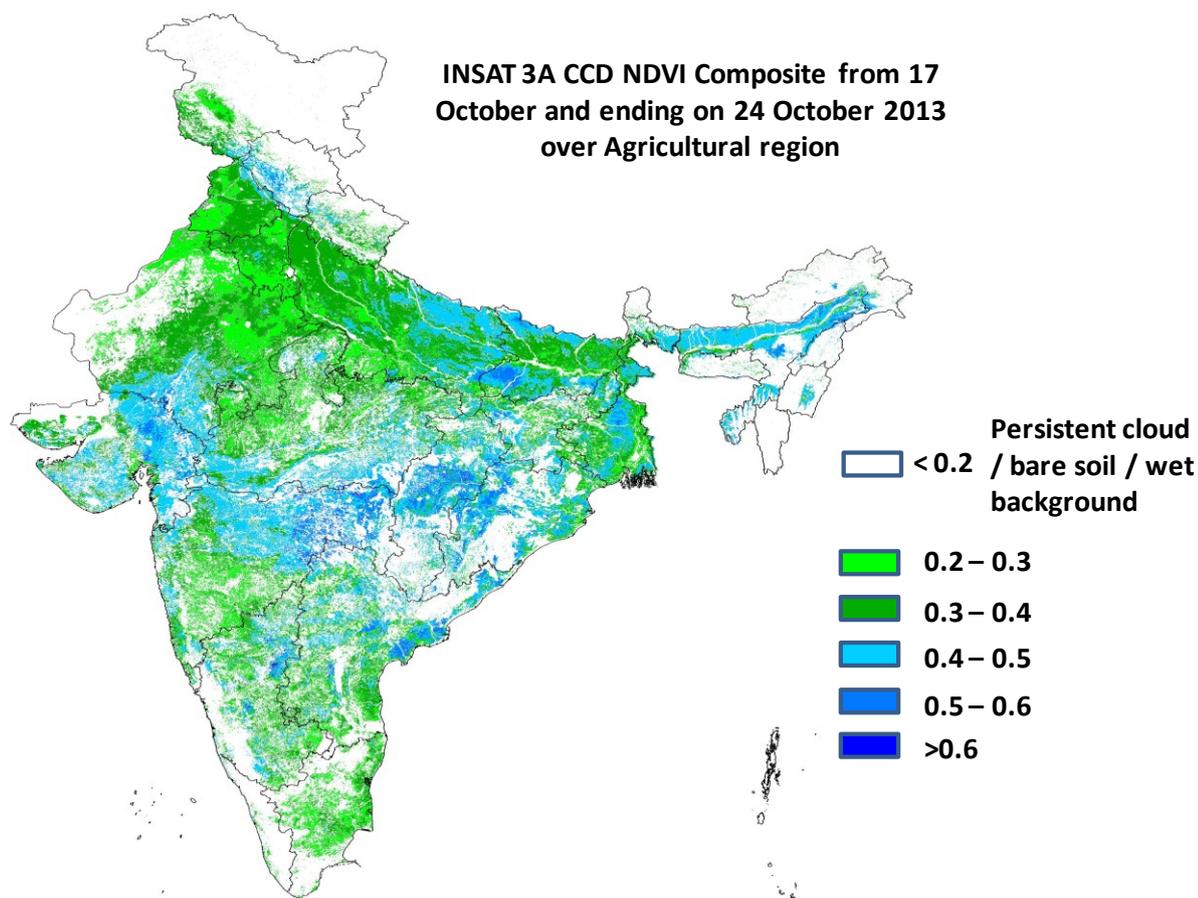


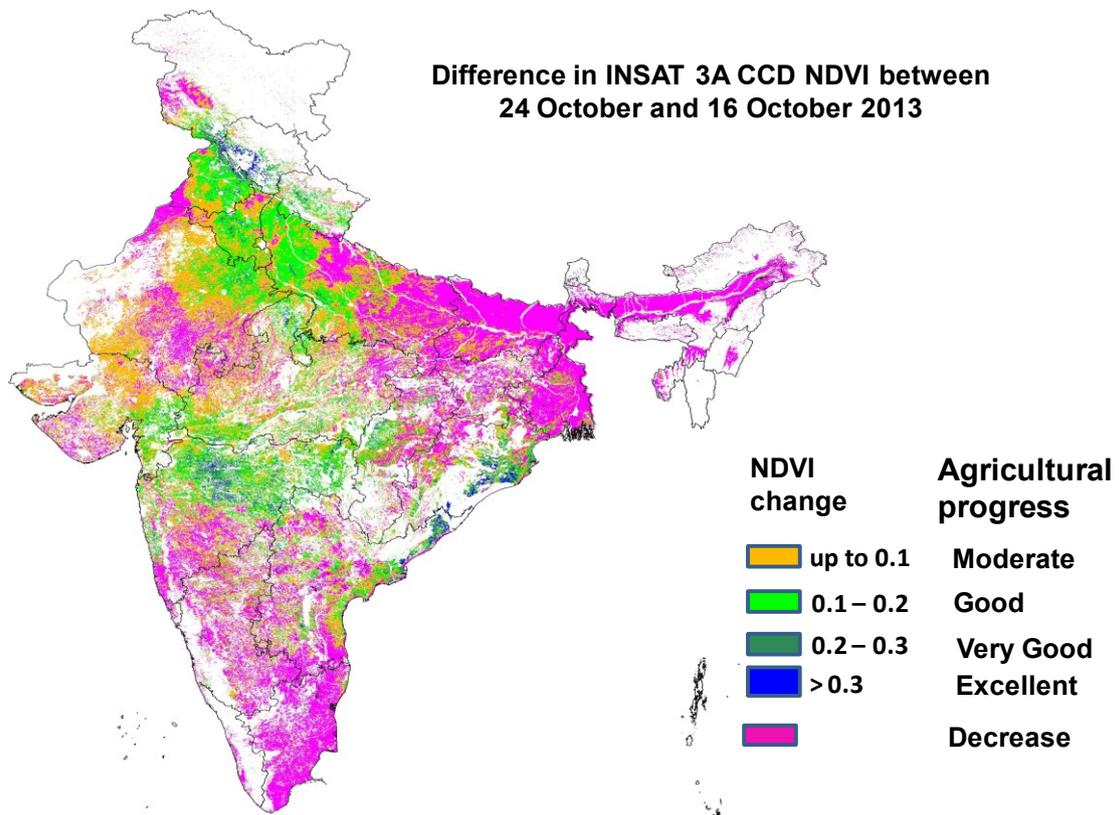


## Crop condition based on Rainfall and INSAT 3A CCD NDVI \*\*



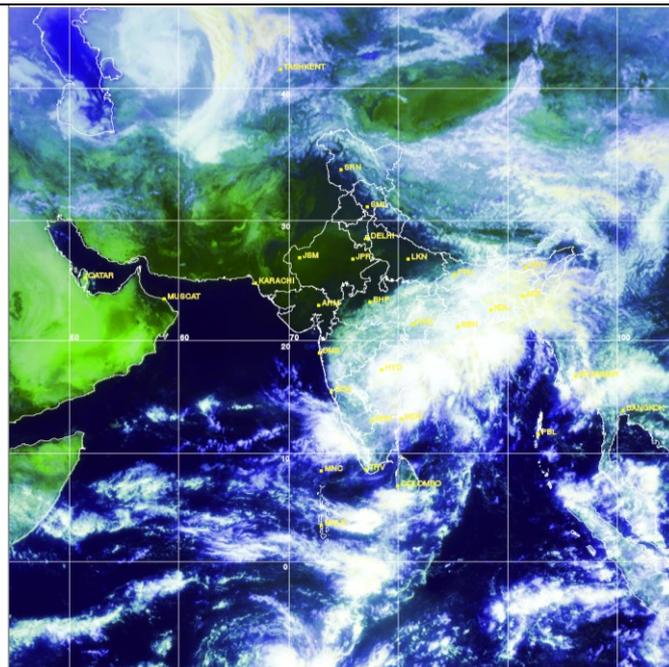
Source: SAC, Ahmedabad

**Overall Agricultural Situation:** Agricultural conditions is in general good to very good over eastern UP, southwest Bihar, pockets of central West Bengal and parts of middle Chhattisgarh, western MP, pockets of north Gujarat and adjoining Rajasthan and eastern Maharashtra as NDVI vigour showed the range from 0.4 to 0.6 upto 24<sup>th</sup> October. The crop conditions are moderate over large part of Punjab, Haryana, Rajasthan, central part of UP, MP, rest of Maharashtra and central part of AP. The pockets of costal belt of Orissa and adjoining AP showed a rise of NDVI which could be due to residual of water after heavy rainfall in previous week.



Source: SAC, Ahmedabad

**Progress of crop performance during last week:** Agricultural progress between 24<sup>th</sup> October and 16<sup>th</sup> October 2013 was found to be moderate to good over western Gujarat and adjoining Rajasthan, few pockets of western UP, Chhattisgarh and eastern Rajasthan. There is rise in NDVI in pockets of coastal Orissa and AP and fall in category of good to excellent. Rest of India showed decrease in NDVI which may be due to start of crop ripening.

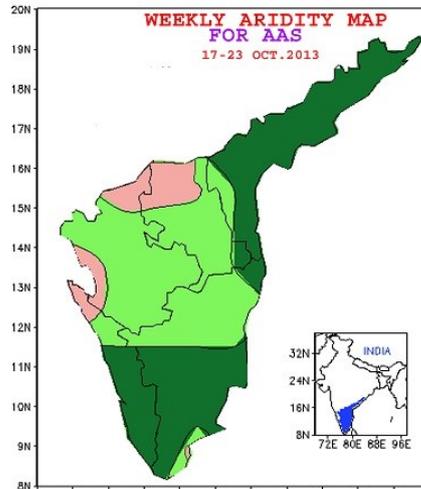


*Satellite image dated 25.10.2013, 0630 UTC*

# Aridity Anomaly Map for the week ending 23.10.2013

भारत मौसम विज्ञान विभाग  
अनाच्छिद्र अनुसंधान अनुभाग - पुणे  
INDIA METEOROLOGICAL DEPARTMENT  
DROUGHT RESEARCH UNIT - PUNE  
दृष्टीय ऑफ़िशियल, रायलसेमा, दक्षिण आंतरिक कर्नाटका,  
केरल, तमिळुनाडू और पॉण्डिचेरी के लिए

FOR  
COASTAL ANDHRA PRADESH, RAYALASEEMA, SOUTH INTERIOR KARNATAKA,  
KERALA, TAMIL NADU AND PONDICHERRY



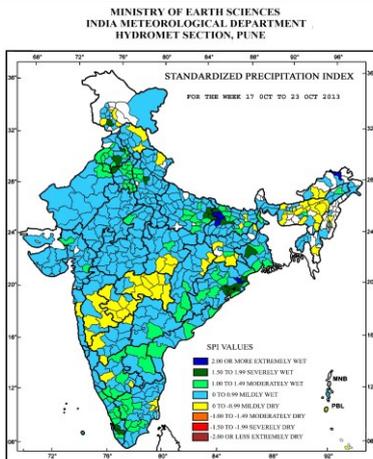
This is the first weekly Aridity Anomaly Report for Northeast Monsoon Season 2013 for the five Meteorological sub-divisions viz. Coastal Andhra Pradesh, Rayalaseema, South Interior Karnataka, Tamil Nadu & Pondicherry and Kerala.

**Areas having severe and moderate arid conditions are indicated below:**

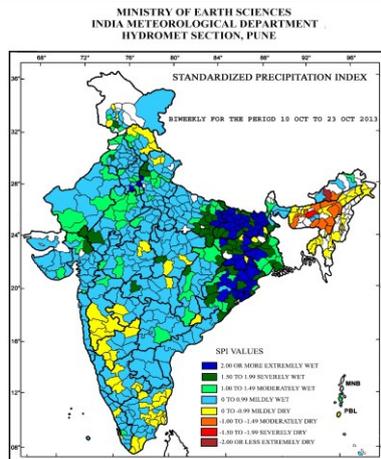
**Areas affected by Severe arid conditions :** No areas affected by Severe arid conditions.

**Areas affected by moderate arid conditions :** Northwestern parts of Rayalaseema and adjoining northeastern parts of South Interior Karnataka; southwestern parts of South Interior Karnataka and adjoining northern parts of Kerala. Isolated area around Tuticorin (Tamil Nadu).

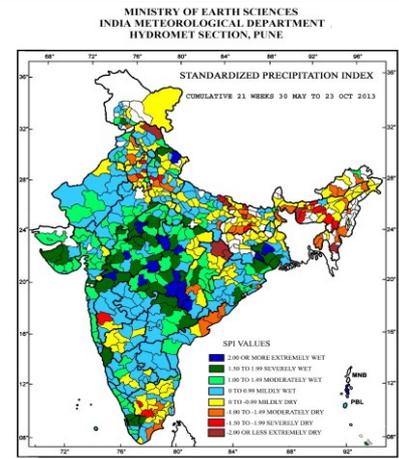
## Standardised Precipitation Index weekly, fortnightly and seasonal



- **Weekly SPI values:** Extremely wet/severely wet conditions over some parts of Odisha coast, NW Bihar and North Arunachal Pradesh.



- **Cumulative SPI values (bi-weekly):** Extremely wet/severely wet conditions over many parts of Bihar, Jharkhand, Odisha and some parts of Haryana, Delhi.
- Extremely dry/severely dry conditions were observed over some parts of Arunachal Pradesh, Assam.

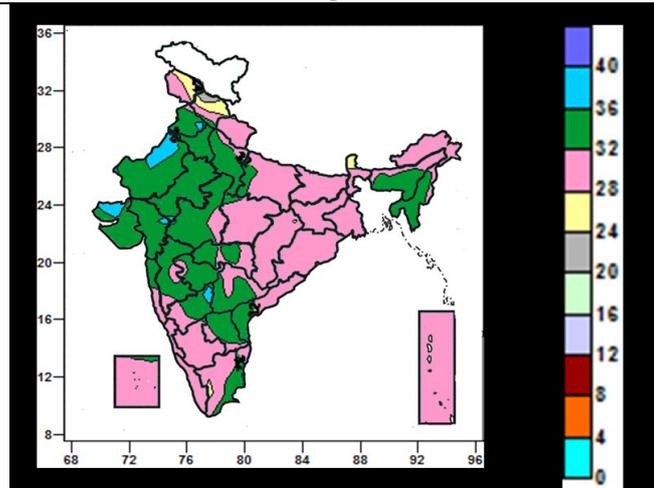


**Cumulative SPI values of 21<sup>st</sup> weeks from 30<sup>th</sup> May to 23<sup>rd</sup> Oct. 13** (i.e. since the beginning of southwest monsoon:

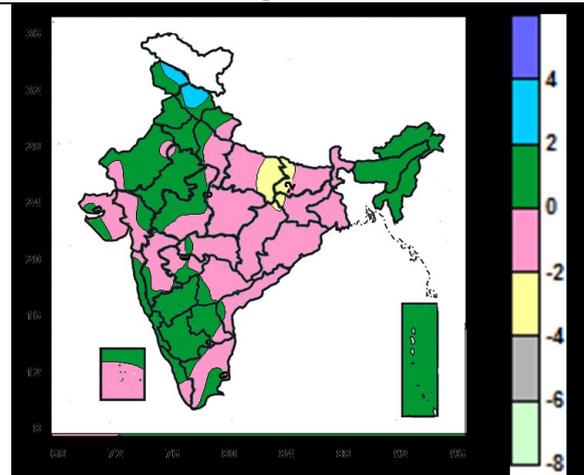
- Extremely wet/severely wet conditions over many part of Madhya Pradesh and some parts of West Bengal, south Chhattisgarh and north Maharashtra.
- Extremely dry/ severely dry conditions were observed over some parts of Assam, East Uttar Pradesh, North Chhattisgarh, North Himachal Pradesh, Bihar and Tamil Nadu .

**Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 23.10.2013**

**Actual Mean Maximum Temperature ( $^{\circ}\text{C}$ ) in India for the week ending 23.10.2013**



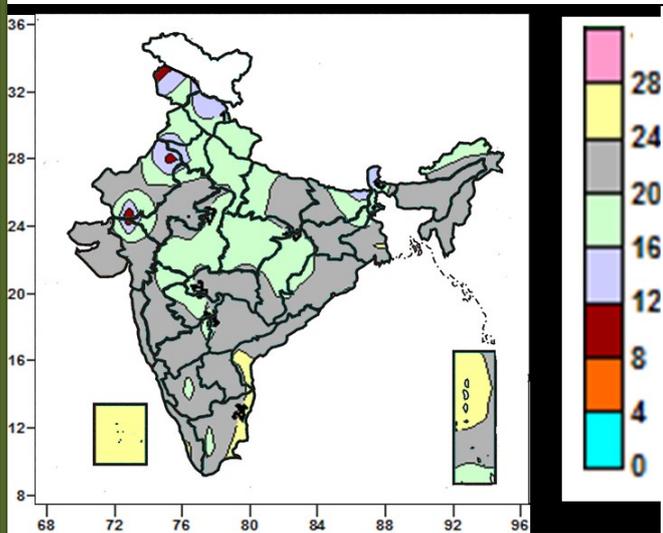
**Mean Maximum Temperature ( $^{\circ}\text{C}$ ) Anomaly in India for the week ending 23.10.2013**



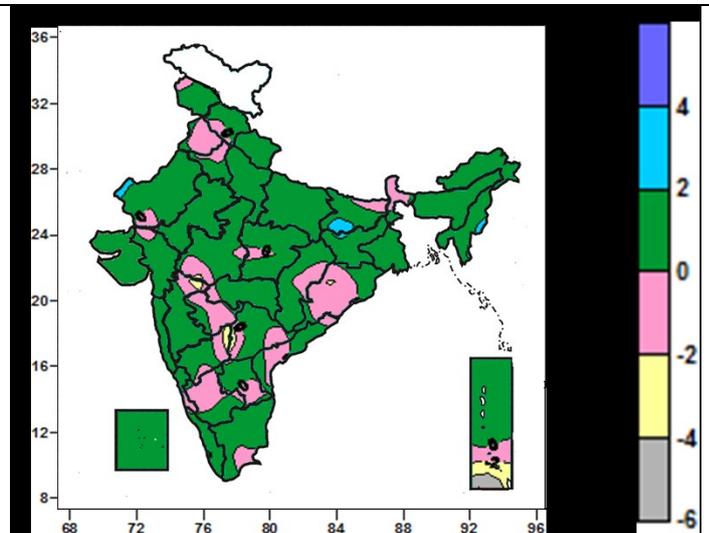
- 36 to 40 $^{\circ}\text{C}$  over some parts of West Rajasthan, Saurashtra & Kutch, North Interior Karnataka.
- 28 to 36 $^{\circ}\text{C}$  over entire country (except many parts of Himachal Pradesh, some parts of Jammu & Kashmir, Sikkim, West Rajasthan, Saurashtra & Kutch, North Interior Karnataka).
- 20 to 28 $^{\circ}\text{C}$  over many parts of Himachal Pradesh, some parts of Jammu & Kashmir, Sikkim.

