

National Agromet Advisory Service Bulletin

Friday 19th December 2014
(For the period 19th to 23rd December 2014)



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

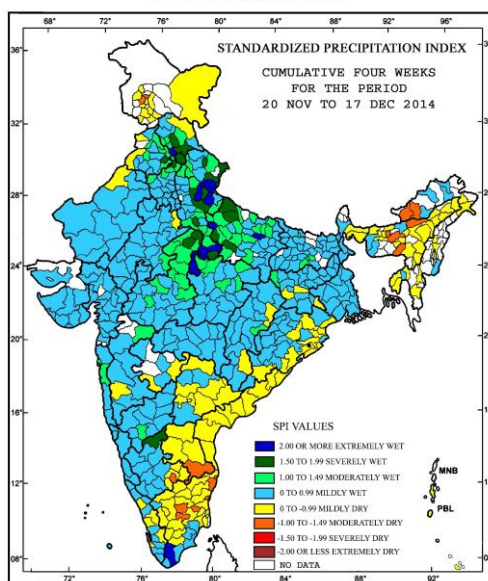


Standardised Precipitation Index

Four Weekly

for the Period 20th November to 17th December 2014

MINISTRY OF EARTH SCIENCES
INDIA METEOROLOGICAL DEPARTMENT
HYDROMET SECTION, PUNE

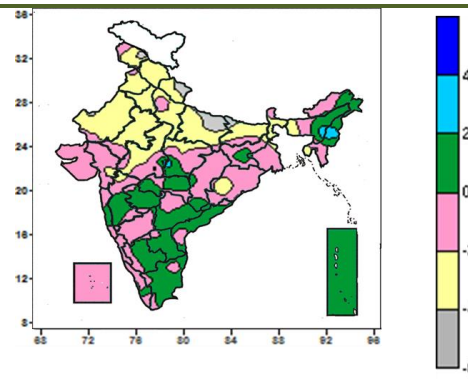
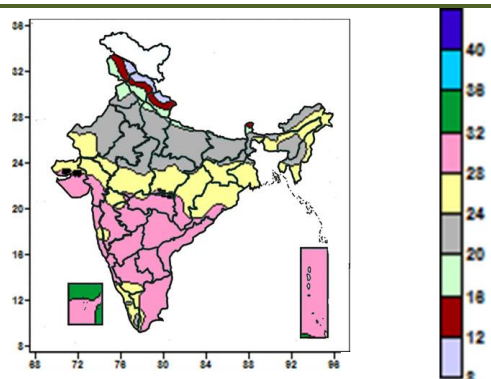


- Extremely/severely wet conditions in many places of Uttarakhand, few districts of Himachal Pradesh and Uttar Pradesh; Ambala, Chandigarh, Sangrur, Fatehgarh Sahib districts of Punjab and Haryana; Bhind and Gwalior districts of Madhya Pradesh; Bellary district of Karnataka and Tirunelveli district of Tamilnadu.
- Extremely/ moderately/ severely dry conditions experienced in East and West Kameng district of Arunachal Pradesh; Kamrup, Sonitpur, Nalbari districts of Assam; East Khasi Hills of Meghalaya; Badgam and Srinagar districts of Jammu & Kashmir; Chitoor district of Rayalseem; Chennai, Kanchipuram, Karur, Namakkal, Perambalur, Puducherry districts of Tamil Nadu & Puducherry and Bangalore Urban district of Karnataka.
- Rest of the country experienced moderately wet, mild wet/dry conditions.

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 17.12.2014

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 17.12.2014

Mean Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 17.12.2014



- 32 to 36 $^{\circ}\text{C}$ over some parts of Lakshadweep.
- 28 to 32 $^{\circ}\text{C}$ over entire Telangana, Andhra Pradesh and Andaman & Nicobar Islands, many parts of Gujarat state, Maharashtra, Karnataka, Tamil Nadu and Lakshadweep, some parts of Chhattisgarh and Odisha.
- 24 to 28 $^{\circ}\text{C}$ over many parts of Arunachal Pradesh, Gangetic West Bengal, Assam & Meghalaya, Kutch, Gujarat region,

- 6 to -4 $^{\circ}\text{C}$ over some parts of Jammu & Kashmir, Uttarakhand, East Uttar Pradesh and Bihar.
- 4 to -2 $^{\circ}\text{C}$ over Himachal Pradesh, Haryana & Delhi, many parts of Jammu & Kashmir, Uttarakhand, Punjab, Rajasthan, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal and Tripura, some parts of Madhya Pradesh, Gujarat Region, Madhya Maharashtra, Odisha and

Madhya Pradesh, Chhattisgarh, Jharkhand, Gangetic West Bengal, Odisha, Assam & Meghalaya, Nagaland, Manipur, Mizoram, Tripura and Kerala, over some parts of Rajasthan, Madhya Maharashtra, Sub-Himalayan West Bengal, Konkan and South Interior Karnataka.

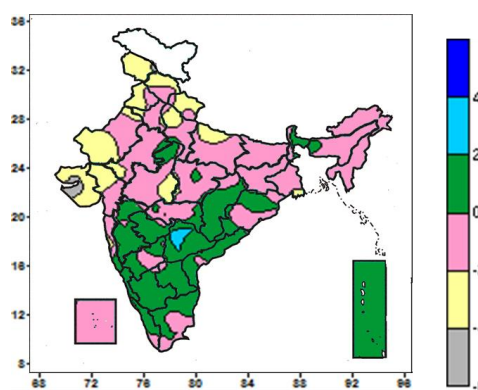
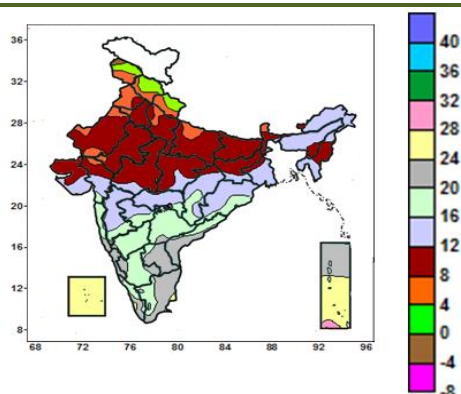
- 20 to 24°C over entire Bihar, many parts Rajasthan, Punjab, Haryana & Delhi, Uttar Pradesh, some parts of Madhya Pradesh, Jharkhand, Sub-Himalayan West Bengal & Sikkim and Assam & Meghalaya.
- 16 to 20°C over many parts of Sikkim, some parts of Punjab, Himachal Pradesh, Haryana & Delhi and Uttarakhand.
- 12 to 16°C over many parts of Jammu & Kashmir, Himachal Pradesh and Uttarakhand, some parts of Sikkim.
- 8 to 12°C over Jammu & Kashmir, Himachal Pradesh and Uttarakhand.

Meghalaya.

- -2 to 0°C over Lakshadweep, many parts of Gujarat State, Madhya Pradesh, Chhattisgarh, Jharkhand, Gangetic West Bengal, Sikkim, Odisha, Mizoram, Tripura, Arunachal Pradesh, North Interior Karnataka, Coastal Karnataka and Kerala, some parts of Jammu & Kashmir, Punjab, West Uttar Pradesh, Bihar, Maharashtra, South Interior Karnataka, Andhra Pradesh and Tamil Nadu.
- 0 to 2°C over Andaman & Nicobar Islands, many parts of Northeast India, Maharashtra, Andhra Pradesh, Telangana, South Interior Karnataka and Tamil Nadu, some parts of Gangetic West Bengal, Jharkhand, Madhya Pradesh, Chhattisgarh and Kerala.
- 2 to 4°C over some parts of Assam, Nagaland and Manipur.

Actual Mean Minimum Temperature (°C) in India for the week ending 17.12.2014

Mean Minimum Temperature (°C) Anomaly in India for the week ending 17.12.2014

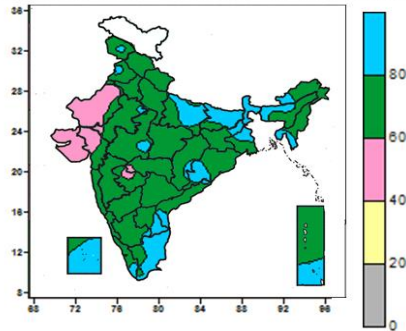


- -4 to 0°C over some parts of Jammu & Kashmir.
- 0 to 4°C over many parts of Jammu & Kashmir, Himachal Pradesh and Uttarakhand.
- 4 to 8°C over many parts of Punjab and Sikkim, some parts Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Uttar Pradesh, Haryana & Delhi, Rajasthan, and Gujarat region.
- 8 to 12°C over Bihar and Manipur many parts of Haryana & Delhi, Uttar Pradesh, Rajasthan, Madhya Pradesh, Jharkhand, Sub-Himalayan West Bengal, Nagaland and Gujarat state, some parts of Punjab, Arunachal Pradesh and Assam.
- 12 to 16°C over Meghalaya, Mizoram and Tripura, many parts of Saurashtra, Gujarat region, Madhya Maharashtra, Marathwada, Vidarbha, Chhattisgarh, Odisha, Gangetic West Bengal, Arunachal Pradesh, Nagaland and Assam, some parts of Madhya Pradesh, Jharkhand and Sub-Himalayan West Bengal.
- 16°C to 20°C over many parts of Maharashtra, Interior Karnataka and Telangana, some parts of Odisha, Chhattisgarh, Andhra Pradesh, Tamil Nadu and Kerala.
- 20°C to 24°C over Coastal Karnataka, many parts of Andhra Pradesh, Tamil Nadu, Kerala and Andaman & Nicobar Islands, some parts of Konkan & Goa and Telangana.
- 24°C to 28°C over Lakshadweep, many parts of parts of Andaman & Nicobar Islands, some parts of Kerala and Tamil Nadu.
- 28°C to 32°C over some parts of Andaman & Nicobar Islands.

- -6 to -4°C over some parts of Saurashtra & Kutch.
- -4 to -2°C over Jammu & Kashmir, many parts of Uttarakhand, Punjab, West Rajasthan and Gujarat State some parts of Himachal Pradesh, Uttar Pradesh, Haryana, East Rajasthan, West Madhya Pradesh and Gangetic West Bengal.
- -2 to 0°C over Bihar, Jharkhand, Lakshadweep, many parts of northeastern States, West Bengal & Sikkim, Uttar Pradesh, Madhya Pradesh, Rajasthan, Haryana & Delhi and Vidarbha, some parts of Himachal Pradesh, Uttarakhand, Punjab, Gujarat Region, Konkan & Goa, Chhattisgarh, Odisha, Madhya Maharashtra, Marathwada, North Interior Karnataka, Andhra Pradesh, Kerala and Tamilnadu.
- 0 to 2°C over Andaman & Nicobar Islands, many parts of Sub-Himalayan West Bengal, Odisha, Maharashtra, Chhattisgarh, Karnataka, Andhra Pradesh, Kerala and Tamil Nadu, some parts of Assam & Meghalaya, West Uttar Pradesh, East Rajasthan and Madhya Pradesh.
- 2 to 4°C over some parts of Telangana.

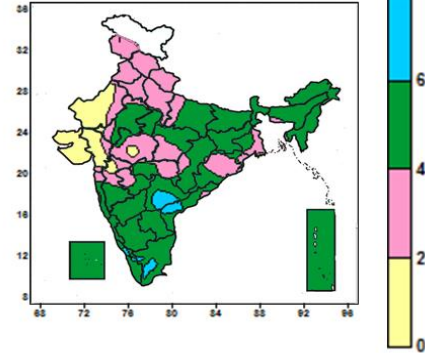
Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 17.12.2014

Relative Humidity (%) over India for the week ending 17.12.2014



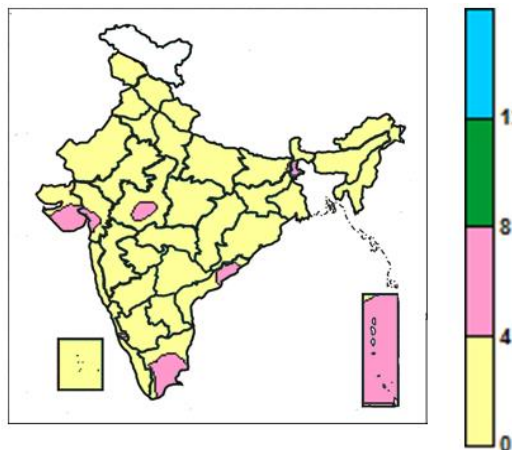
- 80 to 100% over entire Sub-Himalayan West Bengal & Sikkim, Mizoram & Tripura, over many parts of East Uttar Pradesh, Bihar, Tamil Nadu and Lakshadweep, over some parts of Jammu & Kashmir, Punjab, East Rajasthan, West Madhya Pradesh, Jharkhand, Chhattisgarh, Gangetic West Bengal, Odisha, Arunachal Pradesh, Assam, Rayalaseema, Coastal Andhra Pradesh and Andaman & Nicobar Islands.
- 60 to 80% over entire country except Sub-Himalayan West Bengal & Sikkim, Mizoram, Tripura, many parts of East Uttar Pradesh, West Rajasthan, Gujarat State, Bihar, Tamil Nadu and Lakshadweep, some parts of Jammu & Kashmir, Punjab, East Rajasthan, West Madhya Pradesh, Vidarbha, Marathwada, Jharkhand, Chhattisgarh, Gangetic West Bengal, Odisha, Arunachal Pradesh, Assam, Rayalaseema, Coastal Andhra Pradesh and Andaman & Nicobar Islands.
- 40 to 60% over many parts of West Rajasthan and Gujarat State, over some parts of Vidarbha and Marathwada.

