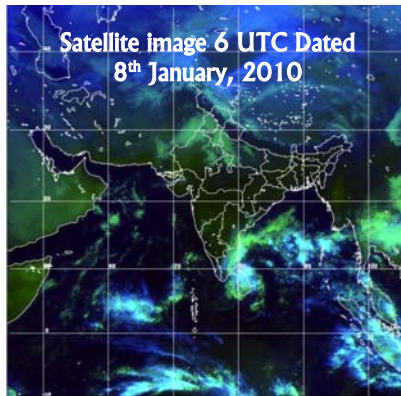




# National Agromet Advisory Bulletin

Thursday, 7<sup>th</sup> January (For the period 7<sup>th</sup> to 11<sup>th</sup> January, 2010)



## Rainfall Forecast valid upto 1430 hours IST of 10<sup>th</sup> January, 2010

- **Many Places:** Andaman & Nicobar Islands.
- **Few Places:** Tamil Nadu & Puduchery.
- **Isolated Places:** Jammu & Kashmir, Coastal Andhra Pradesh, Kerala, Lakshadweep.
- **Dry:** Gangetic West Bengal, Orissa, Jharkhand, Bihar, Himachal Pradesh, Rajasthan, Madhya Pradesh, Chhattisgarh, Gujarat Region, Saurashtra, Kutch & Diu, Maharashtra, Telengana, Rayalaseema, Karnataka.
- **Mainly dry Weather:** Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Sub-Himalayan West Bengal, Sikkim.

## Major features of weather forecast (upto 1430 hours IST of 10<sup>th</sup> January, 2010).

- Moderate to dense fog in the morning would occur over many parts of Indo-Gangetic plains during next 1-2 days.
- Cold wave condition over east Uttar Pradesh, Bihar, Jharkhand and Vidarbha would continue during next 1-2 days.
- No significant change in minimum temperatures over northwest and central India during next 1-2 days.
- Day temperatures would increase by 2-3°C over northwest and central India during next 2 days.
- Cold day conditions over parts of Haryana and Punjab will abate during next 24 hours.
- Dry weather conditions will prevail over most parts of the country.

## Weather Outlook (upto 1430 hrs IST of 12<sup>th</sup> January, 2010)

- Scattered rainfall likely over south peninsular India.
- Dry weather conditions will continue over remaining parts of the country.

## Advisories for cold injury in Jammu & Kashmir, Rajasthan, Haryana, Himachal Pradesh, West Uttar Pradesh, Delhi and Madhya Pradesh

- Farmers in Jammu & Kashmir, Rajasthan, Haryana, Himachal Pradesh, West Uttar Pradesh, Delhi and Madhya Pradesh are advised to undertake the following measures to safeguard the crops from cold injury:
  - Apply irrigation to the crops in the early morning to overcome adverse effects of low night temperature.
  - Arrange for burning farm waste materials around the field to reduce the impact of low temperature.
- To protect sensitive crops like mustard, rajmah, potato and gram from frost injury, spray dilute sulphuric acid @ 0.1% (1 litre H<sub>2</sub>SO<sub>4</sub> in 1000 litres of water) or thiourea @ 500 ppm (500 gm thiourea in 1000 litres of water) at flowering or on the day of forecast of frost.

## Advisories for the remaining States

- As there was no significant rain in the country during last week and mainly dry weather is likely to prevail in most of the States during next five days, farmers are advised to apply need based irrigation to the standing crops.

## Advisories for pest and disease

- Due to favourable weather condition, there are chances of pest and disease incidences in the following regions:
  - downy mildew, white rust and alternaria blight in mustard, maggots in field peas, collar rot and root rot in gram and stem rot in berseem in Jammu and Kashmir.
  - root rot and brown spot diseases in *boro* rice, early and late blight diseases in potato and fruit and shoot borer in brinjal in West Bengal.
  - leaf miner in *rab*i groundnut, powdery mildew in mango, Colletotrichum blight in Bengalgram, blast in *rab*i rice nurseries and hopper in sugarcane in Andhra Pradesh.
  - late blight in potato, painted bug and aphid in mustard, powdery mildew in pea, leaf and pod eating caterpillar in gram, alternaria blight in mustard, purple blotch and thrips in garlic and mealy bug in mango in Delhi.
- Farmers are advised to undertake plant protection measures, if required.

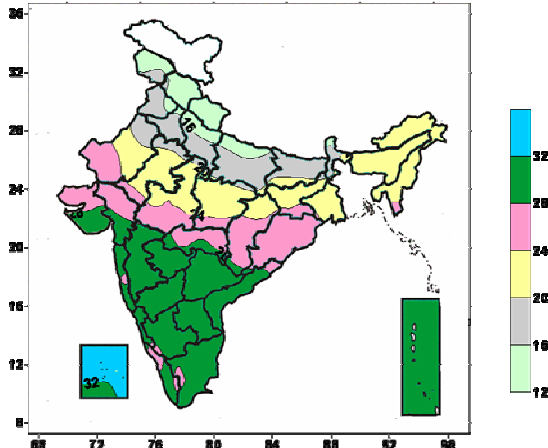
Issued by

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

The bulletin is also displayed in the website (<http://www.imdagrimet.org>) of the Division

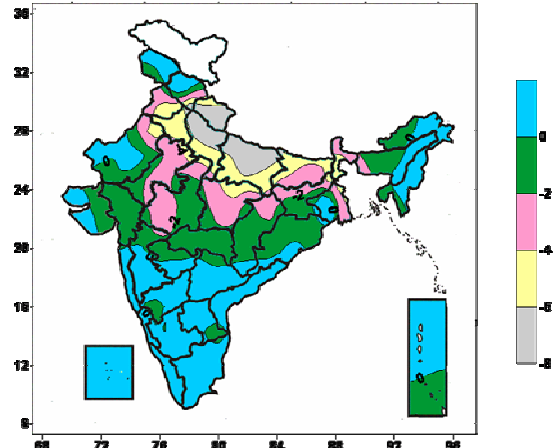
## Contour maps for the week ending 06.01.10

**Actual Mean Maximum Temperature (°C) in India for the week ending 06.01.10**



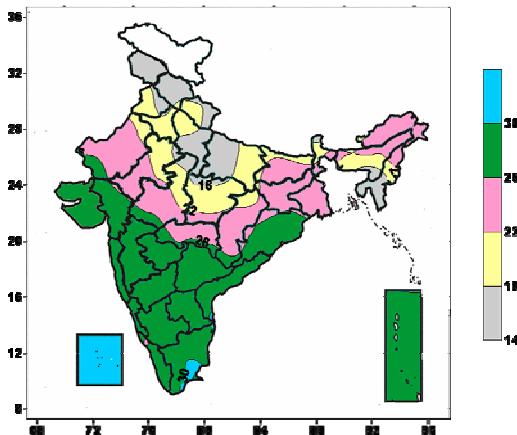
Actual Mean Maximum temperature ranged between 32°C and above over most parts of Lakshadweep Islands, 24 to 28°C over most parts of Gujarat, Saurashtra, Vidarbha, Chattisgarh, Orissa, some parts of Rajasthan, Madhya Pradesh, Jharkhand, Mizoram, Konkan, Kerala. South Interior Karnataka, Tamil Nadu, Coastal Andhra Pradesh, 20 to 24°C over most parts of Rajasthan, Madhya Pradesh, Jharkhand, Gangetic West Bengal, Northeast India, some parts of East Uttar Pradesh, Bihar, Chhattisgarh, Sub-Himalayan West Bengal, 16 to 20°C over most parts of Punjab, Haryana, Delhi, Uttar Pradesh, Bihar, Sub-Himalayan West Bengal, some part of Jammu & Kashmir, Himachal Pradesh, Rajasthan, Madhya Pradesh, 12 to 16°C over most parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Sikkim, some parts of Punjab, Haryana, Uttar Pradesh, 28 to 32°C over remaining parts of the country.

**Maximum Temperature (°C) Anomaly in India for the week ending 06.01.10**



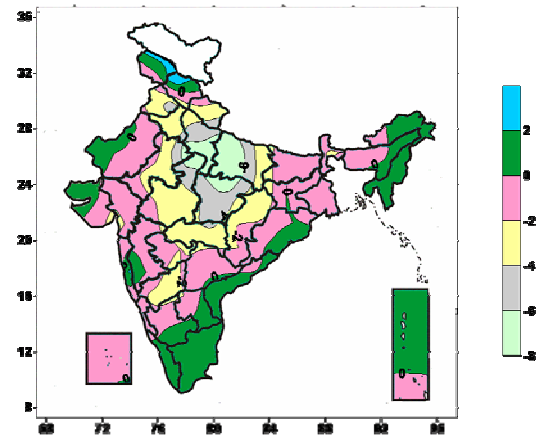
Actual Mean Maximum temperature anomaly ranged between -2 to 0°C over most parts of Gujarat, Saurashtra & Kutch, Vidarbha, West Madhya Pradesh, Chattisgarh, Orissa, some parts of Jammu & Kashmir, Himachal Pradesh, Punjab, North East India, Jharkhand, Gangetic West Bengal, East Madhya Pradesh, Rajasthan, Madhya Maharashtra, Marathwada, Andhra Pradesh, North & South Interior Karnataka, Tamil Nadu, Andaman & Nicobar Islands, -4 to -2 over most parts of East Rajasthan, Madhya Pradesh, Bihar, Sikkim, some parts of Himachal Pradesh, Punjab, West Rajasthan, Uttar Pradesh, Jharkhand, West Bengal, Assam, Chattisgarh, North Madhya Maharashtra, -6 to -4°C over most parts of Haryana, Delhi, Uttar Pradesh, some parts of Himachal Pradesh, Uttarakhand, Punjab, Rajasthan, Bihar, Sub-Himalayan West Bengal, Madhya Pradesh, -8 to -6°C over most parts of Uttarakhand, Uttar Pradesh, some parts of Himachal Pradesh, Haryana, 0°C and above over remaining parts of the country.

