

# National Agromet Advisory Service Bulletin

**Friday 20<sup>th</sup> December 2013**

**(For the period 20<sup>th</sup> to 24<sup>th</sup> December 2013)**

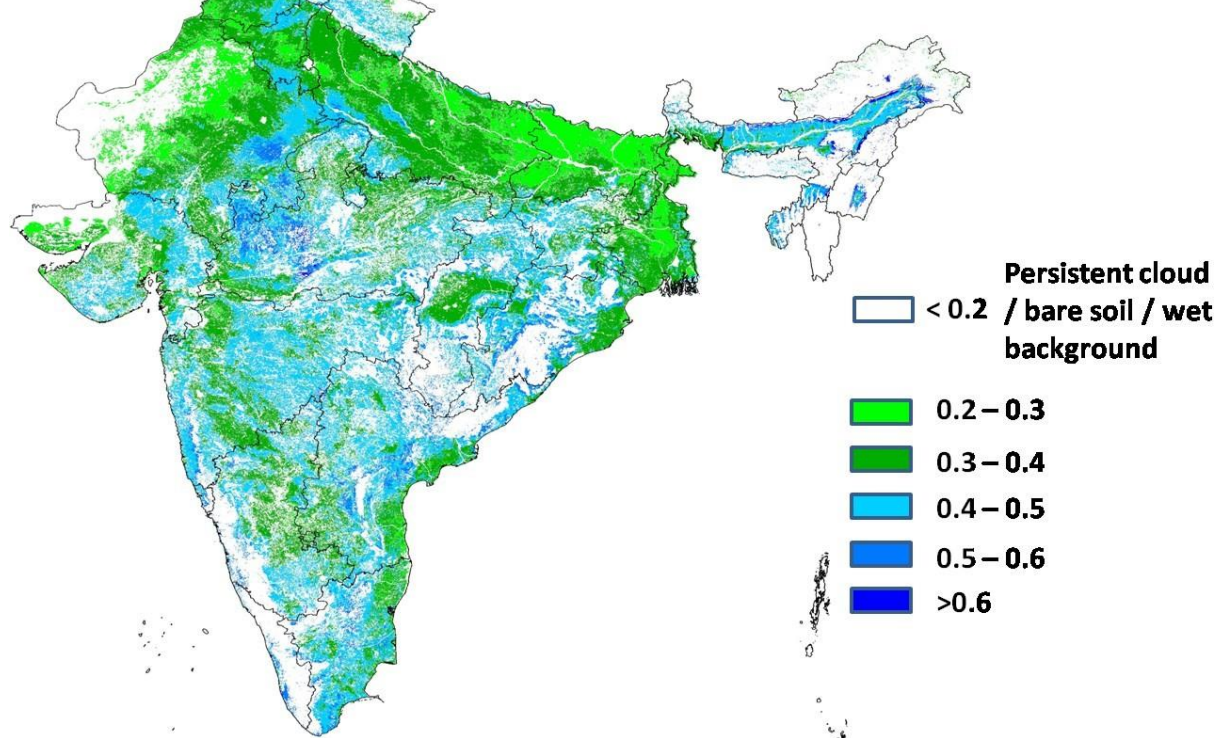


**Issued by**

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



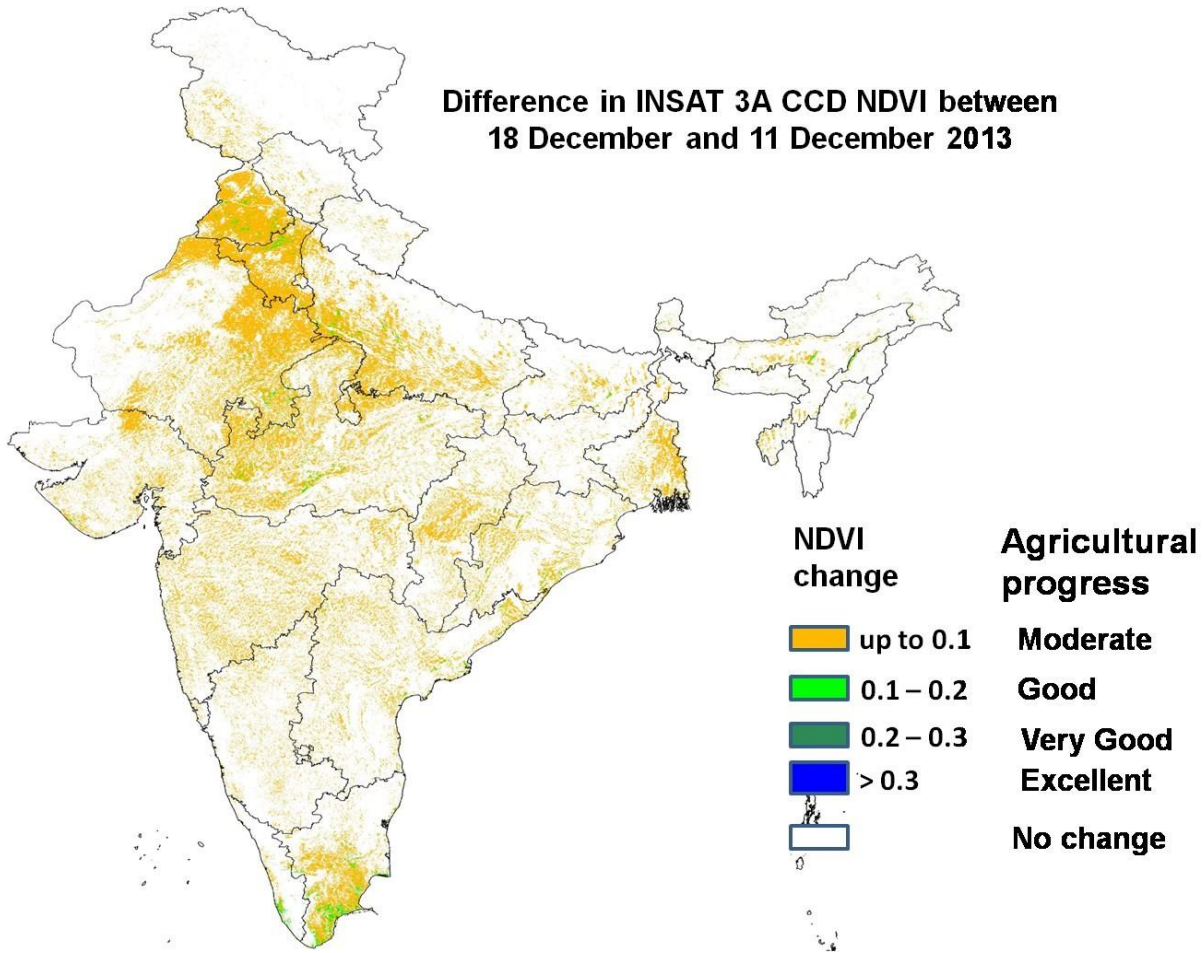
**INSAT 3A CCD NDVI Composite from 12  
December and ending on 18 December  
2013 over Agricultural region**



**Source: SAC, Ahmedabad**

Agricultural conditions is in general very good over few pockets of western Rajasthan (Bharatpur and adjoining area) and adjoining MP, central MP and pockets of central AP as NDVI value range between 0.5 to 0.6. Agricultural conditions is good over pockets of south Punjab and adjoining Haryana, south-west UP, north and east MP, eastern Rajasthan, central and south Gujarat, north- Chhattisgarh, central Maharashtra and AP, parts of Odisha, pockets of north Karnataka, north-eastern AP, parts of Odisha as NDVI vigour showed the range from 0.4 to 0.5 and few upto 18<sup>th</sup> December 2013. The NDVI remain low within range of 0.2 to 0.3 over states of central and north Punjab, central Haryana, interior of Rajasthan, larger part of UP, Bihar and W. Bengal.

**Difference in INSAT 3A CCD NDVI between  
18 December and 11 December 2013**

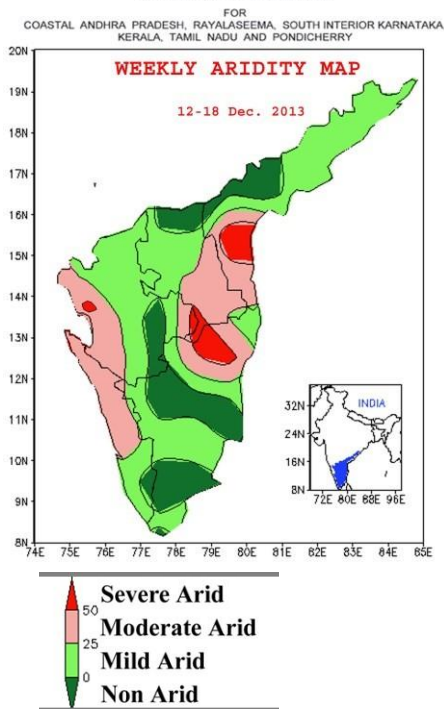


**Source: SAC, Ahmedabad**

Agricultural progress between 18<sup>th</sup> December and 11<sup>th</sup> December 2013 was found to be good over few pockets of central Punjab, south Punjab and adjoining Haryana, scattered pockets in western UP, few pockets of western and central MP, few pockets of Odhisha and south Tamil Nadu. Agricultural progress was moderate over Punjab, Haryana, UP, Rajasthan, part of Bihar, Gujarat, and other states.

## Aridity Anomaly Map for the week ending 18.12.2013

भारत मौसम विज्ञान विभाग  
अनाच्छिद्र अनुसंधान अनुभाग - पुणे  
INDIA METEOROLOGICAL DEPARTMENT  
DROUGHT RESEARCH UNIT - PUNE  
राष्ट्रीय अक्षुब्धता, राक्षसगीमा, दक्षिण अंतर्गत कर्नाटका,  
केरल, तमिऴनाडू और पण्डिचेरी के लिए



During the week ( 12 to 18 December, 2013) the aridity anomaly map indicated the following aridity conditions over the five Meteorological sub-divisions viz. Coastal Andhra Pradesh, Rayalaseema, South Interior Karnataka, Tamil Nadu & Pondicherry and Kerala.

1. Areas having severe and moderate arid conditions are indicated below:

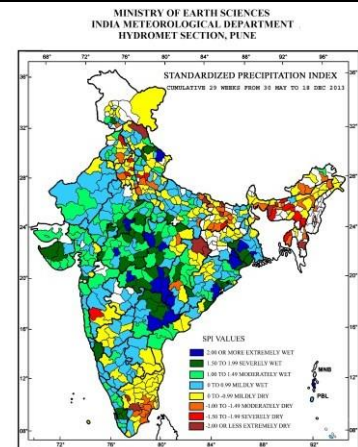
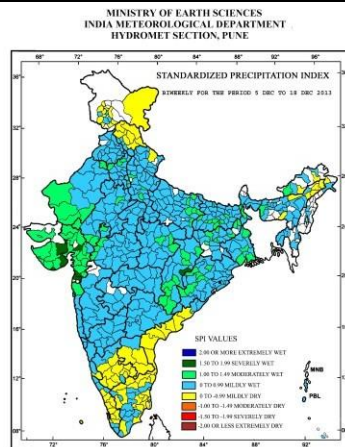
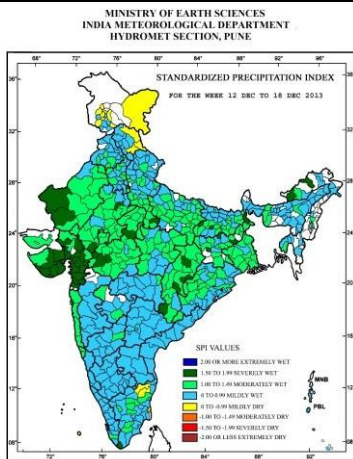
### 1.1 Areas affected by severe arid conditions :

Some northern parts of Tamil Nadu & Pondicherry and adjoining some southwestern parts of Rayalaseema. Isolated areas around Ongole ( Coastal Andhra Pradesh) and Chickmagalur (South Interior Karnataka).

### 1.2 Areas affected by moderate arid conditions :

Southern parts of Coastal Andhra Pradesh, eastern and southern parts of Rayalaseema and adjoining some northeastern parts of Tamil Nadu & Pondicherry; western parts of South Interior Karnataka and most of the northern and central parts of Kerala.

## Standardised Precipitation Index weekly, fortnightly and seasonal



### Weekly SPI values:

- Extremely wet/severely wet conditions experienced over many parts of Gujarat, Saurashtra & Kutch and some parts of West Rajasthan, West Madhya Pradesh, Chhattisgarh, Bihar, Jharkhand, Sub-Himalayan West Bengal, Arunachal Pradesh, Tamil Nadu.
- Mild wet conditions experienced over most of the parts of the country.

