

National Agromet Advisory Service Bulletin

Friday 4th July 2014

(For the period 4th to 8th July 2014)



Issued by

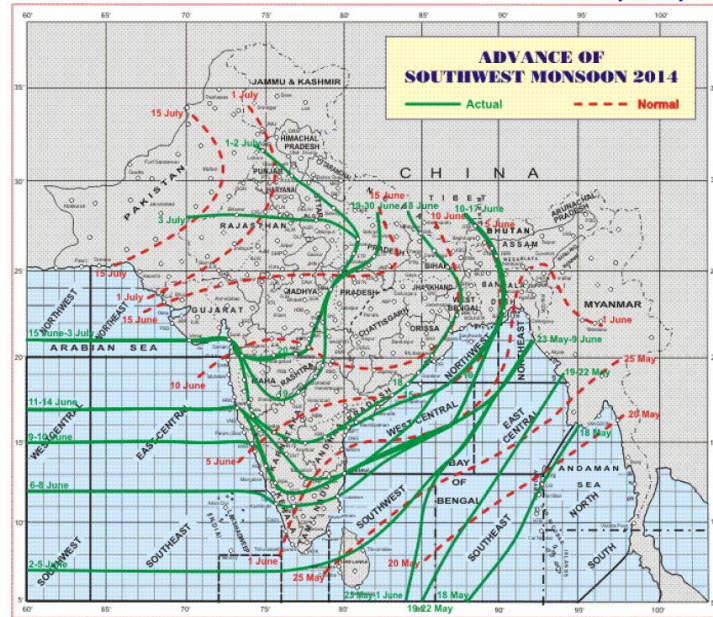
National Agrometeorological Advisory Service Centre,
Agricultural Meteorology Division,
India Meteorological Department, Shivajinagar, Pune.



Monsoon Watch

Northern Limit of Monsoon

Friday 04 July 2014

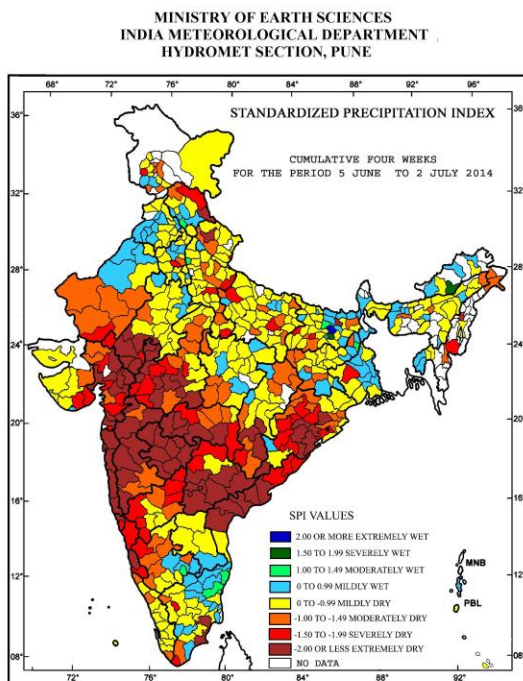


- The Northern Limit of Monsoon (NLM) continues to pass through Lat. 21°N / Long. 60°E, Lat.21°N / Long. 65°E, Veraval, Surat, Nasik, Wasim, Damoh, Lucknow, Aligarh, Bikaner and Lat. 28°N / Long. 72°E.
- Conditions are favourable for further advance of southwest monsoon into remaining parts of Uttar Pradesh and some more parts of Rajasthan and Madhya Pradesh during next 3 days.

Standardised Precipitation Index

Four Weekly

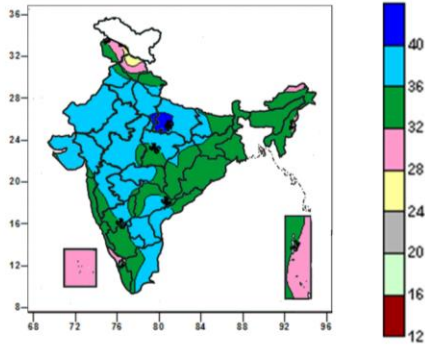
for the Period 5th June to 2nd July 2014



- Extremely/severely wet experienced in Lakhisarai, Begusarai districts of Bihar and Papumpara district of Arunachal Pradesh.
- Extremely/ moderately/ severely dry conditions experienced in most districts of Orissa; Madhya Pradesh; Gujarat; Maharashtra; Telangana, Karnataka; many districts of Rajasthan; Coastal Andhra Pradesh; few districts of Chattisgarh, Uttar Pradesh, North East; Anantnag, Pulwama, Srinagar, Jammu, Kathua and Poonch districts of Jammu & Kashmir; Lahual & Spitti, Chamba and Kinnaur districts of Himachal Pradesh; Tehri Garhwal, Pauri Garhwal, Dehradun and Champawat districts of Uttarkhand; Rohtak and Sonapat districts of Haryana; Purnea, Saharsa, Gaya, Jahanabad, Buxar and Arwal districts of Bihar; Garhwa, Palamau, Lohardagga, simdega, Khunti and Godda districts of Jharkhand; Bankura district of West Bengal; Kasargod, Kozhikode and Trivandrum districts of Kerala; Tirunelveli, Ramanathapuram, Pudukottai, Tiruppur, Nilgiri and Kanyakumari districts of TamilNadu.
- Rest of the country experienced mild wet/dry conditions.

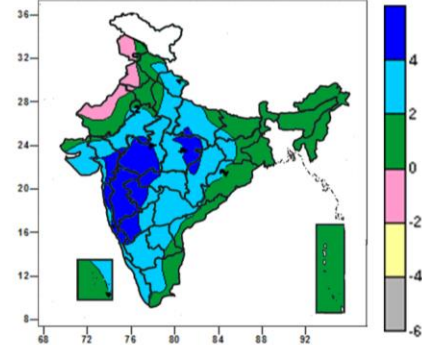
Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 02.07.2014

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 02.07.2014



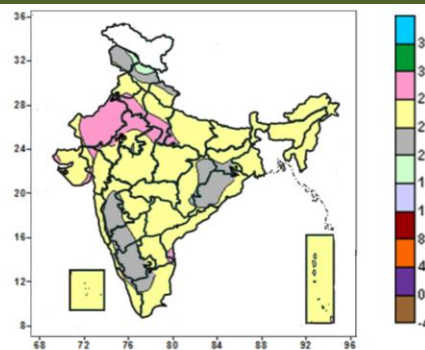
- 40 to 44 $^{\circ}\text{C}$ over some parts of Uttar Pradesh.
- 36 to 40 $^{\circ}\text{C}$ over many parts of Uttar Pradesh, Punjab, Haryana, Delhi, Rajasthan, Madhya Pradesh, Gujarat, Andhra Pradesh, Madhya Maharashtra, Marathwada, Vidarbha, Tamil Nadu, some parts of Uttarakhand, Bihar, Jharkhand, Chhattisgarh and Interior Karnataka.
- 32 to 36 $^{\circ}\text{C}$ over many parts of Uttarakhand, East India, North East India, Chhattisgarh, Telanagana, Konkan & Goa, Coastal & South Interior Karnataka, Kerala, some parts of Jammu & Kashmir, Himachal Pradesh, Punjab, Madhya Pradesh, Vidarbha, Madhya Maharashtra, Marathwada, Coastal Andhra Pradesh, Tamil Nadu, North Interior Karnataka and Andaman & Nicobar Islands.
- 28 to 32 $^{\circ}\text{C}$ over many parts of Lakshadweep, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Himachal Pradesh, Arunachal Pradesh, Manipur and Kerala.
- 24 to 28 $^{\circ}\text{C}$ over some parts of Jammu & Kashmir, Himachal Pradesh.

Mean Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 02.07.2014



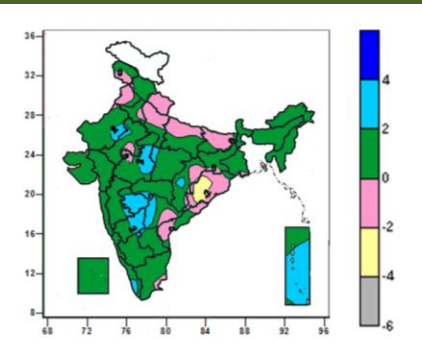
- 4 to 6 $^{\circ}\text{C}$ over many parts of Konkan & Goa, Madhya Maharashtra, Marathwada, West Madhya Pradesh, Coastal Karnataka, some parts of East Uttar Pradesh, East Madhya Pradesh, Chhattisgarh, Vidarbha, Gujarat region and East Rajasthan.
- 2 to 4 $^{\circ}\text{C}$ over many parts of Uttarakhand, Uttar Pradesh, East Madhya Pradesh, Chhattisgarh, Telanagana, Rayalaseema, Tamil Nadu, Kerala, South Interior Karnataka, Gujarat, East Rajasthan, some parts of Himachal Pradesh, West Rajasthan, Bihar, Jharkhand, Coastal Andhra Pradesh, Coastal & North Interior Karnataka, Marathwada, Konkan & Goa and West Madhya Pradesh.
- 0 to 2 $^{\circ}\text{C}$ over many parts of Himachal Pradesh, Haryana, Delhi, West Rajasthan, East India, North East India, Coastal Andhra Pradesh, Coastal Tamil Nadu, Lakshadweep, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Uttarakhand, Punjab, Uttar Pradesh, Rayalaseema, Kutch and East Rajasthan.
- -2 to 0 $^{\circ}\text{C}$ over many places over Jammu & Kashmir, Punjab, some parts of West Rajasthan.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 02.07.2014



- 28 to 32 $^{\circ}\text{C}$ over many parts of Haryana, Delhi, West Rajasthan, some parts of Punjab, Uttar Pradesh, East Rajasthan, West Madhya Pradesh, Gujarat, Coastal Andhra Pradesh, Rayalaseema and Tamil Nadu.
- 24 to 28 $^{\circ}\text{C}$ over entire country except many parts of Jammu & Kashmir, Odisha, Interior Karnataka, Madhya Maharashtra, Haryana, Delhi, West Rajasthan, some parts of Himachal Pradesh, Uttarakhand, Jharkhand,

Mean Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 02.07.2014



- 2 to 4 $^{\circ}\text{C}$ over many parts of Marathwada, Andaman & Nicobar Islands, some parts of Rajasthan, Central India, Telangana, North Interior Karnataka, Madhya Maharashtra and Kerala.
- 0 to 2 $^{\circ}\text{C}$ over entire country except many parts of Punjab, Uttarakhand, West Uttar Pradesh, Bihar, Odisha, Marathwada Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Haryana, East Uttar Pradesh,

Chhattisgarh, Punjab, Uttar Pradesh, East Rajasthan, West Madhya Pradesh, Gujarat, Coastal Andhra Pradesh, Rayalaseema, Kerala, Coastal Karnataka, and Tamil Nadu.

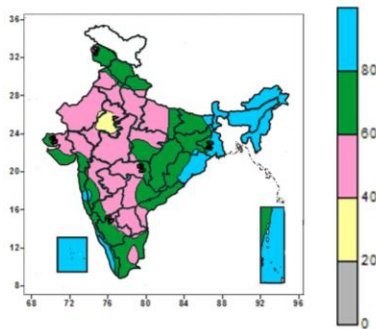
- 20 to 24⁰C over many parts of Jammu & Kashmir, Odisha, Interior Karnataka, Madhya Maharashtra, some parts of Himachal Pradesh, Uttarakhand, Jharkhand, Chhattisgarh, Kerala, Coastal Karnataka and Tamil Nadu.
- 16 to 20⁰C over some parts of Jammu & Kashmir, Himachal Pradesh.

Rajasthan, Jharkhand, Coastal Andhra Pradesh, Rajasthan, Central India, Telangana, North Interior Karnataka, Madhya Maharashtra, Kerala and Tamil Nadu.

- -2 to 0⁰C over many parts of Punjab, Uttarakhand, West Uttar Pradesh, Bihar, Odisha, some parts of Jammu & Kashmir, Haryana, East Uttar Pradesh, Rajasthan, Jharkhand, West Madhya Pradesh, Chhattisgarh, Coastal Andhra Pradesh, Telangana, East Rajasthan and Tamil Nadu.
- -4 to -2⁰C over some parts of Odisha.