**Actual Mean Minimum Temperature (°C) in India for the week ending 06.01.10**



Actual Mean Minimum Temperature ranged between 30°C and above over most parts of Lakshadweep Islands, some parts of Coastal Tamil Nadu, 22 to 26°C over most parts of Rajasthan, West Madhya Pradesh, Vidarbha, Chhattisgarh, Bihar, Jharkhand, Gangetic West Bengal, Arunachal Pradesh, some parts of East Madhya Pradesh, Sub-Himalayan West Bengal, Assam, Meghalaya, Manipur, Orissa, 18 to 22°C over most parts of Punjab, Haryana, Delhi, East Madhya Pradesh, some parts of Himachal

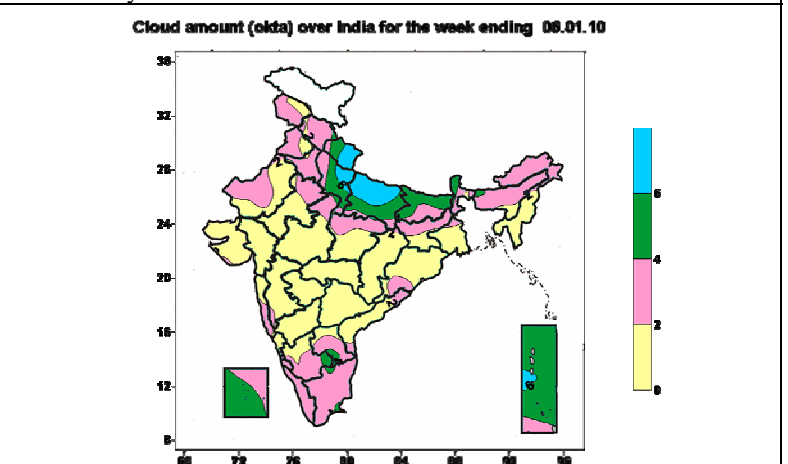
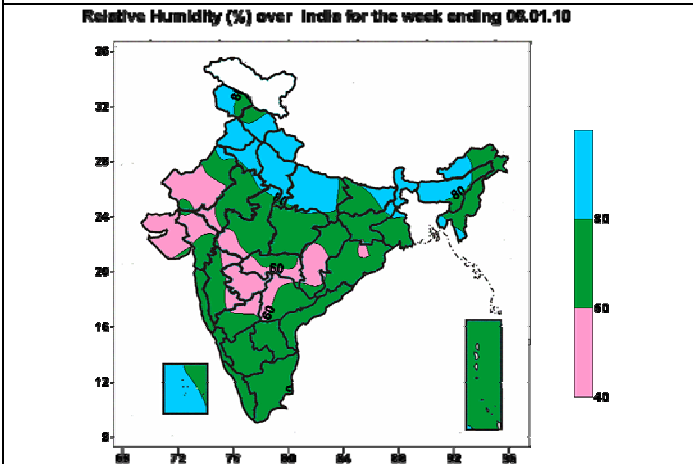
**Minimum Temperature (°C) Anomaly in India for the week ending 06.01.10**



Minimum Temperature anomaly ranged between 2°C and above over some parts of Jammu & Kashmir, Himachal Pradesh, 0 to 2°C over most parts of North East India, Kerala, Tamil Nadu, Coastal Andhra Pradesh, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Himachal Pradesh, West Rajasthan, Saurashtra & Kutch, Konkan, Madhya Maharashtra, South Interior Karnataka, Telangana, Raylaseema, Orissa, Jharkhand, -4 to -2°C over most parts of Punjab, Haryana, Delhi, East Rajasthan, Uttarakhand, West Madhya Pradesh, Vidarbha, Chhattisgarh, North Interior Karnataka, some parts of

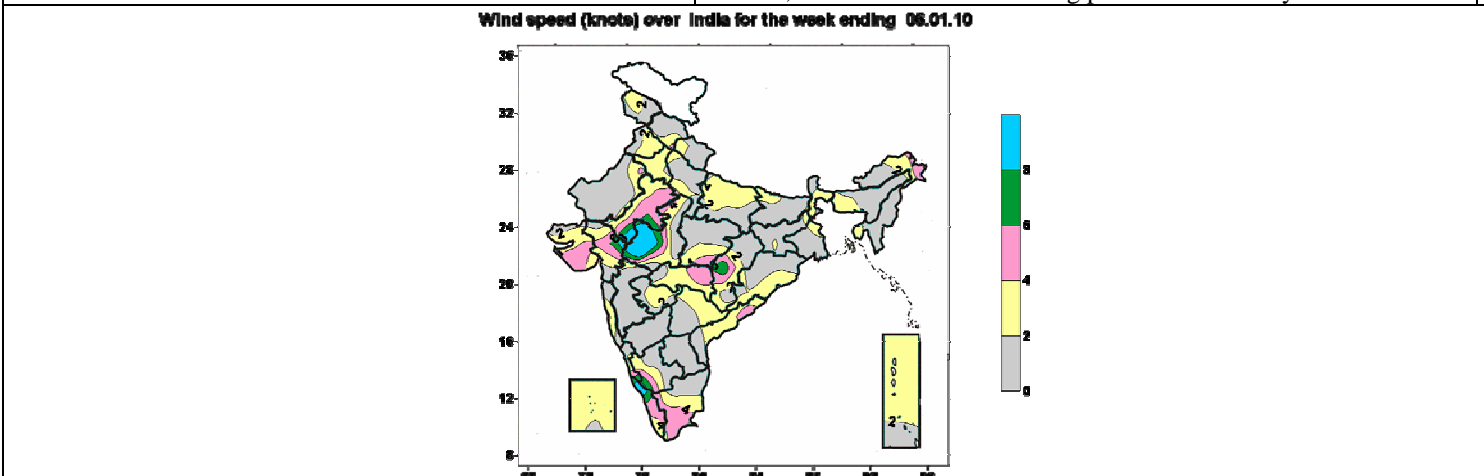
Pradesh, Uttarakhand, Uttar Pradesh, Bihar, Jharkhand, Chattisgarh, Assam, Meghalaya, Mizoram, West Madhya Pradesh, Rajasthan, 14 to 18°C over most parts of Jammu & Kashmir, Himachal Pradesh, Uttar Pradesh, Mizoram, Tripura, some parts of Punjab, Uttarakhand, Sikkim, Assam, Madhya Pradesh, East Rajasthan,

Himachal Pradesh, East Madhya Pradesh, Uttar Pradesh, Bihar, Jharkhand, Sub-Himalayan West Bengal, Marathwada, -6 to -4°C over most parts of East Madhya Pradesh, some parts of Uttarakhand, Punjab, Haryana, Uttar Pradesh, East Rajasthan, West Madhya Pradesh, Vidarbha, -8 to -6°C over some parts of Uttar Pradesh, Madhya Pradesh, East Rajasthan, -2 to 0°C over remaining parts of the Country.



Relative humidity between 80% and above over most parts of Jammu & Kashmir, Himachal Pradesh, Uttarakhand, Punjab, Haryana, Delhi, Uttar Pradesh, Sub-Himalayan West Bengal, Sikkim, Assam, Lakshadweep Islands, some parts of Rajasthan, Bihar, Jharkhand, Gangetic West Bengal, Mizoram, Tripura. 40 to 60% most parts of West Rajasthan, Gujarat, Saurashtra & Kutch, Marathwada, Vidarbha, Chattisgarh, some parts of East Rajasthan, West Madhya Pradesh, Madhya Maharashtra, Orissa, North Interior Karnataka, Telengana, 60 to 80% over remaining parts of the country.

Cloud amount 6 okta and above over most parts of East Uttar Pradesh, some parts of Uttarakhand, West Uttar Pradesh, Andaman & Nicobar Islands, 4 to 6 okta over most parts of Bihar, Sikkim, Lakshadweep, Andaman & Nicobar Islands, some parts of Himachal Pradesh, Uttarakhand, Uttar Pradesh, Assam, Rayalaseema, South Interior Karnataka, Tamil Nadu, 2 to 4 okta over most parts of Himachal Pradesh, Punjab, Haryana, Delhi, Assam & Meghalaya, Arunachal Pradesh, Goa, Rayalaseema, South Interior Karnataka, Kerala, Tamil Nadu, some parts of Jammu & Kashmir, Uttarakhand, Rajasthan, Uttar Pradesh, Bihar, Jharkhand, West Bengal, Madhya Pradesh, Orissa, Coastal Andhra Pradesh, Kutch, Konkan, Madhya Maharashtra, Coastal Karnataka, Lakshadweep, Andaman & Nicobar Islands, 0 to 2 okta over remaining parts of the country.






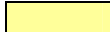


Wind speed ranged between 8 knots and above over some parts of East Rajasthan, Gujarat region, West Madhya Pradesh, Kerala, 6 to 8 knots over some parts of East Rajasthan, Gujarat, West Madhya Pradesh, Chhattisgarh, Coast Karnataka, South Interior Karnataka, Kerala, 4 to 6 knots over some parts of Rajasthan, Gujarat, Saurashtra & Kutch, Madhya Pradesh, Chhattisgarh, Arunachal Pradesh, Vidarbha, Coastal Andhra Pradesh, Coastal Karnataka, South Interior Karnataka, Kerala, Tamil Nadu, 2 to 4 knots over most parts of Punjab, Haryana, East Uttar Pradesh, Tripura, Coastal Orissa, Vidarbha, Coastal Andhra Pradesh, Lakshadweep, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Himachal Pradesh,

Uttarakhand, West Uttar Pradesh, Rajasthan, Bihar, Jharkhand, West Bengal, Assam & Meghalaya, Arunachal Pradesh, Gujarat, Saurashtra & Kutch, Madhya Pradesh, Chhattisgarh, Konkan & Goa, Madhya Maharashtra, Marathwada, South Interior Karnataka, Kerala, Tamil Nadu, 0 to 2 knots over remaining parts of the country.

