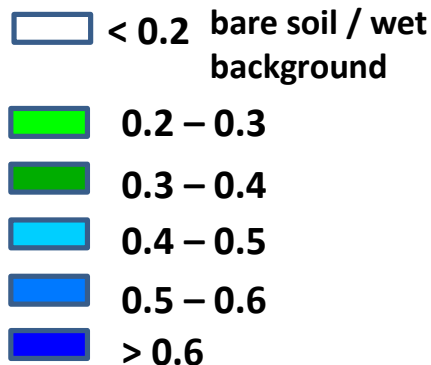
Agriculture vigour is normal (0.2-0.3) over entire state Rajasthan, except for few patches in eastern Rajasthan where NDVI shows slightly higher values (0.3-0.4).

### Andhra Pradesh



Agriculture vigour vary from 0.3 - 0.5 over coastal and southern parts of Andhra Pradesh. The NDVI is normal over remaining parts of the state.

### Persistent cloud /



## Annexure III

### List of varieties

#### North Inerior Karnataka

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

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

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

**Maize:** Arjun, 900 M.

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

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

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

#### Tamil Nadu

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

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

#### Andhra Pradesh

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

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

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

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

#### Assam

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

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

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

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

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

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

**Mesta :** HC 583 and AMC 108.

**Summer bottle gourd :** Pusa Summer Prolofie long, Pusa Summer Profile round, Pusa Meghdoot and Pusa Manjiri.

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

#### Manipur

**Soybean:** JS-335.

**Groundnut:** ICGS-76.

#### Meghalaya

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

Local varieties: Mendri, Manipuri.

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

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

#### Nagaland

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

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

#### Tripura

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

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

#### West Bengal

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

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

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

**Coconut:** Eastcoastal, Hazari

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

#### Odisha

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

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

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



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

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

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

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

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

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

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

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

### **Bihar**

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

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

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

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

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

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

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

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

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

### **Jharkhand**

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

**Sugarcane:** BO 147.

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

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

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

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

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

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

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

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

### **Jammu & Kashmir**

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

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

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

### **Uttarakhand**

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

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

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

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

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

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

**Finger millets:** VL-Mandua-124 and VL-149. However, its short duration (i.e. 95 to 100 days) varieties like VL- Mandua-204, Pant Mandua-3, PES-176, PES-110, VL- Mandua-146.

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

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

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

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

### **Himachal Pradesh**

**Cauliflower:**Patna snowball and joint snowball.

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

**Capsicum:** solan hyb-1,california wonder,yolo wonder ,vl shimla mirch-2.

**Brinjal:**plr-1,azad (hybrid), Arka Nidhi, Arka Keshav, Hisar Shaymal, PPC, F1 Chhaya, F1 Sandhya.

**Tomato:** solan gola, Palam Pink, Palam Pride, F1 Avtar, F1 Rakshita.

**Chilli:** Surajmukhi.

**Sunflower:**EC-68415.

**Moong:** Pusa Baishakhi.

**Mash:**UG-218.

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

**Carrot:**Nantes and Chantenay.

**Palak:**PusaHarit, Pusa Bharti.

### **East Uttar Pradesh**

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

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

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

**Moong:** samrat,hum-2, hum-12, malviyajanchetana, malviyajoyti, neredra moong-1.

**Urad:**T-9, azad urd-1, azadurd-2, shekher-2.

**Sugarcane:** coj-64, cos-96268, cos-98231, cos-767, cos-84, cos-32, copant-84212 ,etc.

**Maize:** pusa, agatishanker, makka-2, azad, uttam, sweta, Prakash,G-1, 5( hybrid varieties) and Tarun, Navin, Kanchan, Sweta and Jaunpuri (varieties for early sowing).

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

**Cauliflower:** pusa dipali.

### **West Uttar Pradesh**

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

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

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

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

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

### **Punjab**

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

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

### **Delhi**

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

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

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

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

**Guar:** PusaNavbahar, DurgaBahar.

**Radish:**PusaChetki.

**Cluster bean:**PusaKomal.

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

**Spinach:** PusaBharti.

**Amaranths:** PusalalChaulai, PusaKiran.

**Ladyfinger:** Pusa A-4.

### **East Rajasthan**

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

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

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

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

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

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

**Cowpea:**FS-68, RC-19 and RC-101 (improved varieties).

**Moth bean-**R.M.O-40, R.M.O-257, R.M.O-225 and CAZRI moth-2.

**Sorghum:** CSH-6 (90-100 days), CSV-10 (100-110 days), CSV-15 (105-140 days).

### **West Rajasthan**

**Pearl millet:** HHB 67, RHB 121.

**Cluster bean:** RGC 936, RGC 1002, RGC 1017 and RGC 1066

**Cowpea:** RC-101, RC19 and RCp 27

**Moong:** RMG 62, RMG 268, SML 668 and GM-4

**Moth bean:** RMO-40, RMO 435, RMO 257and CZM-2

### **Madhya Pradesh:**

**Soybean:** JS 95-60 (early), JS 93 -05 (Medium), JS 335 (Late).

**Redgram:** TJT 501, ICPL 87 (early) and JKM 189 (Medium).

**Groundnut:** TG 22, TG 26, JGN 3.

**Rice:** JR 345, JR-201, Poornima (short duration).

IR-64, IR-54, Madhuri, Kanti, Mahamaya, Pusa basmatai (medium duration).

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

**Maize:** JVM 421, JM 12, JM 216.

**Green gram:**TJM 3, JM 721, HUM 1.  
**Sugarcane:** KO Jawahar-86141, 86572.  
**Guar:** HG 365, HG 565.

**Chhattisgarh:**

**Rice:**Purnima, Danteswari, Shabagi, MTU 1010,MTU 1001, Suwarna.

**Brinjal:** Punjab Shadabahar, KS 331, PH 5, PH 6, KS 224, ARBH 543.

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

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

**Groundnut:** SB -11 (J 11), ICGS-37, ICGS-44, T.A.G- 24, T.A.G-28.

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