Cloud amount (okta) over India for the week ending 17.12.2014



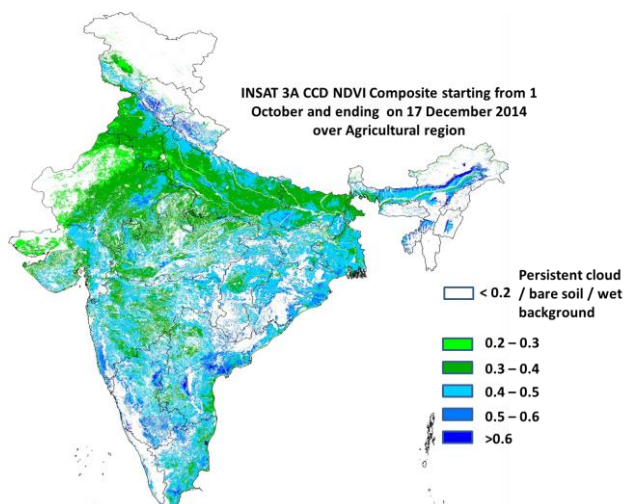
- 6 to 8 okta over some parts Telangana, Coastal Andhra Pradesh and Tamil Nadu.
- 4 to 6 okta over entire North East (except some part of Meghalaya), Sub-Himalayan West Bengal & Sikkim, Bihar, Jharkhand, Karnataka, Rayalaseema, Lakshadweep and Andaman & Nicobar Islands, over many parts of East Rajasthan, Madhya Pradesh, Chhattisgarh, East Uttar Pradesh, Maharashtra, Telangana, Coastal Andhra Pradesh, Tamil Nadu and Kerala, over some parts of Gangetic West Bengal and Odisha.
- 2 to 4 okta over entire Jammu & Kashmir, Punjab, Himachal Pradesh, Uttarakhand, West Uttar Pradesh, Haryana & Delhi, over many parts of Madhya Pradesh, Madhya Maharashtra, Vidarbha, Odisha and Gangetic West Bengal, over some parts of Rajasthan, East Uttar Pradesh, Meghalaya, Gujarat region, Konkan and Coastal Andhra Pradesh.
- 0 to 2 okta over many parts of West Rajasthan, Gujarat State, over some parts of West Madhya Pradesh and Madhya Maharashtra.

Wind speed (knots) over India for the week ending 17.12.2014



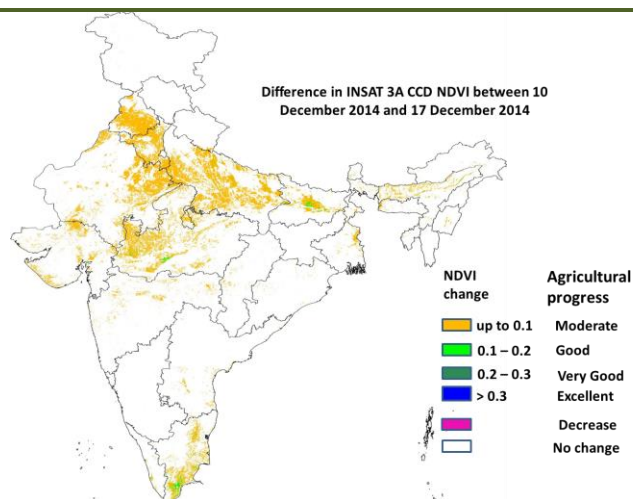
- 4 to 8 knots over many parts of Tamil Nadu and Andaman & Nicobar Islands, over some parts of Gujarat state, West Madhya Pradesh and Coastal Andhra Pradesh.
- 0 to 4 knots over entire country except many parts of Tamil Nadu and Andaman & Nicobar Islands, some parts of Gujarat state, West Madhya Pradesh and Coastal Andhra Pradesh.

INSAT 3A CCD NDVI COMPOSITE OVER AGRICULTURAL REGION 01st October to 17th December 2014



- Agricultural vigour is good over most parts of the western and southern India, few pockets in Punjab, Haryana, western, northern parts of Uttar Pradesh, eastern Rajasthan, central, southern and western Gujarat and Madhya Pradesh as NDVI varied between 0.4 to 0.5. In some parts of southern Bihar the NDVI shows a significant increase and varies between 0.4-0.5. The NDVI remained within the range of 0.3 to 0.4 over most of the part of the Indo Gangetic plains.

Difference in INSAT 3A CCD NDVI between 10th December 2014 and 17th December 2014



- The positive change in NDVI was observed over central and eastern parts of UP, Punjab and Haryana, few pockets in Northern Gujarat, few pockets in Maharashtra and some parts of western Rajasthan. Few pockets in central MP and Bihar are observed with a 0.1 – 0.2 change in NDVI. Not much change was observed in rest of India.

Weather Forecast

Weather Forecast for next 3 days (upto 0830 hours IST of 22nd December, 2014).

- Rain/thundershowers would occur at many places over Andaman & Nicobar Islands during next 48 hours and at a few places thereafter.
- Rain/thundershowers would occur at a few places over Tamil Nadu & Puducherry and Lakshadweep during next 24 hours and at isolated places thereafter.
- Rain/thundershowers would occur at isolated places over Kerala during the period.
- Rain/snow would occur at isolated places over Jammu & Kashmir during next 24 hours; dry weather would prevail on 20th and rain/snow would occur at isolated places thereafter.
- Dry weather would prevail over Himachal Pradesh during next 48 hours and rain/snow would occur at isolated places thereafter.
- Rain/thundershowers would occur at isolated places over Coastal Andhra Pradesh during next 24 hours

Weather Warning during next 3 days

- **19 December (Day 1):** Dense to very dense fog (Visibility 50 m or less) would occur some places over Punjab, Haryana & Delhi, East Rajasthan, Uttar Pradesh and at isolated places over south Uttarakhand, Bihar, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Tripura. Cold wave conditions would prevail at a few places over Vidarbha and at isolated places over West Madhya Pradesh and Marathwada. Cold day conditions would prevail at a few places over Punjab & Haryana and at isolated places over West Uttar Pradesh. Heavy rainfall would occur at isolated places over south Tamilnadu, Minicoy Islands and Andaman & Nicobar Islands.
- **20 December (Day 2):** Dense to very dense fog (Visibility 50 m or less) would occur at some places over Uttar Pradesh and at isolated places over Bihar, Sub-Himalayan West Bengal & Sikkim, Assam &

and dry weather would prevail thereafter.

- Dry weather would prevail over rest parts of the country.
- No significant change in minimum temperatures over northwest India during next 24 hours and slight rise thereafter.
- Fog would occur at many places over Punjab, Haryana & Delhi and some places over of Rajasthan, Madhya Pradesh during next 48 hours and some places over Uttar Pradesh, Bihar, Sub-Himalayan West Bengal & Sikkim, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 3 days.

Meghalaya and Tripura.

Cold wave conditions would prevail at a few places over Vidarbha.

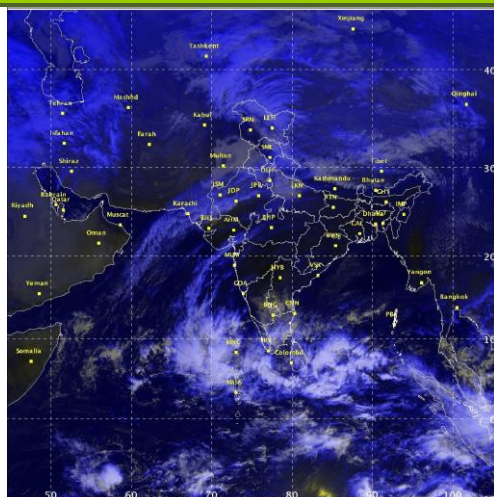
Heavy rainfall would occur at isolated places over Andaman & Nicobar Islands.

- **21 December (Day 3):** Dense to very dense fog (Visibility 50 m or less) would occur at some places over East Uttar Pradesh and at isolated places over Bihar, Sub-Himalayan West Bengal & Sikkim and Tripura.

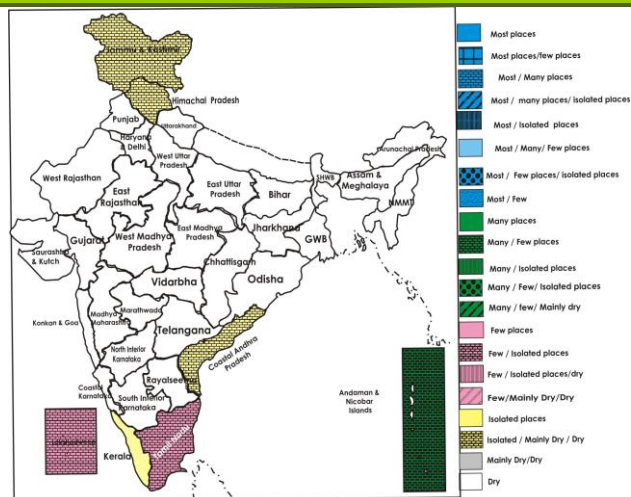
Weather Outlook for subsequent 4 days from 22nd December 2014 to 26th December 2014.

- Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands and at isolated places over south peninsular India and Lakshadweep.
- Rain/snow would occur at a few places over western Himalayan region on 22nd and 23rd.
- Weather would be dry over rest of the country.

Satellite image dated, 19.12.2014, 0600 UTC



Weather Forecast Map (Valid upto 0830 hours of 22nd December 2014)



Salient Advisories in view of Cold Wave and Cold Day

- As cold wave conditions would prevail at few places over Vidarbha on 19th and 20th and at at isolated places over Marathwada on 19th, apply light and frequent irrigation to orange and sweet lime orchards in Vidarbha and banana and grapes in Marathwada in the evening. Arrange smoking at night and cover new banana plants with skating bags. Apply mulch of crop residue. Make arrangement for artificial wind breaks around orchards.
- As cold wave conditions would prevail at isolated places over West Madhya Pradesh on 19th, apply light and frequent irrigation to gram, wheat, mustard, lentil, chickpea, sugarcane and vegetables. Arrange smoking around the crop fields to prevent from cold injury.
- As cold day conditions would prevail at a few places over Punjab & Haryana and at isolated places over West Uttar Pradesh on 19th, apply light and frequent irrigation to wheat, mustard and vegetables in Punjab and Haryana and to wheat, sugarcane and vegetables in Uttar Pradesh. Arrange smoking around the crop fields to prevent the crops from cold injury.

Detailed Zonewise Agromet Advisories

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



Land preparation

Sugarcane

Cotton

Rice Transplanting

- **Realised Weather:** Rainfall occurred in all districts of Tamil Nadu except Coimbatore, Dharmapuri, Erode, Kanyakumari, Karaikal, Karur, Madurai, Nammakal, Perambalur, Ramanathapuram, Sivaganga, Trichy and Virudhunagar; all districts of Kerala except Kozhikode, Palakkad and Thrissur; all districts of Coastal Karnataka; Dharwad and Gadag districts of North Interior Karnataka; Bellary, Davangere, Mandya, Mysore and Shimoga districts of South Interior Karnataka; Nellore and Chittoor districts of Andhra Pradesh. Weather remained mainly dry over rest of the region.
- **Weather Forecast:** Rain/thundershowers would occur at a few places over Tamil Nadu & Puducherry during next 24 hours and at isolated places thereafter. Rain/thundershowers would occur at isolated places over Kerala during the period. Rain/thundershowers would occur at isolated places over Coastal Andhra Pradesh during next 24 hours and dry weather would prevail thereafter. Dry weather would prevail over rest parts of the region.
- **Weather Warning:** Heavy rainfall would occur at isolated places over south Tamilnadu and Minicoy Islands on 19th December.
- **Weather Outlook:** Rain/thundershowers would occur at isolated places over south peninsular India and Lakshadweep. Weather would be dry over rest of the region.
- **Advisories:**
 - **Andhra Pradesh:**
 - Complete harvesting of *kharif* rice in the Krishna Godavari Zone.
 - Under limited water conditions, alternate to rice, zero tillage maize/sunflower/castor is recommended in Kurnool district in the Scarce Rainfall Zone. Low temperature and high RH turns cotton leaves to reddish brown tinge. Spraying of Agrominmax (Micronutrient mix) 5gram/lit, 3 grams Blitox, 10 grams Urea, 10 grams Magnesium sulphate /lit of water is recommended.
 - Helicoverpa damage was noticed in sunflower in few parts of Kurnool district in the Scarce Rainfall Zone. Spray Chloropyriphos 2ml/lit of water to manage the incidence.
 - Due to prevailing low temperature there is chance of rust occurrence on sugarcane and it is likely increase. To control, undertake spraying of Tridemorph or Moncozeb @ 3gms/litre of water in the North Coastal Zone.
 - **Telangana:**
 - Complete sowing of *rabi* rice and black gram in the Northern Telangana Zone.
 - Prevailing cool and dry weather conditions are congenial for incidence of leaf blight in tomato in the Southern Telangana Zone. Spray Carbendazim 12 % + Mancozeb 63% WP @ 2 g or Mancozeb + Metalaxyl @ 2 g per litre of water.
 - Present dry weather conditions are congenial for upward leaf curl in chilli in the Northern Telangana Zone. Spray Fepronil @ 2ml or Diphenthiuron @ 1.25g/lit. of water to manage the disease.
 - **Karnataka:**
 - Continue transplanting of rice and sowing of maize in the North East Dry Zone.
 - Continue sowing of short duration pulses immediately after harvest of rice and maize in the Southern Transition Zone.
 - In the Hill Zone, continue picking of cotton and sowing of pulses in areas where rice harvesting has been completed.
 - Since dry weather is going to prevail, undertake harvesting of chilli and cotton in the North Transition Zone and and picking of cotton and chilli in the North Dry Zone.
 - Present weather is congenial for the incidence of helicoverpa insect in bengal gram in the North East Transition Zone. Spray insecticides like Profenophos or Chlorpyriphos @ 2 ml/litre or Indoxacarb @ 0.3 ml/l or Spinosad @ 0.2ml per liter of water to manage the insects.
 - Leaf roller insects were noticed in banana plots in Mysore district in the Southern Dry Zone. To manage this pest, Spray Nimbicidin @ 5ml or Quialphos 25EC @ 2ml per litre of water.

- **Kerala:**

- Low temperature and dry weather may trigger the spread of blast disease in rice in the Southern Zone. Spray Propiconazole (Tilt) / Hexaconazole(contaf) 1 ml/ 1 litre of water, allow standing water in the field up to 2 cm and apply potash fertilizers. The weather conditions also favour the multiplication of white flies which act as vectors for spreading crinkling in cucurbits especially bitter melon. Spraying of neem oil + castor oil – garlic emulsion is an effective control measure. In case of severe attack, spray Dimethoate (Rogor) 30 EC, 1.5 ml/1 litre of water.

- BPH attack is found in late sown rice nurseries in the Northern Zone due to prevailing high humidity. Drain the field and spray Acephate®+wetting agent (Acephate® 75SP @ 3g+wetting agent 1ml per litre of water) on the rice stem to manage the attack.

- **Tamil Nadu:**

- As there are chances of heavy rainfall at isolated places over south Tamil Nadu on 19th, arrange for drainage facilities to avoid water logging and crop damage.