### Comparison of weekly rainfall distribution (in % dep.) in different Met. Sub-divisions during past 5 weeks

Sub-division	Cumulative Rainfall for the period									
	9 <sup>th</sup> December		16 <sup>th</sup> December		23 <sup>rd</sup> December		30 <sup>th</sup> December		6 <sup>th</sup> January	
	Normal (mm)	(%) Dep.	Normal (mm)	(%) Dep.	Normal (mm)	(%) Dep.	Normal (mm)	(%) Dep.	Normal (mm)	(%) Dep.
A & N Islands	47.5	10	47.0	-63	19	-62	26.3	-88	20.3	119
Arunachal Pradesh	4.8	95	11.3	-98	4	-75	10.9	-97	7.5	-100
Assam and Meghalaya	1.6	-50	4.3	-98	1	-64	2.8	-55	2.2	-89
NMMT	0.9	-100	4.7	-100	1	-100	2.0	-100	1.8	-100
SH West Bengal & Sikkim	1.4	-85	3.9	-100	2	-73	1.9	-97	2.4	-39
Gangetic West Bengal	0.9	-100	2.5	-100	1	-86	1.9	-100	2.0	-100
Orissa	0.8	-100	2.1	-100	1	-65	1.0	-100	2.4	-100
Jharkhand	0.5	-100	1.2	-100	1	149	1.7	-100	3.2	-79
Bihar	0.1	-100	0.5	-100	1	-100	2.0	-100	2.7	-41
East Uttar Pradesh	0.6	-100	0.6	-96	1	-62	3.1	-69	3.8	-33
West Uttar Pradesh	0.8	-100	1.2	-86	1	-52	3.0	-74	4.0	-93
Uttarakhand	1.9	-100	6.3	-96	5	-100	7.9	-100	11.8	-74
Haryana, Chandigarh & Delhi	0.6	-100	1.4	-85	2	-100	2.7	-100	4.1	12
Punjab	1.1	-100	3.9	-100	4	-100	5.7	-100	5.0	-51
Himachal Pradesh	4.1	-100	10.5	20	11	-100	17.5	-100	17.2	-48
J & K	6.6	-94	20.8	-49	16	-68	37.5	-100	18.8	-54
West Rajasthan	0.2	-100	0.6	-94	**	-100	0.6	-100	0.9	-41
East Rajasthan	0.9	-100	0.9	-94	1	-84	0.5	-99	1.4	-82
West M. P.	1.4	-100	1.8	-100	2	534	1.3	-21	1.7	-92
East M. P.	1.9	-99	2.0	-100	1	506	2.3	-86	3.8	-57
Gujarat region	0.3	-100	0.8	-95	1	-100	0.1	-100	0.3	-60
Saurashtra & Kutch	0.1	-100	0.9	-100	**	-95	0.0	-100	0.4	-60
Konkan and Goa	1.3	-100	1.9	-100	1	-100	0.1	-100	0.3	-100
Madhya Maharashtra	1.2	-100	2.4	-100	2	145	0.5	-64	0.6	-98
Marathwada	1.6	-100	2.2	-100	1	423	1.0	57	0.7	-100
Vidarbha	1.2	-100	1.7	-100	1	156	2.3	19	2.2	-97
Chhattisgarh	0.9	-100	1.6	-100	1	-87	1.0	-100	2.4	-100
Coastal A. P.	8.5	-14	9.9	-75	3	270	1.9	-99	2.3	-100
Telangana	1.3	-100	1.5	-100	**	-84	0.7	159	0.7	-80
Rayalseema	11	-69	5.8	44	2	352	2.8	-93	1.2	-100
TamilNadu & Pondicherry	32.6	-51	16.7	140	14	203	11.1	-79	6.8	-99
Coastal Karnataka	3.5	-1	5.3	-100	1	-27	1.2	1842	0.6	606
N. I. Karnataka	1.7	-100	2.2	-100	1	113	1.0	1500	0.6	38
S. I. Karnataka	5.5	-70	3.5	-72	1	20	1.8	1202	0.7	291
Kerala	19.2	-49	9.3	-88	5	20	4.2	519	3.3	-73
Lakshadweep	20.9	52	12.3	-96	9	48	9.9	730	3.6	94

 (20 or more) excess rainfall  
 (-19 to +19) normal rainfall  
 (-20 to -59) deficient rainfall

 (-60 to -99) scanty rainfall  
 (-100) no rainfall  
 \*\* Data not available

## Zonewise Agromet Advisories

**NORTH WEST INDIA [J & K, H. P., UTTARAKHAND, PUNJAB, HARYANA, DELHI, UP]**

### Himachal Pradesh

- **Realised Rainfall:** There was no significant rainfall in the State except Kinnaur, Una districts which received normal rainfall during last week
- **Rainfall Forecast:** Dry weather is likely to prevail over the State
- **Major Rabi Crops:** Wheat (crown root initiation / early tillering), gram and lentil (early vegetative/ vegetative).
- **Advisory:**
  - Farmers are advised to undertake the following measures to safeguard the crops from cold injury.
    - Apply light and frequent irrigation to the crops in the early morning to overcome chilling injury.
    - Arrange for burning farm waste materials around the field to reduce the impact of low temperature.
  - Undertake weeding and apply first irrigation in early sown wheat, gram and lentil.
- **Major Seasonal Crop:** Fruit crops, Flower crops and Vegetables.
- **Advisory:**
  - Farmers are advised to prepare the pits for planting the winter plants like peacunut, walnut, almond, plum and peach. Farmers are advised to undertake field preparation and planting for new orchards.
  - Training and pruning work can be completed in tea. It is time for nursery raising of tea plants in polythene tubes. Do lopping of the tree in the tea orchards to have more sunlight.
  - It is time for planting the winter flowers annuals viz. calendula, aster, larkspur, dianthus, african daisy, stasis, lupines, petunia, flox, nicotiana, vanadium and torinia. Flowers can be raised in the pots, hanging pots, rocks etc. Keep the flower beds free from the weeds. To control the aphids, spray malathion @ 0.05%. Remove the apical shoot in winter annuals to have more side branches to cover the entire pot. It is time for sowing of bulbous flowers like fresia, tulips and nargis etc.
  - Undertake weeding, intercultural operations and top dressing of fertilizers.
  - It is also an optimum time for transplanting of strawberries in raised beds.
  - Undertake sowing of radish (var. Early Meno White, Japanese White, Chinese Pink and Pamp Hriday), peas (Palm Priya or Linclon) in the fields. Treat the seeds with 2.5 g Sevin or bavistin per kg of seeds before sowing of pea crop. Drench the crop with Dithane M-45 @ 2 g and Bavistin @ 1 g for the control of damping off of nursery.
  - As there was no significant rainfall in the State during last week and no significant rainfall is likely to occur, the farmers are advised to apply need based irrigation to vegetable and floricultural crops.
- **Plant Protection:** Weather conditions are favourable for mild incidences of –
  - leaf miner in citrus, spray 10 ml Matasystox or Malathion in 10 litres of water. Spray Streptocycline Sulphate 500 ppm solution for control of citrus canker. Remove the shoots below the graft or bud unions.
  - downy mildew in cruciferous vegetables, for control spray ridomil MZ @ 25 g per litre of water at 15 days interval. 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.
  - To control the root borer in apple, irrigate the basins after removing the upper soil with 10-15 liters of the solution of Chlorpyrifos 20 E.C. @ 5 ml per liter of water.
- **Animal Husbandry:** Feed pregnant and lactating cows and buffaloes with balanced feed including mineral mixture. The night temperature is low and the newly born calves may be protected from the cold. Provide the mineral mixture to the milch animals as per the schedule of 1 kg feed+50g mineral mixtures per 2 litres of milk. This schedule will maintain the reproductive ability of animals. It has been observed that dairy animals are deficient in mineral elements which are the sole reason of repeat breeding and other gyne related

diseases in animals. So ensure to give 50 g mineral mixture to animals daily. Ensure cleanliness in cows having advanced pregnancy to avoid mastitis.

### Uttarakhand

- **Realised Rainfall:** There was no significant rainfall except Rudraprayag district in the State which received normal rainfall during last week.
- **Rainfall Forecast:** Dry weather is likely over the State.
- **Major Rabi crops:** Wheat(early vegetative), mustard, lentil, pea, chickpea, rajmash(early vegetative)
- **Advisory:**
  - Due to expected dry weather conditions during this week, farmers having irrigation facilities are advised to give second irrigation in wheat crop.
  - As dry weather is expected during this week, hence farmers are advised to harvest matured toria crop.
  - Due to expected dry weather condition, farmers are also advised to complete sowing of lentil with available varieties under sufficient moisture in soil.
  - Provide irrigation, weeding and thinning in mustard crop and top dress 1/2 kg Urea per Nali if not done so far.
  - Undertake weeding and intercultural operations in other standing crops like pea, chickpea, rajmash etc. for their better growth.
- **Major Seasonal Crop with stage:** Sugarcane ratoon (planting/early vegetative), cabbage, garlic, tomato (vegetative), French bean (early vegetative).
- **Crop Condition:** Good
  - **Advisory:**
    - Farmers are advised to undertake weeding in early sown garlic crop and give irrigation for better crop growth. However, if irrigation facilities are not available, then put straw mulch in between rows for moisture conservation.
    - Continue digging of matured potato crop as per maturity of tubers as dry weather is expected.
    - Remove weeds from other standing vegetable crops and keep grass lying on the ground for conserving soil moisture. If pods of vegetable pea are ready then plug them and sent to the nearby market. Apply irrigation in crops including coriander, spinach, radish, menthe etc. under low soil moisture.
    - Apply need based irrigation to the standing vegetable crops like coriander, spinach, radish, mentha etc.
- **Plant Protection:** Weather conditions are favourable for mild incidences of –
  - white rust in pea is possible, spray 0.5 % solution of Carbendazim immediately at an interval of 10 days.
  - aphids in mustard. If the aphids are seen in 10 % population, then spray 200 SL Emidachlorpid @ 3 ml per 10 litre of water.

### Punjab

- **Realised Rainfall:** There was no significant rainfall in the State except Bhatinda, Fatehgarh Sahib, Ludhiana, Nawashahar districts which received excess rainfall and Jalandhar, Patiala districts received normal rainfall during last week
- **Rainfall Forecast:** Dry weather is likely over the State.
- **Major Rabi Crops with stage:** Wheat(early vegetative), toria (seed formation), raya, rapeseed and mustard (early vegetative), potato(vegetative)
  - As there was no significant rainfall in most of the districts and dry weather is likely for the next five days, the farmers are advised to apply irrigation to the standing *rabi* crops.
  - Farmers are advised to give light irrigation to the wheat crop. Apply second dose of 55 kg urea per acre to wheat before first irrigation.
  - Undertake intercultural operations in early sown wheat, raya, taramira, lentil and chickpea.
  - To early sown raya, apply 45 kg urea per acre with first irrigation.