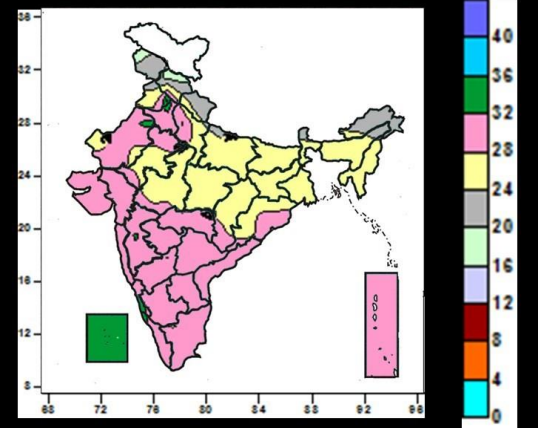
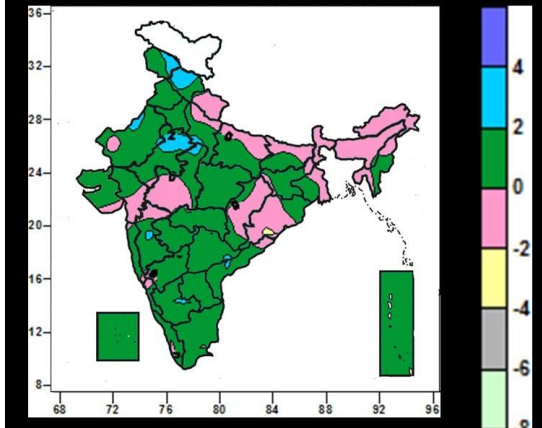
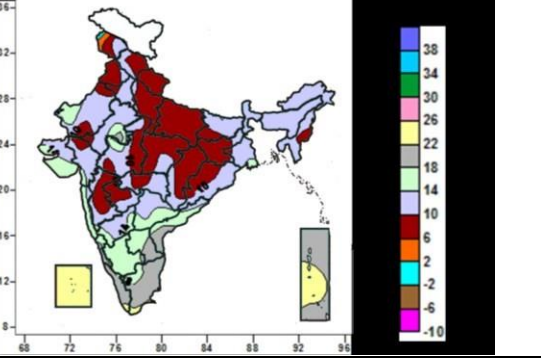
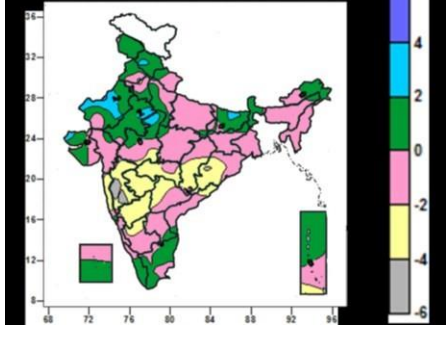
### Cumulative SPI values (bi-weekly):

- Extremely wet/severely wet conditions experienced over some parts of Saurashtra, Gujarat, Chattisgarh.
- Mild dry condition experienced over most of the districts of South Peninsula, Jammu and Kashmir

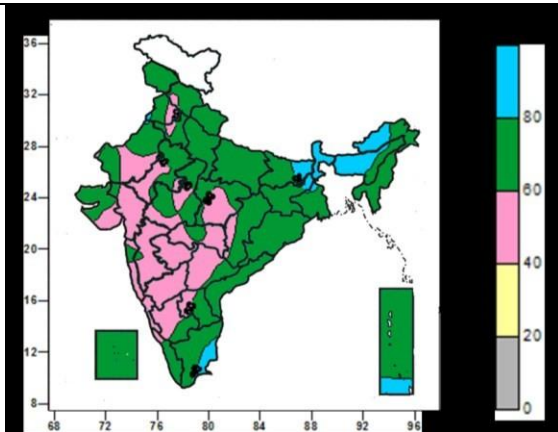
### Cumulative SPI values of 29 weeks: (i.e. since the beginning of southwest monsoon.)

- Extremely wet/severely wet conditions experienced over many parts of North Andhra Pradesh, Madhya Pradesh, Vidarbha, Gangetic West Bengal and some part of Jammu & Kashmir, Uttarakhand, Saurashtra & Kutch, East Uttar Pradesh, East Rajasthan, Odisha, Chattisgarh, Coastal Karnataka and Kerala.
- Extremely dry/ severely dry conditions experienced over some parts of Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Bihar, Assam & Meghalaya, Tripura, Chhattisgarh, Tamil Nadu, Madhya Maharashtra.

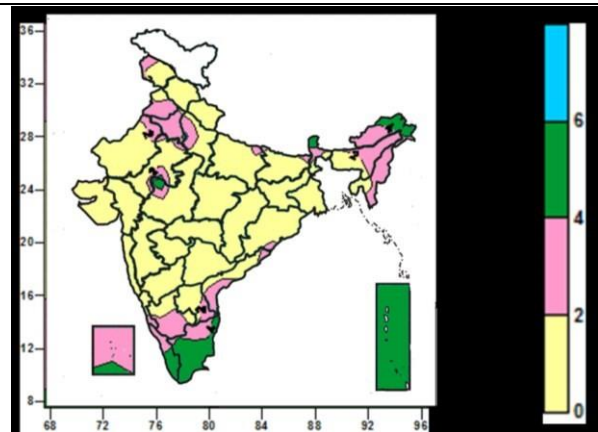
## Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 18.12.2013

Actual Mean Maximum Temperature (°C) in India for the week ending 18.12.2013	Mean Maximum Temperature (°C) Anomaly in India for the week ending 18.12.2013
	
<ul style="list-style-type: none"> <li>• 32 to 36°C over many parts of Lakshadweep, some parts of Punjab, West Rajasthan, Coastal Karnataka, Madhya Maharashtra.</li> <li>• 24 to 32°C over entire country (except many parts of Jammu &amp; Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, Lakshadweep, some parts of East Uttar Pradesh, Sub-Himalayan West Bengal, Assam, Punjab, West Rajasthan, Coastal Karnataka, Madhya Maharashtra,</li> <li>• 16 to 24°C over many parts of many parts of Jammu &amp; Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, Arunachal Pradesh, some parts of East Uttar Pradesh, Sub-Himalayan West Bengal, Assam.</li> </ul>	<ul style="list-style-type: none"> <li>• 2 to 4°C over many places Himachal Pradesh, some parts of Jammu &amp; Kashmir, Rajasthan, West Uttar Pradesh, West Madhya Pradesh, Madhya Maharashtra, South Interior Karnataka.</li> <li>• -2 to 2°C over entire country (except over many places Himachal Pradesh, some parts of Jammu &amp; Kashmir, Rajasthan, West Uttar Pradesh, West Madhya Pradesh, Madhya Maharashtra, South Interior Karnataka).</li> <li>• -4 to -2°C over some parts of Odisha.</li> </ul>
Actual Mean Minimum Temperature (°C) in India for the week ending 18.12.2013	Mean Minimum Temperature (°C) Anomaly in India for the week ending 18.12.2013
	
<ul style="list-style-type: none"> <li>• 18 to 26°C over many parts of Coastal Andhra Pradesh, Raylaseema, Tamil Nadu, Kerala, Lakshadweep, Andaman &amp; Nicobar Islands, some parts of West Rajasthan, Raylaseema.</li> <li>• 10 to 18°C over most parts North East India, East India (except Jharkhand), Rajasthan, Gujarat, Saurashtra &amp; Kutch, West Madhya Pradesh, North &amp; South Interior Karnataka, Raylaseema, Telanagana, some parts of Jammu &amp; Kashmir, Jharkhand, Coastal Orissa, Chattisgarh, East Madhya Pradesh, Maharashtra, Coastal Andhra Pradesh, Tamil Nadu.</li> <li>• 6 to 10°C over many parts of Himachal Pradesh, Uttarakhand, Punjab, Uttar Pradesh, Jharkhand, Orissa, Chattisgarh, Madhya Pradesh, Madhya Maharashtra, Marathwada, some parts of Jammu &amp; Kashmir, Rajasthan, Gujarat, Bihar, Manipur.</li> <li>• 2 to 6°C over some parts of Jammu &amp; Kashmir.</li> <li>• -2 to 2°C over some parts of Jammu &amp; Kashmir.</li> </ul>	<ul style="list-style-type: none"> <li>• 2 to 4°C over some parts of Himachal Pradesh, Bihar, Rajasthan, West Madhya Pradesh, Kutch.</li> <li>• -2 to 2°C over all parts of country (except many parts of Maharashtra, Chattisgarh, Odisha, North Interior Karnataka, Telanagana some parts of West Madhya Pradesh, South Interior Karnataka, Coastal Andhra Pradesh, Himachal Pradesh, Bihar, Rajasthan, Gujarat Andaman &amp; Nicobar Islands).</li> <li>• -6 to -2°C over many parts of Maharashtra, Chattisgarh, Odisha, North Interior Karnataka, Telanagana some parts of West Madhya Pradesh, South Interior Karnataka, Coastal Andhra Pradesh, Andaman &amp; Nicobar Islands.</li> </ul>

**Relative Humidity (%) over India for the week ending 18.12.2013**



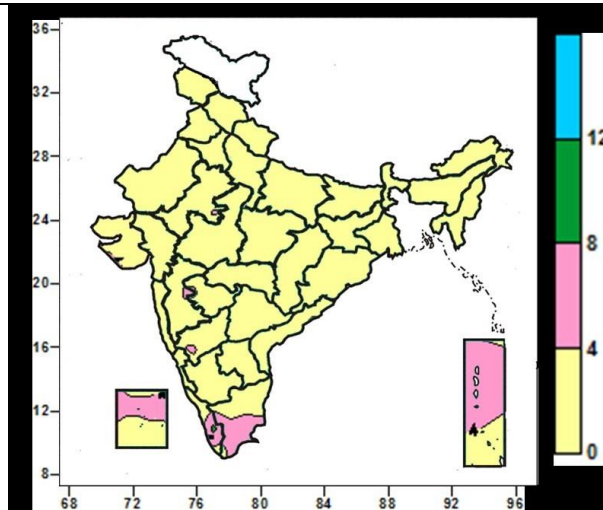
**Cloud amount (okta) over India for the week ending 18.12.2013**



- 80 to 100% over many parts of Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, some parts of Bihar, Jharkhand, Tamil Nadu, Andaman & Nicobar Islands.
- 40 to 80% over entire country (many parts of Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, some parts of Bihar, Jharkhand, Tamil Nadu, Andaman & Nicobar Islands).

- 4 to 6 okta over many parts of Sikkim, Tamil Nadu, Kerala, Andaman & Nicobar Islands, some parts of Arunachal Pradesh, Nagaland, West Madhya Pradesh, Lakshadweep Islands.
- 0 to 4 okta over entire country (except over many parts of Sikkim, Tamil Nadu, Kerala, Andaman & Nicobar Islands, some parts of Arunachal Pradesh, Nagaland, West Madhya Pradesh, Lakshadweep Islands).

**Wind speed (knots) over India for the week ending 18.12.2013**



- 4 to 8 knots over many parts over Tamil Nadu, Andaman & Nicobar Islands, some parts of West Rajasthan, North Interior Karnataka, Kerala..
- 0 to 4 knots over entire country (except Tamil Nadu, Andaman & Nicobar Islands, some parts of West Rajasthan, North Interior Karnataka, Kerala).

## Weather Forecast

### Weather Forecast for next 3 days (upto 0830 hours IST of 23<sup>rd</sup> December, 2013)

- Rain/thundershowers would occur at isolated places over Nicobar Islands.
- Rain/snow would occur at isolated places over Jammu & Kashmir during next 48 hours and at many places thereafter.
- Rain/snow would occur at a few places over Himachal Pradesh and over Uttarakhand from 21<sup>st</sup>.
- Rain/thundershowers would occur at isolated places over Punjab, north Haryana from 21<sup>st</sup>.
- Rain/thundershowers would occur at isolated places over sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh from 21<sup>st</sup> onwards.
- Fog would occur at many places over Punjab, Haryana, Delhi, Rajasthan, Bihar and Uttar Pradesh and at a few places over Odisha, Jharkhand and West Bengal & Sikkim during next 48 hours thereafter intensity, spatial coverage and duration of fog may decrease.
- Weather would be mainly dry/dry over rest of the country.
- No large change in minimum temperatures over north west and adjoining central & east India during next 48 hours and may increase by 1.2°C over northwest India thereafter.

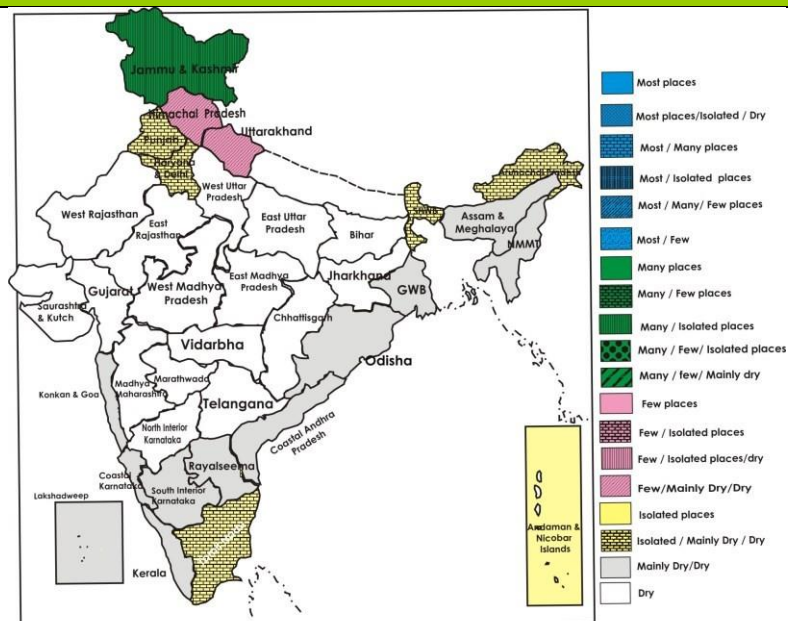
### Weather Warning during next 3 days

- **20 December:** Dense fog (visibility < 200 m) would occur at a few places over Punjab, east Uttar Pradesh and Bihar around mid-night of 20<sup>th</sup> to morning of 21<sup>st</sup>. Moderate to dense fog (visibility < 500m) would occur over Haryana, Delhi, west Uttar Pradesh and Rajasthan. Cold wave condition would prevail at isolated places over north interior Karnataka.
- **21 December:** No weather warning.
- **22 December:** No weather warning.