- Give frequent light irrigation to turmeric crop (development stage) to facilitate rhizome development in the Western Zone. Apply Zinc sulphate @ 25kg/ha or 0.5% Zinc Sulphate spraying at 20 days after transplanting and if required another spray at 10 days after first spray to avoid zinc deficiency in transplanted rice crop. Since only light rainfall is expected, light irrigation may be given to tapioca.

- Due to prevailing humid weather conditions, BPH incidence is noticed in *samba / thaladi* rice fields in the Cauvery Delta Zone. Spray Thiamethoxam 40 g/acre or Buprofezin 25 SC 320 ml/acre.

- Prevailing low temperature and high relative humidity is congenial for incidence of bacterial leaf blight in rice and wilt disease in bengal gram in the Western Zone. Spray Streptomycin Sulphate + Tetracycline combination 300 g + Copper oxychloride 1250 g/ha and repeat 15 days later to manage bacterial leaf blight and apply Pseudomonas Florescence @ 2.5 kg /ha or spray Carbendazim 1g /litre of water to manage wilt disease.

- Prevailing weather with high cloud cover and moderate humidity is congenial for incidences of aphids, thrips and jassids in cotton in the South Zone. Spray dimethoate 30 EC 500 ml/ ha or imidachloprid 200 SL 100 ml/ ha to manage the insects.

- Suitable varieties are given in Annexure II.

- **Animal Husbandry**

- Farmers are advised to keep vigil against the spread of avian flu in the Problem Area Zone due to prevailing humid weather. Disinfect the infected premises to avoid further spread.

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



Rice



Okra



Cole Crops (Nursery)



Green Gram

- **Realised Rainfall:** Rainfall occurred in Upper Subansari district of Arunachal Pradesh. Weather remained dry over rest of the region.

- **Weather Forecast:** Dry weather would prevail over the region during the period. Fog would occur at some places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura during next 3 days.

- **Weather Warning:** Dense fog to very dense fog (visibility 50 m or less) would occur at isolated places over Assam & Meghalaya on 19th and 20th December and on Tripura during the period.

- **Weather Outlook:** Weather would be dry over the region.

- **Advisories:**

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

- In Assam, complete harvesting of matured *sali* rice and continue nursery raising and sowing of *boro* rice.

- In Upper Bramhaputra Valley Zone and Lower Bramhaputra Valley Zone of Assam, continue sowing of maize and transplanting of cole crops to main field.

- In Central Bramhaputra Valley Zone, Hill Zone of Assam, continue transplanting of cole crop, sowing of *rabi* pulses like lentil, rajmah, pea, lathyrus and oilseeds, wheat and planting of potato.

- In North Bank Plain Zone of Assam, complete sowing of wheat at the earliest.

- Continue transplanting of *boro* rice of about 45 days old (5- 6 leave stage) seedlings in Lower Bramhaputra Valley Zone of Assam. Apply one irrigation of 6cm depth to early sowing wheat varieties at crown root initiation stage (30-35 days after sowing).

- In Meghalaya, continue nursery preparation of *boro* rice in low lying areas and sowing of Zero tillage pea, lentil and toria. Apply irrigation to mustard/rapeseed at flowering stage.
- In Lower Brahmaputra Valley Zone, North Bank Plain Zone, Barak Valley Zone and Upper Brahmaputra Valley Zone of Assam, due to foggy and cloudy conditions blight disease may become severe in potato. Spray Mancozeb 75 WP 2g/litre or Ridomil MZ-27 (64% Mancozeb + 8% Metalaxyl) 2g/litre followed by Dithane M-45 @ 2.5 g in 1litre of water for control. Also spray Dithane Z-78 @ 25 g in 10 litre of water against late blight in tomato.
- Due to foggy weather there is chance of infestation of aphid/ saw fly in rapeseed/ mustard in Hill Zone, North Bank Plain Zone, Central Brahmaputra Valley Zone, Upper Brahmaputra Valley Zone, Lower Brahmaputra Valley Zone and Barak Valley Zone of Assam. Spray Malathion 50Ec @ 2 ml/ litre of water or Dimethoate 30EC or Chloropyriphos @ 0.5 l/ha for control.
- In Hill Zone and Lower Brahmaputra Valley Zone of Assam, due to foggy weather, there is chance of late blight in tomato. Apply Ridomil MZ-72 (2g/ litre) and Indofil M-45 2.5 g / litre to prevent the disease.
- Due to foggy weather condition, there is chance of late & early blight disease in potato in Meghalaya. Spray Mancozeb 75% WP @ 1.5- 2.0 kg/ha or Copper Oxy Chloride 50% WP @ 2.5 kg/ha or Chlorothalonil 75% WP @ 1.25 kg/ha. Also in foggy condition leaf spot disease may spread in ginger and turmeric. To prevent leaf Spot disease, apply Bordeaux mixture (5:5:50) or Captan @ 1.5 g/litre or Carbendazim @ 500 g/ha. Also spray/ drench 1% Bordeaux mixture or Dithane M-45 (2.5 g/l) to prevent rhizome rot in ginger.
- **Nagaland, Manipur, Mizoram and Tripura:**
 - In Manipur, continue land preparation for sowing of *rabi* maize and transplanting of tomato and 50-60 days old seedling of onion. Apply light irrigation in rapeseed / mustard, pea, lentil, potato.
 - In Mizoram, continue harvesting of rice. Apply irrigation to banana, brinjal, early cole crops, pea, tomato, mustard and toria.
 - In Nagaland, apply light irrigation in toria. Mulching should be done to conserve moisture.
 - In Mild Tropical Plain Zone of Tripura, apply light irrigation on every alternate day in cole crops and potato, tomato. Mulching must be done after irrigation to reduce evaporative losses.
 - In Tripura, due to the prevailing foggy condition there may be infestation of early blight in potato. Apply Carbendazim @ 1g per litre of water for control of early blight. Also due to decrease in night temperature, there is chance of infestation of Pseudo stem weevils on banana. Apply Dimethoate (Rogor) or Imidacloprid @ 0.8ml per litre of water.
 - In Mizoram, apply Imidachloprid 1.5 ml/litre of water against aphid infestation in pea due to foggy weather condition.
 - Suitable varieties are given in Annexure II.
- **Animal Husbandry**
 - Continue vaccination in poultry to control *ranikhet* disease in Upper Brahmaputra Valley Zone of Assam.
 - In Meghalaya and Arunachal Pradesh, provide artificial heating through lighting of electric bulb to protect poultry birds (day old to 25 days old) from low temperature.
 - In Tripura, cover poultry house with gunny bags/ polythene sheets to protect them from cold. Heating during night may also be given to chicks less than 21 days old.
- **Fishery**
 - During winter season, apply Potash @ 4-5 mg/litre of water /Sukrena WS @ 1 litre per bigha of water/ lime in required doses to protect the fish population against various bacterial diseases.

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



Sugarcane



Groundnut



Onion



Rice

- **Realised Rainfall:** Rainfall occurred in Nicobar district of Andaman and Nicobar Islands. Weather remained mainly dry over rest of the region during the week.
- **Weather Forecast:** Rain/thundershowers would occur at many places over Andaman & Nicobar Islands during next 24 hours and at a few places thereafter. Dry weather would prevail over rest parts of the region. Fog would occur at some places over Bihar, Sub-Himalayan West Bengal & Sikkim during next 3 days.
- **Weather Warning:** Dense to very dense fog (Visibility 50 m or less) would occur at isolated places over Bihar, Sub-

Himalayan West Bengal & Sikkim during the period. Heavy rainfall would occur at isolated places over Andaman & Nicobar Islands on 19th and 20th December.

- **Weather Outlook:** Rain/thundershowers would occur at a few places over Andaman & Nicobar Islands. Weather would be dry over rest of the region.
- **Advisories:**
 - **West Bengal:**
 - In Laterite and Red Soil Zone, continue seed bed preparation for nursery sowing of *boro* rice. Early morning fog may cause late blight in potato. To control this apply 2.5 gm Mancozeb + Carbendazim per litre of water.
 - In New Alluvial Zone, continue seed bed preparation for nursery sowing of *boro* rice and wheat. Undertake land preparation for sunflower and intercultural operation *viz.* thinning & weeding of mustard should be done.
 - In Hill Zone, due to Foggy weather, there is chance of late blight in tomato and leaf spot disease may spread in ginger and turmeric. Apply Ridomil MZ-72 (2 g/ litre) and Indofil M-45 2.5 g / litre to prevent late blight and apply Bordeaux mixture (5:5:50) or Captan @ 1.5 g/litre or Carbendazim @ 500 g/ha to prevent leaf spot disease.
 - In Coastal Saline Zone, due to dense fog and cloudy morning, there is a chance of late blight attack in potato. Spray Dietahne M-45 @ 2.5 g/litre of water or Copper Oxichloride @ 4 g/litre of water as preventive measure. In *boro* rice field keep thin layer of water at evening hours and remove it during morning.
 - In Old Alluvial Zone, continue seed bed preparation for nursery sowing of *boro* rice. Also continue intercultural operation in wheat 21 days after sowing.
 - In Terai Zone, continue planting of potato.
 - In Old Alluvial Zone, due to foggy condition, there is chance of the attack of late blight in potato. Spraying of Mancozeb @ 2 g /litre of water and Blitox @ 4 g/litre of water alternately at 10-12 days interval by completely wetting the leaves is advised.
 - In New Alluvial Zone, Due to foggy condition aphid attack may be seen in mustard. Apply Imidacloprid 17.8 SL @ 3 ml /10 litre or Quinalphos 25 EC @ 2 ml / litre of water.
 - In Terai Zone, due to low temperature and foggy weather, there is chance of attack of late blight in potato. To prevent attack spraying of Mancozeb (2 gm /litre of water) and Blitox (4 gm/litre of water) alternately at 10-12 days interval by completely wetting the leaves are necessary.
 - In Laterite and Red Soil Zone, early morning fog may cause late blight in potato. Apply Mancozeb @ 2.5 g per litre of water to control late blight. In the prevailing maximum temperature, there is chance of outbreak of rust black rust in wheat. To protect the crop from rust infection, spray Manganese-Dithio Carbamate and urea.
 - In Coastal Saline Zone, there is chance of blast and brown spot in *boro* rice due to dense fog and cloudy condition in the morning hours. Apply SAF @ 2 g/litre of water. Also there is chance of stem rot and head borer in cole crops like cabbage and cauliflower due to dense fog and cloudy condition in the morning hours. Spray Diethane M-45 @ 2.5 g/litre of water or Bavistin @ 1 g/litre of water against stem rot and spray B.T. @ 2 ml/litre of water against head borer.
 - **Andaman and Nicobar:**
 - Undertake transplanting of 4-5 weeks old seedlings of cauliflower and cabbage in North and Middle Andaman.
 - **Odisha:**
 - In Western Undulating Zone, continue sowing of groundnut. Undertake land preparation for sowing of mustard in residual moisture immediately after harvesting of rice. Apply irrigation in transplanted cabbage, cauliflower and tomato which are at two to three week stage.
 - In East and South Eastern Coastal Plain Zone, present weather is optimum for sowing of groundnut, green pea and mustard. Also continue nursery raising of onion. Continue planting of banana and transplanting of cole crops. Undertake sowing of garlic in irrigated upland and medium land. Continue sowing of sesame.
 - In North Eastern Plateau Zone, continue sowing of wheat, groundnut, gram, peas and onion. Continue harvesting of rice. As dry weather is prevailing, apply irrigation to potato. Continue transplanting of chilli.
 - In North Eastern Coastal Plain Zone of Odisha, continue sowing of rapeseed and mustard.
 - In East and South Eastern Coastal Plain Zone of Odisha, the prevailing weather may aggravate the infestation of aphid in pulses and powdery mildew in pulses and cole crops. Spray Imidachloprid @ 5 ml or Metacystox @ 20 ml per 10 litre water to control aphid and spray Sulfex @ 50 g per 10 litre water to control powdery mildew.
 - In East and South Eastern Coastal Plain Zone of Odisha, complete nursery sowing of summer rice in this week if not sown earlier. Grow short duration HYV like Khandagiri (110 days) and medium duration varieties like Lalat (130 days).
 - In East and South Eastern Coastal Plain Zone of Odisha, late sown mustard is found to be affected by *Crociodollema* and aphids. Spray 400 ml Dimethoiate per acre for controlling aphids and 200 ml Ethofenprox or Deltamethrin in 200 litre water per acre.
 - In East and South Eastern Coastal Plain Zone of Odisha, rhodent infestation has been found in rice in the threshing floor. Use poison bait. For the preparation of 100 g poison bait mix 96 g flour, 2 g edible oil and 2 g Zinc phosphide. Keep water in earthen bowl near the poison bait. Keep one celphos tablet in the mouth of each rat hole.