- Weeding operation in timely sown rape seed and mustard crops may be undertaken.
- Complete harvesting of matured crops of toria.
- Farmers are advised to undertake the first cutting of Barseem. Conserve the surplus maize fodder as silage at milk dough stage.
- Farmers are advised to undertake sowing transplanting of gobhi sarson, which is more profitable than direct sowing. Complete transplanting of tomato seedlings. Provide sarkanda/ kahi/ rice straw to save the plants from frost. If the growers have not properly covered young trees as well as the newly planted fruit trees with thatches or kullies made of sarkanda or farm waste materials, then they may do so without any further delay to save them from frost. The South-west side should be left open to allow sufficient sunlight.
- Complete sowing of autumn potato crop particularly for seed production during this period. Before sowing treat the potato tubers in 0.25% solution of Emisan or Monceren (250 g or ml in 100 litres of water) for 10 min. against black scurf of potato. Discard and destroy late blight infected tubers. Keep the soil wet at tuberization to minimize the scab infection.
- This is the right time for sowing of English varieties of Radish (Japanese White, white Icicle), Turnip (Golden Ball), transplanting of 4 to 6 week old seedlings of cabbage, Chinese cabbage and late season cauliflower.
- Undertake transplanting of tomato.
- **Advisory for Plant Protection:** Weather conditions are favourable for mild incidences of –
  - Aphid in potato. Keep watch on aphid population as soon as it reaches 20 aphids per 100 leaves build up, the haulms should be cut down. Keep the soil wet at tuberization to minimize the scab infection.
  - aphid in sarson/ raya, spray the crop with 40 g Actara 25 WG or 400 ml of Metasystox 25 EC or Rogor 30 EC or Thiodan 35 EC or Ekalux 25 EC or 600 ml of Dursban 20 EC in 100 litres of water per acre.
- **Animal Husbandry:** Watch the animals in the early and late hours of the day especially at the time of milking. Provide clean, dry and good bedding especially for young calves to protect from cold weather. Keep the animals in dry place and change the bedding material. Provide clean, dry and good bedding especially for young calves and newly born should be given care in cold weather, keep them warm. Keep the animals under roof at night time and in the sun during day. The protein in the concentrate can be reduced 2-3 percent. Deworming should be done in the calves especially against Ascariasis/Malap

## Haryana

- **Realised Rainfall:** The State received no significant rainfall except Bhiwani, Hissar, Jind, Rohtak, Sirsa districts received excess rainfall and Chandigarh, Sonapat districts received normal rainfall during last week.
- **Rainfall Forecast:** Dry weather is likely over the State.
- **Major Rabi Crops:** Wheat(Crown root initiation/early vegetative), raya and mustard(early vegetative)
- **Advisory:**
  - As there was no significant rainfall in most of the districts and dry weather is likely for the next five days, the farmers are advised to apply irrigation to the standing *rabi* crops.
  - Farmers are advised to undertake the following measures to safeguard the crops from cold injury.
  - Apply irrigation to the crops in the early morning to overcome chilling injury.
  - Arrange for burning around the field using farm waste materials to reduce the impact of low temperature.
  - Complete planting of winter sugarcane, varieties: COH 56, COH 64, COH 99, COH 119, CO 7717 and COS 8436. Apply 45 kg Urea or 80 kg Kisan Khad and 125 kg Single Super Phosphate.
  - Complete the sowing of barley with certified seed of BG-25, BH-75 and C-164 under timely sown irrigated conditions and C-138 in rainfed conditions as earliest.
  - Apply the irrigation in timely sown raya/mustard crop.



- **Major Seasonal crop with stage:** Spring sugarcane (early vegetative/vegetative), vegetable crops (vegetative), cotton (boll formation)
- **Crop Condition:** Good
- **Advisory:**
  - Undertake hoeing and weeding and apply the remaining dose of nitrogen fertilizer to the sugarcane.
  - The weather conditions are ideal for sowing early varieties of vegetables. Continue sowing “desi” varieties of radish (Punjab Pasand & Punjab Safed), turnip (L-1 & 4-white) and carrot (No. 29 PC-34 and Sel. 21), pea, potato and palak (Punjab Green). Transplant fully developed seedlings (4-6 week old) of main season varieties of cauliflower. Sowing of late season varieties of cauliflower i.e. Snow-Ball-16, Pusa Snow ball 1 & Pusa Snow ball K-1 can be continued.
  - This is suitable time for planting of evergreen fruit plants like sweet orange, mandarin, lime, lemon, guava and ber. For checking pre-harvest fruit drop, spray the trees with 10 ppm of 2, 4-D and 0.3% of Zinc sulphate. In citrus, leaf miner can be checked by spraying 500 ml of Sumicidin 20 EC or 1000 ml Ripcord 10 EC or 1250 ml Hostathion 40 EC in 500 litres of water. In grapes, spray the vines with Bavistin @ 400g/400 litres of water to control anthracnose.
  - Farmers are advised to undertake weeding and hoeing in cotton and intercultural operations in tomato, onion and chilli.
- **Advisory for Plant Protection:** Weather conditions are favourable for mild incidences of –
  - Saw fly and burgada (Dholia) in younger plants of mustard, to control spray 200 ml malathion 50 EC or 400 ml endosulphan 35EC in 200 lt. of water/acre.
  - bacterial blight in guar, farmers are advised to spray the crop with 400ml blitox and 30 grams of streptocyclin in 200 liters of water per acre.
- **Animal Husbandry:** Farmers are advised to protect animals against from cold winds. Farmers are advised to give the 50grams Iodized salt and 50 to 100 grams mineral mixture daily to keep them healthy.

## Delhi

- **Realised Rainfall:** The State received scanty rainfall during last week.
- **Rainfall Forecast:** Dry weather is likely over the State.
- **Major Rabi Crops:** Wheat (crown root initiation / tillering); pea and gram (flowering); vegetable crops (vegetative).
- **Advisory:**
  - Light irrigation is advised in pea and gram crop which are in flowering stage. This will protect the crops against probable cold injury.
  - Thinning and weeding is recommended in mustard crop.
  - First irrigation should be given to late sown wheat crop if it is 22-23 days old. After 3-4 days of irrigation broadcasting of last dose of nitrogenous fertilizer is advised. In timely sown wheat crop, present conditions are suitable for second irrigation as crop is in crown root initiation stage. After this stage tillering starts.
  - Sowing of seeds for early crop of sponge gourd, cucumber and sweet melon should be done at the earliest.
  - Present temperature is highly favourable for transplanting of onion. Transplanting should be made in small plots as it facilitates the required light irrigation. Application of 20-25 tonnes per hectare of fully decomposed cow dung should be done. Seedling should not be more than six weeks old. 20 kg Nitrogen, 60-70 kg phosphorus and 80-100 kg of potash should be applied as basal dose. Depth of transplanting should not be too deep.
- **Plant Protection:** Weather conditions are favourable for mild incidences of –
  - late blight in potato, when symptoms appear spraying of Redomil @ 3 grams per litre of water is advised.

- painted bug and aphid in mustard, uprooting and burying of heavily aphid infested stray plants is advised.
- powdery mildew in pea, dusting of sulphur @ 25-30 kg per hectare is advised. Spraying of Sulphex @ 30 kg per hectare mixed in 1000 litre of water may also be done.
- leaf and pod eating caterpillar in gram, spraying of Endosulfan 35 EC @ 1.25 litre mixed in 650-700 litre of water is advised.
- alternata blight in mustard, to control this disease spraying of Dithane Z-78 or Dithane M 45 at recommended dose is advised.
- purple blotch disease and attack of thrips in garlic, on detecting the duo, spraying of Mancozeb (2g / litre) mixed in Confidor (1ml / litre) along with a sticking agent is advised.
- young nymphs of mealy bug in mango trees, to discourage climbing, wrap 25-30 cm alkathene strap around the mango trunk at a height of 0.5 metre above the ground level. Ploughing of the basin adjacent to the mango tree helps in destruction of eggs of mealy bug and thus helps to reduce pest population.

### Uttar Pradesh

- **Realised Rainfall:** The most of the district of East Uttar Pradesh received no significant rainfall except Allahabad, Ambedkar Nagar, Banda, Basti, Faizabad, Fatehpur, Pratapgarh, RaiBareilly, Sultanpur districts which received excess rainfall and Azamgarh, Varanasi received normal rainfall during last week. West Uttar Pradesh received no significant rainfall during last week.
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.
- **Major rabi crops:** Wheat(crown root initiation/early vegetative), maize, gram, pea, and lentil(early vegetative).
  - As cold wave conditions continue to prevail over parts of East Uttar Pradesh and dry weather is likely for the next five days, the farmers are advised to apply light and frequent irrigation to the standing *rabi* crops. Also arrange to make smoke around the field and light watering may be done.
  - Weeding and hoeing, and top dressing of recommended amount nitrogen may be done in early sown wheat and to control broad leaf weeds apply 2, 4 – D sodium salt @ 625gm/ hectare. To control Gehunsa / Jangali Jai, use Isoproturon 50% @ 1.5 kg/ hectare and apply fertilizers on the basis of soil testing and use bio fertilizers Azetobactar and P.S.B to increase the fertility of soil.
  - Undertake weeding, intercultural operation and top dressing in barley, gram, pea, rai, mustard and lentil.
  - Weeding, hoeing, watering as per requirement, application of recommended fertilizers may be done in pea, lentil, winter vegetables, vegetable pea , turmeric, potatoes, mango, lemon, mustard, alsic crops.
- **Major Seasonal Crop with stage:** Sugarcane (grand growth) and vegetables (vegetative/fruitle), mango (fruit setting).
- **Crop Condition:** Good
- **Advisory**
  - Undertake weeding, intercultural operations and application of fertilizers in the standing crops like sugarcane, vegetables and mentha.
  - Undertake first cutting of fodder barseem.
  - Sowing of garlic may be done after purification of seeds at the seed rate 500- 700 kg seeds/ hectare at distance 15 x 7.5 cm.
  - Complete the sowing of winter crop of sugarcane at earliest after purification of seeds by Egelol.
- **Plant Protection:** Weather conditions are favourable for mild incidences of
  - sawfly in mustard, spray the solution of Endosulphon 35 EC @ 1.25 litre per hectare in 600 – 800 litre of water.
  - mal formation disease in mango, spray the solution of Naphthalene Acetic acid @ 200 ppm or 4ml. Planofix in 9 litre of water.
  - cankers disease in lemon, spray the solution of Blitox 3-4 gram/litre of water.
  - fruit borer in tomato and brinjal, spray the solution of Carbaryl @ 2 g / litre of water.