- 2 to 4 $^{\circ}\text{C}$  over many parts of Himachal Pradesh, some parts of Jammu & Kashmir.
- -2 to 2 $^{\circ}\text{C}$  over all parts of country (except many parts of Himachal Pradesh, some parts of Jammu & Kashmir, East Uttar Pradesh, Bihar, Jharkhand, Chattisgarh).
- -4 to -2 $^{\circ}\text{C}$  over some parts of East Uttar Pradesh, Bihar, Jharkhand, Chattisgarh.

**Actual Mean Minimum Temperature ( $^{\circ}\text{C}$ ) in India for the week ending 23.10.2013**



**Mean Minimum Temperature ( $^{\circ}\text{C}$ ) Anomaly in India for the week ending 23.10.2013**

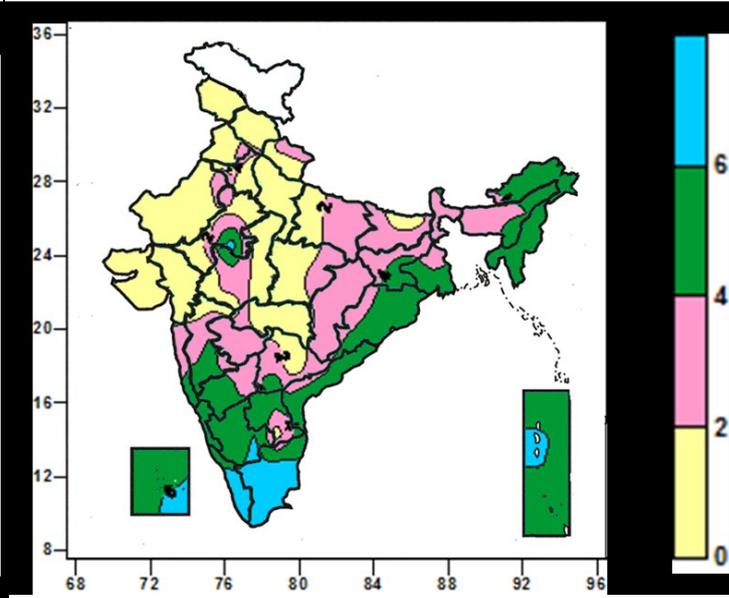
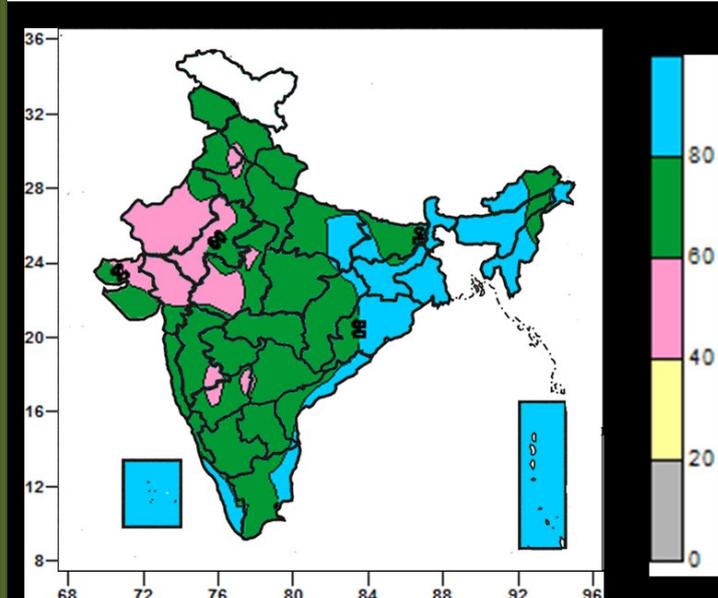


- 24 $^{\circ}\text{C}$  over many parts of Lakshadweep, some parts of Andaman & Nicobar Islands, Coastal Andhra Pradesh, Coastal Tamil Nadu.
- 16 to 24 $^{\circ}\text{C}$  all over the country (except Jammu & Kashmir, Himachal Pradesh, Lakshadweep, some parts of Punjab, Haryana, West Rajasthan, Gujarat, Coastal Andhra Pradesh, Coastal Tamil Nadu, Andaman & Nicobar Islands).
- 8 to 16 $^{\circ}\text{C}$  over many parts of Jammu & Kashmir, Himachal Pradesh, some parts of Punjab, Haryana, West Rajasthan, Gujarat.

- 2 to 4 $^{\circ}\text{C}$  over some parts of West Rajasthan, Bihar, Jharkhand.
- -2 to 2 $^{\circ}\text{C}$  over all parts of country (except some parts of West Rajasthan, Bihar, Jharkhand, Orissa, West Madhya Pradesh, North Madhya Maharashtra, North Interior Karnataka, Telanagana, Andaman & Nicobar Islands).
- -4 to -2 $^{\circ}\text{C}$  over some parts of Orissa, West Madhya Pradesh, North Madhya Maharashtra, North Interior Karnataka, Telanagana, Andaman & Nicobar Islands.

**Relative Humidity (%) over India for the week ending 23.10.2013**

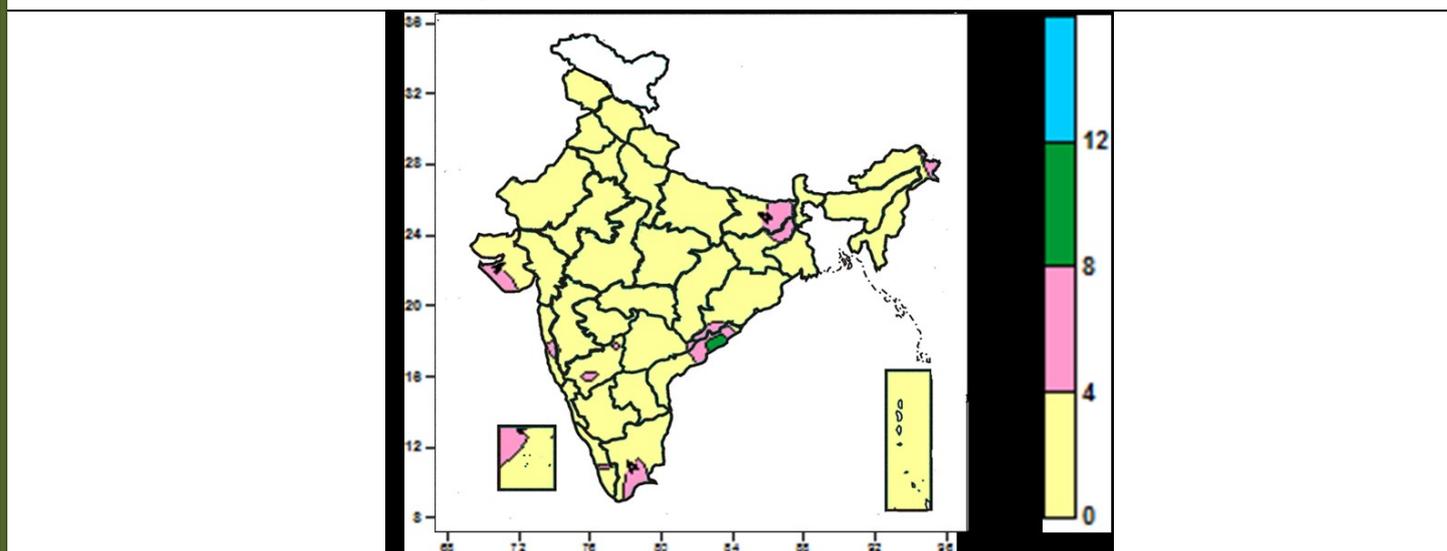
**Cloud amount (okta) over India for the week ending 23.10.2013**



- 60 to 100% over entire country (except many parts of Rajasthan, Gujarat, West Madhya Pradesh, some parts Punjab, Haryana, Saurashtra & Kutch, South Madhya Maharashtra, North Interior Karnataka, Telangana).
- 40 to 60% over many parts of Rajasthan, Gujarat, West Madhya Pradesh, some parts Punjab, Haryana, Saurashtra & Kutch, South Madhya Maharashtra, North Interior Karnataka, Telangana.

- 6 to 8 okta over many parts of Tamil Nadu, Kerala, some parts of East Rajasthan, South Interior Karnataka, Lakshadweep, , Andaman & Nicobar Islands.
- 2 to 6 okta over entire country (except many parts of North India, Central India, Vidarbha, Tamil Nadu, Kerala, some parts of East Rajasthan, Bihar, Madhya Maharashtra, Telanagana, Raylaseem, South Interior Karnataka, Lakshadweep, , Andaman & Nicobar Islands).
- 0 to 2 okta over many parts of North India, Central India, Vidarbha, some parts of Bihar, Madhya Maharashtra, Telanagana, Raylaseema.

**Wind speed (knots) over India for the week ending 23.10.2013**



- 8 to 12 knots over some parts of Coastal Andhra Pradesh.
- 4 to 8 knots over some parts of Bihar, Jharkhand, Saurashtra, Konkan, Chattisgarh, Orissa, Telanagana, Coastal Andhra Pradesh, North Interior Karnataka, Tamil Nadu, Kerala, Lakshadweep.
- 0 to 4 knots over entire country (except Bihar, Jharkhand, Saurashtra, Konkan, Chattisgarh, Orissa, Telanagana, Coastal Andhra Pradesh, North Interior Karnataka, Tamil Nadu, Kerala, Lakshadweep).

## Weather Forecast

### Weather Forecast for next 3 days (upto 0830 hours IST of 28<sup>th</sup> October, 2013)

- Rain/thundershowers would occur at most places over Andhra Pradesh and Karnataka during next 48 hours and at many places thereafter.
- Rain/thundershowers would occur at many places over Odisha, Gangetic West Bengal and Kerala.
- Rain/thundershowers would occur at a few places over east Madhya Pradesh, Vidarbha, Marathwada, Madhya Maharashtra and Konkan & Goa during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at a few places over Jharkhand and Chhattisgarh during next 24 hours and increase thereafter.
- Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands and Lakshadweep.
- Rain/Snow would occur at isolated places over Jammu & Kashmir during next 24 hours and mainly dry thereafter.
- Rain/thundershowers would occur at isolated places over Sub-Himalayan West Bengal & Sikkim and northeastern states.
- Rain/thundershowers would occur at isolated places over west Madhya Pradesh and Gujarat region. ♦ Weather would be mainly dry/dry over rest of the country.

### Weather Warning during next 3 days

**25 October:** Heavy to very heavy rainfall would occur at a few places with extremely heavy rainfall at isolated places over coastal Andhra Pradesh. Heavy to very heavy at a few places over Telangana and at isolated places over Odisha and Rayalaseema. Heavy rainfall at isolated places over Karnataka.

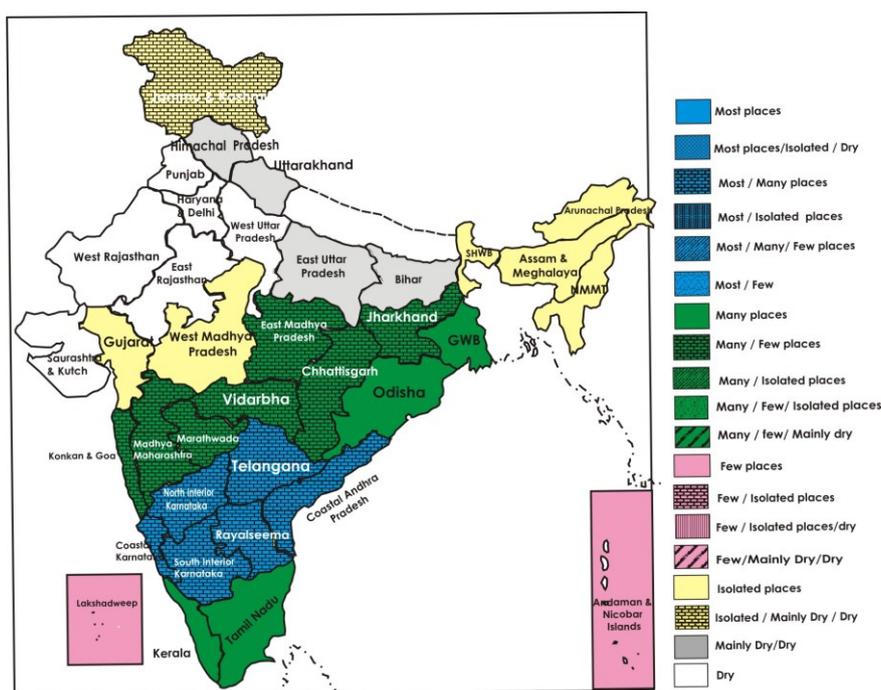
**26 October:** Heavy to very heavy would occur at a few places over Telangana and at isolated places over Odisha, coastal Andhra Pradesh and north interior Karnataka. Heavy rainfall would occur at isolated places over Gangetic West Bengal.

**27 October:** Heavy to very rainfall would occur at isolated places over Vidarbha and Telangana. Heavy rainfall would occur at isolated places over Chhattisgarh, Odisha, coastal Andhra Pradesh and north interior Karnataka.

### Weather Outlook for subsequent 4 days from 28<sup>th</sup> October to 1<sup>st</sup> November, 2013

- Rain/thundershower would occur at many places over Chhattisgarh, Odisha and northeastern states.
- Rain/thundershower would occur at a few places over south peninsular India.
- Weather would be mainly dry over northwest India.

**Weather Forecast Map**  
(Valid upto 0830 hours of 28<sup>th</sup> October, 2013)



## Salient Advisories

### East Region:

- In Odisha, postpone sowing/ planting of *rabi* crops, intercultural operations, application of fertilizers and plant protection measures in standing crops. Provide adequate drainage channels in standing crop fields. Postpone harvesting maize and groundnut and picking of cotton. Keep harvested produce in safe places.
- In North Eastern Plateau Zone of Odisha postpone sowing of mustard, green pea and early *rabi* vegetable crops, pyra crops. Provide adequate drainage in standing crop fields.
- Due to heavy rainfall due to the cyclonic storm, there was flash flood in some areas of Howrah, Hoogly, Purba Medinipur and Paschim Medinipur which may cause damage to the crops like rice and vegetables. Damage of beetle vine garden ( "boroz") occurred due to PHAILIN. Spray any copper fungicide after current spells of heavy rain.
- In North West Alluvial Plain Zone of Bihar, continue sowing of rapeseed and mustard. Undertake sowing of pea, lentil and planting of potato. Start harvesting of matured rice crop. Prepare land for sowing of *rabi* maize and sow forage crop like barseem, lucerne and barley etc.
- In North East Alluvial Plain Zone of Bihar, undertake harvesting of early matured rice crop and undertake land preparation for sowing of *rabi* maize. Prepare field for sowing of *rabi* crops like gram, lentil, lathyrus, peas and autumn sugarcane. Undertake harvesting of early matured sugarcane, sowing of mustard and fodder crop like barseem. Undertake intercultural operations in September sown toria, arhar, yam bean and tobacco. Start transplanting of winter vegetables like cauliflower, cabbage, chilli, tomato and brinjal etc.
- In Western Plateau Zone of Jharkhand, in upland areas undertake sowing of toria, gram and linseed etc. Undertake harvesting of moong, urad, maize, groundnut, marua etc. Prepare land for sowing of different *rabi* crops.
- In Central & North Eastern Plateau Zone of Jharkhand, undertake planting of potato and marigold, nursery sowing of tomato, cabbage and cauliflower, sowing of bell pepper, toria, green pea and mustard.

### South Region

- Postpone intercultural operations, application of fertilizers and pesticides in standing crops in Andhra Pradesh, Kerala and Karnataka.
- In North Coastal Andhra Pradesh drain out excess water from the standing crops of cotton, chilli, sugarcane, red gram. Maintain 5-7 cm standing water in rice. In rice crop apply 15-20 kg urea + 10 kg *Muriate of Potash* (MOP) as booster dose soon after draining of water and spray multi K (enriched Pottassium Nitrate) or KNO<sub>3</sub> (Potassium nitrate) @ 10 g per litre of water. Undertake propping in lodged sugarcane and apply 50 kg urea and 25 kg MOP /acre as booster dose. If wilting symptoms are observed in cotton and red gram crops, spray/drench with Copper oxy chloride @ 3g/ per litre of water at the base of the affected plants after current spells of heavy rain.
- Postpone harvesting of early sown groundnut for next three days in the Scarce Rainfall Zone of Andhra Pradesh. Keep already harvested produce in safe places.
- Postpone sowing of chickpea and safflower and sowing of *rabi* crops like maize, groundnut and sunflower in the Southern Telangana Zone of Andhra Pradesh. Provide adequate drainage in standing crop fields.
- Drain out excess water from the standing crop fields like red gram and groundnut in the Eastern Dry zone of Karnataka.
- Postpone sowing of *rabi* jowar and Bengal gram after proper seed treatment in the North East Transition Zone of Karnataka. Provide adequate drainage in already sown crop fields.
- Continue sowing of short duration vegetable crops like Amaranthus, cowpea etc. in the interspaces of newly planted banana plantation in the High Altitude Zone of Kerala.
- Continue new planting of banana and undertake sowing of *punja* rice in Kottayam district in the Problem Area Zone in Kerala.
- Undertake sowing of pulses under rainfed condition in the Western Zone and transplanting of chillies in the South Zone of Tamil Nadu.

### Northeast Region

- Maintain standing water in *sali* rice in Assam and Meghalaya, regular WRC rice in Arunachal Pradesh and lowland rice in Nagaland, wherever crops are at flowering / grain formation stage. Drain out water from the fields of long duration varieties of *aman* rice in Tripura 10-15 days before harvesting.
- In Hill Zone of Assam, continue transplanting of winter vegetables and undertake land preparation and sowing of rapeseed and mustard.
- In Lower Brahmaputra Valley Zone of Assam, continue sowing of niger, nursery raising of brinjal, mid cauliflower, cabbage and knolkhol and land preparation for nursery sowing of onion.
- In Sub Tropical Hill Zone of Arunachal Pradesh, continue field preparation and sowing of pea and planting of potato.
- In Meghalaya, continue nursery raising and transplanting of early cauliflower and winter vegetables, land preparation and planting of potato and sowing of rapeseed and mustard. Also undertake harvesting of matured groundnut.
- In Sub Tropical Plain Zone of Manipur, continue nursery raising of cole crops and planting of potato. Continue

harvesting of soybean and groundnut. Drain out water from rice fields 10 days before harvesting.