- In Mid Central Table Land Zone of Odisha, cloudy weather is favourable for powdery mildew disease in green gram and black gram. To control it, spray Sulfex @ 5 g / litre of water.
- **Bihar:**
 - In North West Alluvial Plain Zone of Bihar, continue sowing of late varieties of wheat up to 25th December. Apply light irrigation to early sown wheat crop which is in CRI stage, chilli and vegetables. Prepare nursery for sowing of *boro* rice.
 - In North East Alluvial Zone of Bihar, continue sowing of late sown irrigated wheat varieties. Apply light irrigation in wheat crop which is about 20-25 days old and also apply urea @ 30 kg/acre after two days of irrigation. Prepare nursery for sowing of *boro* rice. As low temperature is prevailing, apply light irrigation at evening time in tomato, chilli and other vegetable crops.
 - In South Bihar Alluvial Zone carry out intercultural operations in gram, lentil, pea, tobacco and mustard crops after 25-30 days of sowing. Continue sowing of late sown wheat varieties. Apply light irrigation in timely sown wheat crop which is in CRI stage and chilli.
 - In North West Alluvial Plain Zone of Bihar, low temperature and foggy weather is favourable for the attack of early and late blight in potato crop; spray Indofil M-45, for better result mix sticker 1ml/liter of water.
- **Jharkhand:**
 - In Western Plateau Zone of Jharkhand, as dry weather is prevailing apply irrigation to already sown wheat crop and apply urea @ 22 kg per acre after irrigation in 20 - 25 days old crops. Carry out inter cultural operations in pulse and oilseed crops to conserve soil moisture and control weeds. After harvesting of rice, undertake sowing of late irrigated wheat varieties.
 - In South Eastern Plateau Zone of Jharkhand, continue transplanting of onion and transplanting of cole crops. Continue planting of potato. Timely sown wheat crop is at crown root formation stage. At this stage irrigate the crop.
 - In Central & North Eastern Plateau Zone of Jharkhand, continue sowing of wheat. As dry weather is prevailing apply irrigation to already sown wheat crop at CRI stage. Prepare nursery bed for onion.
 - In Jharkhand, low temperature and foggy weather is favourable for the attack of early and late blight disease in early planted potato crop; spray Krilaksil or Ridomil MZ @ 1.5 g per litre of water to control the disease.
 - In Western Plateau Zone and South Eastern Plateau Zone of Jharkhand, high humidity and low temperature is favourable for the attack of powdery mildew disease on pea, spray Karathen @ 1 ml per litre of water or Sulfex @ 3 g per litre of water.
 - Suitable varieties are given in Annexure II.
- **Animal Husbandry**
 - In Coastal Saline Zone and Old Alluvial Zone of West Bengal, there is chance of worm attack in cattle due to cold weather. Undertake de-worming and keep them in proper shed. Keep the newly hatched chicken under overnight bulb light.
 - In Coastal Saline Zone of West Bengal, provide artificial heating through lighting of electric bulb to protect poultry birds (day old to 25 days old) from low temperature.
 - In North East Alluvial Zone of Bihar, protect the milch animals from cold by keeping under covered shelter and provide warm water for drinking for better milk yield.
 - To prevent from cold, dairy animal should be cover with gunny sack/ sheet in the evening in Central & North Eastern Plateau Zone of Jharkhand and also provide calcium and jaggery time to time. To prevent from Swine fever disease in pig farmer are advised to vaccinate swine fever vaccine.
- **Fishery**
 - In Terai Zone of West Bengal, as temperature is decreasing do not apply cow dung or any other organic manure and lesser quantity application of supplementary feed should be done in pond. Apply lime @ 60 kg/bigha with 2.5 m water level.

CENTRAL INDIA [M.P., CHHATTISGARH]



Sugarcane



Land preparation



Okra



Onion

- **Realised Rainfall:** Rainfall occurred in Chhatarpur, Mandla, Shahdol and Tikamgarh districts of East Madhya Pradesh; Ashoknagar, Bhind, Bhopal, Burhanpur, Datia, Guna, Gwalior, Hoshangabad, Raisen, Rajgarh, Shajapur and Vidisha districts of West Madhya Pradesh. Weather remained mainly dry over rest of the region during the week.

- **Weather Forecast:** Dry weather would prevail over the region during the period. Fog would occur at some places over Madhya Pradesh during next 48 hours.
- **Weather Warning:** Cold wave conditions would prevail at isolated places over West Madhya Pradesh on 19th December.
- **Weather Outlook:** Weather would be dry over the region.
- **Advisories:**
 - **Madhya Pradesh:**
 - As cold wave conditions would prevail at isolated places over West Madhya Pradesh on 19th, apply light and frequent irrigation and arrange smoking around the crop fields to prevent from cold injury.
 - As mainly dry weather is prevailing, apply irrigation in early sown potato and vegetables in Satpura Plateau Zone. Continue sowing of gram, wheat, planting of garlic and transplanting of onion.
 - Apply 1st irrigation in wheat also in gram and vegetables in Jhabua Hill Zone. Pick up matured bolls of cotton.
 - Continue sowing of late varieties of wheat in Bundelkhand Zone. As mainly dry weather is prevailing, apply irrigation in early sown wheat and mustard crops. Undertake weeding and hoeing in onion and garlic crops.
 - Continue sowing of late varieties of wheat in Nimar Valley Zone. As dry weather is prevailing, apply 1st irrigation in wheat at CRI stage and in gram.
 - Undertake transplanting of onion and continue planting of sugarcane in Vindhya Plateau Zone.
 - Apply Irrigation in wheat and vegetables like tomato, brinjal and chillies and pick up matured fruits in Kymore Plateau and Satpura Hill Zone. Undertake intercultural operations in chickpea, mustard, lentil and early planted wheat crops.
 - Continue sowing of wheat, pea and planting of potato in Malwa Plateau Zone. Also continue transplanting of onion, tomato, brinjal, chilli, cabbage and cauliflower on the prepared beds. As dry weather is prevailing apply irrigation in wheat, newly planted fruit plants and chickpea.
 - Due to partly cloudy weather, there are chances of attack of stem borer and fruit borer in tomato, brinjal and okra in Vindhya Plateau Zone and Grid Zone; for control spray Trizophos @ 800ml per ha.
 - Due to partly foggy cloudy sky and increased humidity potato crop may be affected by early blight in Bundelkhand Zone, spray Mencozeb @ 2.5 ml per litre of water.
 - **Chhattisgarh:**
 - In North Hill Zone complete sowing of wheat, if sowing has been delayed, undertake sowing of varieties like GW-173, Lok-1 or Arpa. Continue sowing of Autumn sugarcane. Undertake earthing up in potato crop.
 - Continue sowing of toria, green pea, linseed, gram, wheat and nursery sowing of vegetables like, chilli, cauliflower, tomato etc. in Bastar Plateau Zone. As mainly dry weather is prevailing, apply irrigation in wheat (after 20-25 days of sowing), gram and potato.
 - Due to partly cloudy weather, there are chances of attack of powdery mildew disease in green peas in North Hill Zone. Spray Karathen @ 1 ml per litre of water or Sulfex @ 3 g per litre of water.
 - Suitable varieties are given in Annexure II.
- **Animal Husbandry**
 - As there is decrease in temperature, protect animals from cold in Madhya Pradesh. Increase light duration in poultry farms.

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



Land preparation

Sugarcane

Bottle Gourd

Onion

- **Realised Rainfall:** Rainfall occurred in all districts of Himachal Pradesh except Lahul & Spiti, in all districts of Uttarakhand except Garhwal Pauri, Garhwal Tehri and Haridwar; Fatehgarh Saheb, Hoshiarpur, Kapurthala, Nawanshahar, Patiala, Ropar, Sangrur and Mohali districts of Punjab, Ambala, Chandigarh, Panchkula and Yamuna nagar districts of Haryana, in North and South Delhi; Bareilly, Hamirpur, Jhansi, Lalitpur, Mahoba, Moradabad and Rampur districts of West Uttar Pradesh and Fatehpur and Kannauj districts of East Uttar Pradesh. Weather remained mainly dry over rest of the region.
- **Weather Forecast:** Rain/snow would occur at isolated places over Jammu & Kashmir during next 24 hours; dry weather would prevail on 20th and rain/snow would occur at isolated places thereafter. Dry weather would prevail

over Himachal Pradesh during next 48 hours and rain/snow would occur at isolated places thereafter. Dry weather would prevail over rest parts of the region.

No significant change in minimum temperatures over northwest India during next 24 hours and slight rise thereafter. Fog would occur at many places over Punjab, Haryana & Delhi and some places over of Rajasthan during next 48 hours and some places over Uttar Pradesh during next 3 days.

- **Weather Warning:** Dense to very dense fog (Visibility 50 m or less) would occur at some places over Punjab, Haryana & Delhi, East Rajasthan on 19th December and over Uttar Pradesh 19th and 20th December and over East Uttar Pradesh on 21st December. Cold day conditions would prevail at a few places over Punjab & Haryana and at isolated places over West Uttar Pradesh.
- **Weather Outlook:** Rain/snow would occur at a few places over western Himalayan region on 22nd and 23rd December. Weather would be dry over rest of the region.
- **Advisories:**
 - As cold day conditions would prevail at a few places over Punjab & Haryana and at isolated places over West Uttar Pradesh on 19th, apply light and frequent irrigation and arrange smoking around the crop fields to prevent the crops from cold injury.
 - **Jammu & Kashmir:**
 - Undertake sowing of radish (Japanese White & Minowase) in Intermediate Zone of Jammu & Kashmir. Undertake hoeing cum intercultural operations in mustard within 30 days of sowing and in *rabi* pulses like lentil, pea and gram to control weeds and conserve moisture.
 - Continue sowing of peas and planting of garlic in Valley Temperate Zone of Jammu & Kashmir. Apply top dose of urea @ 3.6 kg/kanal. Undertake hand weeding /hoeing in saffron to reduce infestation by weeds.
 - Apply irrigation in wheat at crown root initiation (20-30 days after sowing) in Sub-tropical Zone of Jammu & Kashmir and then apply first dose of (25%) urea as top dressing.
 - **Himachal Pradesh:**
 - Undertake sowing of oilseeds and pulses as mixed/intercrops with wheat in Sub-Montane and Low Hills Sub-Humid Tropical Zone with available soil moisture. Undertake intercultural operation in already sown wheat by spraying Isoproturon 75 WP @ 70 g per 30 litres of water.
 - In Mid Hills Sub-Humid Zone, continue transplanting of late season cauliflower (Pusa-snowball) and cabbage and planting of onion at a distance of 15X10cm. Complete sowing of pea, radish, turnip, methi and spinach with available soil moisture.
 - Continue sowing of Chinese cabbage, cabbage and coriander in High Hill Dry Temperate Zone with available soil moisture.
 - Under prevailing low temperature and cloudy weather there are chances of occurrence of downy mildew in cruciferous vegetables in Sub-Montane and Low Hills Sub-Humid Tropical Zone. Spray redomil M-Z @ 25 g per litres of water at 15 days interval on a non-rainy day. For control of powdery mildew in peas, spray Celfex @ 25 g per 10 litres of water or karathane @ 5 ml per 10 litres of water.
 - Under prevailing low temperature condition, there are chances of incidence of canker disease in apple in Mild Hills Sub-Humid Zone. Spray Bordeaux mixture [copper sulphate (2 kg)+quick lime (2 kg)] in 200 litres of water.
 - Under prevailing humid weather condition, there are chances of aphids attack in vegetables in Mid Hills Sub-Humid Zone. Spray Methyl Demeton (Metasystox) @ 10 ml per 10 litres of water.
 - **Uttarakhand:**
 - Continue sowing of late varieties of wheat in Hill Zone and Sub Humid Sub Tropical Zone of Uttarakhand. Undertake land preparation for sowing of peas. Undertake top dressing of urea @500g per 5 litre of water in vegetables like mustard, raddish, spinach and coriander to conserve soil moisture.
 - Undertake harvesting of potato in clear weather in Bhabar and Tarai Zone of Uttarakhand. Apply first irrigation in wheat crop at Crown Root Initiation stage and then top dress @ 2.5 kg Urea per canal when soil moisture is sufficient. Apply 2nd irrigation in wheat crop 40 to 45 days after sowing. Undertake weeding & thinning operations in pea, chickpea, rajmash and garlic.
 - Apply irrigation in wheat crop at Crown Root Initiation stage and in sugarcane and light irrigation in mustard, chickpea, potato and pea in Sub Humid Sub Tropical Zone of Uttarakhand.
 - Due to humid weather condition, there are chances of attack of leaf eating caterpillar in tomato and brinjal in Sub Humid Sub Tropical Zone of Uttarakhand. Sparay Di-chlorovas @ 1ml per litre of water.
 - **Punjab, Haryana and Delhi:**
 - In Western Zone of Punjab, continue sowing of wheat of late varieties, raya, gobhi sarson, onion, carrot, tomato. Apply light irrigation to early sown wheat and to sugarcane at monthly interval.
 - In Western Semi-arid Zone of Delhi, undertake sowing of late varieties of wheat at seed rate of 125 kg seed per hectare. Also undertake transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli crop in the raised bed.
 - Under prevailing dry weather condition, continue harvesting of rice in Western Zone of Haryana. As temperatures are conducive, complete late sowing of wheat. Apply irrigation in already sown wheat at CRI stage. Undertake transplanting of onion, mature seedlings of tomato, cauliflower and cabbage.

- Due to high humidity in Western Zone of Haryana, infection of early blight may occur in potato and tomato, monitor the crop.
- In Western Plain Zone of Punjab provide polythene sheet/Sarkanda/Kahi/ rice straw to save the plants from frost. Dwarf vegetable varieties can be saved from frost injury with 100 gauge thick white plastic bags of 35 x 25 cm size.
- Present foggy weather is favourable for incidence of diamond back moth or tobacco caterpillar on cauliflower and cabbage in Western Zone of Punjab. To control spray Dipel 8L @ 300 ml/acre or Halt WP7 @ 300 g using 80-100 litres of water and repeat at 7 day interval.
- Due to foggy weather conditions, there is chance of incidence of late blight disease in potato in Western Zone of Punjab. To control, spray Indofil-M-45/Kavach/Antracol @500-700g/acre at weekly interval.
- Present weather is favourable for attack of top borer in sugarcane in Eastern Zone of Haryana, apply Carbofuran 3G @13 kg or Phorate 10G @ 8 kg in furrows.
- Present weather condition is favourable for attack of painted bug in mustard crops in Western Semi-arid Zone in Delhi; if attack is severe, spray Carbaryl (Sevin) @ 2 g/litre of water.
- **Uttar Pradesh:**
- Complete sowing of late varieties of wheat upto end of December in Bundelkhand Zone. Undertake harvesting of matured cauliflower, cabbage, tomato, chilli, brinjal in clear weather.
- Undertake sowing of lentil with seed rate of 55-75 kg/ha in Central Plain Zone of Uttar Pradesh.
- In Central Plain Zone of Uttar Pradesh, apply irrigation in toria at flowering/pod formation stage. Undertake harvesting of cauliflower, gourd, brinjal and tomato in clear weather. Raise the nursery of onion.
- Undertake sowing of late varieties of wheat and harvesting of medium duration cabbage in Eastern Plain Zone of Uttar Pradesh.
- Undertake sowing of sunflower and continue sowing of late varieties of wheat in Western Plain Zone of Uttar Pradesh. Apply irrigation to early sown wheat after 21 days after sowing and to sugarcane crops at 20 days interval.
- Under prevailing humid weather condition, there are chances of incidence of powdery mildew in wheat in Central Plain Zone. Spray 75% Isoproturan @ 1.5kg per hectare or Sulfofuran 75WG @ 33g dissolved in 500-600 litre water before first irrigation on 30 days after sowing. For control of blight disease in gram, spray Zinc manganese Carbamate @ 2 kg per 1000 litres of water at the interval of 10 days.
- Foggy weather is conducive for the incidence of blight disease in potato in Central Plain Zone of Uttar Pradesh. For control, spray Macezeb or Blitox 0.2 % @ 2 g per litre of water.
- Under foggy weather condition, there are chances of attack of aphids in toria in Central Plain Zone of Uttar Pradesh. Spray Methyl-O-Demeton 25% EC or Chloropyrifos 20% EC @ 1 litre per 600-700 litres of water per ha.
- Under prevailing dry weather condition, there are chances of attack of aphids in toria in Ballia and Deoria districts of Eastern Plain Zone of Uttar Pradesh. Spray Malathion 50 EC @ 2 litres or Monocrotophos 36 SL 600-800 ml in 600-800 litres of water per ha.
- **Rajasthan:**
- Undertake weeding in early sown wheat crop in Flood Prone Eastern Plain Zone of Rajasthan by spraying a solution of Metasulfuron Methyl @ 20g/ha in 500 litre water.
- Undertake sowing of late varieties of wheat after seed treatment In Semi-Arid Eastern Plain Zone of Rajasthan. Undertake transplanting of onion.
- Complete sowing of gram and apply irrigation after 45 days of sowing in South Eastern Humid Plain Zone of Rajasthan. Apply first irrigation in mustard after 35-40 days of sowing and then undertake application of nitrogen.
- Continue sowing of wheat, barley, fenugreek, lucerne in Transitional Plain Zone of Inland Drainage.
- Weather condition is favourable for attack of sclerotinia stem rot in mustard in Flood Prone Eastern Plain Zone of Rajasthan, destroy infested plants. Notice the leaves for white rust appearance in mustard crop, spray Mancozeb or Ridomil MZ 72 WP @ 2.0 Kg in 800 litre water/ha.
- In Arid Western Plain Zone of Rajasthan, there are chances of occurrence of powdery mildew in mustard. Spray Metalexy 1 8% or Mancozeb 64% @ 2 g per litre of water. For control of attack of painted bug or saw fly, spray Methyl Parathion 2% @ 20 kg per hectare.
- Suitable varieties are given in Annexure II.
- **Floriculture**
- Under prevailing dry weather condition, undertake harvesting of tuberose in Central Plain Zone of Uttar Pradesh.
- Current temperature is favourable for nursery raising of winter flowers in poly houses in Sub Montane and Low Hills Sub-Tropical Zone of Himachal Pradesh. Present weather is conducive for attack of mites in carnation. For control, spray Cypermythrin @0.05% at 15 days interval.
- Complete transplanting of winter season annuals in Valley Temperate Zone of Jammu & Kashmir.
- **Animal Husbandry:**
- Due to fall in night temperature, keep cows in their cowshed to protect them from cold in Himachal Pradesh and