## J & K

- **Realised Rainfall:** The State received deficient/scanty rainfall except Anantnag, Pulwama districts which received normal rainfall during last week.
- **Rainfall Forecast:** Isolated rain/thundershowers is likely to prevail over the State.
- **Major Rabi crops:** Wheat, barley, brown sarson (early vegetative/vegetative) Vegetables (vegetative/flowering/ fruiting).
- **Advisory:**
  - Farmers are advised to undertake the following measures to safeguard the crops from cold injury.
    - Apply light and frequent irrigation to the crops in the early morning to overcome chilling injury.
    - Arrange for burning around the field using farm waste materials to reduce the impact of low temperature.
  - As rainfall is not likely over the State during next 5 days, farmers are advised to apply irrigation to the standing crops.
  - Undertake intercultural operations, application of fertilizers and pesticides in wheat, mustard and other cole vegetable crops.
  - Weed control application in early sown wheat crop by hand hoe or apply isoproturon @ 0.75 a.i.+2,4-D ethyl ester @500ml /ha for control of both types of weed ( broad & narrow leaves), when crop is 30-35 days old.
  - Undertake top dressing of cauliflower, knoll-khol, potato, spinach, methi and garlic @ 60, 50, 20, 20, 20 and 20 kg/ha. Rouging of virus effected plants from brinjal, tomato, cauliflower and cabbage crop.
  - Harvest early variety of sweet orange. Remove the stock sprout, suckers and water sprout from budded/grafted plants.
  - Undertake hoeing and weeding in transplanted crops like cabbage, cauliflower, kale and other standing crops.
  - Undertake hoeing and earthing up operation in potato, cabbage, cauliflower and main season knoll-khol after current spells of rain.
- **Plant Protection:** Weather conditions are favourable for
  - downy mildew, white rust and alternaria blight in Mustard; the lower infected maturing leaves of early crop may be clipped and destroyed by burning. Spray Ridomil MZ @ 0.2% or Mancozeb @ 0.2 % at 15 days interval.
  - maggots in field peas, apply carbofuran 15-20 kg / ha followed by light irrigation.
  - collar rot and root rot in gram, rogue out the affected plant and drench with thiram or captan @ 2g / l of water in the affected patch of the field.
  - stem rot of Berseem, withhold irrigation for a few days after each cutting and give one spray of carbendazim 50 WP @ 0.1 %.

## Rajasthan

- **Realised Rainfall:** The State received no significant rainfall except Sirohi, Barmer, Jalore districts which received excess rainfall during last week.
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.
- **Major Seasonal Crop with stage:** vegetable crops (flowering / fruiting / harvesting)
- **Crop Condition:** Good
- **Advisory:**
  - Farmers are advised to undertake the following measures to safeguard the crops from cold injury.
    - Apply irrigation to the crops in the early morning to overcome chilling injury.
    - Arrange for burning around the field using farm waste materials to reduce the impact of low temperature.
  - To protect sensitive crops like mustard, Rajmah, potato, gram from frost attack, spray dilute sulphuric acid @ 0.1% (1 litre H<sub>2</sub>SO<sub>4</sub> in 1000 litre water) or thiourea @ 500 ppm (500 gm thiourea in 1000 litre

water) at flowering stage of these crops or on the day of forecast of frost or give light irrigation to these crops. Sudden drop in temperature, very low wind velocity and clear sky are indication of frost attack. As dry weather is likely over the state for the next five days, apply irrigation to mustard and other rabi crops.

- Undertake intercultural operations in sweet gourd, cucumber, pumpkin, bitter gourd, tinda, tomato and ladies finger.
- Sow seeds in nursery for raising seedling of autumn vegetables. Use following improved varieties for nursery sowing: Tomato: Pusa Rubi, Pusa Early and Vihar. Brinjal: Pusa Summer Prolific Round, Pusa Summer Prolific Long, Meghdoot, Navin and Arka Bahar, Cucumber: Balam and Pusa Sahyog. Smooth gourd: Chikni and Nasdar.
- Start weeding in gram and mustard crops.
- Right time for giving second irrigation in normal sown wheat crop at tillering stage (40-45 DAS) & first irrigation in late sown wheat at crown root initiation stage (20-23 DAS).
- **Animal Husbandry:**
  - To protect milch & infant animals from cold, cover the door of animal house and wrap jute bag around animal back. Keep litter dry everyday in Ajmer, Dausa, Tonk and Jaipur.
  - Due to fall in temperature there are chances of cold winds, protect animals by putting curtains in animal sheds. Vaccinate animals against FMD and BQ in consultation with local veterinarian. Arrange for curtains in poultry in Bharatpur region.
- **Plant Protection:**
  - Weather conditions are favourable for powdery mildew in vegetables and fruits crops; spray 1% kerathane or sulphur (WP) @ 2 gm/litre of water.
  - Due to cloudy weather in past week, mustard crop may be affected with aphid insect attack. Dust methyl parathion 2% or Endosulfan 5%, @ 25 kg per hectare. If facility of water exists, then spray Endosulfan 35 EC 1.5 ml per litre water. Repeat spray if problem persists.

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

### **Bihar**

- **Realised Rainfall:** The State received no significant rainfall except Muzaffarpur, Patna, Saran districts which received excess rainfall during last week.
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.
- **Major Rabi Crops:** Wheat (early vegetative), maize, gram, pea, and lentil (early vegetative).
  - As cold wave conditions continue to prevail over parts of the State and dry weather is likely for the next five days, the farmers are advised to apply light and frequent irrigation to the standing *rabi* crops.
  - Weeding and hoeing, and top dressing of recommended amount nitrogen may be done in early sown wheat and to control broad leaf weeds apply 2, 4 – D sodium salt @ 625gm/ hectare. To control Gehunsa / Jangali Jai, use Isoproturon 50% @ 1.5 kg/ hectare and apply fertilizers on the basis of soil testing and use bio fertilizers Azetobactar and P.S.B to increase the fertility of soil.
  - Undertake weeding, intercultural operation and top dressing in barley, gram, pea, and lentil.
  - Farmers are advised to provide first irrigation to wheat sown in 2nd week December at CRI stage (21 to 25 days after sowing) and apply adequate nitrogenous fertilizer @ 40kg N/ha after first irrigation. For control of weeds spraying of Isoproturon @ 1kg a.i./ha dissolve in 700 to 800 liters of water is advised.
  - Farmers are advised to provide the 2<sup>nd</sup> irrigation to wheat sown in 1<sup>st</sup> week of November. In Oat provide irrigation and last dose of nitrogen for better growth and yield.
  - Provide irrigation, weeding and earthing up in rabi maize crop.
  - Farmers are advised to provide the irrigation in potato at the interval of 10 to 15 days to protect by cold weather.
  - Prepare the field for sowing of spring planted sugarcane, summer vegetables and fodder crops.

- **Plant Protection:** Weather conditions are favourable for mild incidences of
  - aphid in mustard and rai, apply metasystox (25 EC), Monocrotophos @ 2gm per liter of water to protect the crop.
  - late blight in potato, spray Indofil M-45 or Ridomil @ 2gm/liter of water for control of late blight of potato.
  - powdery mildew in peas. Apply Sulfex @2gm/liter of water or Bavistin @1gm/ liter of water or Kara than 1gm /liter of water for control of the disease.
  - stem borer, pod borer in peas, gram. Spray the insecticide like Endosulphan (35EC) @1.5 ml/liter of water for control at 15 days of intervals.
- **Major Seasonal Crop with stage:** Sugarcane (grand growth) and vegetables (vegetative/fruited), mango (fruit setting).
- **Crop Condition:** Good
- **Advisory**
  - Undertake weeding, intercultural operations and application of fertilizers in the standing crops like sugarcane, vegetables and mentha.
  - Complete sowing Barseem at the earliest and undertake first cutting of fodder.
  - Sowing of garlic may be done after purification of seeds at the seed rate 500- 700 kg seeds/ hectare at distance 15 x 7.5 cm.
  - Complete the sowing of recommended varieties of gram, pea and lentil and other pulses crops in sufficient moisture at the earliest.

## Jharkhand

- **Realised Rainfall:** There was no rainfall during last week in the State.
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.
- **Major Rabi Crops:** rai, toria, gram, peas, potato, mustard(early vegetative)
- **Crop Condition:** Good
- **Advisory:**
  - As cold wave conditions continue to prevail over parts of the State and dry weather is likely for the next five days, the farmers are advised to apply light and frequent irrigation to the standing *rabi* crops.
  - Apply first irrigation in wheat crop at 20 to 25 days after sowing and second irrigation after 40 to 45 days after sowing. Apply second irrigation to crops sown in the month of November and third irrigation may be given at the interval of 15 to 20 days. Rest of the urea may be given before flowering.
  - Undertake weeding, intercultural operations and top dressing in early sown *rabi* crops.
- **Major Seasonal Crop with stage:** Sugarcane (vegetative/grand growth).
- **Crop Condition:** Good
- **Advisory:**
  - Undertake sowing of Cabbage varieties in Early type – Golden acre, Early drum head, Pride of India. Late type – Late drum head Cauliflower Varieties are – Early – Pant Early, Pusa katki, Pusa Dipali. Seed rate is 600 – 700 gm/hactare.
  - Farmers who seeded potato crops in early November may apply urea 50 kg /acre. Farmers are advised to give irrigation at 10 to 15 days interval. Farmers who have taken early potato may go for onion in fallow land. Irrigate the crop to protect the crops from cold.
  - At the time of flowering of mustard, apply urea 20 to 25 kg/acre. Apply first irrigation at the time of flowering and second irrigation at pod formation.
- **Plant Protection:** Weather conditions are favourable for mild incidences of
  - aphid in mustard and rai, apply metasystox (25 EC), Monocrotophos @ 2gm per liter of water to protect the crop.