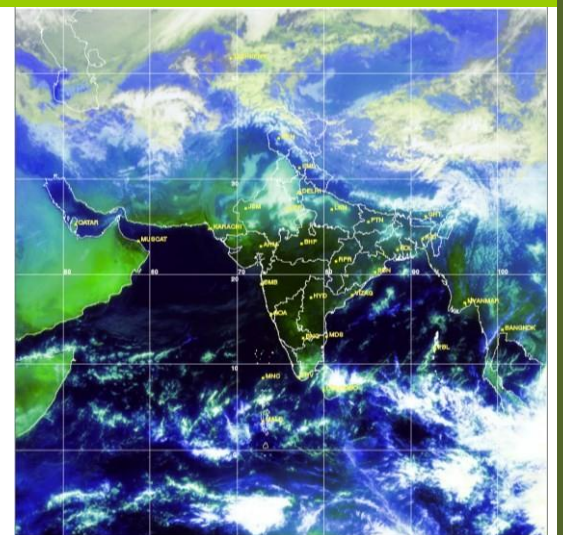
### Weather Outlook for subsequent 4 days from 23<sup>rd</sup> to 27<sup>th</sup> December, 2013

- Rain/thundershowers would occur at isolated places over south Tamilnadu, Andaman & Nicobar Islands and Lakshadweep.
- Rain/thundershowers would occur at isolated places over Sub-Himalayan West Bengal & Sikkim and Arunachal Pradesh.
- Rain/snow would occur at many places over Jammu & Kashmir and Himachal Pradesh; at isolated places over Uttarakhand and rain/thundershowers would occur at isolated places over adjoining plains of northwest India.
- Weather would be mainly dry/dry over rest of the country.
- Moderate fog would occur over Indo-Gangetic plains in morning hours.
- No significant change in minimum temperature likely over northwest and adjoining central & east India.

Weather Forecast Map (Valid upto 0830 hours of 23<sup>rd</sup> December, 2013)



Satellite image dated 20.12.2013, 0500 UTC



## Salient Advisories

### North Region

- As rain/snow would occur at isolated places during next 48 hours and at many places thereafter in Jammu & Kashmir, postpone irrigation, intercultural operations and fertilizer and pesticide application in the standing crops.
- In Western Zone of Punjab, give first irrigation to wheat crop after four weeks of sowing and also apply irrigation in normal sown gram crop. Provide polythene sheet/sarkanda/kahi rice straw to protect the tomato seedlings from cold injury.
- In Delhi, due to prevailing low temperature, sowing of late sown wheat varieties may be done with increased seed rate. Undertake transplanting of onion and transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli in the raised bed. Apply irrigation in timely sown potato.
- In Western Zone of Haryana, apply the irrigation to timely sown wheat crop. Carry out intercultural operations for conserving the moisture and remove weeds in mustard crop.
- Due to prevailing dry weather and low temperature conditions, farmers having irrigation facilities are advised to give light and frequent irrigation in wheat crop and top dressing of urea in Bhabar and Tarai Zone of Uttarakhand.
- In East Uttar Pradesh, complete sowing of wheat, barley, gram, lentil and pea. Apply light and frequent irrigation during evening hours in early sown wheat, maize, mustard, pea, sugarcane (autumn), potato, onion, garlic, coriander and carrot.
- In Western Zone of Haryana due to foggy weather conditions, white rust may appear in irrigated mustard crop; spray 0.2% Redomil or Mancozeb per litre water.
- In Central Plain Zone of Punjab, weather is favourable for incidence of late blight in potato; spray Indofil M-45/ Antracol/Kavach @500g in 200 litres of water per acre. Repeat the spray at 7 days interval.

### South Region

- As cold wave conditions prevailed and also likely to continue over North Interior Karnataka, farmers are advised to apply light and frequent irrigation during evening hours in standing crops. Also arrange for smoking around the field to protect the crops from cold injury.
- Undertake direct sowing of short duration rice varieties in areas having insufficient water for transplanting in Kurnool district of Scarce Rainfall Zone of Andhra Pradesh.
- Low temperatures during the *rabi* season may cause cold injury in rice nurseries in the Southern Telangana Zone of Andhra districts. Cover the nursery beds with polythene sheet during night and remove in the morning, irrigate the nursery bed every day in the evening and let out the water in the morning for better nursery growth, and apply 2 kg urea for 200 sq.m nursery area at 10-15 days after sowing.
- In North Transition Zone of Karnataka, apply irrigation in wheat (*Durum*) crop at late jointing to flowering stage and early sown sorghum at flowering phase.
- Present weather is congenial for rust disease in groundnut in the Western Zone of Tamil Nadu. Monitor the crop and undertake appropriate plant protection measures.
- Prevailing weather having light cloud cover and high humidity (70 to 80%) is congenial for sucking pests, leaf hopper and whitefly in cotton, thrips and mite in chilli in the South Zone of Tamil Nadu. Undertake plant protection measures.

### East Region

- In East and South Eastern Coastal Plain Zone of Odisha, the cloudy weather may favour infestation of aphid and powdery mildew in pulses; spray 5 ml Imidachloprid or 20 ml Metasystox in 10 litre water. For controlling powdery mildew spray 5 g Sulfex in 1 liter water.
- Undertake pyra cropping of green gram, black gram, lentil and mustard etc.in North Eastern Ghat Zone of Odisha.
- In Western Undulating Zone of Odisha, light hoeing, weeding should be done in onion crop at four week stage and apply 43kg urea/acre followed by earthing up and then irrigate the crop as dry weather is prevailing.
- In Coastal Saline Zone of West Bengal and prepare upland field for nursery bed preparation of *Boro* rice. In view of decrease of temperature, apply ash in the seed bed of *boro* rice to protect seedlings from cold. Also, undertake sowing of lentil and continue planting of potato.
- In North West Alluvial Plain Zone of Bihar, due to prevailing dense foggy conditions, there is chances of occurrence of early blight in potato; spray Dietane M-45 @ 2.0 g/litre or Carbendazim (Bavistin) @ 2.0 g/litre of water for control.
- In South Eastern Plateau Zone of Jharkhand, pigeon pea crop is at flowering to pod formation stage and dry weather with cool temperature favours the attack of leaf eating and sucking pests, spray @ 1 ml per litre of water during day time at flowering stage and Indoxacarb at pod formation stage @ 0.5 – 1ml per litre of water.



- In New Alluvial Zone and Laterite and Red Soil Zone of West Bengal, there is chance of attack of powdery mildew and aphids in mustard. For controlling powdery mildew, apply 0.025% Dinocap in 3 sprays at 15 days interval. For prevention of aphid attack, apply Imidacloprid 17.8 SL @3 ml/10lit or Quinalphos 25 EC @ 2 ml/lit of water.
- Due to possibility of lower temperature in Terai Zone of West Bengal, there may be the chance of late blight attack in potato. To prevent the attacked by late blight spray the mixture of Metalaxyl 8% and Mancozeb 64% @ 1 to 1 ½ g per litre of water at 10-12 days interval by completely wetting the leaves.

#### Northeast Region:

- In Central Brahmaputra Valley Zone of Assam, continue sowing of wheat and transplanting of cole crops followed by light irrigation. Also apply irrigation in potato. Continue nursery bed preparation and sowing of *boro* rice.
- In Sub Tropical Hill Zone of Arunachal Pradesh, apply irrigation in mustard at flowering stage.
- In Meghalaya, complete transplanting of cauliflower, cabbage and broccoli followed by light irrigation. Undertake sowing of pea in low land rice field with residual soil moisture.
- In Sub Tropical Plain Zone of Manipur, apply light irrigation in rapeseed, mustard and pulses. Cover nursery bed of tomato with gunny bags to protect from cold. Continue land preparation and sowing of *rabi* maize followed by light irrigation.
- In Mild Tropical Hill Zone of Mizoram, continue transplanting of cole crops and tomato followed by light irrigation.
- In Mid Tropical Plain Zone of Tripura, complete planting of potato followed by light irrigation. Give light irrigation to cabbage, cauliflower and tomato.
- In Lower Brahmaputra Valley Zone of Assam, under the present weather conditions there is chance of attack of aphids and saw fly in rapeseed and mustard; apply Dimethoate 30 EC or Chloropyrifos @ 0.71 ml / litre of water.
- In Mid Tropical Plain Zone of Tripura, present weather is conducive for occurrence of leaf spot in banana. Apply Propiconazole or Soaf @ 2 g / litre of water at 20-30 day interval to control the leaf spot.

#### West Region

- In Konkan, as prevailing minimum temperature is congenial (around 14-18 °C) for nursery sowing of *rabi* rice and sowing of *rabi* groundnut followed by light irrigation after three days. As there is no significant rain during last few weeks, apply irrigation to orchards, vegetable crops and pulses.
- In Madhya Maharashtra, apply light and frequent irrigation to banana and fig and drip irrigation in grapes orchard in the evening to protect the crops from cold or apply mulch of crop residue and other plant waste product. Grapes and pomegranate fruits may be protected from cold by making a shelter of gunny bags around the orchards. As dry weather is prevailing since few weeks, apply mulch of plant waste products in *rabi* jowar to preserve soil moisture. Apply irrigation to sugarcane, vegetable crops, gram (flowering stage), wheat (crown root initiation stage) and maize.
- In Marathwada, as night temperature is prevailing below normal (8-12°C), give light and frequent irrigation to banana and fig orchard in the evening..As there is no significant rain during last few weeks, apply irrigation to sugarcane, vegetable crops and jowar, gram (flowering stage), wheat (crown root initiation stage) and maize.
- In Vidarbha, apply light irrigation in orange orchards, also cover the rice nursery bed with plastic or hay for two to three days for better germination. As dry weather is prevailing since last few weeks, undertake hoeing and weeding and apply mulch of plant waste products in *rabi* jowar and safflower to preserve soil moisture. Apply irrigation to safflower, gram, wheat, vegetable crops and orchards.
- In Middle Gujarat Zone of Gujarat, as dry weather is prevailing for last few weeks, irrigate gram crop at branching stage (20-25 days after sowing) of the crop. Apply irrigation to maintain the proper soil moisture in castor crop fields.
- In North West Zone of Gujarat, in view of prevailing dry weather, irrigate cumin crop at 30 days after sowing. In early sown mustard, apply split dose of Nitrogen @ of 25 kg / ha at 35 days after sowing followed by light irrigation. Complete the sowing of isabgol crop with irrigation.
- In Bhal and Coastal Zone of Gujarat, taking the advantage of dry weather, carry out intercultural and weeding operations in vegetables like brinjal, chilli, tomato, cabbage, and cauliflower. Apply light

irrigation during evening hours.

- Cold weather in Marathwada is congenial for the incidence of powdery mildew in pomegranate; spray Sulphur WS @ 30 g + Phosphomidon @ 20 ml per 10 litres of water.
- Due to partly cloudy weather in South Konkan, there may be incidence of thrips on mango inflorescence; spray Spinosad @ 2.5 ml per 10 litres of water on the whole tree.
- In North Gujarat Zone, due to dew formation there is possibility of incidence of blight in cumin crop, early blight in potato and rust in mustard crop. Spray Mencozeb 0.2% @ 30 gram plus 25 ml of concentrated desi soap solution in 10 litre of water to control these diseases. Spray next three doses at an interval of 10 days.

#### **Central Region**

- In Madhya Pradesh, apply irrigation in wheat crop at CRI stage (20-25 days after sowing) and mustard crop which is about 30-35days old.
- In Kymore Plateau and Satpura Hill Zone of undertake weeding and intercultural operations after 20-25 days after sowing in wheat, chickpea, mustard and lentil. Apply irrigation in tomato and brinjal as per requirement and harvest the matured fruits.
- In Bundelkhand Zone of Madhya Pradesh, continue sowing of medium varieties of irrigated wheat. Continue intercultural operations in vegetables.
- In Northern Hill Zone of Chattishgarh, undertake weeding in gram, pea and intercultural operations in vegetables. Continue transplanting of cabbage, cauliflower, tomato and onion.
- In Bundelkhand Zone of Madhya Pradesh, there is chance of attack of semi lopper and Diamond back in cauliflower and cabbage crops; spray Quinalphos 25 E.C. @ 2.0ml/l of water and for shoot and fruit borer in tomato and brinjal crops, spray of trizophos 40 E.C. @ 2.0 ml. per litre of water for control.
- In Northern Hill Zone and Plain Zone of Chattishgarh, in the present weather conditions there may be chances of attack of late blight in potato. For its control, spray Mancozeb or any copper based fungicide @ 3 grams per litre of water.

## Detailed Zonewise Agromet Advisories

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



*Wheat*



*Sugarcane*



*Transplanting of rice*

- **Realised Rainfall:** Weather remained mainly dry over the region during the week.
- **Weather Forecast:** Rain/snow would occur at isolated places over Jammu & Kashmir during next 48 hours and at many places thereafter, at a few places over Himachal Pradesh and Uttarakhand from 21<sup>st</sup> and rain/thundershowers would occur at isolated places over Punjab, north Haryana from 21<sup>st</sup>.

Fog would occur at many places over Punjab, Haryana, Delhi, Rajasthan and Uttar Pradesh during next 48 hours, thereafter intensity, spatial coverage and duration of fog may decrease. Weather would be mainly dry/dry over rest of the country. No large change in minimum temperatures over northwest India during next 48 hours and may increase by 1-2°C.

- **Weather Warning:** Dense fog (visibility < 200 m) would occur at a few places over Punjab, east Uttar Pradesh around mid-night of 20<sup>th</sup> to morning of 21<sup>st</sup>. Moderate to dense fog (visibility < 500m) would occur over Haryana, Delhi, West Uttar Pradesh and Rajasthan.

- **Weather Outlook:** Rain/snow would occur at many places over Jammu & Kashmir and Himachal Pradesh. Rain/thundershowers would occur at isolated places over Uttarakhand and adjoining plains of northwest India.