Central Plain Zone of Uttar Pradesh. Also give 40-50g mineral mixture with the daily feed. Due to fall in temperature, make the arrangements for protection of cold in the poultry houses in Sub-Montane and Low Hills Sub-Humid Tropical Zone of Himachal Pradesh. Undertake vaccination for IBD and Ranikhet disease as there are chances of spread of these diseases.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]



Onion

Sugarcane

Cotton

Mango

- **Realised Rainfall:** Rainfall occurred in Mumbai City, North Goa, South Goa and Raigad districts in Konkan & Goa; Jalgaon district in Madhya Maharashtra. Weather remained mainly dry over rest of the region.
- **Weather Forecast:** Dry weather would prevail over the region during the period.
- **Weather Warning:** Cold wave conditions would prevail at a few places over Vidarbha on 18th and 19th and at isolated places over Marathwada on 19th December.
- **Weather Outlook:** Weather would be dry over the region.
- **Advisories:**
 - **Maharashtra:**
 - As cold wave conditions would prevail at few places over Vidarbha on 19th and 20th and at isolated places over Marathwada on 19th, apply light and frequent irrigation to orange and sweet lime orchards in Vidarbha and banana and grapes in Marathwada in the evening. Arrange smoking at night and cover new banana plants with skating bags. Apply mulch of crop residue. Make arrangement for artificial wind breaks around orchards.
 - In Konkan, as there was rain on 13th December, farmers are advised to postpone irrigation to standing crops, clean the orchards by collecting the infested fruits, leaves and branches to avoid further infestation (further spread of pest and disease). Continue sowing of *rabi* groundnut. Continue planting of watermelon variety 'Sugar Baby' on one side of ridges with a spacing of 4 x 1 m.
 - As there was rain accompanied by hail during last week in some pockets of Nasik, Jalgaon districts and rain in many parts of Madhya Maharashtra, farmers are advised to clean the banana, grapes and pomegranate orchards by collecting the infested fruits, leaves and branches to avoid further infestation (further spread of pest and disease). As minimum temperature prevails around 6-7°C in some parts of North Madhya Maharashtra, to protect grapes from cold injury (fruit cracking especially in black grapes), apply drip irrigation for half an hour during morning hours / apply mulch of crop residue. Make smoke (smudging) in grapes, banana the orchards in the region and fig orchards in Pune during night. For protection of banana, apply mulch of organic material at base of trunk, apply light irrigation during evening and cover the trunk with dried leaves. Make arrangement for artificial wind breaks around orchards. Cover rice nursery with polythene to protect rice seedlings from cold in Western Ghat Region. Apply irrigation to vegetables, sugarcane, safflower, *rabi* jowar, gram, wheat and grapes, banana and pomegranate orchards. Continue intercultural operations like weeding and apply fertilizer application in sugarcane, vegetables, *rabi* jowar, safflower, gram and wheat. Continue picking fully opened cotton bolls during morning hours. Continue the harvesting of already matured sugarcane.
 - In Marathwada, due to untimely rain there is fruit cracking in grapes, remove cracked & damaged fruit and spray Chlorine dioxide 50 ppm to control bacterial infestation. Apply irrigation to sugarcane, *rabi* jowar, safflower, gram, vegetables and wheat excluding Aurangabad district. Continue intercultural operation like hoeing, weeding to sugarcane, *rabi* jowar, wheat, gram and vegetables. Continue picking fully opened cotton bolls during morning hours. Continue harvesting of already matured sugarcane. In Vidarbha, apply irrigation to wheat, gram, vegetables and orange, sweet lime orchards excluding Buldhana district. Apply fertilizers and continue intercultural operations in vegetables and orchards. Continue picking fully opened cotton bolls. Avoid irrigation during boll bursting. Undertake nursery sowing of *rabi* rice. For better germination of seed cover nursery bed with plastic or dried fodder.
 - Powdery mildew develops rapidly if the day temperature remains 20-25 OC for 3-4 hours. Prevailing temperature in Pune district is favourable for the incidence of powdery mildew in grapes; spray water soluble Sulphur 80 % @ 20 g per 10 litres of water.
 - Prevailing partly cloudy weather in south Konkan is favourable for attack of tea mosquito, leaf miner and leaf cutting/eating beetle on new vegetative flush of cashew; spray Monocrotophos 36 WSC @ 14 ml per 10 litres of water. For control of tea mosquito bug on inflorescence, spray 35 per cent Profenophos @ 10ml/10 litres of water.

▪ **Gujarat:**

- Continue sowing of isabgol in North West Zone. Carryout weeding and intercultural operations in cumin and mustard crop. Apply light irrigation in vegetables during evening hours. Undertake transplanting of onion seedling.
- Continue transplanting of onion, apply 82 kg DAP/ha at the time of transplanting in South Gujarat Heavy Rainfall Zone. Carry out intercultural operations in jowar crop and provide mulching with available organic residues. As dry weather is prevailing, apply irrigation to wheat (timely sown at CRI stage). Irrigate the newly planted mango orchard at regular interval. Carry out hand weeding and intercultural operations in tomato crop.
- Apply irrigation in potato crop and apply 130 kg urea/ha at CRI stage in wheat in Middle Gujarat Zone.
- As there is chance of decrease in minimum temperature by 2-4 °C in North Saurashtra Zone, apply light irrigate to the crops like kidney bean, maize, brinjal, tomato and other rabi crops at afternoon and also arrange for smoking during night.
- As there is chance of cold wave condition in South Gujarat Zone, irrigate the standing crops frequently. Continue planting of sugarcane.
- In North Gujarat Zone, carry out weeding and intercultural operations in cumin, isabgol and fennel. Apply irrigation in wheat, mustard, cotton and fennel.
- Complete sowing of chickpea and picking of matured bolls of cotton in South Saurashtra Zone. Apply irrigation in cotton at boll formation stage. Carryout weeding in garlic crop.
- In North Saurashtra Zone, present weather is congenial for attack of fruit borers in brinjal and tomato, monitor the crops and use pheromone traps 4-6 per acre; spray Spinosad @ 3.0 ml/10 litre of water. Purple blotch infestation is observed in onion crop; spray Mencozeb 25 gm and hexaconazole 15 ml in 10 liters of water at 10 days interval for control.
- Present weather conditions are favourable for incidence of early blight in tomato in South Gujarat Heavy rainfall Zone; spray mancozeb @ 30 gm in 10 liter of water and for early blight in potato crop in North Gujarat Zone, spray Mencozeb 0.2% @ 30 gram plus 25 ml of concentrated desi soap solution in 10 litre of water as a preventive measure.
- Suitable varieties are given in Annexure II.
- **Animal Husbandry**
- In Gujarat, to avoid skin diseases in animals during winter season, wash the animals weekly and apply the neem or pongamia oil on skin of animals. Provide warm water to lactating animals. Keep the animals inside the sheds and provide dry bedding and use heaters inside cattle sheds to protect them from cold.
- **Poultry**
- In some parts of Maharashtra, as minimum temperature is likely to fall by 2-4 °C, protect poultry birds from cold winds by providing curtain/clothing from outside the poultry shed. Provide proper heat to small chicks of poultry with the help of electric bulbs.
- As minimum temperature is likely to fall by 2-4 °C in North Saurashtra, keep the chicks warm by providing artificial light in the poultry sheds.

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

Annexure I
Week by week Rainfall Distribution

Sub-Divisions	03.12.14		10.12.14		17.12.14	
	Actual (mm)	% dep.	Actual (mm)	% dep.	Actual (mm)	% dep.
Karnataka						
Coastal Karnataka						
Dakshin Kannada	0.0	-100	4.1	-23	34.4	574
Udupi	0.0	-100	4.2	-47	21.5	357
Uttar Kannada	0.0	-100	0.1	-98	25.8	658
N I Karnataka						
Bagalkote	0.0	-100	0.0	-100	19.3	566
Belgaum	0.0	-100	0.0	-100	19.8	761
Bidar	0.0	-100	0.0	-100	11.5	857
Bijapur	0.0	-100	0.0	-100	7.6	301
Dharwad	0.0	-100	0.0	-100	21.4	970

Gadag	0.0	-100	0.0	-100	30.8	1522
Gulbarga	0.0	-100	0.0	-100	9.0	460
Haveri	0.0	-100	0.0	-100	12.0	447
Koppal	0.0	-100	0.0	-100	16.4	447
Raichur	0.0	-100	0.0	-100	7.8	331
Yadgir	0.0	-100	0.0	-100	4.3	257
S I Karnataka						
Bangalore Rural	0.0	-100	0.0	-100	1.3	-68
Bangalore Urban	0.0	-100	0.0	-100	1.6	-64
Bellary	0.0	-100	0.0	-100	49.9	1747
Chamarajnar	0.0	-100	2.0	-78	8.3	84
Chichballapur	0.0	-100	0.0	-100	10.1	189
Chickmagalur	0.0	-100	4.4	41	10.6	141
Chitradurga	0.0	-100	0.0	-100	12.6	405
Davangere	0.0	-100	0.0	-100	24.6	1790
Hassan	0.0	-100	1.6	-52	14.7	320
Kodagu	0.0	-100	7.1	66	17.7	176
Kolar	0.0	-100	0.0	-100	9.0	76
Mandya	0.0	-100	0.3	-96	21.6	535
Mysore	0.0	-100	2.3	-60	25.7	787
Ramnagara	0.0	-100	0.0	-100	5.1	15
Shimoga	0.0	-100	5.9	79	21.2	608
Tumkur	0.0	-100	0.0	-100	9.0	191
Kerala						
Alappuzha	4.3	-75	17.8	-17	28.0	189
Kannur	0.0	-100	0.0	-100	29.8	338
Ernakulam	3.1	-72	15.5	-22	75.8	589
Idukki	4.3	-72	2.3	-88	35.4	272
Kasaragod	0.0	-100	0.7	-90	24.0	379
Kollam	21.3	19	5.6	-70	21.2	120
Kottayam	8.5	-40	23.6	67	50.7	534
Kozhikode	0.1	-99	0.3	-97	8.8	31
Malappuram	0.1	-99	4.9	-48	37.4	467
Palakkad	0.3	-97	3.5	-65	7.6	39
Pathanamthitta	4.4	-69	3.1	-83	69.2	454
Thiruvananthapuram	21.8	16	11.7	-51	53.4	445
Thrissur	0.0	-100	0.2	-98	18.4	261
Wynad	0.0	-100	4.0	-53	53.8	703
Tamil Nadu						
Ariyalur	19.0	-43	6.5	-89	43.0	66
Chennai	0.9	-98	9.2	-85	35.8	9
Coimbatore	1.2	-92	5.2	-70	19.4	57
Cuddalore	56.9	10	10.0	-86	74.1	101
Dharmapuri	0.0	-100	0.0	-100	14.3	37
Dindigul	10.2	-56	0.2	-99	38.6	91
Erode	0.5	-97	2.9	-85	16.2	100
Kanchipuram	2.6	-94	4.5	-92	41.6	35
Kanyakumari	55.0	150	5.9	-68	12.4	0
Karikal	111.5	82	1.5	-98	2.6	-96