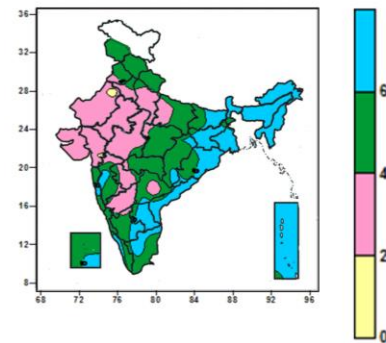
Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 02.07.2014

Relative Humidity (%) over India for the week ending 02.07.2014



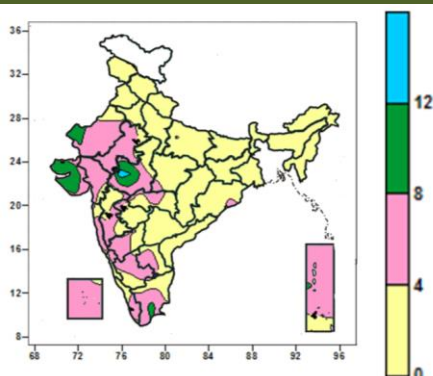
- 80 to 100% over many parts of North East India, West Bengal & Sikkim, Coastal Odisha, Kerala, Lakshadweep and Andaman & Nicobar Islands, some parts of Bihar, Jharkhand, Coastal Karnataka, Konkan and Madhya Maharashtra.
- 60 to 80% over many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Bihar,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

Cloud amount (okta) over India for the week ending 02.07.2014



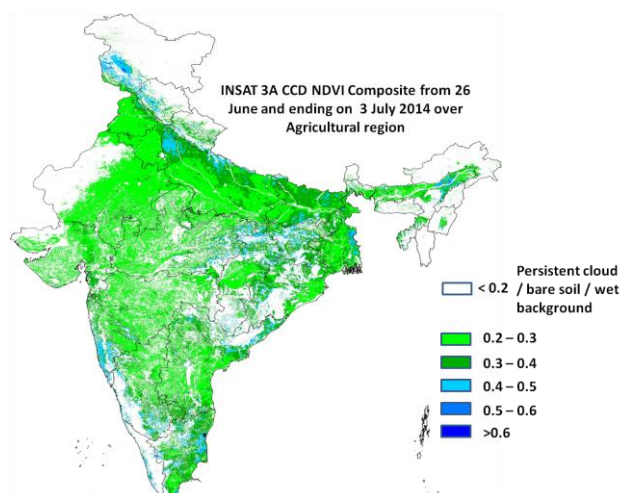
- 6 to 8 okta over many parts of North East India, East India, Coastal Andhra Pradesh, Rayalaseema, Andaman & Nicobar Islands some parts of Chhattisgarh, Telangana, Tamil Nadu, South Interior Karnataka, Kerala, Konkan, Madhya Maharashtra and Lakshadweep Islands.
- 4 to 6 okta over many parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, East Uttar Pradesh, Chhattisgarh, East Madhya Pradesh, Telangana, Vidarbha, Tamil Nadu, Kerala, Coastal & South Interior Karnataka, Konkan & Goa, Madhya Maharashtra, Marathwada, Vidarbha, some parts of Haryana, West Uttar Pradesh, Bihar, Jharkhand, Odisha, Coastal Andhra Pradesh, Rayalaseema, North Interior Karnataka and West Madhya Pradesh.
- 2 to 4 okta over many parts of Haryana, Delhi, West Uttar Pradesh, Rajasthan, West Madhya Pradesh, Gujarat, North Interior Karnataka, Marathwada, some parts of Punjab, East Uttar Pradesh, Telangana, North Interior Karnataka, Vidarbha, East Madhya Maharashtra and.
- 0 to 2 okta over some parts of West Rajasthan, Gujarat region.

Wind speed (knots) over India for the week ending 02.07.2014



- 12 to 16 knots over some parts of West Madhya Pradesh.
- 8 to 12 knots over many parts of Saurashtra & Kutch, West Madhya Pradesh, some parts of West Rajasthan, Tamil Nadu.
- 0 to 8 knots over entire country except many parts of Saurashtra & Kutch, West Madhya Pradesh, some parts of West Rajasthan and Tamil Nadu.

INSAT 3A CCD NDVI COMPOSITE OVER AGRICULTURAL REGION 26th June to 3rd July 2014



Source: SAC, Ahmedabad

- Agricultural vigour is moderate over few pockets of West Bengal, north Chhattisgarh and western Uttar Pradesh, NDVI varied between 0.4 to 0.5 upto 3rd July 2014. The NDVI remained within the range of 0.2 to 0.3 over rest of India. There is further decrease in NDVI as compared to last week in rest parts of India.

Weather Forecast

Weather Forecast for next 3 days (upto 0830 hours IST of 7th July, 2014)

- Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands during next 24 hours and at a many places thereafter.
- Rain/thundershowers would occur at many places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram and Tripura during the period.
- Rain/thundershowers would occur at many places over Sub-Himalayan West Bengal & Sikkim during next 24 hours and at most places thereafter.

Weather Warning during next 3 days

- **04 July (Day 1):** Heavy to very heavy rainfall would occur at isolated places over Jharkhand and Sub-Himalayan west Bengal & Sikkim. Heavy rainfall would occur at isolated places over Gangetic West Bengal, Odisha, Bihar and Konkan & Goa. Heat wave conditions would prevail at isolated places over north Madhya Pradesh, Vidarbha and Telangana.
- **05 July (Day 2):** Heavy to very heavy rainfall would occur at isolated places over Sub-Himalayan West Bengal & Sikkim. Heavy rainfall would occur at isolated places over east

- Rain/thundershowers would occur at a many places over Gangetic West Bengal during next 24 hours and decrease thereafter.
- Rain/thundershowers would occur at most places over Jharkhand during next 48 hours and at many places thereafter.
- Rain/thundershowers would occur at many places over Odisha and Bihar during the period.
- Rain/thundershowers would occur at many places over Coastal Karnataka during next 48 hours and at most places thereafter.
- Rain/thundershowers would occur at many places over Konkan & Goa, Kerala and Lakshadweep during the period.
- Rain/thundershowers would occur at many places over Himachal Pradesh and Uttarakhand during next 24 hours and over Jammu & Kashmir during next 48 hours and at decrease thereafter.
- Rain/thundershowers would occur at a few places over West Rajasthan during next 24 hours and over Punjab, Haryana & Delhi during next 48 hours and at isolated places thereafter.
- Rain/thundershowers would occur at few places over East Uttar Pradesh, East Madhya Pradesh and Chhattisgarh during next 24 hours and increase thereafter and at isolated places over West Uttar Pradesh during next 24 hours and at a few places thereafter.
- Rain/thundershowers would occur at a few places over East Rajasthan and South Interior Karnataka during the period.
- Rain/thundershowers would occur at isolated places over West Madhya Pradesh during next 24 hours and at many places thereafter.
- Rain/thundershowers would occur at isolated places over Vidarbha during next 24 hours and over Marathwada, Coastal Andhra Pradesh during next 48 hours and at a few places thereafter.
- Rain/thundershowers would occur at isolated places over Gujarat State, Madhya Maharashtra, Telangana, Rayalaseema, Tamilnadu & Pudducherry and North Interior Karnataka during the period.
- No significant change in maximum temperatures likely over central and adjoining peninsular India during next 2 days. It would fall further by about 2°C over northwest India during next 24 hours.

Uttar Pradesh, Jharkhand, Bihar, Madhya Pradesh, Konkan & Goa and coastal Karnataka.

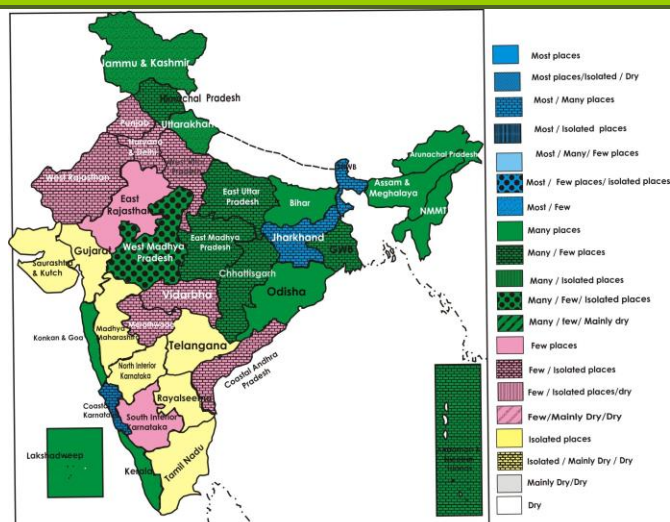
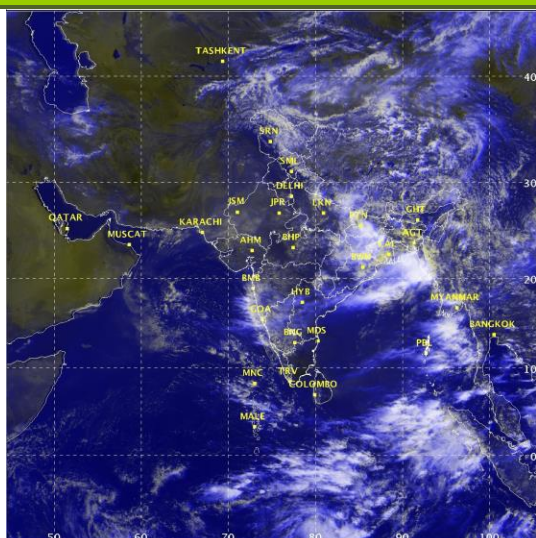
- **06 July (Day 3):** Heavy to very heavy rainfall would occur at isolated places over Sub-Himalayan West Bengal & Sikkim.
Heavy rainfall would occur at isolated places over east Uttar Pradesh, Bihar, Madhya Pradesh, Konkan & Goa and coastal Karnataka.

Weather Outlook for subsequent 4 days from 7th July to 11th July 2014.

- Rain/thundershowers would occur at many places over central, east & northeast India and along west coast.
- Rain/thundershowers would occur at a few places over western Himalayan region & adjoining plains of northwest India and over peninsular India.
- Rain/thundershowers would occur at isolated places over remaining parts of the country.

Satellite image dated 04.07.2014, 0600 UTC

Weather Forecast Map (Valid upto 0830 hours of 7th July, 2014)



Salient Advisories

- Continue transplanting of *Virippu* rice in the Southern, Central and Northern Zones of **Kerala**.
- Continue nursery sowing of *kharif* rice and undertake transplanting of rice in **Coastal Zone of Karnataka**, sowing of maize, groundnut and red gram in Bangalore and Kolar districts of **South Interior Karnataka** utilizing the realized and expected rainfall.
- Continue land preparation for nursery sowing and direct sowing of rice and planting of rainfed sugarcane in the North Coastal Zone of **Andhra Pradesh**.
- In Assam and Meghalaya, continue nursery sowing of *sali* rice and in **Arunachal Pradesh** continue sowing of *kharif* rice utilizing the realized and expected rainfall. Drain out excess water from rice nursery.
- Continue nursery sowing of main *kharif* rice and early cauliflower, sowing of black gram and rice bean in **Manipur**, continue sowing of soybean in **Nagaland** and continue nursery sowing of *aman* rice in **Tripura**.
- In **West Bengal**, continue land preparation and nursery sowing of *aman* rice utilizing the realised and expected rainfall.
- In North Eastern Coastal Plain Zone of **Odisha**, continue land preparation and nursery sowing, direct sowing of *kharif* rice, continue sowing of maize, arhar and cotton in upland areas in Western Undulating Zone utilizing the realised rainfall.
- Continue nursery sowing of rice and sowing of maize in **Bihar** and sowing of maize, pigeon pea, urad, moong, groundnut, soybean and sesame in **Jharkhand**.
- Continue nursery sowing and transplanting of *kharif* rice in **Himachal Pradesh** and **Uttarakhand**.
- **There is probability of revival of monsoon from second week of July over many parts of the country. The agricultural situation in Gujarat, Interior Karnataka and major parts of Maharashtra needs to be monitored continuously and preparation may be taken up for adoption of contingency plan and arrangements may be made for availability of sufficient seeds and other inputs for agricultural operations.**

Detailed Zonewise Agromet Advisories

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



Land preparation/ Sowing

Rice Nursery

Sugarcane

Okra

- **Realised Rainfall:** Rainfall occurred in all districts of Kerala except Palakkad and Thiruvananthpuram; Dakshin Kannada and Udipi districts of Coastal Karnataka; Bangalore urban, Kodagu and Kolar districts of South Interior Karnataka; Ariyalur, Chennai, Dharmapuri, Kancheepuram, Krishnagiri, Nagapattinam, Nilgiris, Perambalur, Puducherry, Salem, Tiruvallur, Thiruvanammalai, Vellore and Villupuram districts of Tamil Nadu; Mainly dry weather prevailed over remaining parts of the region.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Coastal Karnataka during next 48 hours and at most places thereafter. Rain/thundershowers would occur at many places over Kerala and Lakshadweep during the period. Rain/thundershowers would occur at a few places over South Interior Karnataka during the period. Rain/thundershowers would occur at isolated places over Coastal Andhra Pradesh during next 48 hours and at a few places thereafter. Rain/thundershowers would occur at isolated places over Telangana, Rayalaseema, Tamilnadu & Pudducherry and North Interior Karnataka during the period.
No significant change in maximum temperatures likely over peninsular India adjoining to Central India during next 2 days.
- **Weather Warning:** Heat wave conditions would prevail at isolated places over Telangana on 4th July and heavy rainfall would occur at isolated places over Coastal Karnataka on 5th and 6th July.
- **Weather Outlook:** Rain/thundershowers would occur at a few places over peninsular India. Rain/thundershowers would occur at isolated places over remaining parts of the region.
- **Advisories:**
 - **Karnataka:**
 - Continue nursery sowing of *kharif* rice in Coastal Zone of Karnataka. Also undertake transplanting of rice in the main field with proper age of seedlings.
 - Continue land preparation and sowing of maize and cotton, planting of ginger and turmeric, nursery preparation for low land and upland rice and apply basal dose of fertilizer to plantation crops in the Hill Zone of Karnataka utilizing the realized rainfall.
 - Continue sowing of maize, groundnut and red gram in Bangalore and Kolar districts of Eastern Dry Zone of Karnataka utilizing the realized and expected rainfall.
 - Continue land preparation and sowing of *kharif* crops like sorghum, pulses viz., cowpea, green gram, black gram and oilseed crops like sesamum and continue land preparation for transplanting of ragi in the Southern Dry Zone with expected rainfall.
 - Undertake sowing of red gram, ragi, groundnut and maize in the Eastern Dry Zone of Karnataka utilizing the realized and expected rainfall.
 - Undertake land preparation and wait for sowing of *kharif* crops like green gram, black gram, red gram, soybean and Jowar till receipt of sufficient rainfall in North Interior Karnataka.
 - The monsoon was weak in districts of North Dry Zone of Karnataka during June hence sowing of *kharif* crops has not been commenced. Detailed contingency measures for alternate crops and moisture conservation measures recommended for July first fortnight in Bijapur, Gadag and Bagalkote districts in North Interior Karnataka is given in Annexure I.
 - **Kerala:**
 - As there are chances of rainfall at many places along with heavy rainfall, farmers are advised postpone intercultural operations and application of fertilizers and pesticides
 - Continue transplanting of *virippu* rice in the Central and Northern Zones of Kerala.
 - Continue direct sowing of rice and planting of coconut seedlings in the Problem Area Zone of Kerala. Also continue mat nursery preparation in places where mechanized transplanting can be done, planting of nendran banana and land preparation for transplanting of brinjal and chilli.