- **Advisories :**

- As rain/snow would occur at isolated places during next 48 hours and at many places thereafter in Jammu & Kashmir, postpone irrigation, intercultural operations and fertilizer and pesticide application in the standing crops.
- In Western Zone of Punjab, give first irrigation to wheat crop after four weeks of sowing. Give irrigation to normal sown gram crop. Provide polythene sheet/sarkanda/kahi rice straw to save the tomato seedlings from cold injury.
- In Western Plain Zone of Punjab, it is advised to make heap of dry leaves and grasses and slow burning of these heaps should be done during night to protect young fruit plants from frost. Provide polythene sheet/Sarkanda/Kahi/ rice straw to save the vegetable crops from frost.
- In Delhi, due to prevailing low average temperature, sowing of late sown wheat varieties may be done with increased seed rate. Undertake transplanting of onion and transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli in the raised bed. Apply irrigation in timely sown potato.
- In Delhi, due to prevailing low average temperature, sowing of late sown wheat varieties may be done with increased seed rate. Undertake transplanting of onion and transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli in the raised bed. Apply irrigation in timely sown potato.
- In Western Zone of Haryana it is advised to apply the irrigation to timely sown wheat crop. Carry out intercultural operations for conserving the moisture and remove weeds in mustard crop.
- Due to dry weather and low temperature conditions prevailing, farmers having irrigation facilities are advised to give light irrigation in wheat crop and top dressing of urea under optimum soil moisture in Bhabar and Tarai Zone of Uttarakhand.
- In Sub humid Sub tropical Zone of Uttarakhand, farmers are advised to give first irrigation in late sown wheat crop at Crown Root Initiation stage and after 2-3 days apply first 1/4<sup>th</sup> of total urea application for proper growth and development of wheat. Apply light & frequent irrigation in standing crops in the evening to protect crops from cold injury. Also arrange for smoking around the field during night.
- In Mid-Hills Sub-Humid Zone and Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, complete sowing of late sown varieties of wheat and pea. Complete transplanting of onion and planting of potato. Apply light & frequent irrigation in standing crops in the evening to protect crops from cold injury. Also arrange for smoking around the field during night.
- In Arid Western Plain Zone of Rajasthan apply irrigation in timely sown wheat and barley crops and top dress urea @ 66 kg/ha in standing wheat crop at 21-25 DAS and top dress urea @ 100 kg/ha in standing barley crop with 1<sup>st</sup> irrigation.
- In Sub Humid Southern Plain and Aravali Hill Zone of Rajasthan, apply 1<sup>st</sup> irrigation in barley, mustard at 30-35 days with broadcasting of Urea @ 65 kg/ha.
- In West Uttar Pradesh, continue sowing of pea, lentil, barley, and planting of potato. Continue harvesting of matured sugarcane. Apply light irrigation in wheat and arrange for smoking around the field during night.
- In East Uttar Pradesh, complete sowing of wheat, barley, gram, lentil and pea. Apply light irrigation in early sown wheat, maize, mustard, pea, sugarcane (autumn), potato, onion, garlic, coriander and carrot.

- In Central Plain Zone of Uttar Pradesh to control pod borer attack in Pigeon pea, spray Quinolphos 25 E.C. 1.25 litre/ha in 600-700 litres of water.
- In Undulating Plain Zone of Punjab, due to foggy weather white rust may appear in irrigated mustard crop, spray 250g Blitox or Indofil-M45 in 100 liters of water per acre if disease appears.
- In Central Plain Zone of Punjab weather is favourable for incidence of late blight on potato, if the symptoms observed, spray Indofil M-45/ Antracol/Kavach @500g in 200 litres of water per acre. Repeat the spray at 7 days interval.
- In Western Zone of Haryana due to foggy weather white rust may appear in irrigated mustard crop, spray 0.2% Redomil or Mancozeb if disease appears.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- In Hill Zone of Uttarakhand, spread dry leaves of pine tree and other trees inside cattle shed. Keep small animals covered in morning and evening time to protect from cold.
- In East Uttar Pradesh, protect animals from cold by keeping them inside the shed during night, spread rice straw on floor of cattle shed, cover animals with gunny bag in morning and evening time. Vaccination should be done for prevention foot and mouth disease (FMD). Before any vaccination de-worming should be compulsory to get better results.
- In Punjab and Haryana new born calves need special care from cold weather, so provide them dry bedding and clothing (Jhull). The energy content of the concentrate mixture should be increased by 5-10 % where the protein in the concentrate can be reduced by 2-3 % during cold season. Feed well chaffed barseem mixed with wheat straw to avoid Tympany. Provide curtains at the windows in the poultry sheds. Keep poultry sheds clean, dry and warm. Poultry ration should have more energy. Therefore increase cereals by 5-8 % in the ration and adjust the rice bran content.

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



*Sugarcane*

*Transplanting of rice*

- **Realised Rainfall:** Mainly dry weather prevailed over the region during the week ending 18.12.13.
- **Weather forecast:** Weather would be mainly dry/dry over the region. No large change in minimum temperature over the region during next 48 hours.
- **Weather Warning:** Nil
- **Weather Outlook:** Weather would be mainly dry over the region.
- **Advisories:**
  - In Madhya Pradesh, apply irrigation in wheat crop at CRI stage (20-25 days after sowing) and mustard crop which is about 30-35days old.
  - In Kymore Plateau and Satpura Hill Zone of Undertake weeding and intercultural operations after 20-25 days after sowing in wheat, chickpea, mustard and lentil. Apply irrigation in tomato and brinjal as per requirement and harvest the matured fruits.
  - In Bundelkhand Zone of Madhya Pradesh, continue sowing of medium varieties of irrigated wheat. Continue intercultural operations in vegetables.
  - In Central Narmada Valley Zone of Madhya Pradesh, undertake intercultural operations in mango, papaya, citrus crops and guava orchards and apply irrigation and broadcast fertilizers according to age of the plants.
  - In Vindhya Plateau Zone of Madhya Pradesh, continue transplanting of cabbage, cauliflower and onion.
  - In Jhabua Hill Zone of Madhya Pradesh, continue sowing of late sown wheat and winter maize and provide irrigation to (20-25 days early sown wheat crop) use 1/4<sup>th</sup> of recommended dose of nitrogen fertilizer (55 kg/ha urea) as top dressing. Irrigate vegetable fields as per requirement and undertake harvesting of tomato, brinjal, chilli, capsicum and pea.
  - In Gird Zone and Malwa Plateau Zone of Madhya Pradesh, continue sowing of wheat, gram and planting of potato and winter vegetables.
  - In Northern Hill Zone of Chattishgarh, undertake weeding in gram, pea and intercultural operations in vegetables. Continue transplanting of cabbage, cauliflower, tomato and onion
  - In Chattisgarh Plain Zone, complete sowing of wheat and undertake earthing in the potato crop and provide

irrigation to vegetable crops.

- In Bastar Plateau Zone of Chhattisgarh, continue sowing of wheat with irrigation facility. Undertake sowing of linseed, safflower, pulse and pea. Continue transplanting of onion.
- In Bundelkhand Zone of Madhya Pradesh, there is chance of attack of semi lopper and Diamond back in cauliflower and cabbage crops, spray Quinalphos 25 E.C. @ 2.0ml/l of water and for shoot and fruit borer in tomato and brinjal crops, spray of trizophos 40 E.C. @ 2.0 ml. per litre of water for control.
- In Jhabua Hill Zone of Madhya Pradesh, for control of Gamossis & anthecnose disease in citrus plants, spray Blitox or Phytolon @2.5gm/l solution and for control of Pod borer in pigeon pea, spray Profenofos 50 EC @ 1.5 l/ha.
- In Northern Hill Zone and Plain Zone of Chattishgarh, in the present weather conditions there may be chances of attack of late blight in potato. For its control, spray Mancozeb or any copper based fungicide @ 3 grams per litre of water.
- In Bastar Plateau Zone of Chhattisgarh, for control of powdery mildew infestation in lathyrus and lentils, apply sulphur containing fungicides.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III
- **Animal Husbandry**
- In Bundelkhand Zone of Madhya Pradesh, provide 5-6 hours light in poultry houses during night and cover the poultry shed with gunny bags in order to protect the birds from cold weather.
- In Kymore Plateau and Satpura Hill Zone of Madhya Pradesh, provide concentrated feed to cattle, mix with dry and green fodder and enrich diet with protein, carbohydrate, fat, vitamins etc.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III

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



Rice

Sugarcane

Transplanting of rice

Cole crops

Onion

- **Realised Rainfall:** Dry weather prevailed over the region during the week ending on 18.12.13.
- **Weather Forecast:** Rain/thundershowers would occur at isolated places over sub-Himalayan West Bengal & Sikkim from 21<sup>ST</sup> onwards.  
Fog would occur at many places over Bihar and at a few places over Odisha, Jharkhand and West Bengal & Sikkim during next 48 hours, thereafter intensity, spatial coverage and duration of fog may decrease. No large change in minimum temperatures over east India during next 48 hours.
- **Weather Warning :** Dense fog (visibility < 200 m) would occur at a few places over Bihar around midnight of 20<sup>th</sup> to morning of 21<sup>st</sup>.
- **Weather Outlook:** Rain/thundershowers would occur at isolated places over Sub-Himalayan West Bengal & Sikkim. Weather would be mainly dry/dry over rest of the region. Moderate fog would occur over Indo-Gangetic plains in morning hours.
- **Advisories:**
- In East and South Eastern Coastal Plain Zone of Odisha, complete nursery sowing of rice, complete intercultural operations in mustard. If the crop is affected by Crocidollema and aphids, spray 400 ml Dimethoiate/ 200 ml Ethofenprox or Deltamethrin per acre in 200 litre water. Undertake weeding and hoeing operations in groundnut and potato. Apply 100 kg Gypsum in groundnut if broadcasted or 50 kg, if side dressed. Apply irrigation as per requirement.
- Undertake pyra cropping of green gram, black gram, lentil and mustard etc in North Eastern Ghat Zone of Odisha.
- In Western Undulating Zone of Odisha, light hoeing, weeding should be done in onion crop at four week stage and apply 43kg urea/acre followed by earthing up and then irrigate the crop as dry weather is prevailing.
- In Coastal Saline Zone of West Bengal, complete harvesting of *aman* rice and prepare upland field for nursery bed preparation of *Boro* rice. Due to decreasing of temperature apply ash in the seed bed of *boro* rice to protect seedlings from cold. Also, undertake sowing of lentil and continue planting of potato.
- In Laterite and Red Soil Zone of West Bengal, continue nursery bed preparation of *boro* rice in uplands, transplanting of winter vegetables and complete planting of potato. Apply light irrigation after sowing/planting

of vegetable crops and in mustard. Also undertake sowing of seasonal flower like marigold, verbena, jarberra, jinia etc.

- In New Alluvial Zone of West Bengal, to protect the seedlings of *boro* rice from cold, cover the nursery bed with polythene or keep stagnant water in the nursery bed especially in the night time. For timely sown wheat crop, at 21 days after sowing, thinning and other intercultural operation may be done. Also undertake land preparation for sowing of Sunflower.
- In North West Alluvial Plain Zone of Bihar, apply irrigation in wheat at 30-35 day stage and to control weed use 2- 4 D @ 1kg/ha to control Broad leaf weed and for *Phalaris minor* (narrow leaf) weed use Isoproturon@1kg/ha in 600 liter of water. Apply light irrigation in potato crop.
- In South Eastern Plateau Zone of Jharkhand, undertake sowing of late sown wheat varieties and apply irrigation in wheat crop which is at crown root initiation stage. Undertake transplanting of onion and cabbage. Undertake intercultural operations in toria, green pea and pigeon pea and apply light irrigation. Do earthing up in one month old potato crop.
- In North West Alluvial Plain Zone of Bihar, due to prevailing dense foggy conditions, there is chances of occurrence of early blight in potato, spray Dietane M-45 @ 2.0 g/liter or Carbendazim (Bavistin) @ 2.0 g/liter of water for control.
- In Western Undulating Zone of Odisha, spray Bavistin 2.0g/lit of water for control of Tikka disease in groundnut crop at flowering to peg formation stage and repeat after 14 days of first spray.
- In Western Undulating Zone of Odisha, present weather conditions are conducive for occurrence of alternaria blight in mustard crop. For controlling this disease, spray Indofil M 45@3g/lit of water. Also low temperature may favour the infestation of aphids in mustard, Spray imidacloprid 1ml/4lit water to control aphids in mustard.
- In East and South Eastern Coastal Plain Zone of Odisha, the cloudy weather may favour infestation of aphid and powdery mildew in pulses, spray 5 ml Imidachloprid or 20 ml Metacystox in 10 litre water. For controlling powdery mildew spray 5 g Sulfex in 1 liter water.
- In South Eastern Plateau Zone of Jharkhand pigeon pea crop is at flowering to pod formation stage and dry with cool temperature favours the attack of leaf eating and sucking pests, spray @ 1 ml per liter of water during day time at flowering stage and Indoxacarb at pod formation stage @ 0.5 – 1ml per liter of water.
- In New Alluvial Zone and Laterite and Red Soil Zone of West Bengal, there is chance of attack of powdery mildew and aphid in mustard. For controlling powdery mildew, apply 0.025% Dinocap in 3 sprays at 15 days interval. For prevention of aphid attack, apply Imidacloropid 17.8 SL @3 ml/10lit or Quinalphos 25 EC @ 2 ml/lit of water.
- Due to possibility of lower temperature in Terai Zone of West Bengal, there may be the chance of late blight attack in potato. To prevent the attacked by late blight spray the mixture of Metalaxyl 8% and Mancozeb 64% @ 1 to 1 ½ g per litre of water at 10-12 days interval by completely wetting the leaves.
  - Stages of major crops are mentioned in Annexure I.
  - Varieties are mentioned in Annexure III.
- **Animal Husbandry**
  - Low temperature condition may adversely affect the milk production and performance of domestic animals. Farmers in North West Alluvial Plain Zone of Bihar are advised to give protein enriched diet to the animals. Do not keep the animal in the open during night.
  - In Coastal Saline Zone of West Bengal, cattle may be affected by viral pneumonia due to cold. Cowshed should be kept dry. Cover the openings of cowshed by jute bags.