Karur	6.0	-63	1.4	-93	3.1	-67
Krishnagiri	0.0	-100	0.0	-100	32.9	399
Madurai	22.0	22	1.0	-94	4.5	-69
Nagapattinam	117.9	62	1.3	-99	50.1	6
Namakkal	0.6	-96	0.0	-100	10.2	42
Nilgiris	4.5	-85	22.2	-8	58.3	208
Perambalur	7.0	-74	2.2	-94	15.7	-12
Puducherry	46.8	-13	2.0	-97	32.4	-30
Pudukottai	53.9	85	3.5	-90	28.9	68
Ramanathapuram	63.5	71	0.6	-99	7.8	-63
Salem	0.2	-99	0.7	-97	22.7	97
Sivaganga	48.0	98	11.9	-53	19.1	6
Thanjavur	58.2	51	1.4	-98	42.4	84
Theni	12.4	-11	1.1	-93	27.3	82
Tirunelveli	50.9	63	15.4	-37	99.7	310
Tirupur	0.2	-99	0.2	-99	22.2	131
Tiruvallur	0.4	-99	4.1	-91	57.6	107
Tiruvannamalai	0.3	-99	0.1	-99	56.6	172
Tiruvarur	75.0	22	2.0	-98	23.1	-30
Toothukudi	39.9	29	2.4	-90	32.5	60
Trichy	16.2	-20	1.0	-97	12.1	-15
Vellore	0.0	-100	0.0	-100	21.7	56
Villupuram	11.3	-66	1.7	-96	59.9	116
Virudhunagar	14.6	-38	1.9	-89	14.2	-14
Andhra Pradesh						
Coastal Andhra Pradesh						
East Godavari	0.0	-100	0.0	-100	1.3	-60
Guntur	0.0	-100	0.0	-100	0.3	-96
Krishna	0.0	-100	0.0	-100	0.1	-99
Nellore	0.0	-100	30.2	-29	49.9	93
Prakasam	0.0	-100	0.0	-100	8.4	-40
Sirkakulam	0.0	-100	0.0	-100	0.0	-100
Visakhapatnam	0.0	-100	0.0	-100	0.0	-100
Vizianagram	0.0	-100	0.0	-100	0.0	-97
West Godavari	0.0	-100	0.0	-100	2.1	-61
Rayalaseema						
Anantapur	0.0	-100	0.0	-100	3.3	5
Chittoor	0.0	-100	0.6	-97	20.6	63
Cuddapah	0.0	-100	0.0	-100	6.5	42
Kurnool	0.0	-100	0.0	-100	1.7	0
Telangana						
Adilabad	0.0	-100	0.0	-100	0.1	-95
Hyderabad	0.0	-100	0.0	-100	0.2	-75
Karimnagar	0.0	-100	0.0	-100	0.8	-4
Khammam	0.0	-100	0.0	-100	0.0	-100
Mehabubnagar	0.0	-100	0.0	-100	5.2	1628
Medak	0.0	-100	0.0	-100	0.3	-45
Nalgonda	0.0	-100	0.0	-100	0.6	-81
Nizamabad	0.0	-100	0.0	-100	3.9	335

Rangareddy	0.0	-100	0.0	-100	1.2	50
Warangal	0.0	-100	0.0	-100	0.0	-99
Arunachal Pradesh						
Anjaw	**	**	**	**	**	**
Changlang	0.0	-100	0.0	-100	0.0	-100
Dibang Valley	**	**	**	**	**	**
East Kameng	0.0	-100	0.0	-100	0.0	-100
East Siang	0.0	-100	0.6	-89	4.2	-58
Kurung Kumey	**	**	**	**	**	**
Lohit	0.0	-100	0.0	-100	0.0	-100
Lower Dibang Valley	0.0	-100	4.3	-19	2.6	-90
Lower Subansari	**	**	**	**	**	**
Papumpara	1.5	-59	12.7	12550	0.0	-100
Tawang	13.0	88	1.0	-74	8.0	-49
Tirap	0.0	-100	0.0	-100	0.0	-100
Upper Siang	0.6	-96	24.2	297	8.0	-71
Upper Subansari	0.0	-100	5.2	73	20.0	285
West Kameng	0.0	-100	0.0	-100	0.0	-100
West Siang	0.0	-100	5.0	14	8.5	-30
Assam&Meghalaya						
Assam						
Baksa	0.0	-100	0.0	-100	0.0	-100
Barpeta	0.0	-100	0.0	-100	0.0	-99
Bongaigaon	0.0	-100	0.0	-100	0.2	-94
Cachar	0.0	-100	0.0	-100	0.0	-100
Chirang	0.0	-100	0.0	-100	0.0	-100
Darrang	0.0	-100	0.0	-100	0.0	-100
Dhemaji	0.0	-100	0.0	-100	0.0	-100
Dhubri	0.0	-100	0.0	-100	2.8	295
Dibrugarh	0.0	-100	0.0	-100	0.0	-100
Goalpara	0.0	-100	0.0	-100	0.0	-100
Golghat	0.0	-100	0.0	-100	0.0	-100
Hailakandi	0.0	-100	0.0	-100	0.0	-100
Jorhat	0.0	-100	0.0	-100	0.0	-100
Kamrup(Rural)	0.0	-100	0.0	-100	0.0	-100
Kamrup(Metro)	0.0	-100	0.0	-100	0.0	-100
Karbi Anglong	0.0	-100	0.0	-100	0.0	-100
Karimganj	0.0	-100	0.0	-100	0.0	-100
Kokrajhar	0.0	-100	0.0	-100	0.1	-96
Lakhimpur	0.1	0.8	3.8	82	0.2	-97
Morigaon	0.0	-100	0.0	-100	0.0	-100
N.C.Hills	0.0	-100	0.0	-100	0.0	-100
Nowgong	0.0	-100	0.0	-100	0.0	-100
Nalbari	0.0	-100	0.0	-100	0.0	-100
Sonitpur	0.0	-100	0.1	-97	0.1	-99
Sibsagar	0.0	-100	0.0	-100	0.0	-100
Tinsukia	0.0	-100	0.0	-100	0.0	-100
Udalgiri	0.0	-100	0.4	-79	0.0	-100
Meghalaya						

East Garo Hills	0.0	-100	0.0	-100	0.0	-100
East Khasi Hills	0.0	-100	0.0	-100	0.0	-100
Jaintia Hills	0.0	-100	0.0	-100	0.0	-100
Ribhoi	0.0	-100	0.0	-100	0.0	-100
South Garo Hills	0.0	-100	0.0	-100	0.0	-100
West Garo Hills	0.0	-100	0.0	-100	0.0	-100
West Khasi Hills	0.0	-100	0.0	-100	0.0	-100
NMMT						
Mizoram						
Aizwal	0.0	-100	0.0	-100	0.0	-100
Champhai	**	**	**	**	**	**
Kolasib	**	**	**	**	**	**
Lawngtlai	**	**	**	**	**	**
Lunglei	0.0	-100	0.0	-100	0.0	-100
Mamit	**	**	**	**	**	**
Saiha	0.0	-100	0.0	-100	0.0	-100
Serchhip	0.0	-100	0.0	-100	0.0	-100
Manipur						
Bishnupur	**	**	**	**	**	**
Chandel	0.0	-100	0.0	-100	0.0	-100
Churachandpur	**	**	**	**	**	**
Imphal east	0.0	-100	0.0	-100	0.0	-100
Imphal west	0.0	-100	0.0	-100	0.0	-100
Senapati	0.0	-100	0.0	-100	0.0	-100
Tamenglong	**	**	**	**	**	**
Thoubal	0.0	-100	0.0	-100	0.0	-100
Ukhrul	**	**	**	**	**	**
Nagaland						
Dimapur	0.0	-100	0.0	-100	0.0	-100
Kephire	**	**	**	**	**	**
Kohima	0.0	-100	0.0	-100	0.0	-100
Longleng	**	**	**	**	**	**
Mokokchung	**	**	**	**	**	**
Mon	**	**	**	**	**	**
Paren	**	**	**	**	**	**
Phek	0	-100	0	-100	0	-100
Tuensang	**	**	**	**	**	**
Wokha	**	**	**	**	**	**
Zunheboto	**	**	**	**	**	**
Tripura						
Dhalai	0.0	-100	0.0	-100	0.0	-100
North tripura	0.0	-100	0.0	-100	0.0	-100
South tripura	0.0	-100	0.0	-100	0.0	-100
West tripura	0.0	-100	0.0	-100	0.0	-100
Himachal Pradesh						
Bilaspur	0.0	-100	0.0	-100	63.9	1154
Chamba	0.1	-97	0.0	-100	33.4	137
Hamirpur	0.0	-100	0.0	-100	55.5	650
Kangra	0.0	-100	0.0	-100	43.8	347

Kinnaur	0.0	-100	0.0	-100	39.3	469
Kullu	0.3	-95	0.0	-100	72.9	898
Lahaul and Spiti	4.1	-41	0.0	-100	14.1	1
Mandi	0.0	-100	0.0	-100	94.4	1248
Shimla	0.0	-100	0.0	-100	63.0	1025
Sirmaur	0.0	-100	0.0	-100	88.2	1060
Solan	0.0	-100	0.0	-100	122.5	1490
Una	0.0	-100	0.0	-100	55.1	1622
Punjab						
Amritsar	0.0	-100	0.0	-100	0.2	-96
Barnala	0.0	-100	0.0	-100	11.3	436
Bhatinda	0.0	-100	0.0	-100	0.3	-82
Faridkot	0.0	-100	0.0	-100	0.0	-100
Fatehgarh Saheb	0.0	-100	0.0	-100	27.0	831
Ferozpur	0.0	-100	0.0	-100	0.3	-90
Gurdaspur	0.0	-100	0.0	-100	18.5	118
Hoshiarpur	0.0	-100	0.0	-100	23.3	482
Jalandhar	0.0	-100	0.0	-100	18.7	379
Kapurthala	0.0	-100	0.0	-100	21.0	400
Ludhiana	0.0	-100	0.0	-100	14.1	441
Mansa	0.0	-100	0.0	-100	4.4	214
Moga	0.0	-100	0.0	-100	14.3	741
Muktesar	0.0	-100	0.0	-100	0.0	-100
Nawashahar	0.0	-100	0.0	-100	42.6	890
Patiala	0.0	-100	0.0	-100	28.2	841
Ropar	0.0	-100	0.0	-100	40.4	911
Sangrur	0.0	-100	0.0	-100	26.1	801
Mohali	0.0	-100	0.0	-100	42.3	2390
TarnTaran	0.0	-100	0.0	-100	0.0	-100
Haryana,Chd,Delhi						
Haryana						
Ambala	0.0	-100	0.0	-100	60.4	1019
Bhiwani	0.0	-100	0.0	-100	5.9	1074
Chandigarh	0.0	-100	0.0	-100	90.0	1244
Faridabad	0.0	-100	0.0	-100	7.0	1067
Fatehabad	0.0	-100	0.0	-100	14.3	1333
Gurgaon	0.0	-100	0.0	-100	2.7	142
Hissar	0.0	-100	0.0	-100	2.4	144
Jhajar	0.0	-100	0.0	-100	0.0	-100
Jind	0.0	-100	0.0	-100	3.1	110
Katihah	0.0	-100	0.0	-100	8.0	896
Karnal	0.0	-100	0.0	-100	14.4	658
Kurukshetra	0.0	-100	0.0	-100	12.6	424
Mahendragarh	0.0	-100	0.0	-100	1.8	41
Mewat	0.0	-100	0.0	-100	3.0	131
Palwal	0.0	-100	0.0	-100	4.6	667
Panchkkula	0.0	-100	0.0	-100	60.0	2122
Panipat	0.0	-100	0.0	-100	1.8	67
Rewari	0.0	-100	0.0	-100	9.3	833

Rohtak	0.0	-100	0.0	-100	10.2	629
Sirsa	0.0	-100	0.0	-100	0.0	-100
Sonepat	0.0	-100	0.0	-100	0.4	-14
Yamunanagar	0.0	-100	0.0	-100	41.1	648
Delhi						
Central Delhi	0.0	-100	0.0	-100	17.0	844
East Delhi	0.0	-100	0.0	-100	18.0	900
New Delhi	0.0	-100	0.0	-100	12.3	581
North Delhi	0.0	-100	0.0	-100	21.4	1089
North East Delhi	0.0	-100	0.0	-100	16.0	789
North West Delhi	0.0	-100	0.0	-100	0.0	-100
South Delhi	0.0	-100	0.0	-100	26.4	1364
South West Delhi	0.0	-100	0.0	-100	10.2	464
West Delhi	0.0	-100	0.0	-100	12.0	567
Jammu & Kashmir						
Anantnag	1.9	-82	0.0	-100	0.0	-100
Badgam	0.0	-100	0.0	-100	0.0	-100
Bandipore	**	**	**	**	**	**
Baramula	2.5	-57	0.0	-100	0.0	-100
Doda	1.2	-93	0.0	-100	17.2	-31
Ganderbal	2.4	-60	0.0	-100	0.0	-100
Jammu	0.0	-100	0.0	-100	0.0	-100
Kargil	0.0	-100	0.0	-100	**	**
Kathua	0.0	-100	0.0	-100	10.2	42
Kistwar	**	**	**	**	**	**
Kulgam	1.0	-91	0.0	-100	0.0	-100
Kupwara	13.5	19	0.0	-100	0.0	-100
Ladakh(Leh)	0.0	-100	0.0	-100	0.1	-89
Poonch	0.3	-98	0.0	-100	0.0	-100
Pulwama	0.0	-100	0.0	-100	0.0	-100
Rajouri	0.0	-100	0.0	-100	0.0	-100
Ramban	0.2	-99	0.0	-100	0.0	-100
Reasi	0.0	-100	0.0	-100	0.0	-100
Samba	0.2	-94	0.0	-100	0.0	-100
Shopian	0.0	-100	0.0	-100	0.0	-100
Srinagar	0.0	-100	0.0	-100	0.0	-100
Udhampur	0.0	-100	0.0	-100	0.0	-100
East Madhya Pradesh						
Anuppur	0.0	-100	0.0	-100	2.3	153
Balaghat	0.0	-100	0.0	-100	14.6	257
Chhatarpur	0.0	-100	0.0	-100	33.6	2300
Chindwara	0.0	-100	0.0	-100	3.7	107
Damoh	0.0	-100	0.0	-100	7.9	394
Dindori	0.0	-100	0.0	-100	14.8	377
Jabalpur	0.0	-100	0.0	-100	6.1	221
Katni	0.0	-100	0.0	-100	19.4	1840
Mandla	0.0	-100	0.0	-100	20.2	494
Narsingpur	0.0	-100	0.0	-100	1.0	-44
Panna	0.0	-100	0.0	-100	11.8	973