- In Mild Tropical Hill Zone of Mizoram, continue nursery raising of cole crops and tomato.
- In Mild Tropical Hill Zone of Nagaland, continue nursery raising of cabbage and planting of potato. Continue sowing of maize and mustard.
- In Mid Tropical Plain Zone of Tripura continue land preparation and planting of potato and sowing of *rabi* maize. Continue harvesting of short duration varieties of *aman* rice.

#### **West Region**

- In Maharashtra, postpone irrigation, intercultural operations, application of fertilizers and plant protection measures in rice and vegetables in Vidarbha, in sugarcane and vegetable crops like onion, brinjal, tomato, okra and guar in Madhya Maharashtra and in vegetables, orchards and sugarcane in Marathwada.
- In Vidarbha, maintain 8-10 cm water level in late maturing rice field in Bhandara, Gondia, Gadchiroli and Chandrapur districts. Undertake harvesting of already matured *kharif* rice after current spells of rain. Start sowing of gram in Central Vidarbha Zone after current spells of heavy rain.
- In Konkan, maintain water level upto 8-10 cm in late maturing rice at grain formation stage. Undertake harvesting of mid late rice varieties after current spells of rain.
- In Madhya Maharashtra, maintain water level of 8-10 cm in late maturing rice. Complete harvesting of already matured groundnut and jowar after current spells of rain. Continue sowing of *rabi* jowar and safflower and planting of pre seasonal sugarcane. Continue harvesting of already matured *adsali* and pre-seasonal sugarcane after current spells of rain. Undertake sowing of *rainfed* gram, wheat and green pea. Continue preparatory tillage in Western Ghat region for the sowing of *rabi* chickpea, wal, lentil and linseed after harvesting of the *kharif* crops.
- In Marathwada, complete harvesting of already matured groundnut and jowar and start harvesting of already matured *adsali* and pre-seasonal sugarcane after current spells of rain. Continue sowing of *rabi* jowar, safflower and *rainfed* gram. Continue planting of pre seasonal sugarcane.
- Undertake harvesting of groundnut and vegetables in Bhal and Coastal Zone of Gujarat. Carry out land preparation for sowing of winter crops. Apply irrigation in cotton.

#### **Central Region**

- In Bundelkhand Zone of Madhya Pradesh, complete sowing of safflower and undertake sowing of mixed crops of chickpea, mustard, lentil, pea and linseed and local and early maturing variety of wheat.
- In Northern Hill Zone of Chattisgarh, continue sowing of toria, mustard, green peas and planting of potato after spells of heavy rain.
- In Central Narmada Valley Zone, Jhabua Hill Zone of Madhya Pradesh, continue land preparation for sowing of wheat till 15<sup>th</sup> November under semi-irrigated condition. Continue sowing of safflower and linseed in rainfed condition and planting of potato.

#### **North Region**

- In Valley Temperate Zone of Jammu & Kashmir, undertake field preparation for sowing of wheat and continue sowing of *rabi* crops viz. brown sarson, oat, pea, lentil, vegetables (spinach & methi) and planting of garlic. Also complete harvesting of rice, maize and *kharif* pulses.
- In Bhabar and Tarai Zone of Uttarakhand, undertake sowing of wheat, barley, oat in mid and high hills. As dry weather is expected, farmers having irrigation facilities are advised to go for light irrigation in early sown 30 days toria and mustard crops. Then top dress 2 kg Urea per Nali and do weeding operations & also do thinning for maintaining proper plant population. Continue sowing of mustard, rai, vegetable pea, coriander, spinach, radish, fenugreek and nursery raising of onion, tomato and planting of autumn sugarcane.
- In Sub humid Sub tropic Zone of Uttarakhand, continue sowing of mustard and rai, pea, coriander, spinach, fenugreek, and complete harvesting of rice, soybean, moong and urad.
- In Mid Hills Sub-Humid Zone of Himachal Pradesh continue sowing of winter season green vegetable crops and preparation of nursery of onion and cole crops.
- In Flood Prone Eastern Plain Zone of Rajasthan, continue land preparation for sowing of barley, mustard, lentil, wheat and cluster bean and planting of potato, transplanting of cauliflower, cabbage.
- In Arid Western Plain Zone of East Rajasthan, continue harvesting of mothbean, pearl millet etc. Complete land preparation and sowing of *rabi* crops viz. taramira, sarson, mustard and gram. Continue nursery sowing of chilli, brinjal and transplanting of tomato.
- In Western Zone of Punjab, undertake planting of autumn sugarcane, sowing of barley, desi gram, turnip, palak and radish. Complete the sowing of oats, gobhi sarson and raya. Transplant the late season varieties of cauliflower.
- In Western Zone of Haryana, start sowing of mustard / raya crops. Start the picking of cotton crop.
- In Central Plain Zone of Uttar Pradesh, undertake sowing of wheat, mustard, gram, pea, potato and barley.
- In West UP, undertake sowing of wheat and gram in non-irrigated areas, undertake planting of potato, and winter season sugarcane. Apply irrigation in toria and mustard.

## Detailed Zonewise Agromet Advisories

### NORTH INDIA [Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh & Rajasthan]



Rice

Groundnut

Sugarcane

Maize

Jowar

- **Realised Rainfall:** Mainly dry weather prevailed in most of the districts of States of the region except in Uttar Pradesh Ballia, Deoria, Jaunpur, Mau districts received rainfall during last week.
- **Weather Forecast:** Rain/Snow would occur at isolated places over Jammu & Kashmir during next 24 hours and mainly dry thereafter. Weather would be mainly dry/dry over rest part of the region.
- **Weather Warning:** Nil
- **Weather Outlook:** Weather would be mainly dry over the region.

#### Advisory :

- In Sub Tropical Zone of Jammu & Kashmir, continue land preparation for sowing of winter vegetables like radish, carrot, turnip, garlic, methi, fenugreek, coriander, spinach and planting of potato and also complete sowing of mustard and harvesting of rice, maize, bajra, moong, mash. Undertake transplanting of mature seedlings of cauliflower, cabbage and tomato.
- In Valley Temperate Zone of Jammu & Kashmir, continue planting of garlic, undertake field preparation for sowing of wheat and continue sowing of *rabi* crops viz. brown sarson, oat, pea, lentil, vegetables (spinach & methi). Also complete harvesting of rice, maize, *kharif* pulses.
- In Bhabar and Tarai Zone of Uttarakhand, due to sufficient moisture in the soil and also temperature condition are favourable for sowing of wheat, barley, oat in mid and high hill. As dry weather is expected, farmers having irrigation facilities are advised to go for light irrigation in early sown 30 days toria and mustard crops. Then top dress 2 kg Urea per Nali and do weeding operations & also do thinning for maintaining proper plant population. Continue sowing of mustard, rai, vegetables pea, coriander, spinach, radish, fenugreek, onion, tomato in nursery and planting of autumn sugarcane.
- In Sub humid Sub tropic of Uttarakhand, continue sowing of mustard and rai, pea, coriander, spinach, fenugreek, and complete harvesting of rice, soybean, moong and urad.
- In Hill Zone of Uttarakhand, continue harvesting of soybean, urd, ramdan. Undertake sowing of wheat, sarson, continue land preparation for sowing of onion, masoor, garlic, radish, palak, rai, cabbage and planting of potato.
- In Flood Prone Eastern Plain Zone of Rajasthan, continue land preparation for sowing of barley, mustard, lentil, wheat and cluster bean and planting of potato, transplanting of cauliflower, cabbage.
- In Arid Western Plain Zone of East Rajasthan, continue harvesting of mothbean, pearl millet etc. Complete land preparation and sowing of *rabi* crops viz. taramira, sarson, mustard and gram. Continue nursery sowing of chilli, brinjal and transplanting of tomato.
- In Sub Humid Southern Plain and Aravali Hill Zone of Rajasthan undertake sowing of mustard, toria, taramira, gram and land preparation for sowing of vegetables viz. chilli, brinjal and tomato.
- In Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, continue sowing of Gobhi sarson and early peas. Complete harvesting of *Kharif* maize crop. Make arrangements for early wheat sowing in lower regions.
- In Mid Hills Sub-Humid Zone of Himachal Pradesh continue sowing of winter season green vegetable crops and preparation of nursery of onion and cole crops.
- In Central Plain Zone of Uttar Pradesh (Varanasi), undertake sowing of wheat, mustard, gram, pea, potato and barley.
- In West UP, undertake sowing of wheat and gram in non-irrigated areas, undertake sowing of potato, taramira, alsin and winter season sugarcane. Apply irrigation in toria and mustard. And prepare nursery for onion, tomato and cabbage.
- In Delhi in the areas where paddy crop is about to mature, irrigation should be stopped two weeks before harvesting. Sowing of mustard, carrot, pea, garlic and gram should be done in this week. Transplanting of mature seedlings of cauliflower, cabbage, broccoli and tomato may also be done in raised bed. Undertake sowing of oat and barseem for fodder purpose.
- In Western Zone of Punjab, this is ideal time for planting of autumn sugarcane, barley, desi gram, turnip,

palak and radish. Complete sowing of oats, gobhi sarson and raya. Transplant late season varieties of cauliflower.

- In Undulating Plain Zone in Punjab, complete planting of sugarcane and berseem as early as possible. Prepare fields for sowing of wheat, gram and lentil. It is best time for sowing of ghobi sarson and transplanting of cole crops.
- In Western Zone of Haryana, start sowing of mustard / raya crops. Start the picking of cotton crop. Complete the sowing of Barseem crop. Harvest matured bajra and cluster bean crop.
- In Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, red beetle attack is seen in the cucurbits, spray Malathion @ 1ml per litres of water or Carbaryl @ 2g per litres of water. Fruit fly attack is also seen in cucurbits, spray Malathion @1ml + 10 g jaggery per litres of water.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Floriculture**
- In Delhi, transplanting of marigold may be completed in raised bed at the earliest. Sowing of gladiolus may be continued in prepared fields.
- **Animal Husbandry**
- In Mid Hills Sub-Humid Zone and Sub-Montane & Low-Hills Sub-Tropical Zone of Himachal Pradesh, vaccinate animals against Foot and Mouth disease.

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



*Rice*



*Sugarcane*



*Maize*

- **Realised Rainfall:** No Significant rainfall occurred in Madhya Pradesh and in Chhattisgarh except Bastar, Dantewara and Dhamtari districts during the week.
- **Weather forecast:** Rain/thundershowers would occur at a few places over Chhattisgarh, east Madhya Pradesh during next 24 hours and increase thereafter. Rain/thundershowers would occur at isolated places over west Madhya Pradesh.
- **Weather Warning:** Heavy rainfall would occur at isolated paces over Chhattisgarh on 27<sup>th</sup> October.
- **Weather Outlook:** Rain/thundershowers would occur at many places over Chhattisgarh.
- **Advisories:**
- In Bundelkhand Zone of Madhya Pradesh, complete sowing of safflower and undertake sowing of mixed crops of chickpea, mustard, lentil, pea and linseed and local and early maturing variety of wheat.
- In Northern Hill Zone of Chattisgarh, continue sowing of toria, mustard, green peas and planting of potato after spells of heavy rain.
- In Central Narmada Valley Zone, Jhabua Hill Zone of Madhya Pradesh, continue land preparation for sowing of wheat till 15<sup>th</sup> November under semi-irrigated condition. Continue sowing of safflower and linseed in rainfed condition and planting of potato.
- In Kymore Plateau Zone and Satpura Hill Zone, Gird Zone and Malwa Plateau zone of Madhya Pradesh, continue land preparation for sowing of peas, sarson, masoor and toria.
- In Chattisgarh, due to continuous rains certain pests may become serious in rice. Hence monitor rice for Brown plant Hopper (BPH) and Bacterial leaf blight (BLB). For BPH, spray Buprofezin 25% SC @800 ml/ha or Dinotefuran 20SG 150 g/ha or Ethofenprox 25 %WG 100g/ha Thiamethoxam 25% WG 100 g/ha, for (BLB), spray Streptocycline @ 100-150 ppm and for Sheath Blight, Spray Hexaconazole 5% EC @1000 ml/ha or Validamycin 3%L 2000 ml/ha for control after current spells of rain.
- In Kymore Plateau Zone and Satpura Hill Zone of Madhya Pradesh, infestation of gundhi bug occurred in rice, apply 5% dust of Malathion @ 25 to 30 kg ha<sup>-1</sup> or Dimethoate 30 EC @ 675-750 ml/ha for control.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III
- **ANIMAL HUSBANDRY & POULTRY**
- In Madhya Pradesh, vaccinate the catles against H.S., B.Q. and FMD diseases and also deworming in cattles and goats. Use potassium permanganate @ 5 ml per liter of water for infected animals.
- Stages of major crops are mentioned in Annexure I.

## EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL & SIKKIM]



**Rice**

**Sugarcane**

**Maize**

**Groundnut**

**Turmeric**

- **Realised Rainfall:** Significant rainfall occurred in Bhagalpur, Bhojpur, East Champaran, Gopalganj, Jamui, Katihar, Muzaffarpur, Patna, Saran, Siwan and Vaishali districts of Bihar and in Khunti district of Jharkhand, in all districts of Gangetic West Bengal except Murshidabad, Nadia and Purulia, in North Dinajpur district of Sub Himalayan West Bengal, in all districts of Sikkim except South Sikkim; in all districts of Odisha except Bargarh, Jharsuguda, Nawapara, Sonapur and Sudargarh during last week.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Odisha, Gangetic West Bengal. Rain/thundershowers would occur at a few places over Jharkhand during next 24 hours and increase thereafter. Rain/thundershowers would occur at isolated places over Sub-Himalayan West Bengal & Sikkim. Weather would be mainly dry over Bihar.
- **Weather Warning:** Heavy to very heavy rainfall would occur at isolated places on 25<sup>th</sup> and 26<sup>th</sup> and heavy rainfall would occur at isolated places on 27<sup>th</sup> October over Odisha. Heavy rainfall would occur at isolated places over Gangetic West Bengal on 26<sup>th</sup> October.
- **Weather Outlook:** Rain/thundershower would occur at many places over Odisha.
  - **Advisories:**
  - In Odisha, postpone sowing/ planting of *rabi* crops, intercultural operations, application of fertilizers and plant protection measures in standing crops. Provide adequate drainage facilities in standing crop fields. Postpone harvesting of maize and groundnut and picking of cotton. Keep already harvested produce in safe places.
  - In North Eastern Plateau Zone of Odisha postpone sowing of mustard, green pea and early *rabi* vegetable crops, pyra crops. Provide adequate drainage in standing crop fields.
  - Due to heavy rainfall due to the cyclonic storm, there was flash flood in some areas of Howrah, Hoogly, Purba Medinipur and Paschim Medinipur which may cause damage to the crops like rice and vegetables. Damage of beetle vine garden ( “boroz”) occurred due to PHAILIN. Spray any copper fungicide after current spells of heavy rain.
  - In New Alluvial Zone of West Bengal, early transplanted *Aman* rice, if 80% of rice is ripened then harvest the crop after current spells of rain. Prepare the main field for *rabi* crop. In case of late sown *Aman* rice, maintain 2-3 cm standing water in the field, drain out the excess water. Undertake land preparation for sowing of mustard.
  - In Terai zone of West Bengal, undertake planting of Gladiolus for forthcoming winter season.
  - In Laterite and Red Soil Zone of West Bengal, undertake seedbed preparation of cabbage and cauliflower and nursery preparation of winter vegetables after current spells of heavy rain. Provide adequate drainage in standing crop fields.
  - In North West Alluvial Plain Zone of Bihar, continue sowing of rapeseed and mustard. Undertake sowing of pea, lentil and planting of potato. Start harvesting of matured rice crop. Prepare land for sowing of *rabi* maize and forage crops like barseem, lucerne and barley etc.
  - In South Bihar Alluvial Zone of Bihar, start harvesting of matured rice crop. Undertake sowing of winter maize, sunflower, mustard, toria etc. planting of potato and transplanting of cauliflower, nursery raising of late variety of cauliflower.
  - In North East Alluvial Plain Zone of Bihar, undertake harvesting of early matured rice crop and undertake land preparation for sowing of *rabi* maize. Prepare field for sowing of *rabi* crops like gram, lentil, lathyrus, peas and autumn sugarcane. Undertake intercultural operations in September sown toria, arhar, yam bean and tobacco. Start transplanting of winter vegetables like cauliflower, cabbage, chilli, tomato and brinjal etc.
  - In Western Plateau Zone of Jharkhand, in upland areas undertake sowing of toria, gram and linseed etc. Undertake harvesting of moong, urad, maize, groundnut, marua etc. Prepare land for sowing of different *rabi* crops.

- In Central & North Eastern Plateau Zone of Jharkhand, undertake planting of potato and marigold, nursery sowing of tomato, cabbage and cauliflower, sowing of bell pepper, toria, green pea and mustard.
- In South Eastern Plateau Zone of Jharkhand, continue sowing of green pea, toria, mustard, nursery raising of winter season vegetables like brinjal, cabbage, cauliflower, tomato, capsicum etc.
- In Western Plateau Zone of Jharkhand, due to prolonged rains there are chances of Brown Plant Hopper (BPH) and diseases like bacterial leaf blight and sheath blight in rice in most of the areas of the States in the region. There is an immediate need to monitor the pests and take appropriate intervention as described below after current spells of rain.
  - Spray Buprofezin 25% SC @ 800 ml / ha or Dinotefuran 20 SG 150 g / ha or Ethofenprox 25% WG 100 g / ha or Thiamethoxam 25% WG 100 g / ha to control BPH, if crosses ETL (>10 insect/hill). Spray Streptomycin @ 100-150 ppm to control BLB, when crosses ETL (2-5%).
  - Spray Hexaconazole 5% EC @ 1000 ml / ha or Validamycin 3% L @ 2000 ml / ha or Tricyclazole 75% SP @ 300-400 g / ha to control sheath blight, when crosses ETL (2-5%) .
- In South Eastern Plateau Zone of Jharkhand, timely transplanted rice crop is at milking to soft dough stage. Due to probability of high humidity in coming days, occurrence and spreading of False Smut disease is likely to be more intense in rice, spray Tilt @ 1 ml per liter of water during morning time after current spells of rain.
- Due to hot and humid weather, there is a chance of spread of sheath blight in New alluvial Zone of West Bengal. As a control spray Carbendazim @1.5 g/l of water. In case of stem borer attack spray carbosulfan 25 EC @ 2ml/l or Profenphos 40% + Cypermethrin 4% @1ml/l of water after current spell of rain. Present temperature and humidity conditions are congenial for the rapid spread of thrips and mites leading to the leaf curling in chilli. As a control spray Difenthiuron @ 0.75g per litre of water at 7-10 days interval after current spells of rain.
- Due to cloudy and humid conditions, there are chances of attack by Gundhi bug in timely sown rice in North Eastern Plateau Zone of Odisha; dust Chlorpyrifos @ 10 kg / acre after current spells of rain. Due to high humidity and cloud cover, there is chance of occurrence of neck blast in rice; apply Tricyclazole @ 6-8 g / liter of water after current spells of rain.
- In North East Alluvial Plain Zone of Bihar, present weather condition is congenial for attack of leaf eating caterpillar/cut worm, farmers are advised to manually collect and destroy the larvae. If the attack is severe, spray Imidacloprid 17.8% SL @0.05%.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.