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



**Sugarcane**



**Rice**



**Transplanting of rice**



**cole crops**

- **Realised Rainfall:** Significant rainfall occurred in Upper Subansiri and West Kameng districts of Arunachal Pradesh. Weather remained mainly dry over rest of the region during last week.
- **Weather Forecast:** Rain / thundershowers would occur at isolated places over Arunachal Pradesh from 21<sup>st</sup> onwards. Weather would be mainly dry/dry over rest of the region.
- **Weather Warning:** Nil.
- **Weather Outlook:** Rain/thundershowers would occur at isolated places over Arunachal Pradesh. Weather would be mainly dry / dry over rest of the region.
- **Advisories:**

- In Central Brahmaputra Valley Zone of Assam, continue sowing of wheat and transplanting of cole crops followed by light irrigation. Also apply irrigation in potato. Continue nursery bed preparation and sowing of *boro* rice.
- In Hill Zone of Assam, complete transplanting of winter vegetables and continue planting of potato followed by light irrigation. Undertake weeding and thinning in mustard crops 25-30 days after sowing. Continue picking of cotton.
- In North Bank Plain Zone of Assam, continue sowing of wheat and *rabi* pulses like lentil, rajmah, pea, lathyrus followed by light irrigation. Earthing up of potato may be done at 25 days after planting (stolon formation stage) just before first irrigation.
- In Lower Brahmaputra Valley Zone of Assam, continue land preparation and sowing of bottle gourd, pumpkin and planting of onion followed by light irrigation. Undertake earthing up in potato at 25 days after planting (stolon formation stage) just before first irrigation.
- In Sub Tropical Hill Zone of Arunachal Pradesh, apply irrigation in mustard at flowering stage.
- In Meghalaya, complete transplanting of cauliflower, cabbage and broccoli followed by light irrigation. Undertake first weeding at 20 days and second at 40 days after transplanting. Harvest matured *Sali* rice and undertake sowing of pea in low land rice field with residual soil moisture.
- In Sub Tropical Plain Zone of Manipur, apply light irrigation in rapeseed, mustard and pulses. Cover nursery bed of tomato with gunny bags to protect from cold. Continue land preparation and sowing of *rabi* maize followed by light irrigation.
- In Mild Tropical Hill Zone of Mizoram, continue transplanting of cole crops and tomato followed by light irrigation.
- In Mid Tropical Plain Zone of Tripura, complete planting of potato followed by light irrigation. Give light irrigation to cabbage, cauliflower and tomato.
- In Lower Brahmaputra Valley Zone of Assam, under the present weather conditions there is chance of attack of aphids and saw fly in rapeseed and mustard; apply Dimethoate 30 EC or Chloropyrifos @ 0.71 ml / litre of water.
- In Hill Zone of Assam, humid and cloudy weather is congenial for occurrence of late blight in tomato. Apply Ridomil MZ-72 (2g / litre of water) and Indofil M-45 (2.5 g / litre of water) alternately.
- In Mid Tropical Plain Zone of Tripura, present weather is conducive for occurrence of leaf spot in banana. Apply Propiconazole or Soaf @ 2 g / litre of water at 20-30 day interval to control the leaf spot.
- 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 cattle.
  - In Mizoram and Tripura, cover or tie cattle with gunny bag during night to avoid cold. Also cover poultry house with gunny bags / polythene sheet and provide the heating during night for chicks less than 21 days old.
  - In Central Brahmaputra Valley Zone of Assam, protect poultry birds from cold by using electric bulbs (300 Watt for 100 sq. feet) to prevent *Coryza* disease. In case of lacrimation and swelling of the head, treat the fowl with Sulphur drugs.

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



*Transplanting of rice*



*Sugarcane*



*Cotton*



*Transplanting of rice*

- **Realised Rainfall:** Mainly dry weather prevailed over the States of the region during last week.
- **Weather Forecast:** Weather would be dry or mainly dry over the States of the region.
- **Weather Warning:** Nil.

- **Weather Outlook:** Weather would be dry or mainly dry over the States of the region.

- **Advisories:**

- In Konkan, as prevailing minimum temperature is congenial (around 14-18 °C) for nursery sowing of *rabi* rice and sowing of *rabi* groundnut followed by light irrigation after three days. As there is no significant rain during last few weeks, apply irrigation to orchards, vegetable crops and pulses.
- In Madhya Maharashtra, apply light and frequent irrigation to banana and fig and drip irrigation in grapes orchard in the evening to protect the crops from cold. Grapes and pomegranate fruits may be protected from cold by making a shelter of gunny bags around the orchards. As dry weather is prevailing since few weeks, apply mulch of plant waste products in *rabi* jowar to preserve soil moisture. Apply irrigation to sugarcane, vegetable crops, gram (flowering stage), wheat (crown root initiation stage) and maize.
- In Marathwada, as night temperature is prevailing below normal (8-12°C), give light and frequent irrigation to banana and fig orchard in the evening.. As there is no significant rain during last few weeks, apply irrigation to sugarcane, vegetable crops and jowar, gram (flowering stage), wheat (crown root initiation stage) and maize.
- In Vidarbha, apply light irrigation in orange orchards, also cover the rice nursery bed with plastic or hay for two to three days for better germination. As dry weather is prevailing since last few weeks, undertake hoeing and weeding and apply mulch of plant waste products in *rabi* jowar and safflower to preserve soil moisture. Apply irrigation to safflower, gram, wheat, vegetable crops and orchards.
- In Middle Gujarat Zone of Gujarat, as dry weather is prevailing for last few weeks, irrigate gram crop at branching stage (20-25 days after sowing) of the crop. Apply irrigation to maintain the proper soil moisture in castor crop fields.
- In North West Zone of Gujarat, in view of prevailing dry weather, irrigate cumin crop at 30 days after sowing. In early sown mustard, apply split dose of Nitrogen @ of 25 kg / ha at 35 days after sowing followed by light irrigation. Complete the sowing of isabgol crop with irrigation.
- As dry weather is prevailing, apply irrigation in wheat crop in South Saurashtra Zone.
- In Bhal and Coastal Zone of Gujarat, taking the advantage of dry weather, carry out intercultural and weeding operations in vegetables like brinjal, chilli, tomato, cabbage, and cauliflower. Apply light irrigation during evening hours.
- Cold weather in Marathwada is congenial for the incidence of powdery mildew in pomegranate; spray Sulphur WS @ 30 g + Phosphomidon @ 20 ml per 10 litres of water.
- Due to partly cloudy weather in South Konkan, there may be incidence of thrips on mango inflorescence; spray Spinosad @ 2.5 ml per 10 litres of water on the whole tree.
- In North Gujarat Zone, due to dew formation there is possibility of incidence of blight in cumin crop, early blight in potato and rust in mustard crop. Spray Mencozeb 0.2% @ 30 gram plus 25 ml of concentrated desi soap solution in 10 litre of water to control these diseases. Spray next three doses at an interval of 10 days.
- Stages of major crops are mentioned in Annexure I.
- Varieties are mentioned in Annexure III.
- **Animal Husbandry**
- In Middle Gujarat Zone, keep animals indoor during night and provide dry fodder bedding to protect from cold. Give warm water for drinking and include dry fodder in feeding.

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



*Rice*



*Sugarcane*



*Transplanting of rice*

- **Realized rainfall:** Significant rainfall occurred in Kollam and Thiruvananthapuram districts in Kerala; most of the districts in Tamil Nadu except Ariyalur, Chennai, Coimbatore, Dharmapuri, Erode, Kancheepuram, Karur, Krishnagiri, Perambalur, Pudukkotai, Thiruppur, Thiruvannamalai, Thiruvallur, Trichy and Vellore. Weather remained mainly dry/ dry in the remaining parts of the region. (week ending 18.12.13)



- **Rainfall Forecast:** Rain/thundershowers would occur at isolated places over south Tamil Nadu during next 48 hours and mainly dry thereafter; Weather would be mainly dry/dry over rest of the region.
- **Weather Warning:** Cold wave condition would prevail at isolated places over north interior Karnataka on 20<sup>th</sup>.
- **Weather Outlook (23<sup>rd</sup> to 27<sup>th</sup>):** Rain/thundershowers would occur at isolated places over south Tamil Nadu
- **Advisory:**
  - As cold wave conditions prevailed and also likely to continue over North Interior Karnataka, farmers are advised to apply light and frequent irrigation during evening hours in standing crops. Also arrange for smoking around the field to protect the crops from cold injury.
  - Undertake sowing of short duration rice varieties in areas having insufficient water for transplanting in Kurnool district of Scarce Rainfall Zone of Andhra Pradesh.
  - Low temperatures during the *rabi* season may cause cold injury in rice nurseries in the Southern Telangana Zone of Andhra districts. Cover the nursery beds with polythene sheet during night and remove in the morning to overcome cold injury, irrigate the nursery bed every day in the evening and let out the water in the morning for better nursery growth, and apply 2 kg urea for 200 m<sup>2</sup> nursery area at 10-15 days after sowing.
  - In the North Transition Zone of Karnataka, apply irrigation in wheat (Durum) crop which is at late jointing to flowering stage and early sown sorghum which is at flowering phase.
  - Undertake land preparation for paddy fallow crops like cowpea, green gram and Bengal gram and seedbed preparation for rice in the North East Dry Zone of Karnataka.
  - Continue sowing of *puncha* rice and harvesting of Uma variety rice in the Problem Area Zone in Kerala.
  - Prevailing low temperature and humidity (around 60%) conditions in the Eastern Dry Zone of Karnataka is congenial condition for occurrence of powdery mildew on grapes, to control spray Carbendazim @ 1 g/l or Tridemarf @ 0.5 ml/L.
  - Due to continuous dry weather aphids were noticed in safflower crop. For effective control of aphids, spray Dimethoate 30 EC @ 1.7ml/liter of water in the North East Dry Zone of Karnataka.
  - Undertake top dressing with nitrogen in *samba* rice crop in the Western Zone of Tamil Nadu, since the crop is in flowering stage. Undertake harvesting of August sown maize crop and provide irrigation to October sown maize crop which is in silking stage in Thiruppur district.
  - Present weather is congenial for rust disease in groundnut in the Western Zone of Tamil Nadu. Monitor the crop and undertake plant protection measures if noticed.
  - Prevailing weather having light cloud cover and high humidity (70-80%) is congenial for sucking pests, leaf hopper and whitefly in cotton, thrips and mite in chilli in the South Zone of Tamil Nadu. Undertake plant protection measures.
  - Prevailing weather conditions are congenial for semi-looper pest attack on castor crops grown during kharif season and leaf folder and stem borer attack on paddy crops in the North Western Zone of Tamil Nadu. Apply *Penthion* 100 EC at the rate of 1.0 lit/hectare or *Carbaril* 500 WP at the rate of 2.0 kg/hectare during morning or evening at flowering stage three times at 3 weeks gap to control semi-looper and spray *Chlorpyrifos* or *Profenofos* at the rate of 2 ml/lit of water to control leaf folder and stem borer.
  - Stages of major crops are mentioned in Annexure I.
  - Varieties are mentioned in Annexure III.
- **Animal Husbandry**
  - Protect buffaloes and cattle from foot and mouth disease by periodic vaccination and sheep & goat from Blue tongue disease by giving antibiotics and tonics like Enfrofaccin @10 ml per animal in the Scarce Rainfall Zone of Andhra Pradesh.
  - Considering the prevailing weather, sheep may get infected with blue tongue and enterotoxaemia diseases in the Western Zone of Tamil Nadu. Hence, vaccinate the animals. Administer granular medicine to poultry birds to protect them from coccidiosis infection.

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

- Wheat (germination/seedling/crown root initiation), barley, oat, late peas (sowing/ germination), early peas, gobhisarson (germination/ early vegetative), cauliflower (transplanting), cucurbits viz. khira, bitter gourd, tori (maturity/harvesting), radish, carrot, turnip, beet leaf and fenugreek (direct sowing), onion (planting), potato (planting)in Himachal Pradesh.
- Wheat, barley, oat, berseem (sowing/germination), ginger (vegetative), sugarcane (active vegetative/grand growth), sesame in low land area (early vegetative / vegetative), vegetable pea (sowing / germination), toria, chickpea (germination/vegetative), tomato (transplanting), potato (planting / transplanting), Autumn sugarcane (planting), sarson, masoor (sowing/early vegetative), coriander, spinach, radish, fenugreek (sowing/germination)in Uttarakhand.
- Wheat, barley (crown root initiation/tillering), toria (vegetative/flowering/pod maturity, gobisarson, mustard (vegetative/flowering), brown sarson, oat, lentil, berseem, gram, field pea (germination/vegetative), potato (planting), palak, radish, carrot, turnip, garlic, methi, spinach (germination/vegetative), pole type beans (vegetative), radish, spinach (transplanting / early vegetative), carrot, turnip (sowing/ germination), onion, cole crops (nursery sowing / transplanting), fruit crops (planting) in Jammu & Kashmir.
- Wheat, barley (germination/seedling /crown root initiation), lentil (germination/ crown root initiation), toria (active vegetative/flowering), rainfedtaramira, gram and mustard, potato (vegetative), tomato, brinjal, Shimla mirch (early vegetative / vegetative), new sugarcane (early vegetative / vegetative), castor (flowering/spike formation), cucurbits (sowing/), radish, Desi carrot (sowing/ germination), cabbage and cauliflower (nursery sowing/transplanting), onion(nursery raising/ transplanting), cumin, ajwain, methi, Isabgol (sowing) in Rajasthan.
- wheat(sowing/germination / crown root initiation ), oats, barseem (sowing/ germination), brinjal, tomato, early (cauliflower and cabbage) (vegetative / flowering), cauliflower, cabbage, broccoli and tomato (transplanting), early radish,spinach and coriander (vegetative), SarsonSaag, Bathua, radish, spinach, fenugreek, coriander and turnip (sowing), guar, bajra (flowering / grain filling), *rabi* onion (nursery sowing), mustard, gram, pea, carrot, garlic (sowing ), oat, barseem (sowing) in Delhi.
- Wheat (germination/seedling/ crown root initiation), Maize (knee height),barley/mustard/pea/chickpea/lentil/Linseed (seedling), potato (sowing), Jowar, bajra, (grain filling/maturity), tomato, brinjal, chilli (fruiting/picking), pigeon pea, black gram, green gram (flowering/pod formation), spring sugarcane (grand growth/harvesting), toria (pod formation) in Uttar Pradesh.
- Sugarcane (grand growth), wheat (sowing/germination), cucurbits, cowpea (sowing), black gram, green gram, soybean, arhar (vegetative/pod formation), moong, mash (vegetative) maize (cob formation / cob maturity) sesamum (vegetative), cauliflower (transplanting), potato (planting) in Punjab.
- Wheat (sowing / germination), New sugarcane (vegetative), cotton (picking), rice (grain formation/maturity) in Haryana.