Rewa	0.0	-100	0.0	-100	14.9	726
Sagar	0.0	-100	0.0	-100	5.3	277
Satna	0.0	-100	0.0	-100	14.7	1125
Seoni	0.0	-100	0.0	-100	6.0	122
Shahdol	0.0	-100	0.0	-100	21.0	1650
Sidhi	0.0	-100	0.0	-100	5.6	195
Singrauli	0.0	-100	0.0	-100	0.0	-100
Tikamgarh	0.0	-100	0.0	-100	47.5	6686
Umaria	0.0	-100	0.0	-100	6.2	210
West Madhya Pradesh						
Alirajpur	0.0	-100	0.0	-100	0.0	-100
Asoknagar	0.0	-100	0.0	-100	46.1	5662
Badwani	0.0	-100	0.0	-100	11.5	621
Betul	0.0	-100	0.0	-100	3.9	87
Bhind	0.0	-100	0.0	-100	29.1	7169
Bhopal	0.0	-100	0.0	-100	21.3	509
Burhanpur	0.0	-100	0.0	-100	34.4	1047
Datia	0.0	-100	0.0	-100	31.7	2785
Dewas	0.0	-100	0.0	-100	0.0	-100
Dhar	0.0	-100	0.0	-100	7.5	843
Guna	0.0	-100	0.0	-100	29.4	3167
Gwalior	0.0	-100	0.0	-100	38.2	3368
Harda	0.0	-100	0.0	-100	9.6	298
Hosangabad	0.0	-100	0.0	-100	22.9	1172
Indore	0.0	-100	0.0	-100	18.9	949
Jhabua	0.0	-100	0.0	-100	0.0	-100
Khandwa	0.0	-100	0.0	-100	18.0	429
Khargone	0.0	-100	0.0	-100	1.4	-43
Mandsaur	0.0	-100	0.0	-100	6.4	967
Morena	0.0	-100	0.0	-100	15.2	2429
Neemuch	0.0	-100	0.0	-100	0.0	-100
Raisen	0.0	-100	0.0	-100	27.2	1193
Rajgarh	0.0	-100	0.0	-100	20.2	1249
Ratlam	0.0	-100	0.0	-100	0.7	-61
Sehore	0.0	-100	0.0	-100	2.3	10
Shajapur	0.0	-100	0.0	-100	20.0	1900
Sheopur Kalani	0.0	-100	0.0	-100	12.0	1614
Shivpuri	0.0	-100	0.0	-100	19.0	3700
Ujjain	0.0	-100	0.0	-100	10.0	2400
Vidisha	0.0	-100	0.0	-100	36.6	2718
Chhattisgarh						
Bastar	0.0	-100	0.0	-100	0.0	-100
Bijapur	0.0	-100	0.0	-100	0.0	-100
Bilaspur	0.0	-100	0.0	-100	6.0	101
Dantewara	0.0	-100	0.0	-100	0.0	-100
Dhamtari	0.0	-100	0.0	-100	0.0	-100
Durg	0.0	-100	0.0	-100	0.0	-100
Janjgir	0.0	-100	0.0	-100	0.0	-100
Jashpurnagar	0.0	-100	0.0	-100	0.0	-100

Kanker	0.0	-100	0.0	-100	0.0	-100
Korba	0.0	-100	0.0	-100	0.0	-100
Koriya	0.0	-100	0.0	-100	1.8	77
Kawardha	0.0	-100	0.0	-100	0.0	-100
Mahasumund	0.0	-100	0.0	-100	0.0	-100
Narayanpur	0.0	-100	0.0	-100	0.0	-100
Raigarh	0.0	-100	0.0	-100	0.0	-100
Raipur	0.0	-100	0.0	-100	0.0	-100
Rajandgaon	0.0	-100	0.0	-100	0.0	-100
Surguja	0.0	-100	0.0	-100	3.7	425
East Uttar Pradesh						
Allahabad	0.0	-100	0.0	-100	9.7	2335
Ambedkar Nagar	0.0	-100	0.0	-100	18.0	3500
Azamgarh	0.0	-100	0.0	-100	1.5	1400
Bahraich	0.0	-100	0.0	-100	9.0	372
Ballia	0.0	-100	0.0	-100	0.1	-67
Balrampur	0.0	-100	0.0	-100	5.5	293
Banda	0.0	-100	0.0	-100	14.2	1670
Barabanki	0.0	-100	0.0	-100	7.1	492
Basti	0.0	-100	0.0	-100	12.0	823
Chandauli	0.0	-100	0.0	-100	1.5	150
Deoria	0.0	-100	0.0	-100	1.0	25
Faizabad	0.0	-100	0.0	-100	6.8	426
Farrukhabad	0.0	-100	0.0	-100	10.5	1993
Fatehpur	0.0	-100	0.0	-100	21.4	4173
Gazipur	0.0	-100	0.0	-100	0.7	625
Gonda	0.0	-100	0.0	-100	7.1	545
Gorakhpur	0.0	-100	0.0	-100	6.2	786
Hardoi	0.0	-100	0.0	-100	13.2	1367
Jaunpur	0.0	-100	0.0	-100	0.0	-100
Kannauj	0.0	-100	0.0	-100	67.4	11133
Kanpur City	0.0	-100	0.0	-100	11.4	1325
Kanpur Dehat	0.0	-100	0.0	-100	10.6	5200
Kaushambi	0.0	-100	0.0	-100	1.4	250
Kheri	0.0	-100	0.0	-100	18.6	1446
Kushi nagar	0.0	-100	0.0	-100	0.0	-100
Lucknow	0.0	-100	0.0	-100	5.1	325
Maharajganj	0.0	-100	0.0	-100	5.0	355
Mau	0.0	-100	0.0	-100	0.0	-100
Mirzapur	0.0	-100	0.0	-100	1.5	150
Pratapgarh	0.0	-100	0.0	-100	1.0	233
RaiBareilly	0.0	-100	0.0	-100	7.8	2492
Sahuji Maharajnagar	0.0	-100	0.0	-100	6.5	983
Sant Kabirnagar	0.0	-100	0.0	-100	0.5	-72
Sant Ravidas Nagar	0.0	-100	0.0	-100	0.0	-100
Shrawasti	**	**	**	**	**	**
Sidharthnagar	0.0	-100	0.0	-100	0.0	-100
Sitapur	0.0	-100	0.0	-100	16.5	1733
Sonbhadra	0.0	-100	0.0	-100	3.4	162

Sultanpur	0.0	-100	0.0	-100	1.9	383
Unnao	0.0	-100	0.0	-100	6.0	900
Varanasi	0.0	-100	0.0	-100	1.9	287
West Uttar Pradesh						
Agra	0.0	-100	0.0	-100	9.8	1533
Aligarh	0.0	-100	0.0	-100	6.6	247
Auraiya	0.0	-100	0.0	-100	7.0	900
Badaun	0.0	-100	0.0	-100	13.7	1273
Baghpat	0.0	-100	0.0	-100	2.7	350
Bareilly	0.0	-100	0.0	-100	22.5	3119
Bijnor	0.0	-100	0.0	-100	15.5	605
Bulandsahar	0.0	-100	0.0	-100	8.7	567
Etah	0.0	-100	0.0	-100	8.0	1233
Etawah	0.0	-100	0.0	-100	12.0	2300
Firozabad	0.0	-100	0.0	-100	9.1	1713
GBNagar	0.0	-100	0.0	-100	9.0	1025
Ghaziabad	0.0	-100	0.0	-100	3.7	273
Hamirpur	0.0	-100	0.0	-100	20.3	10025
Jalaun	0.0	-100	0.0	-100	18.7	6122
Jhansi	0.0	-100	0.0	-100	34.5	8525
Jotiba Phule Nagar	0.0	-100	0.0	-100	15.0	1775
Kanshiramnagar	0.0	-100	0.0	-100	5.0	355
Lalitpur	0.0	-100	0.0	-100	43.3	4233
Mahamaya Nagar	0.0	-100	0.0	-100	2.3	289
Mahoba	0.0	-100	0.0	-100	24.8	3443
Mainpuri	0.0	-100	0.0	-100	9.4	2250
Mathura	0.0	-100	0.0	-100	0.0	-100
Meerut	0.0	-100	0.0	-100	1.9	36
Moradabad	0.0	-100	0.0	-100	33.8	4731
Muzzaffarnagar	0.0	-100	0.0	-100	10.8	882
Pilibhit	0.0	-100	0.0	-100	8.3	314
Rampur	0.0	-100	0.0	-100	29.8	2192
Saharanpur	0.0	-100	0.0	-100	16.5	535
Shahjahanpur	0.0	-100	0.0	-100	6.5	439
Uttarakhand						
Almora	0.0	-100	0.0	-100	63.8	1151
Bageshwar	0.0	-100	0.0	-100	41.5	714
Chamoli	0.0	-100	0.0	-100	55.0	696
Champawat	0.0	-100	0.0	-100	72.0	929
Dehradun	0.0	-100	0.0	-100	32.0	581
Garhwal Pauri	0.0	-100	0.0	-100	16.6	538
Garhwal Tehri	0.0	-100	0.0	-100	15.8	116
Haridwar	0.0	-100	0.0	-100	17.3	541
Nainital	0.0	-100	0.0	-100	83.5	1842
Pithoragarh	0.0	-100	0.0	-100	78.0	1179
Rudraprayag	0.0	-100	0.0	-100	58.7	1074
Udham Sing Nagar	0.0	-100	0.0	-100	46.4	2475
Uttarkashi	0.0	-100	0.0	-100	24.9	211
Bihar						

Araria	0.0	-100	0.0	-100	0.5	-55
Arwal	0.0	-100	0.0	-100	0.0	-100
Aurangabad	0.0	-100	0.0	-100	0.5	-44
Banka	**	**	0.0	-100	0.0	-100
Begusarai	0.0	-100	0.0	-100	0.0	-100
Bhabua	0.0	-100	0.0	-100	0.0	-100
Bhagalpur	0.0	-100	0.0	-100	0.2	-86
Bhojpur	0.0	-100	0.0	-100	0.0	-100
Buxar	**	**	**	**		**
Darbhanga	0.0	-100	0.0	-100		**
East Champaran	0.0	-100	0.0	-100	4.2	423
Gaya	0.0	-100	0.0	-100	2.7	289
Gopalganj	0.0	-100	0.0	-100	5.3	379
Jahanabad	0.0	-100	0.0	-100	1.2	15
Jamui	0.0	-100	0.0	-100	0.0	-100
Kathihar	0.0	-100	0.0	-100	0.0	-100
Khagadia	0.0	-100	0.0	-100	0.0	-100
Kishanganj	0.0	-100	0.0	-100	0.0	-100
Lakhisarai	0.0	-100	0.0	-100	1.0	43
Madhepura	0.0	-100	0.0	-100	0.0	-100
Madhubani	0.0	-100	0.0	-100		**
Monghyar	**	**	**	**		**
Muzaffarpur	0.0	-100	0.0	-100	1.7	325
Nalanda	0.0	-100	0.0	-100	2.3	278
Nawada	0.0	-100	0.0	-100	3.6	3500
Patna	0.0	-100	0.0	-100	0.1	-67
Purnea	0.0	-100	0.0	-100	0.0	-100
Rohtas	0.0	-100	0.0	-100	0.1	-83
Saharsha	0.0	-100	0.0	-100	0.0	-100
Samstipur	0.0	-100	0.0	-100	0.0	-100
Saran	0.0	-100	0.0	-100	0.0	-100
Sheikpura	0.0	-100	0.0	-100	2.2	617
Sheohar	0.0	-100	0.0	-100	0.0	-100
Sitamarhi	0.0	-100	0.0	-100	4.0	186
Siwan	0.0	-100	0.0	-100	0.0	-100
Supaul	0.0	-100	0.0	-100	0.2	-80
Vaishali	0.0	-100	0.0	-100	3.9	1850
West Champaran	0.0	-100	0.0	-100	3.1	63
Jharkhand						
Bokaro	0.0	-100	0.0	-100	0.0	-100
Chatra	0.0	-100	0.0	-100	0.0	-100
Deoghar	0.0	-100	0.0	-100	0.0	-100
Dhanbad	0.0	-100	0.0	-100	0.0	-100
Dumka	0.0	-100	0.0	-100	0.0	-100
East Singbhum	0.0	-100	0.0	-100	0.1	-87
Garhwa	0.0	-100	0.0	-100	12.5	1983
Giridih	0.0	-100	0.0	-100	0.0	-100
Godda	0.0	-100	0.0	-100	0.0	-100
Gumla	0.0	-100	0.0	-100	0.0	-100

Hazaribagh	0.0	-100	0.0	-100	0.3	-85
Jamtara	0.0	-100	0.0	-100	0.0	-100
Khunti	0.0	-100	0.0	-100	0.0	-100
Koderrna	0.0	-100	0.0	-100	0.0	-100
Latehar	0.0	-100	0.0	-100	0.0	-100
Lohardagga	0.0	-100	0.0	-100	0.0	-100
Pakur	0.0	-100	0.0	-100	0.0	-100
Palamau	0.0	-100	0.0	-100	9.2	1431
Ramgarh	0.0	-100	0.0	-100	0.0	-100
Ranchi	0.0	-100	0.0	-100	0.0	-100
Sahebganj	0.0	-100	0.0	-100	0.0	-100
Saraikela	0.0	-100	0.0	-100	0.0	-100
Simdega	0.0	-100	0.0	-100	0.0	-100
West Singbhum	0.0	-100	0.0	-100	0.0	-100
East Rajasthan						
Ajmer	0.0	-100	0.0	-100	0.0	-100
Alwar	0.0	-100	0.0	-100	2.1	51
Banswara	0.0	-100	0.0	-100	0.0	-100
Baran	0.0	-100	0.0	-100	0.0	-100
Bharatpur	0.0	-100	0.0	-100	0.0	-100
Bhilwara	0.0	-100	0.0	-100	0.0	-100
Bundi	0.0	-100	0.0	-100	0.0	-100
Chittorgarh	0.0	-100	0.0	-100	0.0	-100
Dausa	0.0	-100	0.0	-100	0.0	-100
Dholpur	0.0	-100	0.0	-100	0.0	-100
Dungarpur	0.0	-100	0.0	-100	0.0	-100
Jaipur	0.0	-100	0.0	-100	0.0	-100
Jhalawar	0.0	-100	0.0	-100	0.6	-36
Jhunjhunu	0.0	-100	0.0	-100	0.0	-100
Karauli	0.0	-100	0.0	-100	0.0	-100
Kota	0.0	-100	0.0	-100	0.0	-100
Pratapgarh	0.0	-100	0.0	-100	0.0	-100
Rajsamand	0.0	-100	0.0	-100	0.0	-100
Sawai Madhopur	0.0	-100	0.0	-100	0.0	-100
Sikar	0.0	-100	0.0	-100	0.0	-100
Sirohi	0.0	-100	0.0	-100	0.0	-100
Tonk	0.0	-100	0.0	-100	0.0	-100
Udaipur	0.0	-100	0.0	-100	0.0	-100
West Rajasthan						
Barmer	0.0	-100	0.0	-100	0.0	-100
Bikaner	0.0	-100	0.0	-100	0.0	-100
Churu	0.0	-100	0.0	-100	0.0	-100
Hanumangarh	0.0	-100	0.0	-100	0.0	-100
Jaisalmer	0.0	-100	0.0	-100	0.0	-100
Jalore	0.0	-100	0.0	-100	0.0	-100
Jodhpur	0.0	-100	0.0	-100	0.0	-100
Nagaur	0.0	-100	0.0	-100	0.0	-100
Pali	0.0	-100	0.0	-100	0.0	-100
Sri Ganganagar	0.0	-100	0.0	-100	0.0	-100