- In view of the rainy weather, undertake crown cleaning, phytosanitation and provision of proper drainage in coconut fields in the Southern Zone of Kerala.
- Continuous rain and humid conditions are congenial for the spread of sheath blight in rice in the Southern Zone of Kerala. For control, spray *Pseudomonas* culture 10 g/ litre of water on one month old seedlings after current spells of rain.
- **Andhra Pradesh:**
- Continue land preparation and nursery sowing of rice, direct seeding of rice and planting of rainfed sugarcane in the North Coastal Zone of Andhra Pradesh.
- In Southern Telangana Zone of Andhra Pradesh, undertake nursery sowing **and transplanting** of tomato, brinjal and chillies and direct sowing of cucurbits, beans and bhendi wherever irrigation facility is available.
- Continue sowing of groundnut, lady's finger and cluster bean under irrigation in the Scarce Rainfall Zone of Andhra Pradesh. Undertake sowing of maize and raising of onion nursery and planting of medium and long duration varieties of turmeric in Kurnool district in areas having irrigation facilities.
- **Tamil Nadu:**
- Undertake transplanting of *kuruvai* rice in the Cauvery Delta Zone of Tamil Nadu with irrigation. Also continue transplanting under SRI cultivation.
- Undertake propping up of banana crop of more than five months to prevent lodging due to high wind speed in the Western and South Zone of Tamil Nadu.
- Suitable varieties are given in Annexure III.
- **Animal Husbandry**
- Prevailing weather conditions are congenial for Anthrax in cattles in the Scarce Rainfall Zone of Andhra Pradesh. Vaccinate the animals to prevent the disease.
- Since prevailing temperature is high, provide sufficient quantity of water to the poultry birds in the Western Zone of Tamil Nadu.

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



Rice Nursery



Land preparation/Sowing



Okra



Jute

- **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 except Goalpara and Nalbari districts of Assam; East Garo Hills, East Khasi Hills, Ribhoi, South Garo Hills and West Garo Hills districts of Meghalaya; Aizwal and Saiha districts of Mizoram; Imphal West and Senapati districts of Manipur; Kohima and Mokokchung districts of Nagaland; all districts of Tripura.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram and Tripura during the period.
- **Weather Warning:** Nil.
- **Weather Outlook:** Rain/thundershowers would occur at many places over northeast India.
- **Advisories:**
 - **Assam & Meghalaya, Arunachal Pradesh:**
 - In Assam and Meghalaya, continue nursery sowing of *sali* rice and in Arunachal Pradesh continue sowing of *kharif* rice utilizing the realized and expected rainfall. Drain out excess water from rice nurseries.
 - In Upper Brahmaputra Valley Zone and North Bank Plain Zone of Assam, undertake main field preparation for transplanting of *sali* rice.
 - Continue sowing of arhar in Hill Zone and Central Brahmaputra Valley Zone of Assam.
 - In Lower Brahmaputra Valley Zone of Assam, continue sowing of sesame and groundnut.
 - In Meghalaya, continue sowing of pigeon pea utilizing the realized and expected rainfall. Complete sowing of groundnut, soybean and transplanting of local varieties of *sali* rice in mid altitude areas at the earliest.
 - As rain/thundershowers would occur at many places over Assam, Meghalaya and Arunachal Pradesh during the period, postpone intercultural operations, application of plant protection measures and fertilizers in the standing crops.

- Due to prevailing humid weather conditions, there is chance of attack of stem borer on maize in Arunachal Pradesh. Spray Quinalphos 25 EC @2ml/litre of water after current spells of rain. Also there is chance of collar rot/wilting/damping off in green gram, for control, spray Carbandazim @1g per litre of water or Endofil M45 @ 2.5 g per litre of water after current spells of rain.
- Due to humid weather and increase in humidity, there is chance of attack of blast, Gundhi bug and stem borer in ahu rice in Temperate Sub Alpine Zone of Meghalaya. Spray Mancozeb @ 2g/litre of water or Carbendazim @ 1 g/litre of water against blast, spray Malathion 5% dust @ 6.25kg/ha against rice Gandhi bug and Chloropyriphos @ 0.02% or Monocrotophos @ 0.04% or Carbofuran 3G @30 kg/ha for stem borer after current spells of rain.
- **Nagaland, Manipur, Mizoram and Tripura:**
- In Mizoram, continue sowing of cucurbits, okra, nursery raising of brinjal and planting of ginger and turmeric utilizing the realized and expected rainfall.
- In Nagaland, continue sowing of soybean, groundnut and pulses like black gram, green gram utilizing the realized and expected rainfall.
- Continue nursery sowing of main *kharif* rice and black gram in Manipur the realized and expected rainfall. Also undertake land preparation and transplanting of main *Kharif* rice with 25-35 days old seedlings.
- In Mild Tropical Plain Zone of Tripura, continue nursery sowing of *aman* rice and sowing of *kharif* vegetables utilizing the rainfall.
- As rain/thundershowers would occur at many places over Nagaland, Manipur, Mizoram and Tripura during the period, postpone intercultural operations, application of plant protection measures and fertilizers in the standing crops.
- Warm and humid conditions may cause canker, aphids and Psyllid attack in young and new shoots of khasi mandarin in Mid Tropical Hill Zone of Mizoram. It can be controlled by pruning and burning the infected shoots and then smearing the cut portions with 1 % Bordeaux paste and spray Streptomycin 2g/ 10 litre of water against canker and spray Imadaclopid @ 1.5 ml/litre of water against aphids and psyllid after current spells of rain.
- Due to cloudy weather and increase in humidity, there is chance of attack of blast disease in *jhum* rice in Mild Tropical Hill Zone of Nagaland. Spray Carbendazim @ 1 g/litre of water after current spells of rain.
- In Tripura, due to cloudy and humid weather there is chance of infestation of sheath blight in *jhum* rice. Spray Surf @ 1g per litre of water. Also monsoon weather is conducive for Panama wilt disease in banana. Drench with Bavistin @1g per litter of water and Trichodermaviride and pseudomonas fluorescence may be incorporated in the soil. Apply the chemicals after current spells of rain.
- Suitable varieties are given in Annexure III.
- **Animal Husbandry**
- In the Northeastern States, animal sheds should be kept dry and avoid dampness during rainy days.
- Monsoon weather could lead to gastrointestinal parasites infection in pigs in Tripura. Farmers are advised to keep good sanitary conditions in pig sheds.

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



Sugarcane



Jute



Onion



Land Preparation/Sowing

- **Realised Rainfall:** Rainfall occurred in all districts of Bihar except Arwal, Aurangabad, Bhojpur, Buxar, Gaya, Gopalganj, Jahanabad, Purnea, Rohtas, Saharsa and Sitamarhi; in all districts of Jharkhand except Bokra, Garhwa, Giridih, Khunti, Palamau and Hazaribagh; in all districts of Odisha except Boudhgarh, Ganjam, Kalahandi, Kandhamal, Malkangiri, Sonapur and Rayagada; in all districts of West Bengal except Purulia; in North and middle Andaman district of Andaman and Nicobar islands.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Sub-Himalayan West Bengal & Sikkim during next 24 hours and at most places thereafter. Rain/thundershowers would occur at a many places over Gangetic West Bengal during next 24 hours and decrease thereafter. Rain/thundershowers would occur at most places over Jharkhand during next 48 hours and at many places thereafter. Rain/thundershowers would occur at many places over Odisha and Bihar during the period. Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands during next 24 hours and at a many places thereafter.

- **Weather Warning:** Heavy to very heavy rainfall would occur at isolated places over Sub-Himalayan West Bengal & Sikkim and heavy rainfall would occur at isolated places over Bihar during the period. Heavy to very heavy rainfall would occur at isolated places over Jharkhand on 4th July. Heavy rainfall would occur at isolated places over Gangetic West Bengal and Odisha on 4th July and over Jharkhand on 5th July.
- **Weather Outlook:** Rain/thundershowers would occur at many places over east India.
- **Advisories:**
 - **West Bengal:**
 - In West Bengal, continue nursery sowing of *aman* rice utilizing the realised and expected rainfall. Drain out excess water from rice nurseries and vegetable crop fields.
 - Continue sowing of direct seeded *aman* rice in Coastal Saline Zone utilising the realised and expected rainfall. Due to humid weather betel vine plants may be attacked by chital disease in Coastal Saline Zone of West Bengal. Apply 0.5% Bordeaux mixture at 15-20 days interval after current spells of rain.
 - In Terai Zone of West Bengal, undertake land preparation for nursery raising of early cauliflower. Select high land with proper drainage facilities.
 - As rain/thundershowers would occur at most/many places over Sub Himalayan West Bengal and Sikkim along with heavy to very heavy spells at isolated places during the period, postpone intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
 - Prevailing high temperature and humidity situation, there is a chance of attack of fruit borer in mango in New Alluvial Zone of West Bengal. To control these insects, spray Dichlorovos @ 1.5 – 2.0 ml per litre of water after current spells of rain. Also there is chance of attack of caterpillar and mite in jute. To control mite, apply Monocrotophos @ 1.5 ml per litre of water after current spells of rain.
 - Due to humid weather, there is a chance of the attack of Jassid, white-fly, shoot and fruit borer in brinjal and ladies finger in Laterite and Red Soil Zone of West Bengal. For white-fly and shoot and fruit borer; apply Cartap Hydrochloride 50 S.P. @ 0.75g per litre of water, for Jassid, spray Thiamethoxon@1g/10liter of water after current spells of rain.
 - Due to prevailing cloudy and humid weather conditions, there is a chance of attacks of caterpillar and mites in jute in New Alluvial and Old Alluvial Zones of West Bengal. To control mite, apply Dicofol @2 ml/litre of water or Propagite 57 E.C. @ 1.5ml/litre of water after current spells of rain.
 - **Andaman & Nicobar Islands:**
 - In North, Middle and South Andaman, continue nursery sowing of rice.
 - **Odisha:**
 - In East and South Eastern Coastal Plain Zone of Odisha, undertake nursery sowing of *kharif* rice and land preparation and direct sowing of rice in low land areas utilizing the realised and expected rainfall. Also undertake sowing of ragi, maize, groundnut and sesame.
 - In Western Undulating Zone of Odisha, continue sowing of maize, arhar and cotton in upland areas taking the advantage of the realised and expected rainfall.
 - In North Eastern Plateau Zone of Odisha, continue sowing of maize, groundnut, green gram and blackgram and groundnut, ragi, arhar, maize, green gram, black gram and sesame, sowing of okra and cluster bean in North Central Plateau Zone of Odisha. Also undertake nursery raising of brinjal, tomato and chilli in upland areas.
 - As rain/thundershowers would occur at many places over Odisha along with heavy to very spells at isolated places on 4th July, postpone intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
 - Due to humid weather there is chance of occurrence of fruit & shoot borer in brinjal and tomato in Mid Central Table Land Zone of Odisha. Install Pheromone trap and spray Sevin WP @4g or Malathion @ 2 ml in 1 litre of water after current spells of rain.
 - **Bihar:**
 - In North West Alluvial Plain Zone of Bihar, undertake transplanting of rice in low and medium land areas with realised and expected rainfall. Continue transplanting of tomato and brinjal. Continue land preparation in upland areas for sowing of arhar.
 - Continue nursery sowing of *kharif* onion and prepare nursery for sowing of medium duration hybrid rice varieties in South Bihar Alluvial Zone. Continue sowing of *kharif* maize. Undertake transplanting of *kharif* finger millet.
 - In North East Alluvial Plain Zone of Bihar, complete sowing of *kharif* maize. Prepare the nursery for sowing of long duration rice varieties. In upland areas, prepare nursery for rice till 10th July.
 - As rain/thundershowers would occur at many places over Bihar along with heavy spells at isolated places during the period, postpone intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
 - **Jharkhand:**
 - In South Eastern Plateau Zone of Jharkhand, continue sowing of direct seeded upland rice and prepare the nursery for sowing of long duration rice varieties and continue sowing of maize and pigeon pea, urad, moong, groundnut,

soybean, sesame and also rainy season vegetables with realised and expected rainfall.