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

- Pigeon pea (pod formation) sugarcane (grand growth), winter sugarcane (planting), winter vegetables (sowing/transplanting), wheat, (sowing/CRI), safflower, mustard, gram and linseed (germination/ early vegetative) , potato(planting/ stolan formation) ,onion (nursery raising/planting) in Madhya Pradesh.
- Sugarcane (elongation), ragi and kodo millet (vegetative), ginger, turmeric, papaya (vegetative), cole crops (transplanting), wheat, safflower and gram (sowing/ germination),potato, onion (planting) in Chhattisgarh.

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

- Onion (transplanting), arhar (vegetative), winter maize, sunflower, mustard, toria, pea, lentil, gram, rajma (vegetative), cauliflower, cabbage, chilli, tomato, brinjal (vegetative), wheat(crown root initiation), boro ric (sowing) in Bihar.
- Arhar (flowering/pod formation), onion (vegetative), tomato, cauliflower, cabbage (vegetative), sweet potat (stem elongation), potato (vegetative), green peas, bell pepper (vegetative), wheat(crown root initiation) i Jharkhand.
- Rice (harvesting), pigeon pea (pod formation / pod maturity), turmeric, ginger (rhizome formation), rab vegetables (transplanting), sugarcane (grand growth), banana (vegetative), mustard (seedling), whea groundnut, cluster bean, green pea (sowing) in Odisha.
- Aman rice (maturity / harvesting), *boro* rice(seed bed preparation/sowing), ginger, turmeric (rhizom formation), tomato, brinjal (transplanting / early vegetative), cabbage and cauliflower (transplanting), whea mustard (sowing), potato (planting), winter flower like marigold (sowing/transplanting) in West Bengal.
- Wheat (tillering), *rabi* vegetables (vegetative / late vegetative), large cardamom (harvesting), rice (grai maturity / harvesting), ginger (maturity / harvesting), mustard (vegetative), potato (planting / germinatio /vegetative) in Sikkim.

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

- *Boro* rice (nursery sowing / transplanting), sugarcane (autumn) (active vegetative), *sali* rice (grain maturity / harvesting), rapeseed and mustard (vegetative / flowering / pod formation), *rabi* pulses like lentil, rajmah, pea, lathyrus etc. (sowing / early vegetative), wheat (sowing / early vegetative), winter vegetables (transplanting / early vegetative), potato (planting / stolon formation), cole crops (transplanting / vegetative) in Assam.
- Cauliflower, cabbage, broccoli and kholkhol (vegetative / maturity), spinach, carrot (vegetative), mustard (active vegetative / flowering), pea (early vegetative), winter maize (vegetative / flowering) and potato (vegetative) in Arunachal Pradesh.
- Rapeseed and mustard, pea, pulses (sowing / early vegetative), *rabi* vegetables, cole crops (early vegetative / vegetative), potato (early vegetative), onion (early vegetative), ginger and turmeric (maturity / harvesting), cucurbits (sowing) in Manipur.
- *Sali* rice (grain maturity / harvesting), potato (vegetative), rapeseed and mustard (vegetative), cauliflower and other winter vegetables (transplanting) in Meghalaya.
- Ginger and turmeric (vegetative / rhizome formation), banana (fruiting / maturity / harvesting), cole crops (transplanting) in Mizoram.
- Maize (vegetative / tasseling), mustard (vegetative), potato, rajmah (vegetative), cabbage, broccoli (vegetative / head formation), tomato (early vegetative / vegetative) in Nagaland.
- *Rabi* maize (vegetative), lentil (sowing / early vegetative), potato (planting), winter vegetables (transplanting), banana (vegetative / fruiting / harvesting), toria (active vegetative / flowering), cole crops, tomato, brinjal and radish (vegetative) in Tripura.

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

- Red gram (pod development / pod maturity in Madhya Maharashtra, Vidarbha and Marathwada), *rabi* jowar (vegetative / flag leaf initiation / grain formation in Madhya Maharashtra and Marathwada), safflower (vegetative in Madhya Maharashtra, Marathwada and Vidarbha), gram (branching / flowering / pod formation in Madhya Maharashtra, Marathwada and Vidarbha), wheat (germination / crown root initiation in Madhya Maharashtra, Marathwada and Vidarbha), maize (vegetative in Madhya Maharashtra), *adsali* and pre seasonal sugarcane (maturity / harvesting), *suru* sugarcane (elongation), New *adsali* (early tillering / tillering in Marathwada and Madhya Maharashtra), pre-seasonal sugarcane (sprouting / early tillering in Marathwada and Madhya Maharashtra).
- Wheat (germination / crown root initiation), gram (vegetative), castor (spike development), cotton (boll maturity / picking), sugarcane (elongation), new sugarcane (planting / vegetative), isabgol (sowing), cumin (early vegetative / vegetative), fenugreek (seedling / vegetative), cauliflower, cabbage (vegetative), onion (vegetative), potato (vegetative) in Gujarat.

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

- Cotton (picking) in Krishna Godavari and North Telangana zone, sugarcane (Jan-March planted) (cane development), late sown kharif rice (grain filling/maturity), castor(capsule maturity/harvest), banana (fruit development), *rabi* crops: rice (nursery/tillering), groundnut (seedling/vegetative), pulses (sowing), maize (seedling to vegetative), red gram (flowering/pod formation to development), Bengal gram (flowering/pod development), jowar (panicle initiation), chillies (maturity/harvest), vegetables (vegetative), onion (bulb development ) in Andhra Pradesh.
- Sugarcane (grand growth), samba rice (panicle initiation /flowering and milky ), thaladi rice (tillering to panicle initiation in the Western Zone), cotton and maize(vegetative), onion (vegetative), sunflower (seedling), winter cotton (vegetative), groundnut (pod development / harvesting), vegetables (growing), black gram (flowering), rainfed cotton(squaring/flowering), rainfed maize, pearl millet and sorghum (flowering) and pulses (flowering) in Tamil Nadu.
- Mundakan rice (tillering/panicle initiation), Punched rice (sowing) in Kottayam district, arecanut (harvesting), sugarcane (grand growth), rubber (tapping), *rabi* vegetables (growing), pepper (berry maturity), cardamom (harvesting), in Kerala.
- Sugarcane (ripening), kharif crops: ragi (harvesting), maize (harvesting), red gram (harvesting), groundnut (harvesting), rice (harvesting), cotton (picking), *Rabi* Crops: Bengal gram (pod filling), sunflower (vegetative), sorghum (flowering), safflower (flowering) and wheat (jointing to flowering), rice (transplanting in coastal Karnataka), sugarcane (planting) in Karnataka.

### **Annexure II**

#### **Week by week Rainfall Distribution**

	20.11.13		27.11.13		04.12.13		11.12.13		18.12.13	
State/Districts	Actual	% dep.	Actual	% dep.	Actual	% dep.	Actual	% dep.	Actual	% dep.
<b>Arunachal Pradesh</b>										
Anjaw	0.0	-100	0.0	-100	**	**	**	**	**	**
Changlang	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.7	-94
Dibang Valley	0.0	-100	0.0	-100	0.0	-100	2.0	-71	6.0	-75
East Kameng	0.0	-100	0.0	-100	0.0	-100	1.0	-80	16.0	142
East Siang	0.0	-100	0.0	-100	0.0	-100	0.0	-100	4.5	-50
Kurung Kumey	**	**	**	**	**	**	**	**	**	**
Lohit	0.0	-100	0.0	-100	0.3	-96	0.0	-100	1.2	-83
Lower Dibang Valley	0.0	-100	0.0	-100	0.0	-100	0.0	-100	4.8	-80
Lower Subansari	**	**	**	**	**	**	**	**	12.0	532
Papumpara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	3.3	-18
Tawang	0.0	-100	0.0	-100	5.0	-38	2.0	-60	12.0	-7
Tirap	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.5	-89
Upper Siang	0.0	-100	0.0	-100	0.0	-100	0.0	-100	14.1	-58
Upper Subansari	0.0	-100	0.0	-100	0.0	-100	0.0	-100	24.2	357
West Kameng	0.0	-100	0.0	-100	0.0	-100	0.0	-100	34.6	168
West Siang	0.0	-100	0.0	-100	0.0	-100	1.0	-83	10.3	-9
<b>Assam</b>										
Baksa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	6.9	116
Barpeta	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.5	-85
Bongaigaon	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Cachar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chirang	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.1	-95
Darrang	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dhemaji	0.0	-100	0.0	-100	0.0	-100	0.0	-100	3.0	-53
Dhubri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dibrugarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	3.8	-8
Goalpara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Golghat	0.0	-100	0.0	-100	0.0	-100	0.0	-100	8.2	91
Hailakandi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jorhat	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.2	-76
Kamrup(Rural)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.9	16
Kamrup(Metro)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.7	-73
Karbi Anglong	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Karimganj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kokrajhar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lakhimpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	5.7	-11
Morigaon	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.9	-34
N.C.Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nowgong	0.0	-100	0.0	-100	0.0	-100	0.0	-100	8.2	193
Nalbari	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.8	22
Sonitpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.6	-64
Sibsagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.7	-33
Tinsukia	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.2	-59
Udalgiri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.2	-63
<b>Meghalaya</b>										
East Garo Hills	**	**	**	**	0.0	-100	**	**	**	**
East Khasi Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100

Jaintia Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ribhoi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
South Garo Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	7.0	126
West Garo Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West Khasi Hills	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Mizoram</b>										
Aizwal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Champhai	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kolasib	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lawngtlai	0.0	-100	0.0	-100	1.0	-84	0.0	-100	0.0	-100
Lunglei	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mamit	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Saiha	0.0	-100	0.0	-100	11.0	67	0.0	-100	0.0	-100
Serchhip	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Manipur</b>										
Bishnupur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chandel	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Churachandpur	0.0	-100	0.0	-100	**	**	**	**	**	**
Imphal east	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.3	-41
Imphal west	**	**	**	**	**	**	**	**	0.0	-100
Senapati	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tamenglong	**	**	**	**	**	**	**	**	**	**
Thoubal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	3.0	-57
Ukhrul	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Nagaland</b>										
Dimapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kephire	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kohima	0.0	-100	0.0	-100	0.0	-100	1.5	150	0.0	-100
Longleng	**	**	**	**	**	**	**	**	**	**
Mokokchung	0.0	-100	0.0	-100	0.0	-100	0.0	-100	2.0	-69
Mon	**	**	**	**	**	**	**	**	**	**
Paren	**	**	**	**	**	**	**	**	**	**
Phek	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tuensang	**	**	**	**	**	**	**	**	**	**
Wokha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Zunheboto	**	**	**	**	**	**	**	**	**	**
<b>Tripura</b>										
Dhalai	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
North tripura	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
South tripura	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West tripura	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Himachal Pradesh</b>										
Bilaspur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chamba	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hamirpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kangra	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kinnaur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kullu	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lahaul and Spiti	0.0	-100	0.0	-100	0.0	-100	1.3	-84	0.0	-100
Mandi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100



Anantnag	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Badgam	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bandipore	**	**	**	**	**	**	**	**	**	**
Baramula	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.6	-97
Doda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ganderwal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jammu	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kargil	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kathua	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kistwar	**	**	**	**	**	**	**	**	**	**
Kulgam	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kupwara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ladakh(Leh)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Poonch	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Pulwama	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rajouri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ramban	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Reasi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Samba	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Shopian	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Srinagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Udhampur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>East Madhya Pradesh</b>										
Anuppur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Balaghat	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chhatarpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chindwara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Damoh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dindori	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jabalpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Katni	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mandla	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Narsingpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Panna	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rewa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Satna	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Seoni	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Shahdol	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sidhi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Singrauli	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tikamgarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Umaria	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>West Madhya Pradesh</b>										
Alirajpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Asoknagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Badwani	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Betul	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhind	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhopal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100

Burhanpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Datia	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dewas	0.0	-100	0.0	-100	1.2	-82	0.0	-100	0.0	-100
Dhar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Guna	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gwalior	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Harda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hosangabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Indore	0.0	-100	0.0	-100	5.2	126	0.0	-100	0.0	-100
Jhabua	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Khandwa	0.0	-100	0.0	-100	0.7	-88	0.0	-100	0.0	-100
Khargone	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mandsaur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Morena	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Neemuch	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Raisen	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rajgarh	0.0	-100	0.0	-100	8.2	83	0.0	-100	0.0	-100
Ratlam	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sehore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Shajapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sheopur Kalani	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Shivpuri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ujjain	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Vidisha	0.0	-100	0.0	-100	1.1	-78	0.0	-100	0.0	-100
<b>Chattisgarh</b>										
Bastar	0.3	-86	3.4	-6	0.0	-100	0.0	-100	0.0	-100
Bijapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bilaspur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dantewara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dhamtari	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Durg	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Janjgir	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jashpurnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kanker	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Korba	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Koriya	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kawardha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mahasumund	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Narayanpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Raigarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Raipur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rajandgaon	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Surguja	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>East Uttar Pradesh</b>										
Allahabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ambedkar Nagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Azamgarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bahraich	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ballia	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Balrampur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100



Banda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Barabanki	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Basti	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chandauli	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Deoria	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Faizabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Farrukhabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Fatehpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gazipur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gonda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gorakhpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hardoi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jaunpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kannauj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kanpur City	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kanpur Dehat	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kaushambi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kheri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kushi nagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lucknow	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Maharajganj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mau	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mirzapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Pratapgarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
RaiBareilly	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sahuji Maharajnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sant Kabirnnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sant Ravidas Nagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Shrawasti	0.0	-100	**	**	**	**	**	**	0.0	-100
Sidharthnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sitapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sonbhadra	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sultanpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Unnao	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Varanasi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>West Uttar Pradesh</b>										
Agra	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Aligarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Auraiya	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Badaun	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Baghpat	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bareilly	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bijnor	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bulandsahar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Etah	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Etawah	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Firozabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
GBNagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ghaziabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hamirpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100