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



Sugarcane



Rice



Groundnut



Maize



Cucurbits

- **Realised Rainfall:** Significant rainfall occurred in Changlang, Dibang Valley, East Siang, Lohit, Lower Dibang Valley, Tirap, Upper Siang, Upper Subansari, West Kameng and West Siang districts of Arunachal Pradesh, Dibrugarh, Lakhimpur and Tinsukia districts of Assam, Ribhoi district of Meghalaya, Aizwal, Kolasib and Saiha districts of Mizoram, Kohima district of Nagaland and North Tripura district of Tripura.
- **Weather Forecast:** Rain / thundershowers would occur at isolated places over the states of the region.
- **Weather Warning:** Nil.
- **Weather Outlook:** Rain/thundershower would occur at many places over the states of the region.
- **Advisories:**
  - Maintain standing water in *sali* rice in Assam and Meghalaya, regular WRC rice in Arunachal Pradesh and low land rice in Nagaland, wherever crops are at flowering / grain formation stage. Drain out water from the fields of long duration varieties of *aman* rice in Tripura 10-15 days before harvesting.
  - In Hill Zone of Assam, continue transplanting of winter vegetables and undertake land preparation and sowing of rapeseed and mustard.

- In Lower Brahmaputra Valley Zone of Assam, continue sowing of niger, nursery raising of brinjal, mid cauliflower, cabbage and knolkhol and land preparation for nursery sowing of onion.
- In Barak Valley Zone of Assam, continue transplanting of cabbage, cauliflower, knolkhol and autumn planting of sugarcane. Also continue field preparation and planting of potato. Continue intercropping of rapeseed or mustard with autumn planted sugarcane.
- In Central Brahmaputra Valley Zone of Assam, continue nursery sowing and transplanting of cole crops and field preparation and sowing for *rabi* pulses. Also undertake land preparation and sowing of wheat.
- In North Bank Plain Zone of Assam, continue land preparation and sowing of rapeseed / mustard, planting of potato and nursery sowing of cole crops.
- In Sub Tropical Hill Zone of Arunachal Pradesh, continue field preparation and sowing of pea and planting of potato.
- In Meghalaya, continue nursery raising and transplanting of early cauliflower and winter vegetables, land preparation and planting of potato and sowing of rapeseed and mustard. Also undertake harvesting of matured groundnut.
- In Sub Tropical Plain Zone of Manipur, continue nursery raising of cole crops and planting of potato. Continue harvesting of soybean and groundnut. Drain out water from rice fields 10 days before harvesting.
- In Mild Tropical Hill Zone of Mizoram, continue nursery raising of cole crops and tomato.
- In Mild Tropical Hill Zone of Nagaland, continue nursery raising of cabbage and planting of potato. Continue sowing of maize. Continue land preparation and sowing of mustard.
- In Mid Tropical Plain Zone of Tripura continue land preparation and planting of potato and sowing of *rabi* maize. Continue harvesting of short duration varieties of *aman* rice.
- In Upper Brahmaputra Valley Zone and North Bank Plain Zone of Assam, there is chance of attack of gundhi bug in *sali* rice; to control, spray Malathion 5% dust @ 20 kg / ha.
- In Sub Tropical Hill Zone of Arunachal Pradesh, under present weather condition, large scale attack of Gundhi bug has been reported in WRC rice and likely to continue; apply Malathion dust 5% @ 20 kg / ha to control Gundhi bug.
- In Mild Tropical Hill Zone of Mizoram, there is chance of occurrence of leaf blotch in turmeric; spray Carbendazim (1 g / litre of water) or Mancozeb (2.5 g / litre of water) + 1 ml Sandovit.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- In Sub Tropical Hill Zone of Arunachal Pradesh, maintain warmth by lighting with filament bulb in the shed of poultry, pigs and cattle.
- In Mild Tropical Hill Zone of Nagaland, for brooder chicks provide artificial lighting in the shed so as to minimize their mortality.
- The present weather condition in Mild Tropical Plain Zone of Tripura is favourable for infestation of round worm, flukes and tapeworms in cattle. De-worming may be done.

### WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



*Rice*



*Groundnut*



*Cotton*



*Sugarcane*



*Cotton*

- **Realised Rainfall:** No significant rainfall occurred in the States of the region.
- **Weather Forecast:** Rain / thundershowers would occur at a few places over Maharashtra State during next 24 hours and increase thereafter. Rain/thundershowers would occur at isolated places over Gujarat region and weather would be mainly dry / dry over Saurashtra and Kutch region during the period.
- **Weather Warning:** Heavy to very heavy rainfall would occur at isolated places over Vidarbha on 27<sup>th</sup>.
- **Weather Outlook:** Weather would be mainly dry over the States of the region.
- **Advisories:**
- In Maharashtra, postpone irrigation, intercultural operations, application of fertilizers and plant protection

measures in rice and vegetables in Vidarbha, in sugarcane and vegetable crops like onion, brinjal, tomato, okhra and guar in Madhya Maharashtra and in vegetables, orchards and sugarcane in Marathwada.

- In Vidarbha, maintain 8-10 cm water level in late maturing rice field in Bhandara, Gondia, Gadchiroli and Chandrapur districts. Undertake harvesting of already matured *kharif* rice after current spells of heavy rain. Start sowing of gram in Central Vidarbha Zone after current spells of heavy rain.
- In Konkan, maintain water level upto 8-10 cm in late maturing rice at grain formation stage. Undertake harvesting of mid late rice varieties after current spells of rain.
- In Madhya Maharashtra, maintain water level of 8-10 cm in late maturing rice. Complete harvesting of already matured groundnut and jowar after current spells of rain. Continue sowing of *rabi* jowar and safflower and planting of pre seasonal sugarcane. Continue harvesting of already matured *adsali* and pre-seasonal sugarcane after current spells of rain. Undertake sowing of *rainfed* gram, wheat and green pea. Continue preparatory tillage in Western Ghat region for the sowing of *rabi* chickpea, wal, lentil and linseed after harvesting of the *kharif* crops.
- In Marathwada, complete harvesting of already matured groundnut and jowar and start harvesting of already matured *adsali* and pre-seasonal sugarcane after current spells of rain. Continue sowing of *rabi* jowar, safflower and *rainfed* gram. Continue planting of pre seasonal sugarcane.
- Undertake harvesting of groundnut and vegetables in Bhal and Coastal Zone of Gujarat. Carry out land preparation for sowing of winter crops. Apply irrigation in cotton.
- Complete harvesting and threshing of early varieties of *kharif* rice and sundry the harvested rice in South Gujarat Heavy Rainfall Zone.
- Continue land preparation and sowing of mustard, gram, carrot, cauliflower, brinjal, onion, raddish and fennel crops in North Gujarat Zone. Carry out sowing of chickpea, mustard and garlic in North Saurashtra Zone and sowing of sweet corn in South Gujarat Zone. Continue planting of sugarcane in South Gujarat Zone and South Gujarat Heavy Rainfall Zone.
- Spray NPK (19-19-19) and micronutrient 50 g / 10 litres of water in cotton and vegetables in North Saurashtra Zone for quick regrowth.
- Carry out intercultural operations and hand weeding in castor and pigeon pea in South Gujarat Heavy Rainfall Zone. Apply irrigation in castor crop.
- Under prevailing temperature (32-34°C) and humid weather in Western Ghat Region, there is possibility of attack of leaf roller in late maturing rice; spray Chlorpyrifos @ 15 ml in 10 litres of water after current spells of rain.
- Humid weather and rain in Pune region is congenial for the incidence of downy mildew in grapes; spray Metalaxyl-Mancozeb (0.2 %) 5 times at 12 days interval after current spells of rain.
- Due to light rain and humid weather, there may be attack of white wooly aphids in sugarcane in Kolhapur region; remove dried leaves on lower side and apply Themate @ 4 kg per acre after current spells of rain.
- Current weather is favourable for outbreak of sucking pests in vegetables in North Saurashtra Zone; spray Spinosad 3 ml / 10 litres of water against fruit borer and diamond back moth in brinjal, cauliflower, cabbage, tomato etc.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandary**
- In Gujarat, spray Deltamethrin or Amitraz 2 ml / litre of water for the control of tick and for prevention of foot & mouth disease in animals; carry out vaccination with FMD vaccine. Maintain proper nutrient supplement in animal's diet.

#### SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]



*Rice*



*Sugarcane*



*Groundnut*



*Black gram*



*Cotton*

- **Realized rainfall:** Significant rainfall occurred in all the districts of Rayalaseema; Coastal Andhra Pradesh; Hyderabad, Khammam, Mahbubnagar, Nalgonda and Rangareddy in Telangana; all the districts in Coastal Karnataka; Koppal, Raichur and Yadgir in North Interior Karnataka; most of the districts in

South Interior Karnataka except Chickmagalur; all the districts in Kerala; and in all the districts of Tamil Nadu. No significant rainfall occurred in the remaining parts of the region during the week ending 23.10.2013.

- **Rainfall Forecast:** Rain/thundershowers would occur at most places over Andhra Pradesh and Karnataka during next 48 hours and at many places thereafter, many places over Kerala, few places over Andaman & Nicobar Islands and Lakshadweep and mainly dry/dry over Tamil Nadu.
- **Weather Warning:** Heavy to very heavy rainfall would occur at a few places with extremely heavy rainfall at isolated places over coastal Andhra Pradesh, heavy to very heavy at a few places over Telangana, isolated places over Rayalaseema and heavy rainfall at isolated places over Karnataka on 25th; Heavy to very heavy rainfall would occur at a few places over Telangana and at isolated places over Coastal Andhra Pradesh and north interior Karnataka on 26th; Heavy to very rainfall would occur at isolated places over Telangana, heavy rainfall would occur at isolated places over coastal Andhra Pradesh and north interior Karnataka on 27th October.
- **Weather Outlook 4 days from 27<sup>th</sup> October to 31<sup>st</sup> October:** Rain/thundershower would occur at a few places over south peninsular India.
- **Advisory:**
  - Postpone intercultural operations, application of fertilizers and pesticides in standing crops in Andhra Pradesh, Kerala and Karnataka.
  - In North Coastal Andhra Pradesh drain out excess water from the standing crops of cotton, chilli, sugarcane, red gram. Maintain 5-7 cm standing water in rice. In rice crop apply 15-20 kg urea + 10 kg *Muriate of Potash* (MOP) as booster dose soon after draining of water and spray multi K (enriched Pottassium Nitrate) or KNO<sub>3</sub> (Potassium nitrate) @ 10 g per litre of water. Undertake propping in lodged sugarcane and apply 50 kg urea and 25 kg MOP /acre as booster dose. If wilting symptoms are observed in cotton and red gram crops, spray/drench with Copper oxy chloride @ 3g/ per litre of water at the base of the affected plants after current spells of heavy rain.
  - Postpone harvesting of early sown groundnut for next three days in the Scarce Rainfall Zone of Andhra Pradesh. Keep already harvested produce in safe places.
  - Postpone sowing of chickpea and safflower and sowing of *rabi* crops like maize, groundnut and sunflower in the Southern Telangana Zone of Andhra Pradesh. Provide adequate drainage in standing crop fields.
  - Drain out excess water from the standing crop fields like red gram and groundnut in the Eastern Dry zone of Karnataka.
  - Postpone sowing of *rabi* jowar and Bengal gram after proper seed treatment in the North East Transition Zone of Karnataka. Provide adequate drainage in already sown crop fields.
  - Postpone sowing of *rabi* jowar, safflower and Bengal gram in the North East Dry zone of Karnataka.
  - Continue transplanting of *Mundakan* rice in the Northern and Southern Zone of Kerala.
  - Continue sowing of short duration vegetable crops like Amaranthus, cowpea etc. in the interspaces of newly planted banana plantation in the High Altitude Zone of Kerala.
  - Continue new planting of banana and undertake sowing of *punja* rice in Kottayam district in the Problem Area Zone in Kerala.
  - Undertake sowing of pulses under rainfed condition in the Western Zone and transplanting of chillies in the South Zone of Tamil Nadu.
  - Arrange for drainage facilities in turmeric crop fields to avoid rhizome rot in the Western Zone of Tamil Nadu.
  - Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- Avoid water leakage in cattle and poultry sheds and protect feeds of animals and poultries from rain to avoid spreading of diseases in the Western Zone of Tamil Nadu.
- Blisters in the mouth of goats may rupture thus exposing the wound area. Feed intake will also be reduced. Wash mouth area with potassium permanganate solution and apply glycerine to hasten wound healing and to facilitate normal feed intake in the North Western Zone of Tamil Nadu.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.

## Annexure I Stages of Major Crops

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

- Tomato, brinjal, chilli flowering / fruiting), French bean, okra (fruiting/ harvesting), rice (grain formation), maize (cob maturity/harvesting), soybean (harvesting), peas (pod formation / maturity), cauliflower (transplanting), cucurbits viz. khira, bitter gourd, tori (fruiting/maturity), radish, carrot, turnip, beet leaf and fenugreek (direct sowing), gobhi sarsson (sowing), onion (planting), potato (tuber maturity/harvesting), apple (fruit maturity/harvesting) in Himachal Pradesh.
- Rice (harvesting), ginger (vegetative), sugarcane (vegetative / active vegetative), urad, moong, soybean (harvesting), sesame in low land area (early vegetative / vegetative), vegetable pea (sowing / germination), toria (sowing/germination), garlic, tomato, mustard (nursery sowing / transplanting), potato(planting / transplanting), Autumn sugarcane(planting), wheat, barley, oat(sowing), sarson, masoor(field preparation for sowing), coriander, spinach, radish, fenugreek(sowing) in Uttarakhand.
- Rice (maturity/harvesting), maize (cob maturity/harvesting), pole type beans (vegetative), sunflower (maturity/picking), radish, spinach (transplanting / early vegetative), carrot, turnip (sowing), onion, cole crops (nursery sowing / transplanting), fruit crops (planting), Kharif pulses (moong, mash) (pod maturity/harvesting), toria, gobi sarson, mustard (sowing /germination ), potato, palak, radish, carrot, turnip, garlic, methi, spinach (sowing / planting), brown sarson, oat, lentil, berseem(land preparation/sowing) in Jammu & Kashmir.
- Rice (maturity/harvesting), cotton (boll formation/ picking), tomato, brinjal, chilli (nursery sowing / transplanting), mothbean, pearl millet (maturity/harvesting), Shimla mirch (early vegetative / vegetative), groundnut (vegetative/pod development), new sugarcane (early vegetative / vegetative), soybean (Pod maturity/harvesting), sesame(flowering /capsule formation), castor (flowering), rainfed taramira, toria, gram and mustard, potato (field preparation / sowing), cucurbits (sowing), radish, Deshi carrot (sowing), cabbage and cauliflower (nursery sowing), onion(nursery raising) in Rajasthan.
- Rice (grain maturity/ harvesting), *Kharif* maize (maturity), fodder maize, bajra, sorghum and other fodder crops(vegetative / cutting), Lady's finger, chilli and cucurbits crop (flowering / fruiting / picking),brinjal, tomato, chilli, cauliflower and cabbage(vegetative / flowering), soybean (flower initiation/maturity), radish, spinach and coriander (vegetative), guar, bajra (flowering / grain filling), onion (vegetative), Cucurbitaceous crops (flowering / fruiting / picking), mustard, pea, carrot(land preparation / sowing) in Delhi.
- *Kharif* maize (cob maturity/harvesting), jowar, bajra, (flowering/grain filling/ milking), pigeon pea (vegetative/branching) rice (flowering/early grain formation), groundnut, arhar, moong and urad (vegetative/branching), tomato, brinjal, chilli (fruiting/picking), sesamum (capsule formation/capsule maturity), black gram, green gram (flowering/pod formation), spring sugarcane (active vegetative/grand growth), toria, potato (sowing / sprouting/early vegetative) in Uttar Pradesh.
- New sugarcane (tillering / vegetative), cotton (picking), cucurbits, cowpea (sowing), rice (grain formation / harvesting), black gram, green gram, soybean, arhar (vegetative/pod formation), moong, mash (vegetative) maize (cob formation / cob maturity) sesamum (vegetative), cauliflower (transplanting), potato(land preparation / planting) in Punjab.
- New sugarcane (vegetative), cotton (picking), rice (grain formation/maturity) in Haryana.

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

- *Kharif* rice (grain maturity/harvesting), onion (maturity/harvesting), maize (cob maturity/harvesting), jowar, arhar (vegetative/flowering), groundnut (flowering/pegging), sesame (capsule maturity/ harvesting), sugarcane (grand growth), vegetables (flowering/ fruiting ) in Madhya Pradesh.
- Sugarcane (elongation), kharif rice (grain maturity/harvesting), maize, jowar, groundnut (vegetative/flowering), ragi and kodomillet (vegetative), ginger, turmeric, papaya (vegetative), onion (vegetative), vegetable crops (flowering/ fruiting ) in Chhattisgarh.

### EAST INDIA [JHARKHAND, BIHAR, ORISSA, WEST BENGAL &SIKKIM]

- *Kharif* rice (grain maturity/harvesting), maize (cob maturity/harvesting), sugarcane (tillering / grand growth), onion (transplanting), urad (grain formation), yam (vegetative), arhar (vegetative) in Bihar.
- Kharif rice (flowering / grain formation), maize (cob maturity/harvesting), urad, marua (grain maturity / harvesting), arhar (vegetative), groundnut (pegging), onion (vegetative), ginger and turmeric (late vegetative), kharif vegetables viz. bhindi, bean, French bean (vegetative), tomato, cauliflower, cabbage (nursery sowing / transplanting), niger, horse gram (vegetative/flowering), sweet potato (stem elongation), green peas, potato, bell pepper (sowing) in Jharkhand.
- Rice (grain formation), pigeon pea, arhar, maize, and kharif vegetables (vegetative / flowering), fruit crops (planting), groundnut (pod maturity/harvesting), green gram, black gram, cowpea, sesame, ragi, castor, soybean (vegetative), cotton (boll maturity/ picking), turmeric, ginger, yam (vegetative), kharif vegetables (vegetative / flowering/fruiting), sugarcane (tillering), banana (planting / vegetative), mustard (sowing / seedling), marigold (planting/early vegetative) in Odisha.