- Continue nursery bed preparation for *kharif* rice in Western Plateau Zone of Jharkhand. Continue sowing/nursery sowing of rainy season vegetables like bhindi, bean, French bean, tomato, cauliflower and cabbage. In upland areas, undertake sowing of urad, groundnut and arhar and direct seeded rice. Continue nursery sowing of finger millet and sowing of maize.
- In Central & North Eastern Plateau Zone of Jharkhand, continue land preparation and sowing of maize and pigeon pea with realised and expected rainfall. Undertake nursery sowing of rice.
- As rain/thundershowers would occur at many places over Jharkhand during the period, along with heavy spells at isolated places on 5th July, postpone intercultural operations, application of plant protection measures and fertilizers in the standing crops. Provide adequate drainage in crop fields to remove excess water.
- Suitable varieties are given in Annexure III.
- **Animal Husbandry**
 - Keep the cattle in the sheds during heavy rainfall periods in West Bengal and Odisha.
 - In South Bihar Alluvial Zone, to carry out vaccination of animals against Galgotu disease to protect them during rainy season.
- **Poultry**
 - Because of high humidity, there chance of occurrence of fungal diseases in poultry birds in South Eastern Plateau Zone of Jharkhand, lime should be mixed thoroughly in poultry litter. RD vaccine should be given immediately to the chicks which are 7 days old. To prevent coxidirosis disease, spray antibiotic solution in the poultry house.
 - Newly hatched chicks should be provided warm condition with electric bulbs, keep poultry sheds dry with sufficient feed and water in Nicobar, North, South and Middle Andaman.

CENTRAL INDIA [M.P., CHHATTISGARH]



Sugarcane



Land Preparation/Sowing



Okra



Green Gram

- **Realised Rainfall:** Rainfall occurred in Bastar, Durg, Jashpur, Mahasamund, Raigarh, Raipur, Rajnandgaon and Surguja districts of Chhattisgarh; in Mandla district of east Madhya Pradesh. Weather remained mainly dry over rest of the region.
- **Weather Forecast:** Rain/thundershowers would occur at few places over East Madhya Pradesh and Chhattisgarh during next 24 hours and increase thereafter. Rain/thundershowers would occur at isolated places over West Madhya Pradesh during next 24 hours and at many places thereafter.
No significant change in maximum temperatures likely over central during next 2 days.
- **Weather Warning:** Heat wave conditions would prevail at isolated places over north Madhya Pradesh on 4th July and heavy rainfall would occur at isolated places over Madhya Pradesh on 5th and 6th July.
- **Weather Outlook:** Rain/thundershowers would occur at many places over Central India.
- **Advisories:**
 - **Madhya Pradesh:**
 - Continue nursery sowing of rice and sowing of maize, soybean in east Madhya Pradesh utilizing the realized and expected rainfall.
 - Undertake sowing of early maturing varieties of maize and soybean in Jhabua Hill Zone and in Grid Zone in west Madhya Pradesh utilizing the expected rainfall.
 - Continue land preparation for nursery sowing of rice in Malwa Plateau Zone and for sowing of *kharif* crops and nursery sowing of vegetables in Vindya Plateau of West Madhya Pradesh utilizing the expected rainfall.
 - Undertake sowing of cotton in Nimar Valley Zone of west Madhya Pradesh utilizing the expected rainfall.
 - Due to partly cloudy weather, there is possibility of attack of fruit and stem borer in vegetables in Bundelkhand Zone of Madhya Pradesh. For control, spray Malathion 50 E.C. @ 1.0 ml per litre of water after current spells of rain.
 - Due to cloudy weather, there is possibility of attack of sucking insect and leaf curl disease in vegetables in Central Narmada Valley Zone of Madhya Pradesh, spray Imidachlorpid @ 0.03% solution at 15 days interval after current spells of rain.
 - **Chhattisgarh:**

- In Chhattisgarh Plain Zone, continue nursery sowing of rice and sowing of maize, soybean, moong and urad utilizing the realized and expected rainfall.
- Undertake nursery sowing of rice and rainy season vegetables in North Hill Zone of Chhattisgarh, utilizing the realized and expected rainfall.
- Undertake nursery sowing of rice and sowing of maize and urad in Bastar Plateau Zone of Chhattisgarh utilizing the realized and expected rainfall.
- Suitable varieties are given in Annexure III.

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



Land Preparation

Sugarcane

Bottle Gourd

Onion

- **Realised Rainfall:** Rainfall occurred in all districts of Himachal Pradesh except Chamba, Kinnaur, Kullu, Lahaul and Spiti; Gurdaspur, Hoshiarpur, Jalandhar, Kapurthala, Ludhiana, Nawanshahar, Ropar and Mohali districts of Punjab; Ambala, Chandigarh, Karnal and Yamunanagar districts of Haryana; New Delhi district of Delhi; Kathua, Rajouri, Reasi and Samba districts of Jammu & Kashmir; Ambedkar Nagar, Basti, Deoria, Gorakhpur, Kushi nagar, Maharajanj, Sant Kabirnagar, Shrawasti and Siddharthnagar districts of East Uttar Pradesh; Baghpat, Bareilly, Bijnor, Ghaziabad, Moradabad, Muzzaffarnagar and Saharanpur districts of West Uttar Pradesh; Hardwar, Nainital, Uttarkashi, Rudraprayag districts of Uttarakhand. Mainly dry weather prevailed over remaining parts of the region.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Himachal Pradesh and Uttarakhand during next 24 hours and over Jammu & Kashmir during next 48 hours and at decrease thereafter. Rain/thundershowers would occur at a few places over West Rajasthan during next 24 hours and over Punjab, Haryana & Delhi during next 48 hours and at isolated places thereafter. Rain/thundershowers would occur at few places over East Uttar Pradesh during next 24 hours and increase thereafter and at isolated places over West Uttar Pradesh during next 24 hours and at a few places thereafter. Rain/thundershowers would occur at a few places over East Rajasthan during the period. Maximum temperature would fall by about 2°C over northwest India during next 24 hours.
- **Weather Warning:** Heavy rainfall would occur at isolated places over east Uttar Pradesh on 5th and 6th July.
- **Weather Outlook:** Rain/thundershowers would occur at a few places over western Himalayan region & adjoining plains of northwest India. Rain/thundershowers would occur at isolated places over remaining parts of the region.
- **Advisories:**
 - **Jammu & Kashmir:**
 - Continue land preparation for transplanting of rice and sowing of maize in Intermediate Zone of Jammu & Kashmir and apply irrigation to vegetables viz. tomato, brinjal, chilli, capsicum, cucurbits, beans, bhindi etc. at regular intervals to avoid flower and fruit dropping. Also continue sowing of moong, sunflower in Valley Temperate Zone of Jammu & Kashmir.
 - Undertake nursery sowing of basmati rice, direct sowing of maize in Sub Tropical Zone of Jammu & Kashmir utilising the expected rainfall.
 - **Himachal Pradesh:**
 - Continue nursery sowing of rice and sowing of cucurbits like cucumber, bitter gourd, bottle guard and summer squash, direct sowing of rice, sowing of maize, moong, mash and kulthi; undertake transplanting of rice, tomato, chilli, *capsicum* and brinjal in Mid-Hills Sub-Humid Zone and Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh utilizing the realised and expected rainfall. Complete planting of ginger, turmeric, colocasia and elephant foots. Also complete direct sowing of red and white clover and peas in high altitude areas.
 - Continue transplanting of tomato and cabbage in High Hill Temperate Dry Zone of Himachal Pradesh.
 - Due to prevailing humid weather conditions, there are chances of attack of cut worms and white grubs in maize in Sub-Monatanane & Low Hills Sub-Tropical Zone of Himachal Pradesh. Apply Chloropyriphos 20 EC @ 2 litres mixed with 25 kg of sand per hectare after current spells of rain.
 - **Uttarakhand:**
 - Continue transplanting of rice and sowing of sorghum, millets, groundnut, soybean and pigeon pea in Bhabar & Tarai Zone of Uttarakhand utilizing the realised and expected rainfall.
 - Continue transplanting of rice and continue sowing of palak, methi, coriander, okra and French bean in Hill Zone of

Uttarakhand.

- Due to variation in temperature, there is chance of black tip disease infestation in mango in Sub Humid Sub Tropical Zone of Uttarakhand. To control, spray Borax (1 per cent) or washing soda (0.5 per cent) regularly at 10 days interval after current spells of rain.
- **Punjab, Haryana and Delhi:**
- In Western Plain Zone of Punjab, it is advised to complete transplanting of rice with irrigation. Give first dose of Nitrogen to counteract the high temperature and to minimize the burning of cotton seedlings. Save the young fruit trees from high temperature by erecting thatches of sarkanda or rice straw. If rain is not sufficient, apply irrigation at regular basis and increase the frequency of irrigation at critical growth stages of crops.
- In Western Zone of Punjab complete transplanting of rice with 25 to 30 days old seedlings utilizing realised rainfall during last week. Undertake nursery sowing of basmati rice.
- In Undulating Plain Zone of Punjab, continue transplanting of rice and complete sowing of maize with irrigation. Undertake land preparation for sowing of mash and til.
- In Central Plain Zone and in Western Plain Zone of Punjab, complete transplanting of rice with irrigation and undertake sowing of okra.
- In Sub-Montane Undulating Zone of Punjab, undertake transplanting of rice and sowing of maize and okra with irrigation. To avoid fruit drop in Kinnow orchards, apply irrigation at 3-4 days interval (with Basin irrigation system) or 6-7 hours/day in drip irrigation system.
- In Eastern Zone of Haryana, transplant one month old rice seedlings with irrigation. Undertake sowing of guar, bajra and pulses with certified seeds after receipt of sufficient rain.
- In Western Zone of Haryana, undertake sowing of guar, bajra and pulses and transplanting of rice with irrigation.
- In Delhi, continue nursery preparation of rice, early cauliflower and brinjal with irrigation facilities. Undertake transplanting of brinjal, chilli and early cauliflower if the seedlings are ready. Undertake sowing of pigeon pea, maize, guar, bajra, cluster bean, spinach, amaranths, okra and cucurbits during the week with irrigation facilities. Where irrigation facility is limited, it is advised to cultivate crops such as arhar, pearl millet, guar, pulses etc. which require less water.
- **Uttar Pradesh:**
- In Central Plain Zone of Uttar Pradesh, continue sowing of jowar and maize and sowing of urad, mung, cucurbits like bottle guard, cucumber, bitter guard and tinda, planting of fruit crops and land preparation for sowing of rice, arhar and soybean utilizing realised rainfall. Complete sowing of groundnut and undertake nursery sowing of early variety of brinjal, chilli and cauliflower. Undertake intercultural operation in pigeon pea.
- Continue land preparation and wait for sowing of arhar and groundnut in Western Plain Zone of Uttar Pradesh till the receipt of sufficient rainfall. Continue land preparation for direct sowing of rice in lowland areas.
- Due to humid weather condition, there are chances of attack of shoot/fruit borer in ladies finger in Central Plain Zone of Uttar Pradesh. Remove the infected stem/fruits from the plants and spray Quinolphos @ 2 ml per litre of water or Carbryl @ 4 g per litre of water after current spells of rain.
- **Rajasthan:**
- As there is delay in onset of monsoon, undertake land preparation for sowing of short duration varieties of *kharif* crops like pearl millet, cowpea, green gram, moth bean and urad bean etc. in Semi Arid Eastern Plain Zone of Rajasthan after receipt of sufficient rain. Undertake sowing of green gram and sesame in Flood Prone Eastern Plain Zone of Rajasthan, after receipt of sufficient rain. Arrange for seeds and fertilizers in advance so that sowing of these crops may be undertaken as soon as there is onset of monsoon.
- Continue land preparation for sowing of maize, jowar, soybean, moong, urad, til, groundnut and arhar in southern humid Plain Zone and maize, moong, urad, cow pea in Sub Humid Southern Plain and Aravali Hill Zone of Rajasthan after receipt of sufficient rain.
- Continue land preparation for sowing of bajra, moong, moth, guar and groundnut in Arid Western Plain Zone and bajra, moong, moth, guar and til in Irrigated North Western Plain Zone of Rajasthan and green gram and sesame in Flood Prone Eastern Plain Zone of Rajasthan after receipt of sufficient rain.
- Suitable short duration varieties are given in Annexure III.
- **Animal Husbandry**
- Due to prevailing high temperature in Arid Western plain Zone of Rajasthan, Ecto and endo parasites may attack on livestock. To control ecto parasites like lice, mite, jocke etc. apply Butox/Tikkle @ 1 ml per litre on the body of animal.
- **Poultry**
- Due to prevailing heat wave conditions, give balanced feed to the poultry birds in Rajasthan. Make proper ventilation in poultry sheds and keep the sheds clean. White wash the poultry shed from outside especially the roof. This will help to reflect the sun rays.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