Jalaun	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jhansi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jotirba Phule Nagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kanshiramnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lalitpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mahamaya Nagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mahoba	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mainpuri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mathura	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Meerut	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Moradabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Muzzaffarnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Pilibhit	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rampur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Saharanpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Shahjahanpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Uttarakhand</b>										
Almora	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bageshwar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chamoli	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Champawat	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dehradun	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Garhwal Pauri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Garhwal Tehri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Haridwar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nainital	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Pithoragarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rudraprayag	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Udham Singh Nagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Uttarkashi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Bihar</b>										
Araria	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Arwal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Aurangabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Banka	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Begusarai	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhabua	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhagalpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhojpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Buxar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Darbhanga	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
East Champaran	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gaya	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gopalganj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jahanabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jamui	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kathihar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Khagadia	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kishanganj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lakhisarai	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100

Madhepura	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Madhubani	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Monghyar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Muzaffarpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nalanda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nawada	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Patna	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Purnea	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rohtas	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Saharsha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Samstipur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Saran	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sheikpura	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sheohar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sitamarhi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Siwan	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Supaul	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Vaishali	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West Champaran	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Jharkhand</b>										
Bokaro	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chatra	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Deoghar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dhanbad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dumka	**	**	0.0	-100	**	**	0.0	-100	**	**
East Singbhum	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Garhwa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Giridih	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Godda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gumla	**	**	0.0	-100	**	**	0.0	-100	**	**
Hazaribagh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jamtara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Khunti	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Koderrna	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Latehar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Lohardagga	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Pakur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Palamau	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ramgarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Ranchi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sahebganj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Saraikela	**	**	0.0	-100	**	**	0.0	-100	**	**
Simdega	**	**	0.0	-100	**	**	0.0	-100	**	**
West Singbhum	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>East Rajasthan</b>										
Ajmer	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Alwar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Banswara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Baran	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bharatpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100

Bhilwara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bundi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chittorgarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dausa	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dholpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dungarpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jaipur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jhalawar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jhunjhunu	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Karauli	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kota	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Pratapgarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rajsamand	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sawai Madhopur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sikar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sirohi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tonk	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Udaipur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>West Rajasthan</b>										
Barmer	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bikaner	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Churu	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hanumangarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jaisalmer	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jalore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jodhpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nagaur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Pali	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sri Ganganagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Gujarat Region</b>										
Ahmedabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Anand	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Banaskantha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Baroda	0.0	-100	0.1	-97	0.0	-100	0.0	-100	0.0	-100
Broach	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
DNH	0.0	-100	0.0	-100	**	**	**	**	**	**
Dahod	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Daman	0.0	-100	0.0	-100	**	**	**	**	**	**
Dangs	0.0	-100	2.7	-55	0.0	-100	0.0	-100	0.0	-100
Gandhinagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kheda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Mehsana	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Narmada	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Navsari	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Panchmahal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Patan	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sabarkantha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Surat	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Tapi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Valsad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100

<b>S K &amp; Diu region</b>										
Amreli	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhavnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Diu	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jamnagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Junagarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kutch	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Porbandar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rajkot	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Surendranagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>Maharashtra</b>										
<b>Konkan &amp; Goa</b>										
Goa	0.0	-100	7.0	27	1.4	0	0.0	-100	0.0	-100
Mumbai	0.0	-100	6.4	300	0.5	-64	0.0	-100	0.0	-100
Raigad	0.0	-100	0.9	-75	4.9	157	0.0	-100	0.0	-100
Ratnagiri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sindhudurg	0.0	-100	6.4	8	0.0	-100	0.0	-100	0.0	-100
Thane	0.0	-100	0.3	-88	0.0	-100	0.0	-100	0.0	-100
<b>Madhya Maharashtra</b>										
Ahmednagar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dhule	**	**	**	**	0.0	-100	**	**	**	**
Jalgaon	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kolhapur	0.0	-100	0.6	-90	0.0	-100	0.0	-100	0.0	-100
Nandurbar	**	**	0.0	-100	0.0	-100	**	**	**	**
Nasik	0.0	-100	1.7	-66	0.0	-100	0.0	-100	0.0	-100
Pune	0.0	-100	13.6	142	5.1	65	0.0	-100	0.0	-100
Sangli	0.0	-100	7.6	65	2.4	85	0.0	-100	0.0	-100
Satara	0.0	-100	5.6	-10	4.1	65	0.0	-100	0.0	-100
Solapur	0.0	-100	0.0	-100	0.7	-68	0.0	-100	0.0	-100
<b>Marathwada</b>										
Aurangabad	0.0	-100	10.4	76	9.6	12	0.0	-100	0.0	-100
Beed	**	**	3.0	-49	22.4	702	0.0	-100	0.0	-100
Hingoli	**	**	**	**	1.0	-68	**	**	**	**
Jalna	**	**	6.8	6	8.6	56	**	**	**	**
Latur	0.0	-100	2.9	-8	32.6	1023	0.0	-100	0.0	-100
Nanded	0.0	-100	13.9	673	0.0	-100	0.0	-100	0.0	-100
Usmanabad	0.0	-100	4.7	5	2.1	24	0.0	-100	0.0	-100
Parbhani	0.0	-100	6.2	78	16.5	449	0.0	-100	0.0	-100
<b>Vidarbha</b>										
Akola	0.0	-100	0.0	-100	0.1	-99	0.0	-100	0.0	-100
Amraoti	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhandara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Buldhana	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Chandrapur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gadchiroli	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gondia	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nagpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Wardha	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Washim	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Yeotmal	0.0	-100	0.2	-94	0.0	-100	0.0	-100	0.0	-100

<b>Odisha</b>										
Angul	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Balasore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bargarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bhadrak	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Bolangir	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Boudh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Cuttack	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Deogarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Dhenkanal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gajapati	0.0	-100	7.4	200	0.2	-71	0.0	-100	0.0	-100
Ganjam	0.0	-100	2.6	-66	0.0	-100	0.0	-100	0.0	-100
Jagatsingpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jajpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Jharsuguda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kalahandi	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kandhamal	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kendrapara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Keonjhar	0.0	-100	0.1	-87	0.0	-100	0.0	-100	0.0	-100
Khurda	0.0	-100	0.0	-100	0.1	-96	0.0	-100	0.0	-100
Koraput	0.0	-100	10.8	121	0.0	-100	0.0	-100	0.0	-100
Malkangiri	0.0	-100	10.0	355	0.0	-100	0.0	-100	0.0	-100
Mayurbhanj	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nawapara	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nawarangpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nayagarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Puri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Rayagada	0.0	-100	1.7	68	0.0	-100	0.0	-100	0.0	-100
Sambalpur	0.0	-100	0.0	-98	0.0	-100	0.0	-100	0.0	-100
Sonepur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Sundargarh	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>West Bengal</b>										
<b>GWB</b>										
Bankura	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Birbhum	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Burdwan	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
East Midnapore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Hooghly	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Howrah	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Kolkata	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Murshidabad	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Nadia	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
24 Pargana (N)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Purulia	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
24 Pargana (S)	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
West Midnapore	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
<b>SHWB</b>										
Cooch Behar	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Darjeeling	0.0	-100	0.0	-100	0.0	-100	0.0	-100	1.7	24
East Sikkim	0.0	-100	0.0	-100	0.0	-100	0.1	-99	7.0	48

Jalpaiguri	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.2	-60
Malda	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
North Dinajpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
North Sikkim	0.0	-100	0.0	-100	0.0	-100	7.1	97	3.3	-13
South Dinajpur	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
South Sikkim	0.0	-100	0.0	-100	0.0	-100	0.0	-100	13.5	187
West Sikkim	0.0	-100	0.0	-100	0.0	-100	0.0	-100	8.0	111
<b>Karnataka</b>										
<b>Coastal Karnataka</b>										
Dakshin Kannada	16.5	-16	29.3	107	27.1	420	0.0	-100	0.0	-100
Udupi	10.3	-27	21.8	64	2.3	-73	0.0	-100	0.0	-100
Uttar Kannada	0.0	-100	4.5	-34	0.8	-86	0.0	-100	0.0	-100
<b>N I Karnataka</b>										
Bagalkote	0.0	-100	0.3	-90	0.4	-88	0.0	-100	0.0	-100
Belgaum	0.0	-100	1.8	-61	0.6	-80	0.0	-100	0.0	-100
Bidar	0.0	-100	25.3	503	2.2	-20	0.0	-100	0.0	-100
Bijapur	0.0	-100	0.0	-100	0.3	-83	0.0	-100	0.0	-100
Dharwad	0.0	-100	0.4	-94	1.4	-77	0.0	-100	0.0	-100
Gadag	0.0	-100	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Gulbarga	0.0	-100	2.9	-7	1.2	-52	0.0	-100	0.0	-100
Haveri	0.0	-100	1.7	-74	0.0	-100	0.0	-100	0.0	-100
Koppal	2.2	-68	0.0	-100	0.0	-100	0.0	-100	0.0	-100
Raichur	0.0	-100	2.3	-27	0.9	-49	0.0	-100	0.0	-100
Yadgir	0.0	-100	0.6	-82	0.6	-69	0.0	-100	0.0	-100
<b>S I Karnataka</b>										
Bangalore Rural	13.0	45	35.6	275	5.1	-22	0.0	-100	0.0	-100
Bangalore Urban	10.8	4	42.4	300	1.4	-79	0.0	-100	0.0	-100
Bellary	1.9	-75	0.8	-73	0.0	-100	0.0	-100	0.0	-100
Chamarajnaragar	36.0	181	3.2	-72	2.9	-67	0.0	-100	0.1	-98
Chichballapur	8.8	4	7.6	-32	3.7	-34	0.0	-100	0.0	-100
Chickmagalur	0.2	-99	9.8	-6	4.3	-8	0.0	-100	0.0	-100
Chitradurga	1.6	-82	0.4	-91	0.1	-95	0.0	-100	0.0	-100
Davangere	0.0	-100	3.9	-32	0.0	-100	0.0	-100	0.0	-100
Hassan	4.7	-59	18.9	108	7.4	116	0.0	-100	0.0	-100
Kodagu	1.3	-90	17.9	10	6.9	16	0.0	-100	0.0	-100
Kolar	16.9	49	0.5	-96	3.6	-53	0.0	-100	0.0	-100
Mandya	15.6	79	18.9	137	4.0	43	0.0	-100	0.0	-100
Mysore	15.0	25	22.6	159	0.2	-95	0.0	-100	0.0	-100
Ramnagara	9.1	1	20.8	115	3.7	-15	0.0	-100	0.0	-100
Shimoga	1.4	-90	3.3	-54	1.2	-68	0.0	-100	0.0	-100
Tumkur	6.4	-19	18.7	92	0.3	-92	0.0	-100	0.0	-100
<b>Kerala</b>										
Alappuzha	26.7	-30	58.1	87	12.6	-30	0.0	-100	3.7	-60
Kannur	5.5	-67	21.7	30	19.8	133	0.0	-100	0.0	-100
Ernakulam	64.6	122	53.3	113	48.5	362	0.0	-100	0.8	-93
Idukki	28.1	-9	79.7	219	17.4	5	1.6	-91	8.5	13
Kasaragod	6.5	-66	14.7	7	9.5	83	0.0	-100	1.1	-78
Kollam	44.9	-1	67.3	118	17.6	-1	0.0	-100	21.9	94
Kottayam	52.9	68	90.1	202	15.1	34	0.0	-100	3.5	-54
Kozhikode	41.4	66	25.7	31	14.7	56	0.0	-100	0.0	-100