- *Aman* rice (maturity / harvesting stage), ginger, turmeric (tuber formation), pigeon pea (vegetative), kharif vegetables (harvesting), brinjal, okra, tomato and chilli (flowering / fruiting), pointed gourd (fruiting), tomato (nursery sowing), early cabbage & cauliflower (seedbed preparation / sowing), winter flower (seedbed preparation) in West Bengal.
- Ginger (vegetative), large cardamom (secondary flowering), kharif vegetables (vegetative) in Sikkim.

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

- Sugarcane (Autumn) (planting), *sali* rice (flowering / grain formation), rapeseed and mustard (sowing), sesame (flowering / capsule formation), pigeon pea (flowering / pod formation), green gram and black gram (flowering / pod formation / maturity), ginger, turmeric (vegetative), early cauliflower, cabbage, knol-khol, brinjal (transplanting / early vegetative), niger (sowing), winter vegetables (nursery raising / transplanting), radish, carrot, spinach, beet (seedling), potato (planting) in Assam.
- Regular WRC rice (grain formation / grain maturity), sesame (vegetative), turmeric, ginger (vegetative), cauliflower and cabbage (transplanting / vegetative), radish, spinach, carrot (maturity / harvesting), mustard, maize (vegetative), pea (sowing), potato (planting/ early vegetative) in Arunachal Pradesh.
- *Kharif* rice (grain maturity / harvesting), groundnut (pod maturity / harvesting), soybean (pod maturity / harvesting), *rabi* vegetables, cole crops (nursery preparation / transplanting), black gram and rice bean (flowering / pod formation), potato (planting), onion (nursery raising) in Manipur.
- *Sali* rice (grain filling / grain maturity), turmeric and ginger (rhizome formation / rhizome maturity), green gram and black gram (vegetative), groundnut (pod maturity), potato (planting), rapeseed and mustard (sowing), cauliflower and other winter vegetables (sowing / nursery sowing) in Meghalaya.
- Ginger and turmeric (vegetative / rhizome formation), banana (fruiting / maturity / harvesting), cole crops (nursery raising) in Mizoram.
- Lowland rice (grain filling / grain maturity), maize (sowing), ginger (vegetative), cabbage (nursery raising), tomato (early vegetative), potato (planting) in Nagaland.
- *Aman* rice (long duration) (grain maturity), *aman* rice (short duration) (harvesting), *rabi* maize (sowing), banana (maturity / harvesting), early cauliflower, brinjal and radish (vegetative) in Tripura.

#### **WEST INDIA [GOA, MAHARASHTRA, GUJARAT]**

- *Kharif* rice (grain maturity / harvesting in mid late varieties and grain formation in late maturing varieties in Konkan and grain formation / grain maturity/ harvesting in Kolhapur, Nasik (ghat), Pune (west) region and East Vidarbha), cotton (boll formation / boll development in Madhya Maharashtra, Marathwada and Vidarbha), jowar (grain maturity / harvesting in Madhya Maharashtra, Marathwada and Vidarbha), red gram (flowering / pod formation in Madhya Maharashtra, Vidarbha and Marathwada), groundnut (pod maturity / harvesting in Madhya Maharashtra, Marathwada and Vidarbha), sugarcane (*adsali* and pre seasonal) (elongation / maturity), *suru* sugarcane (active tillering / elongation), New *adsali* sugarcane (early tillering in Marathwada and Madhya Maharashtra), pre-seasonal sugarcane (land preparation / planting in Marathwada and Madhya Maharashtra), *rabi* jowar (germination / early vegetative in Madhya Maharashtra and Marathwada), safflower (sowing / germination in Madhya Maharashtra and Marathwada), rainfed gram (sowing in Madhya Maharashtra and Marathwada), rainfed wheat (land preparation / sowing in Madhya Maharashtra and Marathwada) in Maharashtra.
- *Kharif* rice (maturity / harvesting), castor (capsule formation), groundnut (maturity / harvesting), cotton (boll formation / boll maturity / harvesting), vegetables (flowering / fruiting), sugarcane (vegetative / elongation), new sugarcane (planting), sweet corn, chickpea, mustard, garlic (sowing) and *rabi* vegetables (sowing / transplanting) in Gujarat.

#### **SOUTH INDIA [TN, AP, KERALA, KARNATAKA, LAKSHADWEEP, ANDAMAN & NICOBAR ISLANDS]**

- *Kharif* crops: early sown groundnut (harvesting), maize (cob development/ harvesting), Bt.cotton (boll maturity), late sown groundnut (pod maturity/harvest), cotton (boll development), pulses (vegetative/ flowering to pod formation in Krishna Godavari Zone of Andhra Pradesh and harvesting in North Coastal Zone), sugarcane (Jan-March planted) (grand growth), late sown *kharif* rice (panicle initiation / grain formation), castor(capsule development), banana (vegetative), onion (vegetative), *rabi* rice (tillering), *rabi* groundnut and pulses (land preparation/sowing), red gram (vegetative), bengal gram (sowing to seedling) and jowar (sowing), and vegetables (vegetative) in Andhra Pradesh.
- Sugarcane (grand growth), late samba rice (transplanting/ tillering), thaladi rice (nursery sowing/ transplanting to vegetative), direct sown rice (vegetative), cotton and maize (vegetative), onion (vegetative), sunflower (flowering), winter cotton (vegetative), groundnut (pod development / harvesting) and vegetables (vegetative) in Tamil Nadu.
- *Virippu* rice (harvesting), *Mundakan* rice (transplanting), Punja rice (Sowing in Kottayam district), arecanut (harvesting), sugarcane (grand growth), Nendran banana (harvesting/ planting), rubber (tapping/ planting), *kharif* vegetables (vegetative/fruiting), pepper (berry maturity), cardamom (harvesting), ginger (vegetative) in Kerala.
- Sugarcane (grand growth), new arecanut (planting), *kharif* crops: ragi (head emergence), maize(cob maturity/ harvesting), red gram(flowering), groundnut (pod formation/maturity), rice (grain formation), cotton (square formation /flowering),vegetable crops (flowering), *Rabi* Crops: Bengal gram, sunflower, sorghum, safflower and chickpea (sowing) in Karnataka.

## Annexure11

### Week by week Rainfall Distribution

State/Districts	25.09.13		02.10.13		09.10.13		16.10.13		23.10.13	
	Actual	% dep.								
<b>Arunachal Pradesh</b>										
Anjaw	**	**	**	**	**	**	**	**	**	**
Changlang	23.9	-64	17.5	-77	73.7	-25	3.1	-96	24.6	-58
Dibang Valley	1.0	-98	3.0	-96	78.0	36	5.0	-91	92.0	238
East Kameng	20.6	-64	41.5	-6	73.0	107	0.0	-100	1.2	-97
East Siang	1.5	-99	13.1	-87	117.2	35	4.2	-87	65.7	63
Kurung Kumey	**	**	**	**	**	**	**	**	**	**
Lohit	5.7	-91	11.4	-79	46.5	-40	2.0	-93	23.6	-31
Lower Dibang Valley	0.0	-100	20.9	-70	96.1	68	0.0	-100	78.5	189
Lower Subansari	**	**	**	**	**	**	**	**	0.0	-100
Papumpara	0.4	-99	158.7	68	70.2	-18	0.0	-100	16.1	-66
Tawang	71.0	-30	7.0	-93	67.0	-21	9.0	-84	7.0	-83
Tirap	40.3	-46	27.4	-69	64.5	-21	0.0	-100	24.3	-51
Upper Siang	162.0	-14	59.0	-50	35.0	-49	16.1	-80	76.3	32
Upper Subansari	11.8	-66	9.2	-78	19.2	32	0.0	-100	34.2	9
West Kameng	24.3	-76	89.3	-11	90.6	7	0.0	-100	37.7	-11
West Siang	0.0	-100	14.7	-69	11.9	-59	6.0	-81	25.2	-15
<b>Assam</b>										
Baksa	4.6	-95	32.2	-56	20.6	-64	0.0	-100	9.7	-65
Barpeta	55.3	-40	29.5	-60	74.0	28	1.0	-97	15.2	-46
Bongaigaon	60.4	-32	3.4	-96	147.4	130	5.2	-88	2.9	-91
Cachar	40.7	-33	12.3	-82	103.5	42	2.0	-96	8.1	-69
Chirang	44.1	-50	17.6	-79	132.1	106	4.5	-90	11.3	-64
Darrang	5.0	-86	37.0	-3	56.0	91	0.0	-100	5.0	-70
Dhemaji	14.0	-84	31.0	-58	22.0	-57	0.0	-100	8.5	-69
Dhubri	1.5	-97	61.1	-14	89.2	15	12.3	-57	0.5	-97
Dibrugarh	47.6	-18	63.2	12	96.5	112	0.1	-99	39.9	72
Goalpara	17.2	-74	54.9	-30	83.5	46	4.1	-91	0.0	-100
Golghat	47.8	17	31.2	0	84.2	199	2.8	-92	4.9	-69
Hailakandi	4.1	-93	7.9	-87	83.3	26	5.1	-89	16.9	-5
Jorhat	6.2	-89	52.3	4	79.6	108	0.0	-100	18.6	8
Kamrup(Rural)	62.3	95	27.5	-36	104.1	188	0.0	-100	0.1	-99
Kamrup(Metro)	22.8	-29	45.3	5	120.9	234	0.4	-98	16.5	-22
Karbi Anglong	28.4	-3	11.8	-68	62.6	66	1.9	-92	1.2	-96
Karimganj	33.3	-51	52.0	-23	108.3	-4	0.0	-100	9.6	-39
Kokrajhar	12.9	-88	41.7	-56	98.0	116	29.5	-34	1.1	-98
Lakhimpur	10.5	-88	40.6	-45	53.1	4	0.2	-99	24.7	-10
Morigaon	51.8	25	63.8	57	84.4	157	2.6	-94	2.3	-92
N.C.Hills	0.0	-100	30.0	-38	54.8	56	0.0	-100	2.3	-76
Nowgong	23.6	-46	64.1	48	102.0	165	5.9	-80	0.0	-100
Nalbari	15.7	-62	26.9	-41	96.2	148	1.1	-94	5.1	-74
Sonitpur	3.4	-92	53.8	33	53.7	112	0.0	-100	6.7	-74
Sibsagar	8.7	-77	55.5	84	48.1	58	0.0	-100	9.4	-40
Tinsukia	29.6	-53	37.8	-22	70.0	75	0.0	-100	29.8	-9
Udalgiri	8.3	-77	73.8	94	46.7	59	0.3	-99	2.6	-85

<b>Meghalaya</b>										
East Garo Hills	**	**	**	**	**	**	**	**	**	**
East Khasi Hills	15.0	-82	59.1	-47	274.8	184	2.4	-96	11.8	-75
Jaintia Hills	5.0	-96	96.0	-42	147.0	-37	0.0	-100	14.0	-79
Ribhoi	161.5	152	20.0	-62	71.6	110	2.7	-92	59.2	83
South Garo Hills	47.0	-25	21.0	-66	81.0	13	16.0	-52	0.0	-100
West Garo Hills	38.6	-39	86.4	40	50.8	-29	0.4	-99	4.4	-78
West Khasi Hills	4.0	-96	12.0	-84	5.0	-92	6.0	-91	0.0	-100
<b>Mizoram</b>										
Aizwal	127.1	79	49.0	-41	44.8	-53	7.7	-85	38.2	10
Champhai	18.0	-72	43.0	-22	47.0	-46	1.0	-98	12.0	-64
Kolasib	**	**	**	**	13.0	-86	1.0	-98	47.0	60
Lawngtlai	29.0	-68	**	**	56.0	-40	1.0	-98	**	**
Lunglei	45.0	-59	90.0	12	55.0	-42	8.0	-85	10.5	-72
Mamit	111.0	56	41.0	-50	50.0	-48	12.0	-77	8.0	-77
Saiha	76.0	-27	138.0	88	65.0	-33	15.0	-50	48.5	55
Serchhip	29.0	-65	9.0	-87	50.0	-23	23.0	-40	1.5	-94
<b>Manipur</b>										
Bishnupur	1.0	-97	0.0	-100	69.0	-15	0.0	-100	9.0	-44
Chandel	0.0	-100	14.0	-88	31.0	-60	0.0	-100	12.0	-59
Churachandpur	5.0	-94	24.0	-66	52.0	-11	1.0	-97	6.0	-62
Imphal east	0.0	-100	43.4	10	46.8	-9	0.2	-99	10.1	-24
Imphal west	**	**	**	**	**	**	**	**	**	**
Senapati	0.0	-100	14.0	-72	75.0	32	6.0	-83	2.0	-88
Tamenglong	**	**	**	**	**	**	**	**	**	**
Thoubal	1.0	-96	47.0	74	46.0	94	3.0	-84	3.5	-56
Ukhrul	25.0	-40	104.0	85	94.0	173	5.0	-85	4.0	-65
<b>Nagaland</b>										
Dimapur	26.7	-2	25.5	158	102.3	77	0.0	-100	0.0	-100
Kephire	5.0	-89	9.0	-86	6.0	-88	2.0	-93	2.5	-75
Kohima	53.2	13	36.9	-11	50.5	11	5.5	-82	28.6	28
Longleng	**	**	**	**	**	**	**	**	**	**
Mokokchung	63.0	142	33.0	48	55.0	-23	9.0	-50	12.0	-49
Mon	**	**	**	**	**	**	**	**	**	**
Paren	**	**	**	**	**	**	**	**	**	**
Phek	0.0	-100	45.0	9	119.0	161	1.0	-97	18.0	-20
Tuensang	**	**	**	**	**	**	**	**	**	**
Wokha	32.0	-24	50.0	66	117.0	127	11.0	-55	3.0	-89
Zunheboto	**	**	**	**	**	**	**	**	**	**
<b>Tripura</b>										
Dhalai	35.8	-19	21.8	-66	68.4	10	0.0	-100	16.5	-44
North tripura	31.3	-37	14.5	-77	65.8	7	3.0	-93	29.4	28
South tripura	68.5	18	75.7	21	109.6	93	5.7	-88	16.3	-42
West tripura	64.0	27	45.1	-16	138.8	114	10.1	-76	13.7	-44
<b>Himachal Pradesh</b>										
Bilaspur	2.6	-92	18.1	3	3.3	-68	2.9	-42	0.0	-100
Chamba	12.5	-73	13.0	-48	0.0	-100	0.0	-100	0.0	-100
Hamirpur	2.6	-91	7.8	-72	14.4	-7	8.0	-44	0.0	-100
Kangra	27.9	-18	48.1	72	32.6	36	37.5	275	0.0	-100

Kinnaur	61.7	204	4.6	-47	0.0	-100	4.8	-59	0.0	-100
Kullu	9.5	-54	16.6	58	0.9	-90	8.5	33	0.3	-98
Lahaul and Spiti	8.8	-68	2.1	-87	0.0	-100	1.1	-93	0.0	-100
Mandi	19.9	-29	20.3	18	7.0	-48	5.2	-34	0.0	-100
Shimla	23.3	-7	20.6	68	6.6	-45	2.5	-69	0.0	-100
Sirmaur	22.1	-30	12.0	-49	31.3	77	1.4	-90	0.2	-97
Solan	21.5	-36	34.6	50	4.4	-74	2.1	-85	0.0	-100
Una	4.2	-87	24.4	13	27.5	37	24.6	402	0.0	-100
<b>Punjab</b>										
Amritsar	1.3	-93	2.8	-82	4.8	-69	24.9	329	0.0	-100
Barnala	4.5	-73	0.0	-100	0.0	-100	4.5	-6	0.0	-100
Bhatinda	0.0	-100	10.0	6	0.0	-100	0.0	-100	0.0	-100
Faridkot	0.5	-96	2.5	-69	0.0	-100	36.0	1900	0.0	-100
Fatehgarh Sahib	9.0	-72	0.0	-100	20.0	108	5.0	6	0.0	-100
Ferozpur	0.0	-100	0.0	-100	0.0	-100	9.3	211	0.0	-100
Gurdaspur	9.1	-57	23.6	2	45.5	126	26.4	277	0.0	-100
Hoshiarpur	9.2	-72	12.8	-38	8.8	-43	3.4	-50	0.0	-100
Jalandhar	5.7	-74	11.5	-35	0.0	-100	2.9	-50	0.0	-100
Kapurthala	7.6	-58	9.0	-41	0.0	-100	13.1	58	0.0	-100
Ludhiana	7.9	-67	0.0	-100	4.7	-64	10.1	90	0.0	-100
Mansa	11.1	-36	0.5	-95	0.0	-100	0.0	-100	0.0	-100
Moga	1.0	-92	0.0	-100	6.2	-56	6.0	67	0.0	-100
Muktesar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nawashahar	3.7	-91	7.8	-64	5.4	-55	4.0	-52	0.0	-100
Patiala	17.6	-33	0.1	-99	0.0	-100	3.7	-33	0.0	-100
Ropar	3.2	-90	20.6	62	5.2	-33	3.5	-31	0.0	-100
Sangrur	11.3	-52	0.2	-98	0.0	-100	6.4	19	0.0	-100
Mohali	1.0	-95	48.0	236	10.0	28	4.0	-38	0.0	-100
TarnTaran	0.0	-100	0.0	-100	0.0	-100	28.7	616	0.0	-100
<b>Haryana</b>										
Ambala	24.2	-26	5.7	-78	5.0	-70	3.7	-60	0.0	-100
Bhiwani	24.7	120	0.2	-95	0.0	-100	9.5	333	0.0	-100
Chandigarh	37.7	18	2.1	-91	17.7	6	5.6	-14	0.0	-100
Faridabad	39.3	160	22.0	67	0.0	-100	1.3	-64	0.0	-100
Fatehabad	10.3	-24	2.3	-51	0.8	-87	1.0	-38	0.0	-100
Gurgaon	9.0	5	25.1	230	0.0	-100	0.0	-100	0.0	-100
Hissar	93.3	647	12.2	164	1.0	-85	0.4	-68	0.0	-100
Jhajar	25.6	137	14.4	194	0.3	-92	1.0	-44	0.0	-100
Jind	3.4	-86	1.0	-89	0.0	-100	2.2	-2	0.0	-100
Katihah	24.2	89	1.2	-88	0.0	-100	6.3	69	0.0	-100
Karnal	31.6	53	0.0	-100	0.0	-100	17.2	173	0.0	-100
Kurukshetra	20.5	15	0.0	-100	0.0	-100	7.7	51	0.0	-100
Mahendragarh	35.9	428	4.0	3	0.0	-100	0.1	-96	0.0	-100
Mewat	31.0	230	2.7	-83	0.0	-100	15.0	456	0.0	-100
Palwal	24.0	97	30.2	94	0.0	-100	17.8	224	0.0	-100
Panchkkula	16.5	-41	1.9	-89	17.5	165	0.5	-92	0.0	-100
Panipat	11.7	-30	2.7	-78	1.4	-85	16.2	252	0.0	-100
Rewari	45.4	399	29.8	309	0.0	-100	44.2	5425	0.0	-100
Rohtak	20.9	92	12.4	143	0.0	-100	17.0	639	0.0	-100