Land Preparation/ Sowing

Sugarcane

Rice Nursery

Okra

- **Realised Rainfall:** Weather remained mainly dry over the region during last week.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Konkan & Goa during the period. Rain/thundershowers would occur at isolated places over Vidarbha during next 24 hours and over Marathwada during next 48 hours and at a few places thereafter. Rain/thundershowers would occur at isolated places over Gujarat State and Madhya Maharashtra during the period.
- **Weather Warning:** Heat wave conditions would prevail at isolated places over Vidarbha on 4th July. Heavy rainfall would occur at isolated places over Konkan & Goa during the period.
- **Weather Outlook:** Rain/thundershowers would occur at many places along west coast. Rain/thundershowers would occur at isolated places over remaining parts of the region.
- **Advisories:**
 - **Maharashtra:**
 - From second week of July condition may be favourable for sowing of *kharif* crops like cotton, soybean, red gram, jowar, sunflower, bajra, groundnut, green gram and black gram in Madhya Maharashtra, cotton, soybean, red gram, jowar, sunflower, green gram and black gram in Marathwada, transplanting of rice, sowing of cotton soybean and pigeon pea in Vidarbha
 - As rain would occur at many places over Konkan, continue transplanting of rice with 20-22 days old seedlings of rice and finger millet.
 - As no significant rainfall is expected in Vidarbha, apply irrigation to rice nursery, early sown *kharif* cotton, summer vegetables and orchards.
 - As no significant rainfall is expected in Madhya Maharashtra, continue intercultural operations and fertilizer application in sugarcane and vegetables. Apply irrigation to the rice nursery. Also apply irrigation to sugarcane by alternate furrow method.
 - As no significant rainfall is expected in Marathwada, apply irrigation to summer sugarcane, orchard crops like banana, pomegranate, fig (drip irrigation) and vegetable crops in morning or evening hours. Apply mulch of crop residues and other plant waste products in the orchards and sugarcane trash in sugarcane. Apply irrigation in banana orchards through drip, apply mulch to preserve the soil moisture.
 - **Gujarat:**
 - Due to non-receipt of rainfall during June, in the districts like Ahmedabad, Anand, Dahod, Kheda, Panachmahal, and Vadodara, cotton and other crops could not been sown. Under this situation and expected rainfall during the period, contingent crops like cotton (Desi Hybrid: Deshi hybrid-7, Deshi hybrid-9, Guj. Cot-13, Guj. Cot-21, Anand Deshi Cot-1), and recommended varieties of maize, paddy, soybean, black gram, green gram, cowpea, pigeon pea, castor, pearl millet etc. (see the Annexure I) could be sown. In the rest of the districts of the region, still there is time to sow the normal crops.
 - **Gujarat region:** As mainly dry weather would prevail in North Gujarat Zone, wait for sowing of rainfed *kharif* crops; to set the transplanting time with occurrence of sufficient rain, raise the paddy nursery at 10 days intervals in Bhal and Coastal Zone. Keep farm inputs ready and wait for sowing of cotton crop in South Gujarat Zone and for nursery sowing of mid / late maturing varieties of rice, sowing of pearl millet, groundnut and pigeon pea in Middle Gujarat Zone till sufficient rain occurs.
 - Apply irrigation in hybrid / B.T. cotton in alternate row at short intervals, in vegetable crops and in nurseries of fruit crops; carryout weeding, intercultural operation and mulching in cotton to conserve soil moisture in Bhal and Coastal Zone and in cotton and early sown groundnut in North Gujarat Zone. Alternate crops like sesame, gram, castor can be selected in Middle Gujarat Zone.
 - Due to prevailing dry conditions in Gujarat Region, detailed contingency measures and moisture conservation measures for alternate crops recommended for July first fortnight is given in Annexure I.
 - **Saurashtra & Kutch:**

- As mainly dry weather would prevail in South Saurashtra Zone, apply irrigation in early sown groundnut, cotton and soybean and carry out hand weeding and intercultural operations.
- In North West Zone, as mainly dry weather would prevail, apply irrigation in hybrid / B.T. cotton in alternate row at short intervals, in vegetable crops and in nurseries of fruit crops; carryout weeding, intercultural operation and mulching to conserve soil moisture in hybrid cotton / B.T. cotton. For sowing of groundnut select high yielding varieties.
- Due to prevailing dry conditions in North Saurashtra Zone, detailed contingency measures and moisture conservation measures for alternate crops recommended for July first fortnight is given in Annexure I.
- Suitable varieties are given in Annexure III.

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

Annexure I
Contingency measures for the meteorological subdivisions

1. North Interior Karnataka

- Bajra, Pigeonpea, Groundnut, Sesamum, Niger, Fاختail millet, Horsegram, , Castor, Bajra + Pigeonpea (2:1), Bajra + castor (2:1), Groundnut + pigeonpea (4:2) Bajra + groundnut (2:4), Bajra + pigeonpea (2:1). Sow the crops across the slope.
- Soak the seeds for recommended time in Calcium Chloride solution before sowing.
- Select short duration, drought resistant crops and variety.
- Take up sowing of crops in wider rows to overcome moisture stress and to get higher yields

Contingency planning for North Interior Karnataka

Meteorological subdivision	Districts	Major crops	District wise Contingency planning for crops if monsoon delayed by 4 weeks
North Interior Karnataka	Bidar	Jowar, red gram, soybean, black gram	Red gram, soybean and bajra.
	Bagalkote	Sorghum, sugarcane, maize, greengram, groundnut	Pearl millet, sunflower
	Dharwad	Maize, rice, soybean, groundnut , cotton	Maize+Redgram (4:2), Groundnut + Redgram (4:2)
	Belgaum	Sugarcane, maize, cotton, soybean, groundnut	Short duration varieties of Groundnut
	Bellary	Rice, maize, sorghum, sunflower, groundnut	Bajra, pigeonpea, groundnut or sunflower
	Koppal	Sunflower, rice, bajra, sorghum, groundnut	Sesamum and castor

2. Gujarat Region and Saurashtra & Kutch

- Apply life saving irrigation through drip system to early sown crops like cotton and groundnut.
- If irrigation water is not sufficient then spray solution Cycocel @ 500 ppm (50 gm in 100 litre of water) or Kaolin @ 4% solution (4 kg in 100 litre of water) or PMA (Phenyl Mercury Acetate) @ 0.005 % solution (5 gm in 100 litre of water) to reduce evapotranspiration.
- As no forecast of significant rainfall till the end of first week of July, continue sowing of cotton and groundnut with irrigation in Gujarat and South Saurashtra region. Prefer semi spreading or bunch variety of groundnut for sowing and early and medium duration varieties of cotton for sowing.
- As no rain significant rain is expected, keep farm inputs ready and wait for sowing of *kharif* pulses, sesame, groundnut, pearl millet and rainfed cotton.
- Continue bunding to harvest rainwater.

Contingency crops from 1-15 July 2014 for the districts Ahmedabad, Anand, Dahod, Kheda, Panachmahal, and Vadodara.

Crops	Varieties	
Maize	Gujarat Maize-4, Gujarat Maize-6	
Paddy	Early	GURJARI. GR-5, 8
	Medium	GR-3, 4, 7, 9, GNR-2, IR-64, NAUR-1, GNR-3, IR-28
	Late	GR-12, 11, GAR-13, JAYA, MASURI, GR-101, 102, 103 & 104 and Narmada
	Drilled paddy	Sathi-34-36, Sukhvel-20, GR-5, GR-8, GR-9, GR-12, Ashoka-200F, I.R.-28, ADR-1
Bidi Tobacco (Rainfed)	Anand-119, GT-4, GT-5, GT-7, GT-9, GTH-1, ABT-1	
Soybean	Gujarat Soybean-1, 2, JS-335, NRC-37	

Greengram	K-851, GM-4, Meha
Blackgram	T-9, Guj.Urd-1
Cowpea	Gujarat cowpea-1, Gujarat cowpea-2, Gujarat cowpea-4
Pigeonpea	BDN-2, ICPL-87, GT-100,GT-101, Guj.AnandTur-102, AGT-2, Vaishali
Castor	GAUC-1, GCH-2, GCH-4, GCH-5, GCH-7
Pearl millet	GHB-577, GHB-558 and MH-179
Cotton	DeshiHybrid :Deshi hybrid-7, Deshi hybrid-9, Guj. Cot-13, Guj. Cot-21, Anand Deshi Cot-1
Nagli	Guj.Nagli-1, Guj.Nagli-2, Guj.Nagli-3, Guj.Nagli-4
Kodra	Guj.Kodra-1, Guj.Kodra-2
Banti	Guj.Banti-1

3. Maharashtra

Contingency planning for Madhya Maharashtra, Marathwada and Vidarbha

Subdivision	District	Contingency crops if monsoon is delayed by 6-8 weeks
Madhya Maharashtra	Madhya Maharashtra except Western Ghat Region	Sunflower Sunflower Bajra (fodder) Groundnut short duration variety Red gram short duration.
Marathwada	Marathwada	Soybean + tur 4:2 Cotton + tur 6:2 Jowar + tur 4:2 Same/Soybean + tur 4:2 Soybean + tur 4:2
Vidarbha	East Vidarbha	Drilled rice with early maturing variety Instead of all 3, rabi jowar, sesamum, linseed, maize
	West Vidarbha	Red gram / sunflower hybrid / sesame / castor / bajra / bajra + red gram 2:1 Red gram

4. Rajasthan

Undertake following improved short duration varieties of the crops.

East Rajasthan

Maize: Navjot, GM-6, Mahi Kanchan, Pratap Hybrid Maize-1, Pratap Hybrid Maize-2, PEHM-1 and PEHM-2.

Sorghum: CSV-17, SPV-837

Soybean: PK-472, JS-71-05, Pratap Soya-1, Pratap Soya-2, Pratap Raj Soya-24

Pearl millet: Raj-171, Hybrid: RHB-173, RHB-177, ICMH-356, HHB-60, HHB-67(improved)

Green gram:RMG-492, RMG-268, SML-668 and RMG-344

Cowpea:C-152, RS-9, FS-68, RC-19 and RC-101.

Mothbean:improved varieties are: RMO-40, RMO-225, RMO-435, IPCMO-912.

Urad bean improved varieties are: Pant U-19, Krishna, T-19.

West Rajasthan

Bajra:HHB-60, RHB-121, HHB-67, RHB-90 and ICMH-356.

Moong :SML-668, MUM-2, RMG-62, RMG-268 and K-851.

Moth: RMO-257, 225, 435, 423 and 40.

Guar RGC-936, 197,986, 1002 and 1003. Groundnut HNG-10, Chandra, M-13, T.G. 37A and T.B.G.-39.

Annexure II
Week by week Rainfall Distribution

	18.06.14		25.06.14		02.07.14	
Sub-Divisions	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
Arunachal Pradesh						
Anjaw	**	**	**	**	**	**
Changlang	25.5	-78	79.7	-49	44.9	-63
Dibang Valley	0.0	-100	4.0	-96	10.0	-91
East Kameng	4.6	-95	196.6	149	13.2	-85
East Siang	32.4	-84	78.6	-60	287.8	44
Kurung Kumey	**	**	**	**	**	**
Lohit	11.7	-88	86.0	-24	91.0	-37
Lower Dibang Valley	10.7	-87	103.7	13	205.5	94
Lower Subansari	**	**	**	**	**	**
Papumpara	40.2	-68	350.4	116	286.2	63
Tawang	35.0	-78	138.0	-23	97.0	-45
Tirap	116.0	-27	52.4	-70	64.6	-63
Upper Siang	53.2	-72	143.0	-33	307.6	85
Upper Subansari	7.6	-74	137.6	174	47.8	-52
West Kameng	53.0	-66	212.8	18	75.6	-57
West Siang	51.5	-53	130.3	57	89.7	-35
Assam&Meghalaya						
Assam						
Baksa	18.3	-89	116.0	-29	44.0	-75
Barpeta	50.8	-70	264.7	62	34.6	-80
Bongaigaon	86.8	-43	256.7	101	70.4	-61
Cachar	105.2	-4	149.5	15	101.2	-20
Chirang	92.8	-39	521.3	309	84.9	-53
Darrang	35.0	-70	155.0	33	44.0	-51
Dhemaji	19.0	-85	96.0	-28	135.0	-3
Dhubri	48.8	-67	193.0	23	38.6	-67
Dibrugarh	74.5	-18	130.1	18	88.4	-20
Goalpara	39.3	-74	238.5	71	13.7	-91
Golghat	7.2	-89	81.7	38	64.1	0
Hailakandi	109.2	5	178.4	76	121.6	27
Jorhat	28.5	-61	181.4	186	111.0	38
Kamrup(Rural)	15.4	-82	188.8	81	106.4	39
Kamrup(Metro)	55.2	-36	185.1	77	74.3	-3
Karbi Anglong	17.2	-74	37.0	-36	117.8	167
Karimganj	73.9	-56	237.3	50	91.6	-36
Kokrajhar	84.9	-62	252.4	39	104.3	-58
Lakhimpur	14.7	-88	141.7	7	161.5	16
Morigaon	2.6	-97	82.6	-11	60.6	-29
N.C.Hills	22.8	-70	83.6	3	118.2	65
Nowgong	21.3	-69	61.3	-23	124.9	91
Nalbari	65.8	-54	157.3	3	25.4	-75
Sonitpur	45.8	-46	96.4	12	36.6	-60