- powdery mildew in early pea. Spray Cairathane @ 1ml/litre of water or sulfex 3gm/litre of water.
- blight disease in tisi, spraying of mancozeb @ 2ml/litre of water is recommended.
- leaf folder in arhar, spray Endosulfan @ 2ml/litre of water. To protect the plant from aphid spray the plant with Methyl Demeton @ 1.0 ml/litre of water.
- Tikka disease in late sown groundnut. Farmers are advised to spray Sitara @1 ml/ litre of water.

### Orissa

- **Realised Rainfall:** There was no rainfall during last week in the State.
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.
- **Major *rabi* Crops:** wheat (crown root initiation/vegetative), pulses, mustard, sunflower, groundnut (early vegetative/vegetative)
- **Advisory:**
  - As there was no rainfall in the State during last week and dry weather is likely to prevail over the State during next five days, apply irrigation to the *rabi* crops.
  - Apply first top dressing @ 50 % N of the recommended dose at CRI stage of wheat.
  - Undertake weeding, intercultural operations and application of fertilizers of *rabi* pulses like lentil, field pea and chickpea.
  - Go for weeding and hoeing in groundnut. Broadcast 100 kg Gypsum or side dress 50 Kg/ha. Irrigate the crop if required.
  - Undertake nursery sowing of summer rice and complete transplanting within January. Select varieties among Khandagiri, Lalat and Surendra etc. 10 decimal area is sufficient for nursery sowing for one acre planting.
  - **Major Seasonal Crop with stage:** Sugarcane (early vegetative), vegetables (fruiting / harvesting), onion (vegetative).
- **Crop Condition: Good**
- **Advisory:**
  - Undertake transplanting of cole crop at 3-week stage.
  - Undertake weeding, intercultural operations and application of fertilizers.
- **Plant protection:** Weather conditions are favourable for the attack of leaf eating caterpillar in vegetable crops. Spray Endosulfan @ 2 ml/l to control.
- **Animal Husbandry:** calf and kids are susceptible to respiratory infection mostly pneumonia. Provide warm and comfortable housing to animals. Now-a-days, poultry birds are prone to respiratory infection and CRD (Chronic Respiratory Diseases). Provide comfortable warm housing and good ventilation. In case of disease outbreak, therapeutic measures are to be taken up. Vaccination for FMD (Foot and Mouth Disease) of animals is to be taken up. In case of disease outbreak, strict isolation of affected animals should be done.

### West Bengal

- **Realised Rainfall:** Mainly dry weather prevailed during last week in the State.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the State.
- **Major Crops:** *Boro* rice, vegetables, mustard.
- **Crop Stage:** Sugarcane (vegetative), vegetable crops (vegetative / flowering), mustard (flowering / pod formation), *boro* rice (seedling).
- **Crop Condition: Good**
- **Advisory:**
  - As night temperature is low, the young seedlings of *boro* rice should be applied with irrigation water during night to protect the seedlings from low temperature and fog and drain out the water in the next morning.

- As there was no significant rain during last week and mainly dry weather is likely to prevail, apply irrigation to mustard crop.
- Prepared the main field by 3-4 times ploughing for chilli cultivation. The recommended fertilizer doses are 1.5-2 tones compost, 20 kg Urea, 40 kg SSP and 15 kg MOP per bigha as basal application. Seedlings are transplanted 50 x 50 cm from plant to plant and line to line distance. Seedlings are planted along the water line on one side of the ridges on afternoon and a light watering is given to take a quick foothold.
- **Plant protection:** Weather conditions are favourable for mild incidences of –
  - root rot and brown spot diseases in *boro* rice seedlings in Coastal Saline Zone, spray the nursery with Ediphenphos 50 EC @ 1ml or Carbendazim 50WP @ 1gm or Hexaconazol 5% SC @ 1.5ml per litre of water at 7 days intervals after the disease symptoms are appeared. Thirty litre of spray materials is required for spraying 10 deci. seedbed. Spraying should be done after drain-out the water.
  - early and late blight disease in potato, spray the crop at afternoon with Copper oxicleoride @ 4 gm/litre or Cymoxnil 8% + Mancozeb 64% @ 2.5 gm per litre of water at 7-10 days intervals.
  - fruit and shoot borer in brinjal in New Alluvial Zone, apply carbofuran (3 kg per bigha) or cartap (1 gm per lt of water) to control the pest.

### Sikkim

- **Realised Rainfall:** The State received no significant rainfall during last week.
- **Rainfall Forecast:** Mainly dry weather is likely over the State.
- **Major crops:** (a) **High hills (1500 to 2000 m): Large Cardamom:** Harvesting/ Nursery Sowing, **Rabi Vegetables:** Late Vegetative, **Wheat:** Tillering/Active Tillering. (b) **Medium hills (1000 to 1500 m): Large Cardamom:** Harvesting/ Nursery Sowing, **Rabi Vegetables:** Late Vegetative, **Ginger:** End Harvesting, **Rabi Potatoes:** Vegetative/Tuberization, **Mustard:** Vegetative/ Flowering, **Wheat:** Tillering/Active Tillering. (c) **Low Hills (Below 1000 m): Large Cardamom:** Nursery Sowing, **Rabi Vegetables:** Late Vegetative, **Ginger:** End Harvesting, **Rabi Potatoes:** Vegetative/Tuberization, **Mustard:** Vegetative/Flowering **Wheat:** Crown Root Initiation..
- **Crop Condition:** Good
  - **Advisory:**
  - Harvesting of cardamom may be continued in high altitude area .Maturity may be assessed when the capsule of the top most spike turn dark brown and when the capsule come out easily while pulling.
  - Undertake intercultural operations in wheat, mustard and potato to keep the field weed free.
  - Harvesting of orange fruits should be done by tree fruit harvester or by hand plucking without damaging the trees.
- **Plant protection:**
  - Chirke and Foorkey infected cardamom plants may be destroyed by uprooting and buried in the pits at regular intervals.
  - Regular inspection may be carried out to observe caterpillar/shoot borer/shoot fly incidence, if any, and may be hand picked and destroyed mechanically.

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

#### Assam

- **Realised Rainfall:** Mainly dry weather prevailed during last week.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail over the State.
- **Major Rabi Crops:** Wheat (crown root initiation / early tillering), potato (vegetative / tuber formation), pea, vegetables and mustard (vegetative / flowering / pod formation).
- **Advisory:**
  - As night temperature is low, the young seedlings of *boro* rice should be applied with irrigation water during night to protect the seedlings from low temperature and drain out the water in the next morning.

- Undertake weeding in 20-25 days old wheat crop followed by top dressing with urea. Apply irrigation to the crops as there is no rain for last few weeks.
- Second earthing up should be done in 75-80 days old potato crop. This should be followed by adequate irrigation.
- As there was no significant rain during last few weeks, apply irrigation to tomato, mustard, pea etc.
- Due to prevailing dry weather arrange for Pitcher drip irrigation in coconut and areca nut for the ensuing period. Alternately after irrigation, mulch the base of the palm with dry hyacinth or with dry straw.
- This is ideal time for sowing of late cole crop seedlings. Some of the popular varieties of late Cole crops are Pusa Snow Ball K-1 and Snow Ball 16 for cauliflower, Drum Head for Cabbage and Purple Viena for Knol khol.
- Land preparation for early summer vegetables like ladies finger, ridge gourd etc. should be started during this period.
- **Major Seasonal Crop:** sugarcane (vegetative / maturity).
- **Crop Condition:** Good
- **Advisory:**
  - Matured sugarcane may be harvested during this period.
- **Plant protection:** Weather conditions are favourable for mild incidences of –
  - blight in potato, spray Mancozeb 75% a.i.(2.5g/l).
  - aphid and saw fly in the rapeseed and mustard crop, spray Dimethoate 30 EC @ 2 ml / litre or Chloropyrifos 20 EC @ 2 ml / litre or Rogor 30 EC @ 1-1.5 ml /liter of water.
  - late blight in tomato, spray Indofil-M-45 @ 2.5 g / litre or Ridomil MZ-72 @ 2g / litre to control the disease.
  - bacterial wilt and *phytophthora* fruit rot in brinjal, spray Equation-pro (1 ml / litre) or Acrobat (2 g / litre) for their control. For purple blotch disease of onion, spray Dithane M-45 or Kavach (2 g / litre).
- **Fishery:** As the water level of ponds are going down, the fishery owners may arrange for partial harvesting of marketable sized fish (>700gm). Measures to be taken to prevent EUS disease through liming. To control EUS, dip treatment in 500 ppm potassium permanganate solution may be practiced.
- **Animal Husbandry:** Vaccination to control the Ranikhet & Gumboro diseases of poultry may be done during this period. Artificial lighting may be provided in the poultry house to raise the temperature and to keep the house comfortable for the birds.

### Arunachal Pradesh

- **Realised Rainfall:** There was no rainfall in the State during last week.
- **Rainfall Forecast:** Mainly dry weather is likely over the State during next 48 hours and isolated places thereafter.
- **Major rabi Crops:** Pea, maize, potato
- **Crop Stage:** Pea, maize, potato(vegetative)
- **Crop Condition:** Good.
- **Advisory:**
  - Undertake weeding, intercultural operations and top dressing of fertilizers in pea, maize and potato.
- **Major Seasonal Crop:** Vegetables
  - As there was no significant rainfall in the State during last week and no significant rainfall is likely during next five days over the State, apply irrigation to the standing crops.
  - Matured fruits of orange, guava and pineapple may be harvested for sale and avoid over maturity.
  - Transplanted vegetables may be provided with proper irrigation and weeding be done followed by fertilizer application.
- **Plant Protection:** Prophylactic measure for protection of seed ginger rhizome from fungal disease may be taken.