<b>Pradesh</b>										
Alirajpur	197.2	597	28.3	30	48.5	276	22.4	143	0.0	-100
Asoknagar	53.0	93	3.0	-75	115.3	1076	0.0	-100	0.0	-100
Badwani	188.7	515	15.4	-31	11.9	3	9.6	-28	0.0	-100
Betul	58.4	88	10.3	-40	51.3	204	31.7	79	0.0	-100
Bhind	2.0	-91	3.0	-75	79.7	366	19.5	33	0.0	-100
Bhopal	36.3	23	3.7	-82	25.9	116	0.0	-100	0.0	-100
Burhanpur	108.3	344	9.3	-50	23.1	53	41.3	124	0.0	-100
Datia	27.7	9	15.4	13	75.0	291	1.4	-90	0.0	-100
Dewas	100.8	223	0.0	-100	36.5	157	6.6	-44	0.0	-100
Dhar	149.7	351	22.8	-20	56.2	267	18.8	65	0.0	-100
Guna	51.5	89	0.9	-93	36.1	123	11.8	202	0.0	-100
Gwalior	24.9	4	0.2	-98	58.5	215	15.1	7	0.0	-100
Harda	123.2	253	0.0	-100	31.2	92	34.7	159	0.0	-100
Hosangabad	64.4	69	5.8	-72	30.3	120	11.6	-3	0.0	-100
Indore	141.1	264	3.7	-87	73.5	287	35.2	346	0.0	-100
Jhabua	93.2	252	38.1	46	70.3	563	7.5	-40	0.0	-100
Khandwa	168.0	364	3.0	-84	6.5	-57	20.5	83	0.0	-100
Khargone	103.1	204	9.1	-56	10.7	-27	29.8	273	0.0	-100
Mandsaur	69.5	207	3.0	-76	17.8	2	12.2	53	0.0	-100
Morena	29.8	93	0.0	-100	57.0	371	15.0	70	0.0	-100
Neemuch	71.6	324	36.9	173	8.2	-48	15.3	113	0.0	-100
Raisen	43.1	35	2.6	-83	57.1	329	12.4	36	0.0	-100
Rajgarh	55.0	117	5.5	-60	44.4	308	1.3	-86	0.0	-100
Ratlam	101.3	200	80.7	257	61.8	220	17.4	39	0.0	-100
Sehore	62.4	94	3.4	-83	15.1	12	7.5	-34	0.0	-100
Shajapur	64.3	105	1.8	-89	31.3	104	4.0	-57	0.0	-100
Sheopur Kalani	6.7	-54	0.5	-94	20.7	43	30.0	341	2.0	-51
Shivpuri	32.3	64	45.0	359	51.5	239	0.8	-91	0.0	-100
Ujjain	80.7	173	14.5	-33	41.6	157	11.3	0	0.0	-100
Vidisha	49.4	132	1.2	-91	17.9	79	1.6	-74	0.0	-100
<b>Chhattisgarh</b>										
Bastar	23.2	-47	113.8	264	10.2	-65	15.2	-11	38.2	232
Bijapur	62.2	51	21.6	-37	33.3	0	45.0	107	7.8	-46
Bilaspur	24.1	-29	102.3	306	174.1	717	19.2	199	3.7	-69
Dantewara	66.9	74	24.6	-24	10.3	-69	36.0	79	42.4	165
Dhamtari	39.4	-10	56.6	214	115.8	459	5.6	-49	25.4	142
Durg	52.8	15	83.4	242	65.6	208	52.1	460	1.0	-90
Janjgir	42.6	-2	128.0	406	78.8	501	30.5	349	1.8	-81
Jashpurnagar	33.1	-22	79.9	121	43.6	74	103.8	631	2.6	-77
Kanker	34.6	-17	81.1	162	74.0	226	45.7	213	16.3	14
Korba	18.5	-39	66.9	157	98.0	508	18.5	146	0.0	-100
Koriya	47.5	100	18.1	-14	44.0	368	31.8	412	5.0	-18
Kawardha	107.0	194	45.0	75	63.0	151	74.0	663	0.0	-100
Mahasumund	93.7	165	80.6	444	42.3	127	23.3	97	0.5	-93
Narayanpur	38.6	-6	61.4	146	33.7	20	31.2	38	7.3	-34
Raigarh	50.4	39	78.2	194	87.3	439	21.9	81	0.0	-100
Raipur	75.5	107	74.2	242	62.2	255	10.4	-14	17.9	84
Rajandgaon	48.5	11	25.3	6	52.6	119	32.9	210	12.8	3

Surguja	9.3	-71	33.4	23	39.7	132	35.5	299	1.3	-87
<b>East Uttar Pradesh</b>										
Allahabad	22.6	-19	25.9	55	168.0	839	44.2	474	6.1	14
Ambedkar Nagar	2.0	-93	37.0	62	80.0	340	73.0	602	1.0	-88
Azamgarh	20.7	-48	11.6	-55	77.0	267	71.3	850	3.5	-45
Bahraich	3.3	-89	60.8	110	23.7	-8	8.6	-42	0.5	-90
Ballia	25.5	-23	6.3	-70	60.3	277	55.2	416	42.6	536
Balrampur	0.0	-100	68.1	108	24.7	-45	29.0	110	0.8	-89
Banda	16.4	-25	9.7	-31	114.5	598	5.8	-51	0.0	-100
Barabanki	6.1	-82	32.8	35	25.3	18	9.0	-47	0.0	-100
Basti	9.1	-75	51.7	112	75.7	288	51.0	227	2.7	-52
Chandauli	5.2	-79	21.2	-5	25.0	57	44.2	750	0.0	-100
Deoria	38.0	-6	17.0	-42	86.5	215	106.8	853	36.0	490
Faizabad	2.8	-91	28.2	2	35.7	47	5.5	-53	0.5	-95
Farrukhabad	11.7	-29	36.4	79	30.9	22	7.1	-46	0.0	-100
Fatehpur	14.8	-44	11.7	-26	43.6	177	17.4	11	0.0	-100
Gazipur	88.2	161	5.5	-84	95.3	325	102.3	1117	16.9	138
Gonda	9.7	-74	7.2	-77	118.3	311	6.7	-59	0.3	-95
Gorakhpur	5.7	-84	30.3	-11	63.6	97	92.2	396	3.0	-67
Hardoi	5.4	-77	16.8	-25	27.1	8	6.6	-68	0.0	-100
Jaunpur	16.0	-55	18.7	-19	79.4	403	46.8	508	21.7	456
Kannauj	4.4	-78	21.0	7	56.6	87	0.0	-100	0.0	-100
Kanpur City	6.6	-67	40.5	105	88.7	253	3.5	-82	0.0	-100
Kanpur Dehat	0.7	-97	9.0	-52	57.3	148	1.3	-89	0.0	-100
Kaushambi	12.3	-59	0.7	-96	59.6	314	10.9	-9	0.0	-100
Kheri	21.7	-48	23.8	-7	22.0	-37	11.9	-32	0.0	-100
Kushi nagar	10.0	-74	16.5	-64	40.5	17	53.0	172	0.0	-100
Lucknow	6.1	-78	14.3	-34	31.2	33	10.3	-39	0.0	-100
Maharajganj	0.0	-100	23.8	-23	7.2	-80	94.1	390	0.0	-100
Mau	12.5	-62	7.5	-75	71.0	229	46.0	304	22.5	341
Mirzapur	28.4	-14	9.7	-55	79.8	422	53.1	589	10.9	153
Pratapgarh	17.7	-36	11.0	-43	67.9	392	28.0	172	6.0	-6
RaiBareilly	2.4	-91	16.0	-13	40.4	67	18.4	-7	4.0	-38
Sahuji Maharajnagar	47.8	88	4.8	-73	91.5	310	8.0	3	0.0	-100
Sant Kabirnagar	16.0	-48	7.0	-72	45.0	82	96.0	674	2.0	-68
Sant Ravidas Nagar	7.0	-71	0.0	-100	116.0	630	63.0	1112	12.0	380
Shrawasti	57.3	88	16.2	-44	17.2	-33	19.2	28	0.0	-100
Sidharthnagar	0.0	-100	9.9	-65	14.3	-57	41.1	184	0.1	-98
Sitapur	4.7	-84	22.6	-11	22.2	-29	1.1	-92	0.0	-100
Sonbhadra	22.3	-27	27.5	12	62.3	292	48.0	713	0.0	-100
Sultanpur	16.5	-45	38.3	94	33.8	110	7.9	-53	10.8	44
Unnao	7.3	-73	18.8	-16	92.9	302	7.8	-66	0.0	-100
Varanasi	5.1	-87	34.6	52	91.4	405	49.2	478	13.8	253
<b>West Uttar Pradesh</b>										
Agra	6.7	-55	56.6	256	71.3	514	12.0	106	0.0	-100
Aligarh	4.9	-71	36.2	54	9.5	-42	26.9	169	0.0	-100
Auraiya	0.0	-100	4.0	-82	23.0	7	0.0	-100	0.0	-100
Badaun	10.0	-59	59.8	296	45.6	56	4.4	-73	0.0	-100
Baghpat	64.2	468	7.4	-61	0.0	-100	57.8	1652	0.0	-100

Bareilly	34.2	8	46.2	166	33.1	18	12.5	-27	0.0	-100
Bijnor	14.3	-33	15.4	-43	1.5	-90	38.8	300	0.0	-100
Bulandsahar	1.4	-93	5.8	-78	6.8	-56	12.7	74	0.0	-100
Etah	15.3	2	19.7	50	47.7	155	5.3	-60	0.0	-100
Etawah	9.0	-52	22.3	50	15.0	-32	2.0	-86	0.0	-100
Firozabad	10.2	-50	28.3	111	68.6	246	4.6	-45	0.0	-100
GBNagar	17.0	-4	0.0	-100	0.0	-100	17.0	68	0.0	-100
Ghaziabad	16.1	14	0.5	-98	0.0	-100	4.5	-42	0.0	-100
Hamirpur	1.5	-92	68.5	404	103.5	448	1.0	-86	0.0	-100
Jalaun	4.5	-76	33.5	118	122.7	401	18.7	54	0.0	-100
Jhansi	12.5	-39	8.6	-46	149.7	656	7.9	-19	0.0	-100
Jotirba Phule Nagar	27.0	0	0.0	-100	0.0	-100	17.0	40	0.0	-100
Kanshiramnagar	11.5	-29	30.0	63	84.0	270	0.0	-100	0.0	-100
Lalitpur	33.0	57	14.5	18	84.5	422	0.0	-100	0.0	-100
Mahamaya Nagar	0.0	-100	29.5	38	23.5	112	25.0	160	0.0	-100
Mahoba	4.4	-73	0.0	-100	64.4	491	0.0	-100	0.0	-100
Mainpuri	26.3	63	16.7	8	59.5	169	6.6	-38	0.0	-100
Mathura	5.0	-61	11.0	-25	31.3	192	3.0	-50	0.0	-100
Meerut	42.4	104	4.7	-81	0.0	-100	56.4	781	0.0	-100
Moradabad	29.0	-11	16.9	-10	6.1	-67	31.0	152	0.0	-100
Muzzaffarnagar	42.1	109	3.5	-83	0.0	-100	65.4	891	0.0	-100
Pilibhit	28.0	-32	17.0	-34	26.7	-29	7.3	-45	0.0	-100
Rampur	23.1	-44	22.5	59	6.4		21.5	79	0.0	-100
Saharanpur	14.3	-9	0.7	-96	2.7	-84	69.3	670	0.0	-100
Shahjahanpur	2.1	-90	8.0	-71	15.7	-51	17.4	4	0.0	-100
<b>Uttarakhand</b>										
Almora	17.3	-45	22.0	-9	10.6	-53	2.4	-85	0.0	-100
Bageshwar	15.0	-53	45.7	90	5.5	-75	2.2	-86	2.0	-59
Chamoli	37.4	63	32.4	129	1.3	-90	9.2	-37	0.3	-96
Champawat	14.5	-70	27.5	-3	15.0	-33	20.5	-37	0.0	-100
Dehradun	30.2	-19	49.7	79	31.2	13	0.8	-96	3.0	-50
Garhwal Pauri	19.1	-28	14.9	-36	0.0	-100	0.7	-96	0.0	-100
Garhwal Tehri	22.2	-1	16.3	10	0.2	-99	0.2	-99	2.7	-65
Haridwar	6.0	-71	4.9	-74	0.0	-100	22.7	203	0.0	-100
Nainital	11.6	-79	26.2	-13	5.0	-84	8.7	-69	0.0	-100
Pithoragarh	18.7	-64	52.9	67	4.5	-79	12.4	-45	2.8	-59
Rudraprayag	27.6	-8	43.5	75	0.9	-96	1.8	-88	1.0	-77
Udham Sing Nagar	12.9	-68	27.8	-17	11.7	-56	54.3	148	0.0	-100
Uttarkashi	54.4	70	39.3	64	11.0	-54	18.2	22	9.0	33
<b>Bihar</b>										
Araria	11.7	-76	49.4	-18	62.4	79	169.2	944	0.0	-100
Arwal	24.6	-27	0.0	-100	11.4	2	143.2	1810	0.0	-100
Aurangabad	40.2	52	5.7	-74	43.8	170	71.2	748	0.0	-100
Banka	15.4	-67	28.8	-53	81.8	126	184.6	1083	14.0	57
Begusarai	23.2	-56	49.1	23	20.0	-7	199.7	1838	3.0	-79
Bhabua	25.0	-36	114.5	312	28.8	50	52.6	611	0.7	-85
Bhagalpur	20.5	-61	47.5	-11	15.1	-55	235.0	1143	44.3	195
Bhojpur	43.1	17	3.2	-88	55.9	144	173.4	2308	66.6	1181
Buxar	27.6	16	3.8	-79	43.2	29	105.2	1518	0.4	-92

Darbhanga	3.0	-92	28.5	-35	62.4	90	143.5	1349	4.8	-36
East Champaran	19.5	-47	4.6	-88	92.4	137	112.8	667	22.4	220
Gaya	34.5	9	9.8	-70	33.2	51	111.6	1495	1.0	-89
Gopalganj	0.0	-100	14.9	-52	95.3	278	81.5	758	53.5	430
Jahanabad	12.4	-70	6.8	-78	8.1	-48	99.5	1099	0.0	-100
Jamui	26.2	-47	20.1	-64	14.9	-50	153.9	1215	26.1	129
Kathihar	10.9	-78	59.9	-14	14.9	-58	282.1	2193	20.8	70
Khagadia	111.2	61	44.8	-10	21.6	-34	124.1	848	0.4	-98
Kishanganj	17.3	-73	58.6	-7	22.8	-32	98.6	309	0.0	-100
Lakhisarai	35.0	-38	35.0	-30	5.0	-83	75.0	440	0.0	-100
Madhepura	17.3	-57	68.9	31	41.7	19	259.9	1692	0.0	-100
Madhubani	4.6	-87	17.6	-52	74.8	117	108.6	634	7.5	-56
Monghyar	24.2	-57	17.7	-65	5.5	-81	167.8	1107	0.0	-100
Muzaffarpur	4.4	-89	6.5	-83	80.5	145	123.4	828	26.9	327
Nalanda	28.4	-35	41.6	33	23.0	0	123.3	1544	16.9	94
Nawada	56.8	89	3.4	-92	25.0	-5	95.7	1067	2.5	-70
Patna	14.6	-65	9.8	-76	27.1	0	129.1	1042	32.5	460
Purnea	25.6	-49	42.0	-41	8.0	-79	203.2	1211	1.8	-88
Rohtas	32.9	17	26.2	25	36.9	65	72.7	870	0.0	-100
Saharsha	32.0	-35	26.7	-58	10.4	-70	132.2	818	0.0	-100
Samstipur	11.8	-80	16.8	-67	26.5	-24	169.5	1595	18.3	358
Saran	25.7	-29	12.1	-70	62.9	145	103.3	903	86.0	1079
Sheikpura	5.3	-87	26.3	-18	11.0	-58	113.3	930	7.7	-35
Sheohar	20.6	-42	0.0	-100	89.6	195	59.2	345	13.6	19
Sitamarhi	8.2	-77	3.0	-92	36.3	19	97.2	631	17.0	49
Siwan	37.1	-10	22.5	-35	133.2	770	102.0	1278	147.7	1723
Supaul	23.4	-38	23.4	-52	45.0	22	126.4	920	0.0	-100
Vaishali	21.6	-53	11.4	-77	50.4	49	97.8	743	24.5	158
West Champaran	0.0	-100	13.4	-66	25.6	7	110.5	542	5.9	-39
<b>Jharkhand</b>										
Bokaro	46.9	35	97.4	98	38.1	16	221.8	1182	15.2	48
Chatra	9.7	-74	56.7	31	71.2	175	67.3	774	7.7	-5
Deoghar	27.0	-54	60.4	-4	19.2	-32	0.0	-100	3.9	-74
Dhanbad	46.4	-4	131.1	89	49.0	25	151.4	877	3.3	-79
Dumka	44.1	-9	37.4	-53	68.8	35	0.0	-100	**	**
East Singbhum	113.2	185	128.0	194	34.7	53	155.7	873	15.8	18
Garhwa	2.0	-93	70.8	155	28.0	43	46.9	178	6.0	28
Giridih	32.1	-23	58.3	-4	82.0	152	136.4	1086	3.0	-76
Godda	22.8	-42	30.7	-45	24.8	-22	194.8	1125	14.9	-22
Gumla	57.3	30	59.6	53	88.8	267	136.7	951	**	**
Hazaribagh	36.9	14	73.2	77	54.9	109	124.8	1035	14.9	-38
Jamtara	65.2	32	40.8	-48	60.2	15	112.9	689	2.8	-87
Khunti	74.2	77	57.5	39	17.5	-35	137.0	735	30.0	216
Koderrna	22.6	-49	65.6	29	38.8	6	0.0	-100	0.0	-100
Latehar	15.6	-49	180.1	329	98.5	316	80.5	730	0.0	-100
Lohardagga	61.2	58	160.1	306	49.5	110	79.5	803	7.6	-42
Pakur	27.0	-69	109.3	46	70.4	25	196.8	484	8.0	-65
Palamau	24.3	-31	71.6	138	63.3	286	113.7	864	2.0	-67
Ramgarh	50.4	38	203.0	422	64.4	110	123.4	964	1.0	-92