Sibsagar	11.6	-81	144.7	114	134.0	68
Tinsukia	43.2	-52	91.8	-7	82.7	-20
Udalgiri	13.6	-88	134.6	16	86.3	-3
Meghalaya						
East Garo Hills	63.5	-62	228.1	100	115.6	22
East Khasi Hills	37.9	-89	753.4	83	258.5	-28
Jaintia Hills	**	**	**	**	**	**
Ribhoi	51.2	-41	83.3	-18	37.9	-64
South Garo Hills	90.0	-28	204.0	87	134.0	15
West Garo Hills	35.4	-72	167.0	53	42.4	-64
West Khasi Hills	**	**	**	**	**	**
NMMT						
Mizoram						
Aizwal	64.2	-44	100.2	-9	131.5	21
Champhai	0.0	-100	1.0	-99	**	**
Kolasib	1.0	-99	1.0	-99	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	0.0	-100	1.0	-99	**	**
Mamit	**	**	**	**	22.0	-80
Saiha	131.0	36	162.0	79	85.0	-16
Serchhip	32.0	-70	86.0	-18	29.0	-69
Manipur						
Bishnupur	**	**	**	**	**	**
Chandel	82.0	-59	49.0	-70	12.0	-87
Churachandpur	65.0	-37	2.0	-98	1.0	-99
Imphal east	189.1	97	74.2	-10	16.1	-81
Imphal west	101.7	8	95.7	27	74.9	5
Senapati	57.0	-37	57.0	-38	46.0	-53
Tamenglong	**	**	**	**	**	**
Thoubal	20.0	-81	10.0	-79	11.0	-80
Ukhrul	10.0	-88	**	**	**	**
Nagaland						
Dimapur	44.8	-3	32.7	2	15.8	-46
Kephire	**	**	**	**	**	**
Kohima	20.9	-75	29.7	-54	40.3	-51
Longleng	**	**	**	**	**	**
Mokokchung	19.0	-89	22.0	-72	49.0	-63
Mon	**	**	**	**	**	**
Paren	**	**	**	**	**	**
Phek	56	-32	22	-66	16	-81
Tuensang	**	**	**	**	**	**
Wokha	**	**	0.0	-100	**	**
Zunheboto	**	**	**	**	**	**
Tripura						
Dhalai	89.3	-33	204.6	116	34.0	-56
North tripura	75.1	-39	150.5	63	62.2	-29
South tripura	109.6	-13	269.5	160	57.0	-47
West tripura	81.9	-29	265.8	208	57.1	-33
Himachal Pradesh						

Bilaspur	16.9	-27	22.1	-26	99.1	104
Chamba	4.3	-83	9.8	-78	16.3	-72
Hamirpur	13.0	-46	31.1	-32	61.4	-13
Kangra	21.4	-19	21.0	-51	50.3	-34
Kinnaur	1.0	-88	0.0	-100	0.7	-93
Kullu	9.6	-47	15.4	-43	16.2	-31
Lahaul and Spiti	0.0	-100	0.0	-100	4.0	-78
Mandi	53.2	83	29.9	-33	76.2	12
Shimla	24.4	11	26.4	-8	60.5	73
Sirmaur	19.0	-14	15.5	-67	77.1	7
Solan	60.0	127	35.5	-6	105.1	88
Una	12.3	5	24.7	44	62.9	43
Punjab						
Amritsar	0.0	-100	1.6	-88	21.7	-3
Barnala	0.0	-100	5.1	-25	9.6	-47
Bhatinda	5.0	-26	38.0	313	10.0	-50
Faridkot	0.0	-100	27.0	103	24.0	49
Fatehgarh Saheb	0.0	-100	3.0	-71	16.3	-29
Ferozpur	0.0	-100	8.8	-26	18.4	27
Gurdaspur	2.9	-73	6.1	-64	44.4	24
Hoshiarpur	0.7	-95	0.3	-98	36.5	-12
Jalandhar	0.0	-100	1.6	-90	48.9	84
Kapurthala	0.0	-100	1.5	-88	41.1	90
Ludhiana	2.9	-69	4.9	-68	34.8	35
Mansa	4.9	-34	6.4	-43	1.5	-87
Moga	0.0	-100	13.1	-17	24.2	114
Muktesar	0.0	-100	35.3	224	1.0	-93
Nawashahar	9.5	-41	0.0	-100	51.9	16
Patiala	8.0	-26	0.0	-100	22.9	-11
Ropar	4.7	-57	4.6	-75	49.2	25
Sangrur	1.9	-78	3.1	-67	9.7	-63
Mohali	17.5	48	0.7	-97	65.2	114
Tarn Taran	0.0	-100	4.4	-50	18.8	57
Haryana,Chd,Delhi						
Haryana						
Ambala	20.8	-6	0.0	-100	41.6	-1
Bhiwani	16.0	166	5.9	-32	0.2	-98
Chandigarh	41.4	44	2.3	-93	62.2	27
Faridabad	25.7	209	4.1	-76	4.0	-76
Fatehabad	6.0	22	12.8	44	6.0	-65
Gurgaon	6.6	12	2.4	-82	10.4	-43
Hissar	16.9	168	5.3	-50	0.0	-100
Jhajar	14.4	106	2.3	-69	0.6	-97
Jind	0.7	-92	9.2	-7	0.7	-97
Katihah	11.0	49	9.5	-34	22.9	82
Karnal	23.1	67	0.7	-96	45.6	64
Kurukshetra	28.8	130	0.0	-100	16.4	-31
Mahendragarh	10.5	61	16.8	35	4.3	-76
Mewat	10.0	108	6.4	-62	0.0	-100

Palwal	7.9	24	9.3	17	0.0	-100
Panchkkula	17.3	-5	0.3	-99	21.0	-59
Panipat	7.9	-23	0.4	-98	6.9	-69
Rewari	32.0	527	16.8	66	0.0	-100
Rohtak	5.3	-40	1.2	-88	0.0	-100
Sirsa	8.4	45	0.4	-94	10.8	-4
Sonepat	3.4	-74	0.4	-97	4.6	-80
Yamunanagar	27.2	37	2.2	-95	36.5	-27
Delhi						
Central Delhi	5.0	-64	3.0	-81	24.0	-16
East Delhi	26.0	87	1.0	-94	6.0	-79
New Delhi	8.0	-43	4.7	-71	30.8	7
North Delhi	23.5	69	0.0	-100	10.2	-64
North East Delhi	9.0	-35	1.0	-94	8.0	-72
North West Delhi	17.0	22	0.0	-100	15.3	-47
South Delhi	12.8	-8	1.0	-94	24.6	-14
South West Delhi	15.5	12	6.5	-59	4.4	-85
West Delhi	14.0	1	5.0	-68	1.0	-97
Jammu & Kashmir						
Anantnag	0.9	-93	5.4	-44	6.8	-53
Badgam	0.1	-99	5.9	4	7.4	-10
Bandipore	**	**	**	**	**	**
Baramula	8.8	-58	18.4	48	14.7	10
Doda	3.6	-78	8.6	-4	18.6	35
Ganderbal	0.0	-100	5.9	13	7.6	-4
Jammu	1.6	-87	5.1	-70	14.6	-45
Kargil	0.0	-100	0.0	-100	0.0	-100
Kathua	0.0	-100	2.6	-82	90.0	144
Kistwar	**	**	**	**	**	**
Kulgam	1.2	-92	8.0	-17	8.5	-41
Kupwara	0.7	-95	5.4	-25	15.3	70
Ladakh(Leh)	0.0	-100	0.2	-75	0.0	-100
Poonch	3.3	-86	4.5	-71	1.6	-95
Pulwama	0.0	-100	0.3	-91	3.1	-64
Rajouri	36.9	227	15.6	126	32.3	55
Ramban	4.8	-71	10.2	14	4.0	-71
Reasi	32.2	94	10.7	-58	47.8	-3
Samba	3.6	-70	1.2	-93	32.5	23
Shopian	2.0	-84	4.0	3	18.0	109
Srinagar	0.2	-99	0.7	-87	10.0	27
Udhampur	0.0	-100	14.7	-43	29.3	-40
East Madhya Pradesh						
Anuppur	17.9	-50	88.2	43	10.2	-85
Balaghat	27.2	-7	71.7	-3	14.0	-83
Chhatarpur	29.9	125	13.4	-57	1.4	-97
Chindwara	38.7	30	20.6	-57	24.5	-59
Damoh	59.7	198	57.7	45	21.5	-69
Dindori	0.0	-100	11.0	-84	**	**
Jabalpur	80.4	233	23.2	-43	2.3	-96

Katni	18.2	10	35.0	-11	0.5	-99
Mandla	50.3	90	94.8	68	53.3	-29
Narsingpur	21.7	-6	27.0	-33	3.6	-93
Panna	0.0	-100	45.4	23	0.0	-100
Rewa	20.5	33	47.6	25	47.0	-28
Sagar	41.8	90	34.9	-24	23.0	-62
Satna	29.5	80	3.1	-93	8.2	-88
Seoni	36.4	-2	32.4	-47	23.6	-63
Shahdol	5.0	-72	59.0	26	8.0	-86
Sidhi	56.8	217	55.8	38	11.2	-81
Singrauli	38.0	77	30.5	-22	0.8	-99
Tikamgarh	24.0	62	52.0	142	7.0	-88
Umaria	33.4	137	14.7	-69	2.5	-96
West Madhya Pradesh						
Alirajpur	0.7	-98	0.0	-100	0.0	-100
Asoknagar	5.5	-60	19.5	-4	0.0	-100
Badwani	19.2	-36	3.1	-88	0.0	-100
Betul	25.0	-17	2.6	-95	6.0	-89
Bhind	6.2	-30	3.3	-79	9.4	-71
Bhopal	18.0	-27	5.2	-85	0.0	-100
Burhanpur	48.7	48	0.0	-100	0.0	-100
Datia	18.6	107	20.0	-5	1.8	-95
Dewas	14.8	-47	0.0	-100	0.0	-100
Dhar	17.7	-47	0.8	-98	0.0	-100
Guna	25.7	79	3.0	-87	0.0	-100
Gwalior	5.8	-59	0.1	-99	8.4	-79
Harda	0.0	-100	0.0	-100	0.3	-99
Hosangabad	24.1	0	18.9	-60	14.7	-80
Indore	8.4	-73	0.0	-100	0.0	-100
Jhabua	0.0	-100	0.4	-99	0.0	-100
Khandwa	0.0	-100	0.0	-100	0.0	-100
Khargone	16.3	-47	0.0	-100	0.0	-100
Mandsaur	1.3	-94	0.0	-100	0.0	-100
Morena	1.3	-84	13.5	-9	14.3	-60
Neemuch	0.0	-100	0.0	-100	0.0	-100
Raisen	66.4	198	16.6	-63	10.8	-82
Rajgarh	35.6	79	2.6	-91	0.0	-100
Ratlam	0.4	-98	0.0	-100	0.0	-100
Sehore	5.1	-79	7.3	-82	3.2	-94
Shajapur	15.8	-27	0.8	-98	0.0	-100
Sheopur Kalani	8.0	-26	45.5	172	0.0	-100
Shivpuri	13.8	7	9.5	-54	5.5	-88
Ujjain	22.6	-14	0.0	-100	0.0	-100
Vidisha	29.9	52	42.7	12	17.1	-67
Chhattisgarh						
Bastar	5.7	-86	7.3	-90	80.6	9
Bijapur	17.7	-68	65.3	-6	3.2	-95
Bilaspur	13.5	-58	115.0	86	9.7	-88
Dantewara	27.1	-36	31.2	-51	25.4	-61

Dhamtari	20.4	-29	2.8	-95	11.8	-84
Durg	25.0	-22	38.2	-39	33.4	-58
Janjgir	6.8	-83	41.0	-22	30.0	-63
Jashpurnagar	0.6	-99	23.4	-67	85.9	-4
Kanker	6.3	-83	10.8	-85	12.7	-85
Korba	2.7	-94	46.4	-20	26.7	-70
Koriya	41.3	56	116.6	123	24.3	-70
Kawardha	45.1	48	63.2	14	23.4	-56
Mahasumund	15.9	-56	41.3	-30	72.9	17
Narayanpur	46.0	17	33.0	-49	17.0	-76
Raigarh	**	**	66.8	11	59.8	-13
Raipur	31.4	-7	37.5	-37	51.1	-31
Rajandgaon	16.5	-54	46.4	-27	31.2	-55
Surguja	7.0	-82	35.4	-49	36.6	-53
East Uttar Pradesh						
Allahabad	11.0	-21	26.4	36	0.8	-98
Ambedkar Nagar	0.0	-100	4.3	-86	80.0	91
Azamgarh	0.0	-100	30.4	19	4.7	-91
Bahraich	23.9	-22	13.8	-66	27.3	-56
Ballia	17.4	-38	38.9	39	22.6	-52
Balrampur	6.4	-79	60.1	36	12.7	-77
Banda	28.4	173	18.6	-30	4.3	-92
Barabanki	13.1	-51	13.2	-38	11.9	-78
Basti	5.2	-76	72.3	105	85.3	55
Chandauli	0.0	-100	0.0	-100	5.0	-87
Deoria	18.3	-24	49.5	46	50.0	-18
Faizabad	1.6	-92	9.7	-74	21.8	-61
Farrukhabad	11.5	-12	5.1	-77	0.3	-99
Fatehpur	8.8	-25	15.0	-31	0.0	-100
Gazipur	0.5	-98	62.1	136	28.8	-32
Gonda	32.0	38	37.4	-23	9.1	-84
Gorakhpur	12.8	-58	93.0	81	41.3	-37
Hardoi	1.6	-88	3.2	-86	5.6	-89
Jaunpur	0.0	-100	11.6	-43	3.0	-94
Kannauj	50.1	332	2.7	-80	0.0	-100
Kanpur City	18.8	55	6.4	-55	4.8	-88
Kanpur Dehat	7.2	-38	5.0	-80	1.5	-96
Kaushambi	0.0	-100	6.9	-61	0.0	-100
Kheri	61.6	127	22.4	-46	20.1	-57
Kushi nagar	6.0	-84	29.0	-43	46.0	-34
Lucknow	7.4	-40	7.6	-65	15.5	-68
Maharajganj	28.0	-30	46.5	-7	52.5	-28
Mau	3.5	-84	45.0	45	15.0	-71
Mirzapur	1.0	-93	46.1	83	5.3	-88
Pratapgarh	15.0	9	18.7	-1	10.7	-79
RaiBareilly	7.0	-49	17.7	8	3.3	-92
Sahuji Maharajnagar	0.0	-100	14.5	-40	8.0	-87
Sant Kabirnagar	0.0	-100	4.0	-92	109.5	120
Sant Ravidas Nagar	28.0	67	15.0	-34	0.0	-100