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

### Andhra Pradesh

- **Realised Rainfall:** Coastal Andhra Pradesh and Rayalaseema received no rainfall during last week except Nizamabad districts of Telangana received excess rainfall.
- **Rainfall Forecast:** Dry weather is likely to prevail over Coastal Andhra Pradesh during next 24 hours and isolated places thereafter. Dry weather is likely to prevail over Telangana and Rayalaseema.
- **Major Crops:** Cotton, Sugarcane and Vegetables
- **Crop Stage:** boll development (cotton). Early sown *rabi* crops are at vegetative stage.
- **Crop Condition:** Good.
- **Advisory:**
  - As there was no rainfall during last week, farmers are advised to apply irrigation to the early sown crops.
  - Third split dose of fertilizer ie, 35 kg urea and 15 kg MOP per acre is to be applied for cotton crop. (Krishna, Guntur and Prakasam). Spraying 2% urea or 2% KNO<sub>3</sub> should be taken up two times at weekly intervals.
  - Farmers are advised to undertake intercultural operations in *rabi* crops to keep the fields weed free.
  - In High Altitude Tribal Zone of Vishakhapatnam paddy crop is in nursery to transplanting stage, Farmers are advised to follow these management methods in the nursery
    - In this region to protect the paddy seedlings from low temperature cover the nurseries with polythene sheets during night time and open it in the day time.
    - In the transplanted fields recommended fertilizers of Urea(25 kg), SSP(150 kg) and MOP(15 kg) per acre is applied in the puddle fields
  - Harvesting and threshing of the paddy and ragi crops can be taken up.
  - Arrange for harvesting Bengalgram as the crop is at maturity stage.
- **Plant protection:** Present weather conditions were congenial for the incidence of
  - leaf miner in *rabi* Groundnut. To control leaf miner, spray Imidacloprid @ 0.4 ml or Monocrotophos @ 1.6 ml or Acephate @ 1.5 g/litre of water.
  - powdery mildew in Mango orchards. To control, spray Carbaryl @ 3 g + Carbendizem @ 1g per litre of water.
  - *Colletotrichum blight* in Bengalgram. To control upto some extent and also to prevent the spread of *Colletotrichum blight*, Spray Bavistin @ 1 g or Contaf or Hexaconazole @ 2 ml or Propiconazole @ 1 ml per litre of water, twice at 7-10 days interval.
  - blast in *rabi* rice nurseries. To control, spray Tricyclazole @ 0.6 g per litre of water, after noticing the disease symptoms.
  - hopper in sugarcane in Krishna district. To Control, spray Malathion @ 2 ml or Dimethoate @ 1.7 ml per litre of water, two times at 10-15 days interval.
- **Animal Husbandry:** The prevailing weather conditions are congenial for the occurrence of
  - haemorrhagic Septicemia in cattle
  - ET and sheep pox in sheep
  - ranikhet disease in poultry
  - To prevent the diseases, vaccinate the animals
  - To prevent blue tongue disease in sheep, farmers are advised to keep the sheep in sheds during night time.

### Karnataka

- **Realised Rainfall:** Most of the districts received excess rainfall during last week.
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.

- **Major Rabi Crops:** Wheat ((Ear head emergence), Pigeonpea (maturity), Sunflower (maturity), Vegetables (Flowering/fruitletting), Rabi Sorghum (Ear head emergence), Bengalgram (Pod filling), Safflower (Flower emergence).
- **Advisory:**
  - Farmers are advised to provide irrigation in rabi Sorghum as the crop is in critical stage for irrigation
  - Harvesting of pigeonpea crop can be continued. Deep ploughing in black soil is advised in pigeon pea harvested fields.
  - Cotton picking can be done neatly to maintain the quality.
  - Harvesting/threshing of paddy can be continued in Uttara Kannada district. As per the forecast there are no chances of rainfall and the sky will be clear in the district. Hence, farmers are advised to continue the harvesting/threshing of paddy. Similarly, the arecanut growing farmers are also advised to continue the harvesting and drying of arecanut.
  - Farmers are advised to take up the sowing of pulses like Black gram, Green gram and also the green manure crop sun hemp to utilize residue moisture after harvest of the paddy in Paddy field for this farmers can make the arrangement of seeds.
  - In paddy fields where there is no residue moisture, in such fields farmers can take up deep ploughing, so that the soil pathogens will die and inturn it will help to reduce pest incidence for the next paddy crop.
- **Major Seasonal Crop:** Sugarcane, vegetables, ginger (Nursery ), onion (5 - 6 leaf emergence)
- **Advisory:**
  - Farmers are advised to undertake intercultural operations in sugarcane and vegetables to keep the fields weed free.
  - Farmers are advised to undertake transplanting of *rabi* vegetable crops like brinjal, cabbage, cauliflower, capsicum and tomato.
  - In view of prevailing low minimum temperatures, apply Dormix @ 30 ml per litre of water on pruned branches for obtaining better bud break on grapes.
- **Plant protection:** Present weather conditions were congenial for the incidence of
  - leaf eating caterpillar in Bengalgram. To control the pest, spray the crop with 4 g carbaryl or 1 ml Methyl parathion or 2 ml Chlorpyrifos dissolved in one liter of water.
  - leaf spot in Banana. Farmers should take up spraying of DM-45@ 1.7 ml/lit of water to control it.
  - thrips in Groundnut. To control farmers are advised to spray the Dimethoate @3g/lit of water.

## Kerala

- **Realised Rainfall:** The State received no rainfall except Kozhikode, Wyanad districts which received excess rainfall during last week.
- **Rainfall Forecast:** Mainly dry weather is likely to prevail during next 24 hours and isolated places thereafter.
- **Major Rabi Crops:** Rice (second crop at panicle initiation stage)
- **Crop Stage:** seedling/early vegetative (*mundakan* rice).
- **Crop Condition:** Good.
- **Advisory:**
  - Farmers are advised to undertake intercultural operations in rice to keep the fields weed free.
  - Farmers in Wayanad are advised to undertake harvesting of rice crop.
- **Major Seasonal Crop:** Vegetables and plantation crops (coconut, arecanut, pepper and cashew). Time for planting of coffee and arecanut
  - Planting of arecanut seedling can be continued in Kannur, Kasaragod, Kozhikode and Malappuram districts. Srimangla, sumangla and Mohitnagar are best suited and high yielding varieties.
  - Fresh planting of banana can be continued during this period in Ernakulam.
  - Farmers in Wayanad are advised to undertake harvesting of arecanut, pepper, cardamom and coffee.

- Farmers in Kottayam are advised to undertake transplanting of vegetable crops under irrigated conditions
- Farmers are advised to undertake intercultural operations, plant protection measures, weeding, earthing up and harvesting.
- Farmers are advised to mulch the basins of coconut palms with green / dry leaves. Mulching adds organic matter to the soil and helps to regulate the soil temperature. Apply 210 g of Urea, 350 g of super phosphate, 250 g of potash to the two months old nendran banana. Apply 210 g of Urea, 250 g of potash to the four months old nendran banana
- **Plant Protection:** Weather conditions are favourable for mild incidences of –
  - leaf rot, rhinoceros beetle, red palm weevil in coconut. To control spray crowns and leaves with 1% Bordeaux mixture / 0.5 % copper oxychloride formulation / 0.4% mancozeb as a prophylactic measure against leaf rot disease. In the leaf rot affected plants, remove the rotten parts from the spear and two adjacent leaves and pour 300ml of fungicide solution at the base of the spear which can be prepared by mixing Hexaconazol 5EC 2 ml or mancozeb 3 gm in 300 ml of water. To control rhinoceros beetle leaf axil filling with 25 gm Sevidol 8G and 200gm fine may be done. To control red palm weevil pheromone trap can be used @ one trap per two ha. Spraying of 2% neem oil & garlic emulsion may be done as a prophylactic measure against eriophid mite in the crown & bunches (2nd to 7th bunches from top avoiding unpollinated inflorescence).
  - sucking pest in cowpea and bittergourd, spray the plants with neem oil emulsion. For this, dissolve 60g of bar soap on half litre of water and mix the emulsion with 1 lit of neem oil by vigorous stirring. The solution should be diluted 40 times for spraying purpose.
  - aphid, pseudo stem weevil, rhizome weevil in banana, To control the aphids which act as a vector for bunchy top disease apply 12.5 gm phorate 10G or 10gm Carbofuran 3 G /plant in leaf axil or 25gm phorate or 20gm Carbofuran / pit in soil 70 days and again 165 days after planting. For the control of pseudostem weevil and rhizome weevil adopt strict field sanitation. If the attack is severe, spray quinalphos 0.05%. Spraying /drenching may be done on the leaf axils, rhizome, surrounding soil and all around the entire pseudostem inserting the nozzle of the sprayer through the bore holes made by the larvae.
  - tea mosquito bug and anthracnose incidence in endemic area in cashew, to control spraying of Quinalphos (2 ml) and mancozeb (2g) together per litre of water.
  - Mahali / fruit rot in arecanut, spray 1% Bordeaux mixture (two to three times) to control Mahali disease.
  - Pollu beetle and quick wilt in pepper. Mulch the field for conserving moisture. Apply Ecalux @ 2 ml/litre if the attack of pollu beetle is found severe. Drench the soil with 1% Bordeaux mixture as a prophylactic measure to control quick wilt disease. Application of *Trichoderma viride* on the sides of standards will also control the disease.
  - Spray the pesticides on a non rainy day.

### Tamil Nadu

- **Realised Rainfall:** Most of the districts received scanty/no rainfall during last week
- **Rainfall Forecast:** Rainfall is likely at isolated places during next 24 hours and at a few places thereafter.
- **Major Rabi Crops:** Groundnut, pulses and *thaladi* rice, sugarcane, banana and vegetables.
- **Major Rabi Crops:** Groundnut, pulses and *thaladi* rice, sugarcane, banana and vegetables.
- **Crop Stage:** rice (tillering), pod development (pulses), picking (cotton)
- **Crop Condition:** Good
- **Advisory:**
  - As there was no significant rainfall during last week, farmers are advised to apply need based irrigation to the crop.

- Farmers in Thanjavur, Trichy, Nagappattinam and Thiruvarur are advised to undertake sowing of rice fallow pulses; black gram and green gram in samba field to be harvested. The varieties ADT 3, 4 in Black gram and ADT 3 in Green gram are suitable rice fallow pulses in Cauvery delta zone.
- Undertake intercultural operations and application of fertilizers in thaladi rice and vegetables and sugarcane.
- Rainfed farmers of Tuticorin district are advised to top dress 8 kg of N fertilizer to the Millet crops.
- In vegetable belt area, farmers are advised to spray NAA (Growth hormone) for controlling of flower dropping and increase fruit setting.
- To avoid the evaporative loss of soil moisture after receiving the rain, farmers are advised to go for mulching the inter row spacing with crop residues or weed biomass.
- **Plant Protection:** Weather conditions are favourable for
  - powdery mildew disease in blackgram. To control farmers are advised to undertake spraying of wettable sulphur at 1 kg per acre.
  - sheath blight incidence in rice; spray carbendazim @ 250g/ha.
  - sigatoka leaf spot incidence in banana, spray carbendazim @ 1g/lit of water.
  - fruit borer incidence in brinjal, spray endosulfan 2 ml/ lit + Neem oil 3%.

## WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

### Maharashtra

- **Realised Rainfall:** The State received scanty/ no rainfall during last week.
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.
- **Major *kharif* Crops:** cotton, *tur*.
- **Major *rabi* Crops:** *jowar*, safflower, sunflower, linseed, gram, wheat, mustard, vegetables.
- **Crop Stage:** cotton and *tur* (maturity / harvesting), *rabi jowar* (flag leaf initiation / flowering), safflower (vegetative / flowering / head formation), sunflower (vegetative / floral bud formation), gram (branching / flowering), wheat (crown root initiation / tillering), mustard (vegetative / flowering), linseed (vegetative).
- **Crop Condition:** Satisfactory.
- **Advisory:**
  - Conserve moisture in the crop field at maturity stage of *kharif* crops.
  - Start planting of sugarcane (*suru*) and may be done in January.
  - Apply second dose of Nitrogen @ 50 kg /ha to onion after 30 to 35 days from transplanting.
  - Apply second dose of Nitrogen @ 60 kg / ha to late sown wheat after 21 days of sowing.
  - Apply 1 kg Urea or 2 kg Ammonium Sulphate per 1 R of rice / nagli nursery in Konkan where age of the seedling is of 15 days.
  - Apply protective irrigation to standing crops.
- **Major Seasonal Crop:** Fruit crops, Sugarcane and vegetables.
  - Undertake spraying, fertilizer application in the standing crops.
  - Continue picking of fully opened cotton bolls and start harvesting of already matured red gram.
- **Plant Protection:** Weather conditions are favourable for mild incidences of –
  - aphids on leafy vegetables and pulses, spray dimethoate 30 EC @ 10 ml per 10 lit of water.
  - thrips in brinjal, tomato and chilli, spray monocrotophos 36 SL @ 11 ml per 10 lit of water.
  - blast disease and hopper in mango, spray Carbendazim 0.1 per cent @ 10 g per 10 lit of water for blast and Endosulfan 35 EC @ 15 ml or Carbaryl 50 WDP @ 20 g per 10 lit of water for mango hopper.
  - tea mosquito and thrips on cashew, spray Endosulfan 35 EC @ 15 ml or Carbaryl 50 WP @ 20g per 10 lit of water for tea mosquito and profenophos 50EC @ 10ml or lambda cyhalothrin 5EC @ 6ml per 10 lit of water for thrips.
  - rust disease in fig, wheat, wal, bean crop, spray chlorothalonil or mancozeb 250 gm per 100 lit of water.

- powdery mildew disease in pea, bean, vegetable crops and papaya, spray water soluble sulphur powder 250 gm or denocap or tridiyophan 100 ml per 100 lit of water.
- blight disease in sunflower, spray copper oxychloride 0.25 % (25 gm per 10 litres of water).
- flower and seed boring caterpillar in sunflower, spray 5% nimark or 250 LE HANPV virus caterpillar solution per ha.

## Gujarat

- **Realised Rainfall:** There was no significant rainfall in the State during last week.
- **Rainfall Forecast:** Dry weather is likely to prevail over Gujarat region and Saurashtra and Kutch.
- **Major Rabi Crops:** wheat, potato, mustard.
- **Crop Stage:** wheat (crown root initiation / tillering stage), mustard (flowering / pod formation), and gram (flowering).
- **Crop Condition:** Crop condition is satisfactory
- **Advisory:**
  - Apply irrigation during crown root initiation stage (20-25 days after sowing) and tillering stage (35-40 days after sowing) of wheat crop. Also apply 60 kg N / ha at tillering stage in presence of sufficient moisture.
  - Undertake weeding, intercultural operations in mustard crop.
  - Farmers are advised to apply irrigation to gram crop as it is in flowering stage.
- **Major Seasonal Crop:** Fruit crops, Sugarcane (vegetative) and vegetables (vegetative / flowering / fruiting).
  - Cut inflorescences of young mango plants (less than 3 years) for better vegetative growth.
  - Pluck fully matured fruits of papaya, ber, guava, pomegranate and citrus and take them to market after sorting and grading.
  - Farmers are also advised to apply irrigation to pigeonpea, isabgul and vegetable crops like brinjal, tomato, chilli, fenugreek and garlic as dry weather is prevailing for last few weeks.
- **Plant Protection:** Weather conditions are favourable for mild incidences of –
  - sucking pests in ladies finger, spray Rogor or Nuvan @ 0.015% in 10 liters of water for control the sucking pests.
  - blight disease in cumin and early blight disease in potato and tomato, spray mancozeb 75 WP @ 25 g / 10 litres of water to manage the disease.
  - aphids and jassids in mustard and vegetables, spray 0.01% solution of dimethoate 30 EC.
  - downey mildew in cucurbits. Spray 0.2% wettable sulphur to manage the disease.
  - powdery mildew in mango, spray 0.2% wettable sulphur or 0.05% dinocap solution to manage the disease.
  - diamond black moth in cabbage and cauliflower, spray Fenevalrate @ 5 ml or Melathion @ 10 ml or carbendazim @ 10 ml to control the pests.
  - aphids in cabbage and cauliflower, spray Endhosulphan @ 20 ml per 10 litres of water.
  - Mango hopper, spray Dimathoate @ 10 ml or Endhosulphan @ 20 ml per 10 litres of water.
  - thrips in onion and garlic, whenever the thrips population reach at ETL of 15 nymphs / leaf, application of Endosulfan 35 EC @ 20 ml / 10 litres of water.
  - Shoot borer in brinjal, for control of shoot borer, remove and destroy infested shoots. Arrange to put atleast 12 to 15 pheromone traps / ha and spray Endosulphan @ 21 ml or DDVP @ 5 ml / 10 litres of water.
  - thrips in chilli, for control of thrips causing leaf curl in chilli, spray Trizophos 40 EC @ 10 ml or Acephate 75 SP @ 10 g / 10 litres of water at 10 to 12 days interval.
  - powdery mildew in mango, spray Carbendazim @ 10 g or wettable Sulphur 30 g / 10 liters of water to control powdery mildew at 15 days interval as per need.

- **Animal Husbandry:** Provide warm water to lactating animals. Keep young calves indoors during night time to avoid cold stress. Vaccinate animals for diseases in consultation with local veterinarian.

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

### Madhya Pradesh

- **Realised Rainfall:** There was no significant rainfall in the State except Chhatarpur, Sidhi districts which received excess rainfall during last week..
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.
- **Major Rabi Crops:** wheat, pulses, gram (vegetative), sugarcane (cane development), cotton (boll development/ maturity) and vegetable crops (late vegetative)
- **Crop Condition:** Satisfactory.
- **Advisory:**
  - Farmers are advised to undertake the following measures to safeguard the crops from cold injury.
    - Apply irrigation to the crops in the early morning to overcome chilling injury.
    - Arrange for burning around the field using farm waste materials to reduce the impact of low temperature.
  - Farmers are advised to undertake intercultural operations and irrigation in early sown wheat crop at 21 days after sowing and give nitrogen fertilizer 1/4<sup>th</sup> recommended dose by urea as top dressing.
  - Also undertake sowing of coriander and fenugreek.
  - Undertake pit preparation for planting of new orchard crops.
  - Farmers are advised that suitable time for transplanting of onion.
- **Animal Husbandry:** Protect calves from cold. Cattle should be vaccinated to save them from infections diseases like Black Quarter and FMD etc. The animals should be dewormed. Take care the pregnant animals and feed them balance diet. Provide the animal's clean water and balance and nutrients rich food.
- **Plant Protection:** Weather conditions are favourable for-
  - leaf eating caterpillars in gram; spray neem seed kernal Extract (5%), use pheromone traps (4 in one acre), Use Trichoderma culture or Endosulphan 35 EC 2 ml / liter in Gram.
  - aphids in safflower; spray Roger @ 750 ml / ha for the control of. Apply split dose of nitrogen fertilizer in wheat. Irrigate Wheat crop if water is available.
  - pod borer in arhar; spray Quinalphos 25 EC @ 2 ml/litre. Spray neem seed kernal extract (5%), use pheromone traps (4 in one acre).
  - aphids in safflower; spray Rouger @ 750 ml / ha for the control.
  - early blight in potato; spray Diethen M45 @ 2-3 gm/liter (use 500-600 lit. water).

### Chattisgarh

- **Realised Rainfall:** There was no rainfall in the State during last week.
- **Rainfall Forecast:** Dry weather is likely to prevail over the State.
- **Major Rabi Crops:** Wheat (crown root initiation / tillering), gram (vegetative / flower initiation), mustard (vegetative / flowering / pod formation).
- **Crop Condition:** Good.
- **Advisory:**
  - Wheat crop sown during first fortnight of December is at crown root initiation stage. This stage of the crop is critical for moisture and nutrient stress. Hence, farmers are advised to go for first top dressing of N and then irrigate the fields. To control broad leaved weeds spray 2, 4-D Sodium salt @ 0.80 kg/ha.

- Presently mustard and gram are at vegetative / flowering / pod formation stage. Irrigation at this stage is required for proper growth of these crops. Avoid water logging in the fields. Use of sprinkler should be encouraged for irrigation.
- **Major Seasonal Crop with stage:** Sugarcane (vegetative), vegetables (flowering / fruiting / harvesting).
- **Advisory:**
  - Undertake weeding and intercultural operations in sugarcane.
- **Plant Protection:** Present weather conditions may be favourable for the infestation of *Heliothis* in gram and aphids in mustard.
  - For initial control of *Heliothis* in gram, install bamboo pegs at about 20-25 m spacing to provide sitting place for birds who eat the larvae of *Heliothes* and if necessary, spray Endosulphan or Metasystox @ 1.5 ml per litre of water. Spraying of HNPV @ 250 LE / ha is also recommended, but while using HNPV, care should be taken that spraying should be done during morning or evening hours to avoid loss of efficacy during bright sunshine hours.
  - Spraying of Endosulphan or Metasystox @ 1.5 ml per litre of water is advised to control mustard aphids, if necessary.