Ranchi	33.4	-19	189.0	324	43.3	81	120.3	697	6.2	-59
Sahebganj	0.0	-100	170.8	73	72.6	103	0.0	-100	0.0	-100
Saraikela	55.0	42	117.3	157	17.3	-30	3.0	-78	0.0	-100
Simdega	56.8	35	64.9	66	53.5	143	119.6	813	0.0	-100
West Singbhum	40.1	1	36.9	-4	71.5	215	224.8	1222	0.0	-100
<b>East Rajasthan</b>										
Ajmer	37.1	370	114.2	2905	0.0	-100	9.5	375	0.0	-100
Alwar	48.0	281	**	**	**	**	20.8	372	0.0	-100
Banswara	79.2	279	95.8	589	28.7	178	7.2	-19	0.0	-100
Baran	21.6	21	0.0	-100	31.8	208	0.5	-93	0.0	-100
Bharatpur	10.5	3	23.1	157	28.3	272	2.3	-60	0.0	-100
Bhilwara	59.1	373	39.4	412	0.3	-93	1.7	-33	0.0	-100
Bundi	35.0	157	1.0	-89	12.7	78	18.8	214	0.0	-100
Chittorgarh	76.7	440	39.3	260	5.9	-23	5.9	20	0.0	-100
Dausa	21.0	52	12.4	46	0.2	-97	26.6	478	0.0	-100
Dholpur	18.3	38	27.8	181	115.8	1216	13.3	13	0.0	-100
Dungarpur	71.7	451	118.6	1086	53.1	717	10.8	134	0.0	-100
Jaipur	16.1	76	14.7	144	0.0	-99	14.9	365	0.0	-100
Jhalawar	61.5	167	23.0	83	27.2	155	3.5	-65	0.0	-100
Jhunjhunu	28.3	167	22.3	291	0.0	-100	8.4	265	0.0	-100
Karauli	10.2	-9	11.2	53	0.3	-95	0.0	-100	0.0	-100
Kota	55.2	219	11.2	44	51.0	530	8.2	-23	0.0	-100
Pratapgarh	66.2	178	57.0	206	46.8	169	11.0	57	0.0	-100
Rajsamand	40.1	164	80.6	974	16.9	356	4.7	68	0.0	-100
Sawai Madhopur	29.0	146	7.5	-25	12.5	24	0.4	-93	0.0	-100
Sikar	27.9	342	28.0	383	0.4	-91	8.1	329	0.0	-100
Sirohi	39.8	213	189.3	1980	67.4	2148	22.6	630	0.0	-100
Tonk	13.6	23	3.8	-14	1.6	-73	8.7	90	0.0	-100
Udaipur	59.6	287	93.1	812	6.4	18	26.5	615	0.0	-100
<b>West Rajasthan</b>										
Barmer	8.8	108	60.3	1488	5.1	361	4.5	457	0.0	-100
Bikaner	6.7	-5	1.1	-70	0.0	-100	1.7	108	0.0	-100
Churu	29.8	260	11.1	71	6.2	48	0.1	-94	0.0	-100
Hanumangarh	3.0	-53	23.4	681	0.0	-100	0.0	-100	0.0	-100
Jaisalmer	5.1	199	4.1	245	0.0	-100	0.0	-100	0.0	-100
Jalore	23.4	388	134.6	3184	13.6	1034	18.6	1142	0.0	-100
Jodhpur	14.2	150	85.0	2400	0.4	-70	0.0	-100	0.0	-100
Nagaur	15.6	108	98.5	2636	1.4	-52	10.1	1022	0.0	-100
Pali	16.8	95	99.6	2520	10.7	312	4.7	74	0.0	-100
Sri Ganganagar	0.2	-97	5.3	231	0.0	-100	0.0	-100	0.0	-100
<b>Gujarat Region</b>										
Ahmedabad	116.8	668	97.0	758	52.5	540	8.0	63	0.0	-100
Anand	186.8	915	78.7	540	18.6	205	1.1	-84	0.0	-100
Banaskantha	28.3	233	238.4	2844	46.8	1238	27.7	432	0.0	-100
Baroda	414.5	1488	56.2	180	32.0	213	8.5	1	0.0	-100
Broach	334.6	1078	112.3	344	37.2	284	3.5	-39	0.2	-84
DNH	552.5	459	9.1	-86	17.4	85	62.7	465	21.0	176
Dahod	79.4	245	34.5	84	20.1	69	12.1	50	0.0	-100
Daman	191.4	94	29.6	-54	63.8	579	9.0	-19	0.0	-100

Dangs	308.5	415	4.0	-94	25.8	29	15.3	-26	3.3	-68
Gandhinagar	125.8	717	65.4	381	54.7	693	14.4	167	0.3	-89
Kheda	151.1	652	81.8	554	37.6	453	4.3	-18	0.0	-100
Mehsana	50.7	284	79.7	605	40.5	523	19.6	232	0.0	-100
Narmada	608.8	2059	17.3	-46	36.1	268	10.0	8	0.0	-100
Navsari	319.2	681	64.1	23	31.7	138	8.7	-29	0.0	-100
Panchmahal	135.5	469	66.7	354	36.7	358	8.3	4	0.1	-97
Patan	37.2	389	121.3	1683	42.0	1034	9.8	324	0.0	-100
Sabarkantha	71.8	304	121.4	956	35.3	326	30.6	386	0.0	-100
Surat	319.9	824	110.4	169	33.5	199	15.8	86	0.0	-100
Tapi	248.2	611	26.7	-42	26.6	221	30.0	417	0.0	-100
Valsad	360.1	606	20.9	-65	32.8	119	24.5	76	0.0	-99
<b>S K &amp; Diu region</b>										
Amreli	51.7	104	154.7	706	52.0	752	31.8	405	0.0	-100
Bhavnagar	110.3	350	118.2	648	23.6	252	22.1	206	0.0	-100
Diu	73.0	668	83.6	548	82.6	1080	13.0	-23	0.0	-100
Jamnagar	39.4	463	328.5	3906	0.1	-98	17.1	167	0.0	-100
Junagarh	60.3	233	157.9	846	36.4	461	12.6	73	0.0	-100
Kutch	45.5	828	282.5	6042	2.7	8	7.3	16	0.0	-100
Porbandar	14.0	-1	226.2	1867	26.4	355	7.3	86	0.0	-100
Rajkot	99.3	488	272.9	1952	19.4	146	9.1	40	0.0	-100
Surendranagar	106.8	593	136.3	1173	17.3	128	2.8	-42	0.0	-100
<b>Maharashtra</b>										
<b>Konkan &amp; Goa</b>										
Goa	143.4	188	100.8	44	98.6	74	22.2	-3	18.9	-43
Mumbai	119.1	83	76.5	26	23.5	-34	34.1	97	8.6	-9
Raigad	68.9	-9	70.7	-14	46.5	2	30.9	16	5.6	-65
Ratnagiri	133.1	99	87.3	5	190.9	252	35.1	20	12.5	-47
Sindhudurg	113.4	88	82.2	11	80.1	52	16.4	-37	17.4	-31
Thane	168.3	157	28.1	-56	47.3	46	45.3	98	9.2	-19
<b>Madhya Maharashtra</b>										
Ahmednagar	36.4	-1	6.6	-83	26.6	9	41.5	113	0.6	-95
Dhule	68.2	131	35.6	34	8.5	-51	48.5	301	0.0	-99
Jalgaon	75.3	180	8.6	-62	20.7	27	33.6	133	0.1	-97
Kolhapur	47.2	9	27.9	-45	15.6	-65	4.7	-79	5.7	-75
Nandurbar	306.8	980	31.8	4	28.0	124	18.2	32	0.7	-80
Nasik	104.7	167	4.7	-89	30.0	27	48.8	170	2.1	-78
Pune	56.2	29	8.8	-82	12.2	-58	5.3	-70	9.0	-44
Sangli	40.0	1	5.8	-87	2.1	-95	6.6	-68	9.0	-55
Satara	56.1	36	12.2	-73	11.9	-65	3.5	-78	5.0	-76
Solapur	51.8	13	13.9	-70	7.5	-77	13.4	-32	5.8	-67
<b>Marathwada</b>										
Aurangabad	23.6	-39	7.4	-78	44.2	166	40.7	118	0.0	-100
Beed	42.5	-2	19.4	-47	30.5	34	18.6	6	1.7	-89
Hingoli	33.5	-8	4.9	-82	111.6	407	22.4	18	0.0	-100
Jalna	32.4	-8	9.4	-65	55.3	192	38.2	97	0.0	-100
Latur	22.2	-35	16.3	-49	45.2	43	23.5	55	0.3	-98
Nanded	44.0	3	1.5	-95	72.8	157	18.5	26	0.3	-99
Usmanabad	68.2	52	13.4	-66	15.6	-45	14.2	-28	2.4	-87

Parbhani	64.9	62	7.5	-74	60.2	135	21.3	3	0.0	-100
<b>Vidarbha</b>										
Akola	124.4	315	1.3	-93	79.7	292	70.3	417	0.1	-97
Amraoti	85.5	165	3.4	-84	62.2	214	33.9	120	0.4	-94
Bhandara	52.8	73	24.5	-14	80.2	286	8.4	-40	0.0	-100
Buldhana	49.7	78	1.2	-94	39.9	127	27.7	71	0.3	-96
Chandrapur	69.3	92	27.5	1	125.3	475	25.0	123	0.1	-99
Gadchiroli	99.1	202	24.0	-19	110.9	393	28.6	91	3.4	-71
Gondia	81.8	161	19.7	-33	58.6	173	17.4	66	0.0	-100
Nagpur	49.5	51	2.3	-89	87.4	343	17.8	45	0.6	-93
Wardha	66.4	96	6.5	-72	83.8	286	23.6	191	0.7	-94
Washim	66.2	109	1.9	-91	89.2	300	24.9	39	0.0	-100
Yeotmal	42.1	28	3.0	-89	85.3	318	33.9	171	0.2	-98
<b>Odisha</b>										
Angul	70.6	58	101.0	245	26.2	-6	137.3	390	39.7	117
Balasore	119.8	79	239.8	219	87.3	62	235.1	467	58.4	101
Bargarh	68.8	101	81.7	304	73.5	340	44.3	285	6.5	-39
Bhadrak	81.7	77	125.6	175	69.8	64	219.6	340	125.5	408
Bolangir	30.3	-13	98.7	238	19.4	-10	63.6	361	21.6	61
Boudh	44.3	-6	108.3	197	11.5	-74	41.8	28	35.8	138
Cuttack	82.8	82	99.1	143	52.8	16	220.7	656	108.2	408
Deogarh	45.1	17	92.7	255	15.1	-26	97.9	766	30.1	162
Dhenkanal	81.3	76	114.6	184	33.3	-11	151.4	345	44.5	114
Gajapati	51.1	-11	57.3	48	12.5	-73	157.9	297	51.4	63
Ganjam	92.5	101	68.3	33	32.2	-45	226.4	454	110.5	123
Jagatsingpur	34.8	-23	27.2	-35	32.2	-27	158.7	368	63.4	101
Jajpur	72.7	15	77.3	70	56.5	17	240.0	515	78.7	312
Jharsuguda	42.7	28	53.9	96	42.3	69	66.5	344	5.9	-44
Kalahandi	52.4	42	87.3	169	21.8	-26	75.2	453	36.0	161
Kandhamal	67.7	43	66.7	83	33.6	-23	166.3	409	58.5	290
Kendrapara	49.0	-14	48.7	-13	90.2	27	145.3	249	96.2	234
Keonjhar	90.5	81	66.1	73	46.4	45	188.7	445	26.1	17
Khurda	109.6	108	111.2	144	26.1	-56	242.6	556	110.0	241
Koraput	23.5	-60	72.2	68	35.0	-26	26.0	-24	28.7	-14
Malkangiri	130.0	211	18.2	-44	64.4	89	3.0	-90	28.5	31
Mayurbhanj	130.1	131	160.7	182	83.6	130	263.3	787	22.1	14
Nawapara	43.5	19	106.2	342	17.0	-30	24.9	106	7.5	-27
Nawarangpur	33.4	-31	117.5	288	47.1	31	17.5	-36	38.1	154
Nayagarh	90.5	47	61.7	40	27.1	-49	244.8	521	96.1	329
Puri	72.0	56	42.6	-29	60.3	8	245.7	494	102.4	192
Rayagada	52.8	42	49.2	45	28.1	-29	63.9	123	47.1	100
Sambalpur	55.2	43	57.7	121	42.6	109	100.3	787	36.6	218
Sonepur	42.6	4	70.7	110	31.6	52	80.0	900	18.2	102
Sundargarh	59.5	79	74.6	232	38.6	124	73.1	397	17.6	117
<b>West Bengal</b>										
<b>GWB</b>										
Bankura	65.4	26	174.6	197	59.7	81	121.6	511	66.6	294
Birbhum	19.6	-71	86.4	24	113.3	243	90.0	323	30.2	58
Burdwan	23.9	-53	90.9	46	83.3	180	110.1	419	48.1	157

East Midnapore	79.5	0	225.9	140	78.2	44	70.5	64	53.1	96
Hooghly	28.0	-44	102.9	94	99.0	165	84.5	347	25.5	34
Howrah	35.1	-38	100.5	14	72.6	88	80.0	270	47.8	167
Kolkata	39.5	-31	109.0	24	114.2	134	157.0	429	28.6	-6
Murshidabad	2.9	-95	139.9	97	19.8	-53	69.0	132	18.0	4
Nadia	12.0	-79	99.5	86	47.2	107	85.1	191	15.4	48
24 Pargana (N)	32.6	-49	102.0	46	91.3	141	77.7	232	45.5	93
Purulia	53.5	38	139.1	118	74.0	153	197.8	1011	13.9	-31
24 Pargana (S)	36.7	-53	150.0	86	73.3	11	83.5	86	28.0	-25
West Midnapore	77.2	66	165.0	136	96.5	179	80.8	262	26.4	59
<b>SHWB</b>										
Cooch Behar	2.3	-97	42.8	-54	51.9	-8	113.0	241	3.7	-87
Darjeeling	30.5	-68	26.1	-74	36.0	-19	146.2	446	16.9	-8
East Sikkim	30.3	-53	31.0	-54	18.3	-64	109.2	109	29.5	181
Jalpaiguri	31.7	-65	36.8	-61	78.2	33	78.1	97	16.7	-49
Malda	2.3	-96	98.5	21	23.9	-39	148.1	633	4.3	-75
North Dinajpur	0.5	-99	55.0	-49	29.0	2	52.0	41	31.0	97
North Sikkim	32.4	-58	38.0	-52	63.2	-28	65.8	-13	38.5	4
South Dinajpur	0.0	-100	83.4	41	58.9	3	137.7	494	6.0	-52
South Sikkim	50.2	-21	13.5	-80	16.3	-68	90.7	73	9.6	-9
West Sikkim	128.2	68	41.0	-48	9.0	-90	93.7	24	23.3	-37
<b>Karnataka</b>										
<b>Coastal Karnataka</b>										
Dakshin Kannada	154.1	147	42.0	-48	78.4	13	49.7	0	94.1	97
Udupi	183.4	127	55.1	-46	82.0	24	65.6	60	61.6	45
Uttar Kannada	147.3	176	36.0	-42	82.3	62	25.3	-20	20.4	-24
<b>N I Karnataka</b>										
Bagalkote	13.6	-70	10.6	-75	5.6	-86	19.6	3	19.0	-6
Belgaum	28.1	-20	10.8	-76	10.1	-73	9.0	-56	6.7	-73
Bidar	46.1	6	11.7	-68	51.0	62	7.2	-63	0.1	-99
Bijapur	38.5	-21	11.9	-75	9.5	-75	13.9	-30	17.4	-3
Dharwad	15.7	-61	3.7	-91	7.7	-79	12.1	-53	15.3	-44
Gadag	11.8	-74	11.4	-76	3.3	-92	16.7	-25	12.7	-51
Gulbarga	92.6	104	7.5	-84	17.6	-55	4.9	-72	11.5	-28
Haveri	27.3	-6	2.1	-95	9.1	-73	6.4	-77	8.9	-65
Koppal	13.3	-70	22.9	-50	17.8	-47	22.5	19	28.2	50
Raichur	29.4	-32	6.7	-85	22.1	-40	12.0	-52	25.7	36
Yadgir	37.1	-31	11.3	-76	11.3	-71	18.1	-21	36.2	98
<b>S I Karnataka</b>										
Bangalore Rural	6.6	-88	1.5	-97	55.0	6	14.2	-62	25.5	-13
Bangalore Urban	6.6	-88	0.1	-99	28.6	-41	22.8	-25	20.6	-35
Bellary	12.3	-70	23.2	-48	13.5	-63	5.5	-74	46.3	120
Chamarajnaragar	2.3	-94	1.0	-97	20.2	-49	1.6	-95	77.6	128
Chichballapur	2.3	-95	2.7	-94	42.8	-14	14.4	-59	37.1	37
Chickmagalur	66.3	31	6.5	-88	17.8	-60	17.4	-49	16.2	-54
Chitradurga	4.6	-87	4.5	-90	0.5	-98	5.5	-77	27.5	27
Davangere	12.5	-66	3.9	-91	5.2	-86	4.1	-86	23.2	5
Hassan	26.4	-32	6.1	-86	12.9	-69	13.9	-58	34.2	9
Kodagu	98.2	98	29.5	-49	16.0	-69	17.9	-61	80.2	94