Shrawasti	12.6	-59	44.1	7	36.4	-42
Sidharthnagar	4.4	-85	97.9	123	47.8	-3
Sitapur	36.9	54	7.8	-77	7.9	-83
Sonbhadra	19.0	-17	12.9	-67	21.9	-64
Sultanpur	4.7	-67	42.1	91	6.1	-86
Unnao	13.5	-4	13.3	-27	2.3	-95
Varanasi	2.9	-82	16.5	-17	8.3	-85
West Uttar Pradesh						
Agra	3.3	-57	9.0	-36	0.0	-100
Aligarh	24.8	249	11.8	-12	0.0	-100
Auraiya	4.8	-59	3.5	-77	0.0	-100
Badaun	1.4	-88	2.0	-90	12.6	-63
Baghpat	52.6	526	2.5	-78	48.7	115
Bareilly	11.0	-40	2.9	-90	43.1	1
Bijnor	6.1	-62	0.0	-100	53.9	25
Bulandsahar	10.4	2	3.7	-73	8.5	-72
Etah	1.3	-84	2.3	-84	0.0	-100
Etawah	14.5	33	0.3	-98	0.7	-98
Firozabad	0.0	-100	23.1	23	0.0	-100
GBNagar	15.0	355	0.0	-100	0.0	-100
Ghaziabad	5.7	-33	0.0	-100	39.3	72
Hamirpur	24.2	132	1.1	-95	0.3	-99
Jalaun	3.2	-72	5.5	-69	2.8	-93
Jhansi	2.4	-82	19.7	-16	3.7	-93
Jotiba Phule Nagar	1.5	-81	0.0	-100	7.0	-77
Kanshiramnagar	18.0	100	0.0	-100	6.0	-80
Lalitpur	20.5	39	4.0	-78	0.0	-100
Mahamaya Nagar	3.0	-62	5.5	-57	1.0	-96
Mahoba	5.2	-7	0.0	-100	0.0	-100
Mainpuri	12.2	53	3.0	-84	0.0	-100
Mathura	3.6	-55	14.3	48	2.2	-92
Meerut	6.7	-38	0.0	-100	27.8	-14
Moradabad	4.2	-71	4.0	-84	34.7	-19
Muzzaffarnagar	17.0	20	2.1	-88	35.8	1
Pilibhit	28.8	48	22.4	-31	7.4	-85
Rampur	2.5	-91	0.8	-96	25.6	-37
Saharanpur	20.0	40	0.0	-100	47.0	-7
Shahjahanpur	14.1	-15	0.0	-100	10.5	-78
Uttarakhand						
Almora	23.0	-18	23.5	-45	20.9	-46
Bageshwar	8.3	-70	6.8	-84	20.0	-49
Chamoli	19.8	-12	12.3	-60	22.0	-51
Champawat	10.5	-69	34.5	-47	10.5	-88
Dehradun	17.5	-44	11.5	-81	25.7	-73
Garhwal Pauri	9.8	-38	0.8	-98	26.9	-60
Garhwal Tehri	10.0	-51	13.3	-67	6.5	-89
Haridwar	32.9	70	1.7	-95	141.7	200
Nainital	13.3	-63	28.1	-58	60.5	-25
Pithoragarh	61.9	-14	47.1	-44	21.8	-80

Rudraprayag	26.3	-53	14.7	-79	40.7	-52
Udham Sing Nagar	16.5	-58	36.8	-17	13.2	-75
Uttarkashi	23.5	-2	24.6	-49	38.1	-31
Bihar						
Araria	18.2	-70	46.6	-36	82.6	-13
Arwal	0.0	-100	15.1	-37	7.5	-88
Aurangabad	3.4	-89	45.3	32	14.2	-72
Banka	28.6	-23	32.0	-15	89.6	63
Begusarai	0.0	-100	138.5	148	209.4	270
Bhabua	0.0	-100	13.5	-61	31.0	-49
Bhagalpur	9.6	-76	50.3	-21	63.6	-15
Bhojpur	0.0	-100	31.3	22	20.9	-64
Buxar	0.0	-100	13.7	-53	6.6	-87
Darbhanga	37.6	11	89.4	119	62.6	-11
East Champaran	2.4	-94	71.5	71	40.6	-42
Gaya	0.4	-99	41.3	27	21.3	-68
Gopalganj	2.3	-93	63.6	55	27.1	-59
Jahanabad	0.0	-100	20.0	-35	21.9	-52
Jamui	4.4	-88	69.1	42	63.9	-20
Kathihar	33.7	-40	94.7	70	48.1	-42
Khagadia	2.6	-93	69.9	29	105.9	38
Kishanganj	45.1	-55	68.7	-25	144.9	10
Lakhisarai	22.0	-38	152.0	220	101.0	50
Madhepura	1.3	-98	111.8	99	47.9	-29
Madhubani	46.2	15	57.1	30	67.3	-16
Monghyar	1.4	-96	15.4	-68	111.4	65
Muzaffarpur	3.3	-89	66.8	43	50.7	-31
Nalanda	0.0	-100	60.9	60	33.4	-44
Nawada	0.0	-100	69.1	64	42.5	-40
Patna	16.0	-49	69.3	146	34.3	-45
Purnea	8.1	-88	64.0	8	9.2	-89
Rohtas	0.0	-100	46.1	82	13.7	-71
Saharsha	0.0	-100	12.5	-82	9.4	-92
Samstipur	2.3	-94	136.0	109	113.3	58
Saran	0.0	-100	40.8	33	35.3	-46
Sheikpura	0.0	-100	102.4	161	48.6	-36
Sheohar	45.8	8	57.6	13	69.2	-23
Sitamarhi	36.4	-14	79.6	56	25.6	-71
Siwan	15.2	-45	72.8	113	65.3	-10
Supaul	34.4	-27	70.1	57	56.6	-14
Vaishali	0.0	-100	64.5	108	45.1	-34
West Champaran	61.0	27	43.9	-30	57.5	-39
Jharkhand						
Bokaro	15.7	-56	106.3	67	16.3	-72
Chatra	9.8	-70	101.6	153	46.1	-42
Deoghar	1.2	-97	54.0	6	92.3	56
Dhanbad	10.1	-77	69.8	27	49.8	-34
Dumka	10.6	-77	72.5	18	137.1	89
East Singbhum	46.6	-11	135.3	109	71.8	-3

Carhwa	0.0	-100	35.4	19	21.0	-67
Giridih	14.1	-67	78.1	20	23.5	-70
Godda	0.0	-100	59.9	8	36.2	-40
Gumla	11.5	-80	79.1	12	138.9	80
Hazaribagh	35.7	-19	34.8	-13	38.2	-49
Jamtara	43.1	-14	94.5	59	78.5	0
Khunti	16.0	-72	43.0	-45	17.5	-79
Koderma	3.9	-90	76.4	54	31.5	-46
Latehar	46.4	27	38.4	-26	37.4	-41
Lohardagga	0.0	-100	29.7	-54	46.5	-31
Pakur	22.1	-59	117.5	59	155.3	139
Palamau	5.6	-82	31.4	-19	14.5	-75
Ramgarh	27.8	-42	105.4	76	14.4	-80
Ranchi	12.7	-73	70.5	9	37.7	-55
Sahebganj	3.0	-95	39.8	-50	152.8	49
Saraikela	2.5	-96	137.7	89	39.0	-50
Simdega	17.1	-69	37.1	-56	45.0	-46
West Singbhum	51.4	8	124.4	105	119.2	75
East Rajasthan						
Ajmer	0.4	-95	4.3	-64	0.0	-100
Alwar	5.7	-21	11.6	-14	13.6	-39
Banswara	0.0	-100	0.0	-100	0.0	-100
Baran	15.5	6	6.6	-69	3.4	-91
Bharatpur	5.9	-23	38.5	232	24.9	9
Bhilwara	4.3	-64	11.6	-29	0.0	-100
Bundi	14.2	19	9.0	-53	0.2	-99
Chittorgarh	1.5	-89	1.2	-95	0.0	-100
Dausa	3.2	-54	13.6	-1	5.8	-82
Dholpur	9.8	0	20.9	41	2.3	-93
Dungarpur	0.0	-100	0.0	-100	0.0	-100
Jaipur	4.4	-51	11.9	-15	1.9	-93
Jhalawar	27.4	71	1.0	-96	0.0	-100
Jhunjhunu	20.1	78	21.1	31	4.5	-76
Karauli	12.6	55	44.7	204	6.7	-76
Kota	13.8	-2	5.4	-73	0.8	-98
Pratapgarh	0.0	-100	0.0	-100	0.0	-100
Rajsamand	0.0	-100	0.4	-98	0.0	-100
Sawai Madhopur	9.9	3	24.6	82	2.4	-92
Sikar	10.6	31	11.4	-20	9.9	-55
Sirohi	1.3	-90	0.0	-100	0.0	-100
Tonk	1.6	-84	4.4	-71	4.6	-85
Udaipur	0.0	-100	0.0	-100	0.0	-100
West Rajasthan						
Barmer	0.0	-100	0.0	-100	0.0	-100
Bikaner	0.0	-100	24.7	190	11.1	0
Churu	4.9	-29	14.1	12	9.0	-39
Hanumangarh	10.3	21	4.9	-54	24.6	71
Jaisalmer	0.0	-100	0.6	-89	0.0	-100
Jalore	0.0	-100	0.0	-100	0.0	-100

Jodhpur	0.0	-100	6.0	-17	0.0	-100
Nagaur	0.0	-100	6.3	-54	1.7	-91
Pali	0.0	-100	6.2	-48	0.0	-100
Sri Ganganagar	0.7	-89	19.2	195	12.3	8
Gujarat Region						
Ahmedabad	3.1	-81	0.9	-97	0.0	-100
Anand	2.8	-86	0.0	-100	0.0	-100
Banaskantha	2.8	-72	0.0	-100	0.3	-99
Baroda	5.2	-82	0.9	-98	0.0	-100
Broach	22.8	-29	0.5	-99	0.2	-99
DNH	64.7	-17	8.2	-94	6.9	-95
Dahod	0.0	-100	0.0	-100	0.0	-100
Daman	62.0	-20	0.8	-99	1.5	-99
Dangs	5.5	-92	12.5	-83	0.0	-100
Gandhinagar	0.0	-100	0.0	-100	0.3	-99
Kheda	2.7	-87	0.0	-100	0.0	-100
Mehsana	4.7	-67	0.2	-99	0.0	-100
Narmada	14.0	-67	0.2	-99	0.0	-100
Navsari	36.3	-43	2.5	-98	0.0	-100
Panchmahal	0.8	-96	0.0	-100	0.0	-100
Patan	8.9	-20	0.0	-100	0.0	-100
Sabarkantha	0.2	-99	0.0	-100	0.0	-100
Surat	31.5	-27	4.9	-94	0.8	-99
Tapi	12.7	-78	13.3	-82	0.0	-100
Valsad	50.9	-33	13.2	-90	2.8	-98
S K & Diu region						
Anreli	12.7	-29	0.4	-99	0.2	-99
Bhavnagar	19.4	-11	0.1	-99	0.0	-100
Diu	224.2	1284	5.3	-92	0.0	-100
Jamnagar	14.2	56	0.0	-100	0.0	-99
Junagarh	118.9	344	2.8	-97	0.5	-99
Kutch	2.7	-38	0.0	-100	0.2	-99
Porbandar	65.1	294	0.0	-100	1.3	-98
Rajkot	29.7	120	1.1	-97	0.2	-99
Surendranagar	14.0	-12	3.3	-92	0.3	-99
Maharashtra & Goa						
Konkan & Goa						
Mumbai City	54.1	-62	0.7	-99	25.0	-88
Mumbai Suburban	77.9	-45	6.9	-96	13.9	-93
North Goa	249.6	-2	132.9	-49	10.8	-97
Raigad	114.8	-24	36.5	-83	22.7	-92
Ratnagiri	193.7	-6	88.9	-65	8.8	-97
Sindhudurg	258.8	12	78.5	-71	21.7	-92
South Goa	261.3	5	184.2	-20	11.1	-96
Thane	87.4	1	23.8	-85	10.1	-95
Madhya Maharashtra						
Ahmednagar	0.4	-99	4.1	-85	2.3	-90
Dhule	18.9	-33	0.6	-98	0.0	-100
Jalgaon	15.3	-47	2.4	-94	0.0	-100