Malappuram	21.8	-23	42.1	82	40.7	422	0.0	-100	0.0	-100
Palakkad	14.5	-42	30.0	30	7.1	-38	0.0	-100	2.1	-56
Pathanamthitta	74.9	41	66.5	128	14.9	-2	0.0	-100	10.4	-3
Thiruvananthapuram	32.4	-15	95.1	256	13.7	-37	0.4	-98	20.6	94
Thrissur	50.0	110	19.4	-11	9.5	-17	0.8	-95	0.0	-100
Wyanad	1.8	-90	6.8	-63	19.1	136	0.0	-100	0.0	-100
<b>Tamil Nadu</b>										
Ariyalur	89.5	82	0.0	-100	29.8	-27	4.8	-91	18.3	-30
Chennai	127.9	63	0.0	-100	71.4	38	14.5	-75	7.5	-73
Coimbatore	20.6	-10	1.9	21	17.5	10	0.1	-99	12.5	20
Cuddalore	91.6	25	0.0	-100	61.2	5	3.6	-95	26.3	-19
Dharmapuri	79.1	291	0.0	-100	5.5	-64	0.0	-100	0.6	-93
Dindigul	17.6	-44	0.0	-100	19.9	-22	0.1	-99	30.2	50
Erode	35.8	78	0.0	-100	9.6	-39	0.0	-100	6.1	-17
Kanchipuram	77.8	46	0.0	-100	38.8	-14	4.1	-93	18.4	-26
Kanyakumari	66.2	61	0.0	-100	16.4	-25	4.8	-73	54.9	332
Karikal	159.6	85	0.0	-100	120.2	63	111.1	32	31.8	-50
Karur	59.0	188	0.0	-100	15.4	-5	0.0	-100	19.5	119
Krishnagiri	55.7	238	0.0	-100	7.9	-21	0.0	-100	0.1	-99
Madurai	6.6	-75	0.1	-94	10.6	-41	1.6	-91	33.1	143
Nagapattinam	143.0	46	0.0	-100	111.7	28	68.4	-33	21.2	-52
Namakkal	47.5	167	0.0	-100	7.8	-51	0.0	-100	23.3	258
Nilgiris	64.9	81	2.1	-16	30.4	4	0.0	-100	26.1	54
Perambalur	117.1	236	0.0	-100	21.6	-24	0.0	-100	18.6	3
Puducherry	126.0	64	0.0	-100	39.5	-36	0.0	-100	102.3	145
Pudukottai	17.1	-52	0.0	-100	32.1	1	1.2	-96	15.0	-17
Ramanathapuram	3.1	-91	0.0	-100	93.2	147	2.6	-93	32.0	46
Salem	55.7	101	0.0	-100	12.4	-37	0.0	-100	30.2	208
Sivaganga	0.6	-98	0.0	-100	30.8	26	0.4	-98	29.5	71
Thanjavur	56.0	24	0.0	-100	52.2	20	13.1	-77	20.8	-8
Theni	19.8	-25	0.5	-69	10.8	-22	1.5	-91	21.7	53
Tirunelveli	64.2	46	2.2	-49	64.5	107	6.5	-73	20.3	-22
Tirupur	21.5	3	0.0	-100	19.2	26	0.0	-100	17.4	107
Tiruvallur	81.2	47	0.3	-96	18.5	-53	4.1	-91	7.1	-69
Tiruvannamalai	91.1	144	0.0	-100	16.1	-35	0.0	-100	1.0	-94
Tiruvarur	64.7	-12	0.0	-100	94.7	33	32.5	-57	23.6	-27
Toothukudi	36.4	-8	0.0	-100	52.3	72	6.5	-73	21.9	4
Trichy	94.9	244	0.0	-100	19.2	-13	0.4	-99	18.1	28
Vellore	38.5	47	0.0	-100	2.6	-86	0.0	-100	1.2	-90
Villupuram	99.4	114	0.0	-100	30.7	-16	0.0	-100	56.1	141
Virudhunagar	15.6	-56	0.6	-84	15.1	-31	6.7	-64	50.9	198
<b>Andhra Pradesh</b>										
<b>Coastal Andhra Pradesh</b>										
East Godavari	0.0	-99	37.0	136	13.2	371	0.0	-100	0.0	-100
Guntur	0.2	-99	39.3	236	21.7	538	0.0	-100	0.0	-100
Krishna	0.0	-100	68.8	488	18.9	721	0.0	-100	0.0	-100
Nellore	87.9	43	11.5	-78	1.9	-95	0.5	-99	7.8	-69
Prakasam	3.7	-84	10.6	-47	21.4	158	0.0	-100	0.0	-100
Sirkakulam	0.0	-100	37.3	171	1.0	-61	0.0	-100	0.0	-100



Visakhapatnam	0.0	-100	70.9	403	9.0	222	0.0	-100	0.0	-100
Vizianagram	0.0	-100	28.0	61	1.1	-48	0.0	-100	0.0	-100
West Godavari	0.1	-99	24.5	95	20.2	819	0.0	-100	0.0	-100
<b>Telangana</b>										
Adilabad	0.0	-100	0.6	-74	3.8	79	0.0	-100	0.0	-100
Hyderabad	0.0	-100	11.2	332	4.6	185	0.0	-100	0.0	-100
Karimnagar	0.0	-100	8.6	195	0.7	-51	0.0	-100	0.0	-100
Khammam	0.0	-100	17.5	298	3.1	179	0.0	-100	0.0	-100
Mehabubnagar	0.0	-100	3.2	-16	3.8	48	0.0	-100	0.0	-100
Medak	0.0	-100	31.5	799	1.7	11	0.0	-100	0.0	-100
Nalgonda	0.0	-100	20.3	350	9.1	469	0.0	-100	0.0	-100
Nizamabad	0.2	-93	16.9	504	2.7	83	0.0	-100	0.0	-100
Rangareddy	0.0	-100	21.7	579	3.2	113	0.0	-100	0.0	-100
Warangal	0.0	-100	6.8	107	5.8	240	0.0	-100	0.0	-100
<b>Rayalaseema</b>										
Anantapur	0.8	-89	1.4	-78	0.0	-100	0.0	-100	0.0	-100
Chittoor	39.6	40	17.0	-36	0.4	-98	0.0	-100	4.2	-59
Cuddapah	12.6	-8	2.1	-85	0.0	-100	0.0	-100	1.1	-74
Kurnool	0.0	-100	0.5	-90	0.9	-59	0.0	-100	0.0	-99

	(27% or more) excess rainfall		(-60 to -99 %) scanty rainfall
	(-19 to +19%) normal rainfall		(-100%) no rainfall
	(-27 to -59%) deficient rainfall	**	Data not available

**Annexure III**  
**List of Varieties**

**Odisha**

Cauliflower: Pusa Ketaki and Pusa Deepali.

Cabbage: Pride of India.

Tomato: BT 2, BT 10, BT 12 Neeladri, Sada Bahar, Madhuri, Maharathi, Rashmi and Navin.

Onion: Nasik Red, Patna Red, Pune Red, Bellary Red, Pusa Ratnar, Pusa Madhavi, Arka Niketan, Arka Pragati, Agrifound Light Red, Agrifound Dark, Punjab Selection, Patna White, Bombay White, Pusa White Round etc.

Garlic: Phawari, Rajalbadi, Jamnagar, G-282.

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

Sesame: Vinayek, Kanak, Kalika, Prachi and Nirmala.

**West Bengal**

Cabbage: Pride Of India, Pusa Early, Kranti.

Cauliflower: Jawhar Moti, Bharat Jyoti, Early Banaras.

Potato: Kufri Jyoti, Ashoka, Chipsona 1, 2, Kufri Alankar.

Onion: Rupsa, Sukhsagar.

**Jharkhand**

Potato: Kufri Ashok, Kufri Kanchan, Kufri Pukhraj, Kufri Pushkar, Kufri Lalima.

Green Peas: Arkel, Kashi Nandini, P.E.-6, Birsa Matar.

Onion: N-53, Basant-780, N 53, Pusa Red, Arka Niketan, Arka Kalian, Agrifound Dark Red, Pusa White Round and Flat, Pusa Madhavi, Bombay Selection, Patna White and Bellary Red.

Wheat: Irrigated varieties - K.-9107 or Birsa Genhu-3; unirrigated varieties - H.D.R.-77, K.-8027, C.-306, or Birsa Genhu-3.

Chick Pea: B.G.-372, B.G.-256, K.W.R.-108, Pant G.-186, Pant G. -114 and for Kabuli gram are H.K.-94-134, B.G.-1053, B.G.-1003.

Barley: Jyoti, Ratna, D.L.-36, B.R.-32 (all irrigated condition) and B.R.-31, K.-125 (unirrigated condition).

**Bihar**

Onion: N-53, Agrifound Dark Red and Basant- 780.

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.

Wheat: HD 2733, HD 2824, PBW 343, PBW 443, UP 262, RW 346, HP 1761, HP 1731, K 9107.

HUW 234, PBW 343, DBW 14, HP 1744, HD 2643, NW 2036 and HW 2045

8, LRG-41, WRG-27.

**Assam**

**Boro rice:** Mahsuri, IR-50, Dinanath, Bishnuprasad, Jyotiprasad, Kanaklata, Dinanath.

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

**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.

**Lentil:** B-77, L-9-12.

**Pea:** T-163, HUP-2, KFPD1, T-136, Bonneville.

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

**Manipur**

**Rapeseed and mustard:** M-27.

**Pea:** Rachana.

## **Maharashtra**

**Wheat (Late sown):** NIAW – 34, AKAW-4627 (for Pune), Niphad 34, Trimbak NACS-6122, NIAW-294 and Tapowan in Western Ghat region, AKW – 1071, AKW 4627 in East Vidarbha, AKW 1071, Washim 1472 and Vimal for Yavatmal districts, HD-2189, Parbhani 51, Lokwan and Trimbak in Marathwada.

**Rabi groundnut :** TG-26, TAG-24, TPG-41, Konkan Gaurav, Konkan Tapora in Konkan.

## **Gujarat**

**Late sown wheat:** GW 173, GW 11 or Lok-1.

**Cumin:** Guj. Cumin 1, GC-2.

**Coriander:** Guj. Coriander 1.

**Isabgol:** Gujarat Isabgol 2, Gujarat Isabgol 3.

## **Jammu & Kashmir**

**Wheat:** (irrigated) PBW-550, PBW-502, DPW-621-50, DBW-17, Raj-3077, HD-2967, HD-2687, RSP-303, VL-738, VL-804, HS-240, PBW-154, Raj-1555, Raj-3765, Lok-1, WH-147, GW-190, GW-322 and GW-273 (unirrigated) PBW-175, RSP-81(Jitto)WH-1080, Raj 3077, PBW-396, HI-1500 and HI-1531

**Berseem :** Mescavi, Pusa Giant, BL-1 and Vardan

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

Cole crops (Cauliflower (var. Snowball-16, Pusa Snowball K-1), Knol-khol (var. White Vienna, Purple Vienna, King of Market),) and rare crops (broccoli, lettuce, celery, chienesse cabbage, pakchoi).

**Garlic :** Large Segmented, Yamuna Safed-3 Agrifoundparvati, Methi :pusa early bunching and kasurimethi., Radish (var. P. Reshmi, Japanese White, Minowase), carrot (var. PusaKesar, P.Yamdagani), Peas var. Bonnevillea, AP-1, AP-3 & Punjab -89, Onion (Pusa Red ,N-53, Agrifound Dark Red & Agrifound Light Red), Knolkhol (King of Market and White Vienna), Spinach Beet (All Green).

## **Rajasthan**

**Wheat:** HD-2329, HD-2687, HD-2009 (Arjun), HD-2967, WH 147, PBW 373, PBW502, PBW 550, RAJ 1482, RAJ 1555, RAJ 3077, RAJ 3777, RAJ 3765, RAJ 376, Raj 4037, RAJ 4120, HI 8381, HI 8498, HI 1544, HI-1500, HI-1531, WH 147, GW 273, GW 322, GW 190, GW 366, DL 803-3, PDW 215 and LOK 1.

**Vegetables :**

**Onion:** Pusa Red, ArkaNiketan, Pusa White & Local Red, Deshi carrot: PusaKeshar,.

**Cumin:** RS-1, RZ-19, RZ-209, RZ-223, GC-4, Gujarat Jira-1, Gujarat Jeera-2, Gujarat jira-3

**Rijka:** Anand-2, LLC-3 (yearly), Type 9, RL-88, Igfree 244 (multiyearly)

## **Uttarakhand**

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

**Onion :** Pusa Red, PusaRatnar, Nasik Red, PusaMadhavi, Punjab Round Red etc

## **Uttar Pradesh**

**Potato:** KuphariChanramukhi, KuphariAshoka, KuphariBahar, Kuphari Surya, KuphariSutlaj, KuphariPukharaj

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

**Bengal gram:** Pusa, Shubhra

**Mustard-** Pussa-25, Varuna, Kranti, Krishna, Vardan, Vaibhav.

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

**Wheat :** malvie-234, VL-829, VL-802, VL-804, VL-892, VL-738, VL-719, HS-277, UP-2572, 2338, 2328, Pusa- 256, KWR- 108, K-850, 9107, KGD- 1168, PVW- 343, 443, WH- 542, 1021, K- 9107, 9006, 9423,307, 8020, Raj-3077, 3765, PBW-373, 544, 590, DBW-16, 17, HUW-510, HP-1731, NW-1012, UP-2382, HD-2733, HD-2888, Ganga, Narendra-1014, Trivani, Halna

**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.

**Berseem :** VL- 01, 10, Maskavi

## **Himachal Pradesh**

**Wheat:** HPW-89,147 VL-738 and HS-240

**Barley:** HBL-316 and Dolma

**Oat:** Palampur-1

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

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

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

**Turnip** :PTWG-1

**Carrot** :Pusakesar

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

Potato: KufriJyoti, KufriGiriraj, KufriChandramukhi

### **Punjab**

**Late Sown varieties of wheat**:PBW 590, PBW 373 and PBW 509

**Tomato**: (TH-1/TH-2312/TH 802/Punjab NR 7/Punjab Tropic/ PbChhuara/Punjab kesri)

**Chilli**: CH-1, CH-3, Punjab Surkh, Punjab Tej, Punjab Sindhuri or Punjab Guchhedar.

### **Delhi**

**Wheat ( late sown)**: H.D. 2733, H.D. 2851, P.B.W.373, WR-544, U.P.2338, U.P.2425.

### **Andhra Pradesh**

**Blackgram**: LBG-20, T-9, LBG: 623, WBG: 26, PU: 31, BG: 752

**Green gram**: LGG: 407, LGG: 410, LGG: 450, WGG:2, WGG: 37, LGG: 460, ML:267, Pusa:105, MGG: 348, TM-96-2

**Bengalgram**: Kranthi (ICCC: 37), Svetha (ICCC:2), Annegiri, Jyothi, ICCV: 10 KAK:2, JG:1, Lamsanga:7

**Redgram**: Laksmi (ICCP85063), LRG-38, LRG-41, WRG-27.

### **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.

**Potato**: K. surya, K.khyati, K Loukar, K Badshah.

**Pea**: Arkel, PSM3 arkil, PUSA Pragati, Jawahar Pea 1, Jawahar Pea 2, Jawahar Pea 5 and Bonvile etc.

**Maize**: JVM 421, JM 16.

**Linseed**: R.L.C.92, Deepika, Indira Alsi- 32, Kartika

**Lentil**: RVL-31, JL-2

**Winter Sugarcane**: Co. J. N. 86-572, Co. J. N. 86-141

**Safflower**: J.S.F. -1, A-1 (Sweta), D.S.H.- 129, J.S.I.- 7, Nari- 6, M.K.H.-II, D.S.H.- 129.

### **Chhattisgarh**

**Wheat**: Arpa, Vidisha, Kanchan

**Linseed**: R.L.C.92, Deepika, Indira Alsi- 32, Kartika

**Safflower**: J.S.F-1, A-1 (Sweta), D.S.H-129, J.S.I-7, Nari-6, M.K.H.-II.

**Pulse(lathyrus)** : Mahatiwada.

**Pea**: Ambika and Subra.