Gujarat Region						
Ahmedabad	0.0	-100	0.0	-100	0.0	-100
Anand	0.0	-100	0.0	-100	0.0	-100
Banaskantha	0.0	-100	0.0	-100	0.0	-100
Baroda	0.0	-100	0.0	-100	0.0	-100
Broach	0.0	-100	0.0	-100	0.0	-100
DNH	**	**	**	**	**	**
Dahod	0.0	-100	0.0	-100	0.0	-100
Daman	0.0	-100	**	**	**	**
Dangs	0.0	-100	0.0	-100	0.0	-100
Gandhinagar	0.0	-100	0.0	-100	0.0	-100
Kheda	0.0	-100	0.0	-100	0.0	-100
Mehsana	0.0	-100	0.0	-100	0.0	-100
Narmada	0.0	-100	0.0	-100	0.0	-100
Navsari	0.0	-100	0.0	-100	0.0	-100
Panchmahal	0.0	-100	0.0	-100	0.0	-100
Patan	0.0	-100	0.0	-100	0.0	-100
Sabarkantha	0.0	-100	0.0	-100	0.0	-100
Surat	0.0	-100	0.0	-100	0.0	-100
Tapi	0.0	-100	0.0	-100	0.0	-100
Valsad	0.0	-100	0.0	-100	0.0	-100
S K & Diu region						
Amreli	0.0	-100	0.0	-100	0.0	-100
Bhavnagar	0.0	-100	0.0	-100	0.0	-100
Diu	0.0	-100	0.0	-100	0.0	-100
Jamnagar	0.0	-100	0.0	-100	0.0	-100
Junagarh	0.0	-100	0.0	-100	0.0	-100
Kutch	0.0	-100	0.0	-100	0.0	-100
Porbandar	0.0	-100	0.0	-100	0.0	-100
Rajkot	0.0	-100	0.0	-100	0.0	-100
Surendranagar	0.0	-100	0.0	-100	0.0	-100
Maharashtra & Goa						
Konkan & Goa						
Mumbai City	0.0	-100	0.0	-100	30.0	1665
Mumbai Suburban	0.0	-100	0.0	-100	1.5	-12
North Goa	0.0	-100	0.0	-100	24.3	492
Raigad	0.0	-100	0.0	-100	24.1	1753
Ratnagiri	0.0	-100	0.0	-100	4.8	167
Sindhudurg	0.0	-100	0.0	-100	18.9	720
South Goa	0.0	-100	0.0	-100	23.9	470
Thane	0.0	-100	0.0	-100	0.0	-100
Madhya Maharashtra						
Ahmednagar	0.0	-100	0.0	-100	3.4	56
Dhule	**	**	**	**	0.3	-81
Jalgaon	0.0	-100	0.0	-100	52.6	3660
Kolhapur	0.0	-100	0.0	-100	8.6	219
Nandurbar	**	**	**	**	1.6	172
Nasik	0.0	-100	0.0	-100	16.4	811
Pune	0.0	-100	0.0	-100	12.2	511

Sangli	0.0	-100	0.0	-100	18.3	664
Satara	0.0	-100	0.0	-100	2.8	-14
Solapur	0.0	-100	0.0	-100	5.4	81
Marathwada						
Aurangabad	0.0	-100	0.0	-100	15.2	333
Beed	**	**	**	**	0.0	-100
Hingoli	0.0	-100	0.0	-100	**	**
Jalna	**	**	0.0	-100	0.0	-100
Latur	0.0	-100	0.0	-100	4.5	463
Nanded	0.0	-100	0.0	-100	0.0	-100
Usmanabad	0.0	-100	0.0	-100	0.2	-91
Parbhani	0.0	-100	0.0	-100	0.0	-100
Vidarbha						
Akola	0.0	-100	0.0	-100	5.1	199
Amraoti	0.0	-100	0.0	-100	5.2	247
Bhandara	0.0	-100	0.0	-100	0.0	-100
Buldhana	0.0	-100	0.0	-100	12.7	604
Chandrapur	0.0	-100	0.0	-100	0.0	-100
Gadchiroli	0.0	-100	0.0	-100	0.0	-100
Gondia	0.0	-100	0.0	-100	0.0	-100
Nagpur	0.0	-100	0.0	-100	0.4	-83
Wardha	0.0	-100	0.0	-100	0.0	-100
Washim	0.0	-100	0.0	-100	0.0	-100
Yeotmal	0.0	-100	0.0	-100	0.0	-100
Odisha						
Angul	0.0	-100	0.0	-100	0.0	-100
Balasore	0.0	-100	0.0	-100	0.1	-97
Bargarh	0.0	-100	0.0	-100	0.0	-100
Bhadrak	0.0	-100	0.0	-100	0.0	-100
Bolangir	0.0	-100	0.0	-100	0.0	-100
Boudh	0.0	-100	0.0	-100	0.0	-100
Cuttack	0.0	-100	0.0	-100	0.0	-100
Deogarh	0.0	-100	0.0	-100	0.0	-100
Dhenkanal	0.0	-100	0.0	-100	0.0	-100
Gajapati	0.0	-100	0.0	-100	0.0	-100
Ganjam	0.0	-100	0.0	-100	0.0	-100
Jagatsingpur	0.0	-100	0.0	-100	0.0	-100
Jajpur	0.0	-100	0.0	-100	0.0	-100
Jharsuguda	0.0	-100	0.0	-100	0.0	-100
Kalahandi	0.0	-100	0.0	-100	0.0	-100
Kandhamal	0.0	-100	0.0	-100	0.0	-100
Kendrapara	0.0	-100	0.0	-100	0.0	-100
Keonjhar	0.0	-100	0.0	-100	0.2	-84
Khurda	0.0	-100	0.0	-100	0.0	-100
Koraput	0.0	-100	0.0	-100	0.0	-100
Malkangiri	0.0	-100	0.0	-100	0.0	-100
Mayurbhanj	0.0	-100	0.0	-100	0.0	-100
Nawapara	0.0	-100	0.0	-100	0.0	-100
Nawarangpur	0.0	-100	0.0	-100	0.0	-100

Nayagarh	0.0	-100	0.0	-100	0.0	-100
Puri	0.0	-100	0.0	-100	0.0	-100
Rayagada	0.0	-100	0.0	-100	0.1	-89
Sambalpur	0.0	-100	0.0	-100	0.0	-100
Sonepur	0.0	-100	0.0	-100	0.0	-100
Sundargarh	0.0	-100	0.0	-100	0.0	-100
West Bengal & Andaman Nicobar Islands						
A & N ISLAND						
Nicobar	18.4	-72	19.5	71	21.4	-66
North & Middle Andaman	26.4	-8	37.2	20	0.1	-99
South Andaman	33.8	-14	2.2	-95	3.0	-91
GWB						
Bankura	0.0	-100	0.0	-100	0.6	-48
Birbhum	0.0	-100	0.0	-100	0.8	-17
Burdwan	0.0	-100	0.0	-100	0.5	-47
East Midnapore	0.0	-100	0.0	-100	0.1	-98
Hooghly	0.0	-100	0.0	-100	0.0	-100
Howrah	0.0	-100	0.0	-100	0.0	-100
Kolkata	0.0	-100	0.0	-100	0.0	-100
Murshidabad	0.0	-100	0.0	-100	0.0	-100
Nadia	0.0	-100	0.0	-100	0.0	-100
24 Pargana (N)	0.0	-100	0.0	-100	0.0	-100
Purulia	0.0	-100	0.0	-100	0.0	-100
24 Pargana (S)	0.0	-100	0.0	-100	0.1	-96
West Midnapore	0.0	-100	0.0	-100	0.0	-100
SHWB & Sikkim						
Cooch Behar	0.0	-100	0.0	-100	0.1	-95
Darjeeling	4.9	87	0.0	-100	1.4	29
East Sikkim	1.8	-64	0.0	-100	3.8	-20
Jalpaiguri	2.1	-57	0.0	-100	0.1	-93
Malda	0.0	-100	0.0	-100	0.0	-100
North Dinajpur	0.0	-100	0.0	-100	0.0	-100
North Sikkim	25.2	300	0.0	-100	13.6	240
South Dinajpur	0.0	-100	0.0	-100	0.0	-100
South Sikkim	0.0	-100	0.0	-100	1.9	-60
West Sikkim	5.5	-13	0.0	-100	2.0	-50

Legends

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

Annexure II

List of varieties

Tamil Nadu

Late Samba/ Thaladi rice: ADT 38, ADT 46, ADT 49, Improved white Ponni, IR 20, ASD 19, Paiyur1, TRY 1, TRY 3, CO 48, CO 49, BPT 5204 and CO 50

Direct seeded rice: (White Ponni or ADT 39)

Assam

Green gram: T-44, Kopergaon, K-851, ML-56, ML-131 etc.

Black gram : T-9, T-27, Pant U-19, T-122.

Radish : Pusa Deshi, Pusa Chetki, Pusa Himani

Cauliflower : Improved Japanese, Pusa Synthetic, Pusa Snowhall and Main Crop Patna.

Early maturity Cabbage varieties : Golden Acre, Pride of India, Pusa Mukht (Sel – 8).

Early maturity Knol Khol : White Vienna.

Winter brinjal : Pusa Kranti, Pusa Purple Long, Pusa Purple Round, Pusa Vairab, Pant Samrat

Meghalaya

Pigeon pea: short duration : UPAS-120, ICPL 87. long duration WB 20, Pusa 9 & Sarita.

Cabbage: H-139, Pride of India

Cauliflower: Meghalaya Local

Carrot: New Karoda, Nantesh

Radish: Local genotype

Broccoli: Puspa, Aiswarya

French bean: Naga Local

Pea: Arkel (for vegetables), TRC P8, TRC P9, Prakash, Rachna.

Potato: Kufri Joyti, Kufri Megha, Kufri Giriraj, Kufri Girdhari, Kufri Himsona, Kufri Himalini.

Pea: Arkel (for vegetables), TRC P8, TRC P9, Prakash, Rachna.

Tripura

Tomato: Trishul, Allrounder, T- 1408, T- 1458, Anup.

Cauliflower: CFL- 4048, Pusa early synthetic, Kamaya, Suhasihi.

Cabbage: BC- 76, Pusa Drum Head, Pusa Synthetic.

Broccoli: Everest, Ayeshwaria.

Odisha

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

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

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

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

West Bengal

Banana: Mortoman, Chapa, Kathali, Singapuri.

Tomato: Avinash-2, 448.

Cabbage: Pride of India, Pusa early, Kranti.

Cauliflower: Jawhar moti, Bharat Jyoti, Early banaras

Bihar

Shakarkand: Rajendra Shakarkand- 5, Rajendra Shakarkand-35, Rajendra Shakarkand-43, Rajendra Shakarkand-47, Kalmegh and Rajendra Shakarkand-92.

Pigeon Pea: arhar: Bahar, Pusa 9, Narendra Arhar 1

Urd: T-9, Pant U-19, Pant Urd 31, PDU-1

Radish: Pusa Chetki, Pusa Himani, Pusa Rashmi, Japani Saphed

Pointed gourd: Rajendra Parwal-1, Rajendra parwal-2, FP1 and 3

Boro rice: Gutum, Prabhat, Richaria, Dhanlaxmi, Saroj Rajendra Bhagvati, and R.A.U

Jharkhand:

Urd: T 9, Pant U 19, 30, 35 and Birsa urd 1

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

Arhar: Birsa Arhar (210 days), Bahar (240 Days) and ICPH 2671 (210 days),

Maize: short duration variety: Birsa Vikas Maize-2 and medium duration variety: Birsa Maize-1.

Madhya Pradesh

Gram: JG-130, JG-11, JG-315, JG-16

Wheat: Sujata, HW-2004, HI-1500

Winter Sugarcane: KJN 86-572, KJN 86-141

Green Pea: Arkel, PSM-3, Jawahar Pea 1, Jawahar Pea 2

Chickpea: J.G-11, J.G-74

Chhattisgarh

Gram: JG-16, JG-11, JG-74, Vaibhav

Linseed: RLC-92, Indira-32

Wheat: GW-273, Lok-1

Mustard: Pusa Bold

Jammu & Kashmir

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

Uttarakhand

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

Potato: Kufri- Jyoti, Ashok, Anand

Toria : Pant Toria-30, 303, 507 or local varieties.

Himachal Pradesh

Peas: Palam Triloki, Arkel, VL-7 and Matar Ageta

Late variety of Cauliflower: broccoli

East Uttar Pradesh

Cabbage: Imprabad Japani, Pusa chipali and Pusa kartiki

Radish: Japani white, Pusa chetakij, Hisar Muli No.1 and kalyanpur-1

Toria: T-9, T-36, Pant -30,303, B-9

Potato: Kuferi - Chandramukhi, Bahar

Mustard: Basati, Maya, Kanti, Urvashi, Narendra, Swarna-8, Narendra Ageti-4

Ageti Matar: Kashi - Nandini,Uday, Mukti, Arkel, Azad-3

West Uttar Pradesh:

Toria: Sangam, TL-17, 67

Ageti matar: Azad P-3, Arkel

Maharashtra

Madhya Maharashtra

rabi jowar: Selection-3, Phule Mauli, Phule Anuradha in light soil, Phule Chitra, Maldandi-35-1 in medium soil and Phule Vasudha, Phule Yashodha in black soil

Safflower: Bhima or Phule Kusuma

Marathwada

Jowar: Parbhani Moti or Parbhani Jyoti.

Gujarat:

Pea: Pusa Pragati.

Carrot: Pusa Rudhira and Pusa Kesar.