Kolhapur	37.3	-50	54.5	-48	1.8	-99
Nandurbar	5.3	-85	0.0	-100	0.0	-100
Nasik	11.8	-67	5.9	-87	1.6	-97
Pune	8.2	-74	15.1	-65	4.3	-93
Sangli	4.9	-82	8.1	-70	1.1	-97
Satara	8.2	-73	9.8	-75	1.7	-97
Solapur	0.7	-98	10.3	-53	2.7	-86
Marathwada						
Aurangabad	4.5	-86	2.9	-92	0.0	-100
Beed	2.1	-94	12.3	-62	0.7	-97
Hingoli	14.7	-67	2.2	-97	0.1	-99
Jalna	1.4	-96	10.7	-73	1.0	-97
Latur	15.0	-49	14.8	-68	4.4	-89
Nanded	14.3	-62	8.6	-81	4.4	-92
Usmanabad	0.2	-99	6.3	-80	4.1	-86
Parbhani	11.1	-72	16.8	-62	2.3	-95
Vidarbha						
Akola	15.2	-61	0.0	-100	4.6	-91
Amraoti	47.3	39	0.4	-99	7.1	-86
Bhandara	27.1	-17	24.6	-60	13.5	-82
Buldhana	14.4	-59	2.8	-94	2.3	-95
Chandrapur	41.4	8	0.0	-100	14.5	-82
Gadchiroli	55.9	19	7.0	-90	10.5	-88
Gondia	39.0	19	45.0	-25	7.9	-91
Nagpur	51.9	54	14.3	-74	21.5	-66
Wardha	65.6	63	0.6	-99	3.1	-95
Washim	28.4	-27	15.4	-74	0.3	-99
Yeotmal	51.2	16	0.7	-99	6.0	-90
Odisha						
Angul	5.7	-90	19.2	-68	42.0	-23
Balasore	12.5	-80	41.1	-35	91.1	30
Bargarh	3.0	-94	56.8	-2	35.9	-49
Bhadrak	19.6	-65	8.1	-86	76.4	39
Bolangir	3.6	-92	32.1	-57	34.6	-54
Boudh	0.0	-100	21.7	-60	17.8	-73
Cuttack	17.7	-66	7.0	-90	72.7	10
Deogarh	17.4	-62	28.1	-66	46.7	-44
Dhenkanal	12.6	-74	12.2	-84	51.8	-24
Cajapati	13.7	-83	23.1	-44	26.9	-33
Canjam	4.1	-92	6.0	-85	19.5	-53
Jagatsingpur	6.0	-91	17.0	-75	101.1	79
Jajpur	1.6	-98	1.5	-98	113.1	79
Jharsuguda	7.4	-84	30.0	-65	65.1	-1
Kalahandi	14.9	-71	26.0	-71	21.0	-74
Kandhamal	13.8	-75	10.2	-81	16.9	-74
Kendrapara	18.8	-66	0.0	-100	143.5	154
Keonjhar	31.2	-49	41.2	-35	87.3	50
Khurda	5.9	-89	10.4	-83	49.1	-4
Koraput	23.6	-54	37.7	-34	65.8	-11

Malkangiri	11.2	-78	16.2	-75	25.0	-71
Mayurbhanj	39.8	-38	45.9	-40	102.6	29
Nawapara	38.4	-11	36.4	-42	62.2	-13
Nawarangpur	59.1	-8	42.5	-33	105.6	25
Nayagarh	4.8	-92	5.2	-92	32.0	-34
Puri	19.8	-59	16.9	-67	92.1	103
Rayagada	12.3	-79	31.7	-30	25.7	-44
Sambalpur	2.2	-95	39.3	-53	35.3	-57
Sonepur	7.3	-84	36.3	-33	5.8	-92
Sundargarh	21.1	-57	44.0	-42	44.7	-35
West Bengal & Andaman Nicobar Islands						
A & N ISLAND						
Nicobar	60.4	-3	8.5	-88	22.3	-66
North & Middle Andaman	242.3	128	77.6	-32	33.8	-65
South Andaman	177.5	84	14.1	-87	12.1	-87
GWB						
Bankura	4.6	-89	28.3	-53	38.7	-44
Birbhum	19.6	-59	124.7	91	97.2	28
Burdwan	31.0	-30	116.5	113	124.4	92
East Midnapore	6.8	-87	81.0	19	88.9	29
Hooghly	52.9	14	99.4	42	105.0	32
Howrah	51.9	1	36.7	-40	110.5	37
Kolkata	72.1	15	59.7	-9	225.8	185
Murshidabad	12.9	-72	82.0	35	92.1	11
Nadia	56.4	5	128.2	97	54.7	-22
24 Pargana (N)	60.0	0	94.6	43	158.2	123
Purulia	34.5	-22	85.1	45	22.6	-69
24 Pargana (S)	28.3	-62	108.7	23	61.7	-30
West Midnapore	18.3	-63	63.3	-10	108.3	51
SHWB & Sikkim						
Cooch Behar	45.0	-76	163.4	5	55.4	-72
Darjeeling	72.9	-44	197.1	40	314.1	87
East Sikkim	90.5	-27	162.4	25	105.4	-8
Jalpaiguri	70.0	-62	210.6	31	113.4	-46
Malda	12.3	-77	93.6	40	209.0	195
North Dinajpur	**	**	91.1	-16	30.5	-65
North Sikkim	139.9	13	182.7	37	160.3	36
South Dinajpur	40.4	-57	142.4	137	72.2	-10
South Sikkim	22.2	-82	150.4	15	64.6	-43
West Sikkim	53.7	-57	302.3	127	53.3	-55
Karnataka						
Coastal Karnataka						
Dakshin Kannada	266.4	9	140.2	-47	61.6	-80
Udupi	320.8	18	187.9	-37	80.1	-75
Uttar Kannada	188.0	-3	210.9	5	12.5	-95
N I Karnataka						
Bagalkote	6.2	-70	9.5	-36	0.0	-100
Belgaum	8.5	-66	17.5	-46	1.0	-98

Bidar	13.8	-61	8.6	-75	19.3	-50
Bijapur	1.6	-94	4.5	-75	3.6	-81
Dharwad	7.4	-71	12.4	-47	0.0	-99
Cadag	5.2	-73	5.0	-65	16.3	-9
Gulbarga	8.5	-74	8.4	-68	5.5	-82
Haveri	7.7	-67	29.3	14	0.0	-100
Koppal	12.3	-34	10.9	-18	2.6	-79
Raichur	18.1	-15	7.7	-64	4.5	-74
Yadgir	5.8	-81	3.4	-90	4.3	-84
S I Karnataka						
Bangalore Rural	2.1	-87	5.2	-51	29.1	242
Bangalore Urban	1.9	-89	1.5	-86	54.2	502
Bellary	5.5	-68	7.4	-46	5.5	-60
Chamarajnar	0.3	-98	2.6	-74	11.4	-11
Chichballapur	3.0	-82	3.5	-66	12.9	31
Chickmagalur	45.8	-46	92.4	-14	7.5	-95
Chitradurga	2.9	-78	4.1	-43	2.4	-74
Davangere	8.7	-48	11.5	-25	5.4	-75
Hassan	11.0	-61	28.4	-10	15.8	-64
Kodagu	60.8	-51	189.8	29	44.6	-80
Kolar	0.1	-99	1.4	-85	31.9	314
Mandya	0.0	-100	0.6	-93	19.5	315
Mysore	1.3	-93	12.2	-28	24.6	29
Ramnagara	0.0	-100	0.0	-100	15.0	89
Shimoga	84.0	11	190.4	95	15.0	-90
Tumkur	8.5	-45	1.2	-87	14.1	66
Kerala						
Alappuzha	85.1	-36	52.6	-55	51.7	-64
Kannur	221.8	7	206.2	-2	70.1	-75
Ernakulam	161.3	-7	147.1	2	66.4	-65
Idukki	72.7	-51	256.2	63	96.7	-53
Kasaragod	308.0	23	127.8	-50	70.2	-75
Kollam	36.2	-63	92.4	-6	54.0	-50
Kottayam	113.3	-26	93.1	-33	125.4	-25
Kozhikode	187.3	-12	78.9	-61	41.3	-84
Malappuram	84.6	-47	294.5	95	57.5	-73
Palakkad	46.2	-60	193.1	71	16.4	-90
Pathanamthitta	93.0	-28	128.4	8	71.4	-48
Thiruvananthapuram	14.0	-80	34.7	-42	20.3	-71
Thrissur	141.9	-14	107.7	-31	72.8	-65
Wayanad	82.7	-45	324.1	78	35.0	-88
Tamil Nadu						
Ariyalur	0.0	-100	0.0	-100	31.3	366
Chennai	0.0	-100	12.3	-41	84.7	500
Coimbatore	12.3	59	67.5	923	16.1	85
Cuddalore	1.0	-94	5.4	-38	23.9	199
Dharmapuri	0.0	-100	0.0	-100	38.1	486
Dindigul	0.0	-100	0.1	-99	18.9	190
Erode	0.0	-100	0.0	-100	11.3	213

Kanchipuram	1.1	-95	5.9	-71	65.7	457
Kanyakumari	1.7	-96	20.5	-45	4.3	-88
Karikal	6.2	-59	0.0	-100	7.3	356
Karur	0.0	-100	0.0	-100	5.4	239
Krishnagiri	0.9	-93	0.2	-98	40.6	588
Madurai	1.2	-90	0.0	-100	24.9	168
Nagapattinam	4.3	-64	0.0	-100	31.1	402
Namakkal	0.0	-100	1.0	-88	6.1	22
Nilgiris	7.8	-79	46.1	3	31.9	-47
Perambalur	0.0	-100	0.0	-100	39.4	1026
Puducherry	1.6	-90	8.1	-7	97.6	2069
Pudukottai	0.0	-100	1.7	-79	1.3	-84
Ramanathapuram	0.0	-100	0.0	-100	0.0	-100
Salem	0.1	-99	13.9	9	30.9	143
Sivaganga	0.3	-98	1.1	-88	16.5	126
Thanjavur	0.1	-99	0.0	-99	17.5	317
Theni	1.6	-61	11.2	221	9.6	75
Tirunelveli	2.1	-72	4.4	-49	1.9	-82
Tirupur	0.0	-100	0.5	-85	0.0	-100
Tiruvallur	3.6	-84	3.2	-83	34.7	131
Tiruvannamalai	0.8	-95	0.0	-100	62.1	590
Tiruvarur	0.6	-95	0.0	-100	43.0	778
Toothukudi	0.0	-100	0.0	-100	4.7	365
Trichy	0.0	-100	0.0	-100	10.4	226
Vellore	1.4	-92	0.9	-93	55.8	422
Villupuram	3.5	-72	1.0	-91	66.5	631
Virudhunagar	0.0	-100	0.0	-100	10.8	441
Andhra Pradesh						
Coastal Andhra Pradesh						
East Godavari	0.6	-98	0.6	-98	10.4	-78
Guntur	6.8	-69	0.0	-100	12.1	-57
Krishna	2.7	-91	1.9	-93	7.9	-83
Nellore	4.4	-69	1.2	-92	22.0	55
Prakasam	0.0	-100	0.5	-96	8.5	-49
Sirkakulam	4.8	-89	14.7	-61	29.5	-35
Visakhapatnam	5.1	-87	3.6	-88	17.7	-55
Vizianagram	1.2	-97	12.7	-61	37.0	-18
West Godavari	1.4	-96	1.4	-95	7.2	-86
Telangana						
Adilabad	62.5	42	4.0	-93	3.3	-95
Hyderabad	5.9	-79	0.0	-99	9.8	-72
Karimnagar	49.1	14	48.4	20	3.4	-94
Khammam	6.8	-83	5.8	-87	6.5	-86
Mehabubnagar	10.2	-54	4.0	-82	13.0	-55
Medak	7.7	-77	1.1	-97	7.2	-84
Nalgonda	1.1	-96	1.5	-93	13.6	-58
Nizamabad	19.9	-54	20.1	-51	4.7	-92
Rangareddy	8.1	-72	1.3	-95	10.2	-72
Warangal	24.4	-35	12.3	-69	8.8	-83

Rayalaseema						
Anantapur	1.4	-90	1.5	-83	8.4	10
Chittoor	0.0	-100	0.9	-93	26.8	139
Cuddapah	2.0	-90	0.1	-99	3.9	-65
Kurnool	6.9	-67	3.2	-81	13.7	-23

Legends

	(20% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-20 to -59%) deficient rainfall	**	Data not available

Annexure III

List of varieties

Andhra Pradesh:

Castor: PCH-111, PCH-222, Kranti, GCH-4, Haritha
Irrigated groundnut: Kadiri-6, Kadiri-9, Narayani and dharani

Tamil Nadu:

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

Karnataka:

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

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

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

Black gram : TAU – 1, DU – 1

Soybean : JS – 335

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

Maize: Hybrid – DMH-2 and Arjun

Groundnut:

Bunch type – GPBD-4, JL-24 and TMV-2

Spreading type – DSG-1 and JSP-39

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

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

Assam:

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

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

Short duration varieties : Vivek Dhan 82

Groundnut : TG-1A, JL-24

Pigeon pea : T-21

Seasame : SP1181, GOURI, VINAYAK

Meghalaya:

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

Odisha

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

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

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

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

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

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

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

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

West Bengal

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

Onion: Rupsa, Sukhsagar

Sunflower: Surya (90-95days), Pack(104days)KBSH(90-95 days)

Green Gram: Sonali, T44, Samrat, PDM-84, Basanti

Sesame : Tilotoma, B-64, B-14.

Mango : Himsagar, Mallicka, Langra

Coconut: Eastcoastal, Hazari

Moong : Sonali (B-1), Panna (B-105), Pusa-Baishakhi

Bihar

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

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

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

Jharkhand:

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

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

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

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

Madhya Pradesh

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

Medium- IR-36, IR-64, Pusa sugandha-5, MTU-1001

Late-Mahsuri, Safari-17, Syamla, Swarna

Maize: Short duration-JVM- 421, JM-12, JM-13, JM- 216, Hybrid varieties.

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

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

Soybean: Short duration-JS 95-60 (85 days), JS- 93-05(95 days)

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

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

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

Chhattisgarh

Rice : MTU 1010, Mahamaya

Maharashtra

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

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

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

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

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

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

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

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

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

Gujarat

Paddy: GR-3, GR-4, IR – 28, Gurjary.

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

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

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

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

Black gram: T-9, GU-1.

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

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

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

Soybean: Gujarat soyabean-1, 2, 3.

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

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

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

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

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