Kolar	3.6	-92	2.8	-94	71.1	65	25.0	-29	26.3	4
Mandya	5.5	-88	2.0	-95	9.6	-77	11.1	-69	50.4	69
Mysore	11.6	-67	7.7	-79	9.1	-76	13.8	-61	80.1	145
Ramnagara	2.4	-96	4.2	-93	2.5	-95	11.4	-70	55.2	63
Shimoga	81.3	127	16.5	-62	37.3	-10	22.8	-26	39.2	55
Tumkur	2.5	-95	3.5	-93	5.7	-87	14.7	-51	44.3	76
<b>Kerala</b>										
Alappuzha	44.1	-35	19.4	-74	41.5	-50	16.0	-76	100.2	28
Kannur	77.4	66	26.6	-63	71.4	29	44.5	-7	107.2	104
Ernakulam	44.0	-43	23.5	-71	66.4	-4	32.7	-51	131.7	102
Idukki	111.7	46	17.0	-83	34.1	-55	40.3	-49	111.8	24
Kasaragod	61.7	17	25.5	-61	47.7	-25	33.7	-35	59.1	25
Kollam	40.1	-37	17.3	-73	56.8	-30	36.0	-55	158.8	74
Kottayam	53.8	-14	8.3	-90	47.9	-35	33.1	-53	214.1	215
Kozhikode	37.6	-40	9.9	-87	56.9	-6	128.0	131	62.6	16
Malappuram	34.9	-29	14.6	-80	20.4	-67	30.7	-56	86.4	17
Palakkad	54.1	21	13.5	-78	10.2	-81	21.6	-64	139.1	119
Pathanamthitta	76.7	15	10.4	-87	14.2	-81	28.6	-65	209.2	139
Thiruvananthapuram	16.9	-63	19.2	-63	12.1	-79	3.6	-94	114.7	56
Thrissur	50.8	-25	20.4	-76	73.1	6	52.6	-20	153.3	121
Wyanad	96.4	108	14.6	-77	36.0	-27	11.0	-72	96.2	75
<b>Tamil Nadu</b>										
Ariyalur	0.0	-100	0.0	-100	7.3	-84	27.3	-20	23.5	-55
Chennai	0.0	-100	11.1	-71	17.5	-58	24.0	-35	128.7	50
Coimbatore	0.0	-100	1.9	-92	6.5	-75	26.9	-13	107.9	152
Cuddalore	0.0	-100	0.3	-99	9.3	-76	51.4	27	43.2	-32
Dharmapuri	0.0	-100	0.0	-100	88.9	98	22.2	-43	56.9	39
Dindigul	0.0	-100	3.1	-91	17.7	-52	26.3	-34	67.7	30
Erode	0.0	-100	4.3	-87	12.7	-61	23.7	-25	84.9	104
Kanchipuram	0.0	-100	20.6	-55	17.5	-54	25.2	-31	51.2	-26
Kanyakumari	0.0	-100	4.1	-88	1.9	-95	2.7	-94	56.7	-21
Karikal	0.0	-100	0.0	-100	25.2	-31	23.1	-50	48.1	-28
Karur	0.0	-100	3.6	-88	52.9	70	22.3	-30	31.4	-20
Krishnagiri	0.0	-100	0.8	-99	62.3	35	17.3	-51	43.5	14
Madurai	0.0	-100	7.9	-80	13.4	-66	45.4	3	116.8	97
Nagapattinam	0.0	-100	0.0	-99	1.5	-96	36.9	-5	53.7	-31
Namakkal	0.0	-100	1.3	-96	26.4	-28	17.7	-48	69.7	80
Nilgiris	0.2	-96	1.3	-97	24.5	-43	45.5	2	83.7	51
Perambalur	0.0	-100	3.0	-90	23.8	-46	22.0	-49	57.0	6
Puducherry	0.0	-100	0.3	-99	7.3	-82	0.2	-99	49.2	-36
Pudukottai	0.0	-100	0.6	-98	35.3	9	16.8	-51	39.4	-12
Ramanathapuram	0.0	-100	1.9	-89	5.1	-78	1.4	-96	74.4	34
Salem	0.0	-100	0.6	-99	33.8	-25	9.8	-76	59.0	30
Sivaganga	0.0	-100	0.0	-100	14.7	-56	13.4	-70	114.6	129
Thanjavur	0.0	-100	0.0	-100	11.7	-66	14.5	-57	50.0	-2
Theni	0.0	-100	0.5	-98	5.2	-80	24.3	-34	107.7	127
Tirunelveli	0.0	-100	0.2	-99	1.3	-93	4.2	-86	49.4	-3
Tirupur	0.0	-100	0.0	-100	3.3	-88	20.7	-32	77.9	82
Tiruvallur	3.1	-56	13.3	-68	44.6	13	31.5	-13	65.9	15

Tiruvannamalai	0.0	-100	26.8	-37	79.5	76	41.5	2	37.1	-29
Tiruvarur	0.0	-100	0.0	-100	7.0	-78	8.1	-78	50.7	-19
Toothukudi	0.0	-100	0.0	-100	6.3	-67	3.5	-89	56.2	14
Trichy	0.0	-100	3.9	-89	20.8	-49	14.5	-61	37.1	-16
Vellore	0.5	-91	15.9	-62	41.0	-2	31.9	-12	35.5	-4
Villupuram	0.0	-100	15.2	-59	30.2	-27	25.1	-28	44.4	-13
Virudhunagar	0.0	-100	0.0	-100	13.5	-59	20.8	-44	101.8	94
<b>Andhra Pradesh</b>										
<b>Coastal Andhra Pradesh</b>										
East Godavari	51.6	1	22.9	-54	38.8	-36	30.0	-31	127.4	156
Guntur	11.3	-73	24.3	-43	39.0	1	37.3	46	74.8	96
Krishna	22.1	-53	22.2	-54	35.9	-20	45.1	30	72.5	69
Nellore	6.4	-79	7.0	-82	11.4	-72	9.1	-75	143.4	78
Prakasam	13.4	-64	3.0	-93	24.0	-45	29.8	-3	102.7	120
Sirkakulam	50.2	-1	50.1	6	27.1	-57	102.9	164	152.0	198
Visakhapatnam	31.4	-34	25.4	-50	30.9	-52	27.5	-31	104.4	107
Vizianagram	17.7	-65	27.5	-41	13.2	-76	43.4	11	86.2	66
West Godavari	13.9	-71	20.0	-60	52.9	-9	27.6	-36	87.6	88
<b>Telangana</b>										
Adilabad	63.8	49	23.2	-18	93.8	257	34.2	169	2.8	-87
Hyderabad	93.6	97	1.5	-96	10.8	-64	78.3	326	26.5	39
Karimnagar	59.4	38	18.2	-42	109.1	280	27.3	133	7.0	-64
Khammam	65.9	57	49.1	29	42.8	10	51.5	133	21.7	15
Mehabubnagar	24.7	-39	3.6	-91	30.4	0	25.2	70	33.9	108
Medak	71.4	61	5.9	-81	43.4	54	39.1	188	9.2	-48
Nalgonda	14.0	-66	11.4	-70	35.5	-1	44.1	98	42.9	108
Nizamabad	50.9	33	6.2	-81	55.3	84	33.4	191	3.7	-83
Rangareddy	50.1	-3	1.9	-94	31.5	-9	43.0	144	22.6	43
Warangal	53.7	40	23.5	-21	37.6	24	32.7	110	12.1	-26
<b>Rayalaseema</b>										
Anantapur	4.0	-90	8.3	-78	14.0	-64	2.4	-89	31.0	48
Chittoor	9.8	-72	4.6	-89	60.0	42	6.0	-80	63.8	62
Cuddapah	1.6	-96	4.4	-87	47.3	17	5.7	-75	94.3	178
Kurnool	14.4	-67	3.4	-91	15.2	-54	6.4	-68	44.5	106

	(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**

**Madhya Pradesh:**

**Wheat:** MP 1142, GW 273, GW 322, GW 190, MP 1106, Sujata, HW- 2004, HI-1500, MP 1142, GW 273, GW 322, GW 190, MP 1106.

**Black Gram:** JG-130, JG-315, JG-16, Jaki-9218, JG 6 and JG11.

**Chickpea:** KAK-2, JGK-1, J.G-11, J.G-315.

**Pulse (Masoor):** RVL-31, JL-2, Jawahar Lentil 1 & 2.

**Jammu & Kashmir**

**Toria :** local toria, RSPT-1 & RSPT-2

**Potato:** (KufriChandramukhi), K Badshah, K.Sinduri, K.Chipsona&K.Sona.

**Palak** (All Green), Methi (Pusa Early Bunching,KasuriMethi)

**Mustard :-** Pusa Sarson-25, Pusa Sarson-26, PusaAgrni, PusaTaraka, PusaMahak, NPJ 112, EJ17, PusaMahak and Kanti, Maya, Rohini, PusaJaikisan, Varuna, RGN13, RGN73, Bharat Sarson-1 (NRCD-2), Bharat Sarson-2 (NRCHB 101), Bharat Sarson-3,(NRCHB 506), Arawali, RGN48, Geeta and PBR 97, CS52, CS54, NarendraRai 1, Karan Tara, Narendra, - NRCYS-05-02, YSH401Tara

**Cabbage :** Golden Acre, Pride of India and PusaMukta,

**Carrot :**PusaKesar,P.Yamdagani.

**Turnip :**PTWG).

**Garlic :**yamunasafedagrifoundparvati

**Methi :**pusa early bunching and kasurimethi.

**Spinach :**all green.

potato (var.Kufri Badshah, K.Sinduri, K.Chipsona & K.Sona), radish (var. P. Reshmi), carrot (var. Pusa Kesar, P.Yamdagani), Turnip (var. PTWG), garlic (var. local, yamuna safed agrifound parvati), Methi (var. pusa early bunching and kasuri methi) and spinach (var. all green)

**Rajasthan**

**Onion:**Pusa Red, ArkaNiketan, Pusa White & Local Red

**Deshi carrot:**PusaKeshar:

**Tomato:** Pusa Rubi, Pusa Early and Vihar, T-27, RTM 314

**Brinjal:** Pusa Summer Prolific Round, Pusa Summer Prolific Long, Meghdoot and Arka Bahar

**Cauliflower:** Pusa Snowball 1 and Hissar 1

**Cabbage:** Pusa Drum Head and Hybrid 10

**Potato:** Kufri-Ashok and Chandramukhi, Mid var.-Kufri-Anand, Chipsona-1, 2, Jyoti and Pukhraj.

**Gram :** RSG 44, Dahod yellow, GNG 16, ICCV 10, RSG 888, GNG 469 and Pratap chana 1, RSG-888 (Anubhav), CSJD-884 (Aakash), RSG-44, Pusa-209, C-235, H-208.

**tkS :** RD- 2052, RD 2035,,RD 2660, RD 2552, RD 2592, RD2503, DWRUB52, dWRUB64.

**Toria :**T-9, Sangam, TL-15.

**Mustard:** PR 48, T-59, Bio-902, Laxmi, Aravali, Swarna Jyoti and Vasundhara, Bio- 902, Laxmi, RH 30, Pusa bold , T 59

**Lucerne:** T-9, Anand-2, LLC-3, RL-88

**Uttarakhand**

**Pea :** VL Ageti Mater-7, Vivel Mater-10, Pant Subjee Mater-3, Azad Mater-3 and Arkel.

**Toria :** Type -9, Pant Toria-30, Pant Toria-303, Uttara, Pant Toria-507, P.T.-303, P.T.-507,

**Garlic :** VL-Garlic or DARL-52.

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

**Wheat:** VL-829, 802, 804, 892, 738, 719, HL-272, UP 2572., VL-421, HS-240, UP-1109, VL-616, HS-277, VL-829 etc.

**Sarson:**Varun, Kanti

**Masoor:**Masoor-4, 5, VL masoor-1, 4, 203

**Uttar Pradesh**

**Toria-T-1, T-303, T-9, T-36, PT-506, PT-507, Bhawani, Pant-303,**

**Potato:** Kuphari Chanramukhi, Kuphari Ashoka, Kuphari Bahar, Kuphari Surya, Kuphari Sutlaj, Kuphari Pukharaj

Peas: Pant-5, Aparna, Malaviya-2, Malaviya-15, Shikha, Sapana, Ta.- 163, Rachana, Malviya matar, -2

**Bengal gram:** Pusa, Shubhra

**Mustard-** Pussa-25

**Sugarcane:** Kosha-88230, Kosha-8436, Kosha-0238, Kosha-07250, UP-05125

**Wheat :** VL-829, VL-802,VL-804,VL-892, VL-738, VL-719, HS-277, UP-2572

**Berseem:** V.L-1, 10, maskavi, jai

**Gram:** Ta-3, Radhe, K-850, Pant, Kabuli, PDG-3, GPF-2, C-235, Gurav

**Lentil:** Ta.-8, Pant L- 406 & 234

**Alsi-** L.C.2023, L.C. 74

**Onion-** Pusa Red, Pusa White

## Himachal Pradesh

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

**Pea**: Ageta-6 and ArkaMatar.

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

**Turnip** :PTWG-1

**Carrot** :Pusakesar

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

## Punjab

**Radish**: Punjab Pasand& Punjab Safed,

**Turnip**: L-1 & 4-white

**Carrot**: PC-34), potato and palak (Punjab Green).

**Cauliflower**: Pusa Snow ball 1 &Pusa Snow ball K-1.

**Pea**: Punjab 87, Punjab 88, Punjab 89 and Mithi Phali.

**Raya**: RLC-1, PBR-210, RLM-619, PBR-91 under irrigated conditions and PBR-97 under rainfed conditions.

**Garlic**: PG-17

## Delhi

**Mustard**: - Pusa Sarson-25, Pusa Sarson-26, Pusa Agrni, Pusa Taraka, Pusa Mahak.

**Carrot cultivars**:- Pusa Rudhira and Pusa Kesar.

**Pea cultivars**: - Pusa Pragati, Arkel.

**Garlic cultivars**: - G-1, G-41, G-50, G-282.

**Gram Varieties**:- Kabuli type - Pusa 267, Pusa 1003, Pusa Chamatkar; local type – C235, Pusa 246, P.B.G. 1, Pusa 372.

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

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

**Sarson Saag**- Pusa Saag-1; Bathua- Pusa Bathua-1; **Radish**- Japani White, Hill queen, French **Radish**; **Spinach**- All Green, Pusa Bharti; **Fenugreek**- Pusa Kasuri; **Coriander**- Pant Haritama, Hybrids; **Turnip**

## Maharashtra

**Safflower**: Bhima, Phule Kusuma, Sharda, Girna, DSH-129 in Madhya Maharashtra, Bhima, Tara, Sharda, Parbhani-12 in Marathwada.

**Gram (Rainfed)**: Vijay, Digvijay in Madhya Maharashtra, Phule G-12, Phule G-5 and Vijay in Marathwada.

**Pre seasonal sugarcane**: CO.740, CO.7219 (Sanjivani), CO.88121 (Krishna), CO.8014 (Mahalaxmi), CO.86032 (Nira), CO.94012 (Phule Savitri), CO.M.0265 (Phule 265), CO.V.S.I.9805, CO.C.671 for Madhya Maharashtra and CO.94012, CO-86032, CO.V.S.I.9805, CO-C-671, Co-8014 for Marathwada.

**Rainfed wheat**: NIDW-15, N-5439, N-8223.

## Gujarat

**Chick pea (unirrigated)**: Gujarat Chana-2.

**Chick pea (irrigated)**: Gujarat Chana-3, Gujarat Chick Pea-1, Dahod Pila, ICC-4.

**Mustard**: Varuna, Gujarat Mastard 1 or 2 or 3.

**Garlic**: Gujarat Garlic-4 or Local.

**Cabbage**: Kranti, Golden Acre Pride of India, Coppin Market.

**Cauliflower**: Pusa Early, Pusa Dipali , Pusa Kartiki, Early Kuvvari (for early maturity), Pusa Synthetic, Early Snowball, Snowball (for medium duration).

**Brinjal**: Guj. Brinjal-6, P.L.R. 1, Junagadh Lambagoal, Mahicco- 11, 16.

**Onion**: Pusa Red, Nashik Lal, N 53 & H 48.

**Raddish**: Pusa Hemadri, White ICL, Japanees White, Pusa Rashmi, Pusa Chetaki.

## Assam

**Wheat**: Sonalika, UP 262, K 7410, WH 291 and HDR-77.

**Rabi maize**: HQPM- 1.

**Early cauliflower**: Early Kunwari, Pusa Katki, Pusa Deepali, CFL- 4048, Pusa Early Synthetic, Kamaya, Suhasihi.

**Mid Cauliflower**: Improved Japanese, Pusa Synthetic, Pusa Snowball.

**Tomato**: Punjab Chuhara, S-12, Punjab Kesri, Pusa Early Dwarf, Sioux, Pusa Ruby, VC- 48-1, Arka Abha (BWR-1), Arka Alok (BWR-5), BT-1, Bilahi-1, Bilahi-2, Trishul, Allrounder, T- 1408, T- 1458, Anup.

**Cabbage**: Golden Acre, Pride of India, BC- 76, Pusa Drum Head, Pusa Synthetic.

**Knolkhol**: White Vienna, Purple Vienna.

**Potato**: Kufri Chandramukhi, Kufri Jyoti and Kufri Sindhuri, Kufri Megha, Kufri Badshah, Pukhraj.

**Onion**: Pusa Red, Pusa Ratnar, Pusa White (Round), Pusa white (Flat), N-53, Agrifound Light Red, Punjab Red Round, Pusa Madhuri, Arka Niketan.

## **Brinjal**:

**Long varieties**: Cluster, JC-1, Kuchia, Pusa Kranti, Pusa Purple Long.

**Round varieties**: Pusa Purple Round, Pusa Vairab, JC-2.

**Rapeseed and mustard**: M-27, TS-36, TS-38.

**Toria**: M-27, TS-36, TS-38 and TS-46.

## Tripura

**Rabi maize:** HQPM- 1.

• **Odisha**

- Ragi: Divyasinha, AKP-2, AKP-3, AKP-7, Godavari, Neelachal, Bhairavi, Shubhra, and Chilika.
- Banana: Hampa, Patakpara, Bantal, Robusta and Kabuli etc.
- Raddish: Pusa chetaki, Pusa Rashmi, and Pusa Himani.
- Cauliflower: Pusa Ketaki, and Pusa Deepali.
- Cabbage: Pride of India, Beans: Pusa Parvati and Arka Komal.
- Tomato: BT 2, BT 10, BT 12 Neeladri, Sada Bahar, Madhuri, Maharathi, Rashmi and Navin.

• **West Bengal**

- Banana: Mortoman, Chapa, Kathali, Singapuri.
- Tomato & brinjal: P Avinash-2, 448
- Vadu Kalai: Kalindi, Sarada.
- Cabbage: Pride Of India, Pusa Early, Kranti.
- Cauliflower: Jawhar Moti, Bharat Jyoti, Early Banaras.
- Mustard: Agrani(B-54), Panchali (T.W.C.-3), B-9, Rai-5 and Bhagiroti (R.W.-351) etc.

**Jharkhand**

- Potato: Kufri Ashok, Kufri Kanchan.
- Green Peas: Arkel, Kashi Nandini, P.E.-6, Birsa Matar.
- Horse Gram: Birsa Kulthi-1, G.H.G.-20.
- Sweet Potato: Birsa Sakarkand-1 and Sri Bhadra.
- Toria: T.-9, B.R.-23 or P.T.-303
- Mustard: Shiwani, Varuna, Pusa Bold, BR-40

**Bihar**

- Radish: Pusa Chetki, Pusa Himani, Pusa Rashmi, Japani Saphed.
- Onion: N-53, Agrifound Dark Red and Basant- 780.
- Sweet potato (Shakarkand): Rajendra Shakarkand 5, Rajendra Shakarkand35, Rajendra Shakarkand 43, Rajendra Shakarkand 47, Kalmegh, shree Bhadra and Rajendra Shakarkand 92.
- Potato: Kufri Chandramukhi, Kufri Ashoka, Kufri Pukharaj, Kufri Badhsha, Kufri Lalima, Kufri Jyoti, and Rajendra Alu 2.
- Pea: Malviya mator 15, Harbhajan, Arpana and Pusa Prabhat.
- Berseem: Vardan-1 and skavi
- Oat: Kent
- Mustard: Varuna, Pusa bold, Kranti.