

South Region

Advisory:

1. **Tamil Nadu:** Farmers in the Cauvery Delta Zone of Tamil Nadu are advised to undertake intercultural operations and application of fertilizers and pesticides in samba rice. Farmers are also advised to undertake sowing of late season crops like sunflower and pearl millet under rainfed conditions and carry out hand weeding in early sown rainfed crops. Incidence of leaf folder in samba rice and bacterial leaf blight and bacterial leaf streak in samba and thaladi paddy are noticed due to prevailing weather condition in the Cauvery Delta Zone; farmers are advised to take appropriate plant protection measures.
2. **Kerala:** Monitor puncha rice for incidence of thrips in rice, dieback and leaf fall diseases in nutmeg and viral diseases in cucurbitaceous vegetables and undertake plant protection measures.
3. **Karnataka**
Coastal Karnataka: Farmers are advised to continue harvesting of rice crop. Farmers who have already harvested rice may undertake sowing of pulse crops.
South Interior Karnataka: Farmers of Southern Transition Zone are advised to harvest and thresh rice crop and harvest the maize crop and sun dry the cobs. Farmers are advised to take up intercultural operations in rabi crops.

North Interior Karnataka: Intercultural operations may be done in rabi crops like jowar, Bengal gram and safflower in the North East Dry Zone. Farmers are also advised to continue picking of cotton and harvesting of rice. Farmers in the North East Dry Zone of Karnataka are advised to spray mixture of 3 gm sulphur/litre of water and Chlorpyrifos 2.5 ml or quinolphos 2 ml/litre of water as powdery mildew disease and Helicoverpa are reported on vegetables like chilli and bhendi. Green caterpillars are reported in 20-25 days old rabi sorghum crop and Helicoverpa pod borer is noticed in early sown Bengal gram, follow suitable control measures by spraying insecticides like Profenophos or Chlorpyrifos @ 2ml/liter of water.

4. Andhra Pradesh

Incidence of leaf webber and Maruca pod borer is noticed in redgram in Southern Telangana of Andhra Pradesh. Farmers are advised to spray 5% NSKE or neem oil @ 5 ml / lit to avoid egg laying by Maruca adults.

Coastal Andhra Pradesh: Farmers are advised to continue sowing of rabi groundnut, pulses and rice fallow maize and nursery preparation of rice. They are also advised to harvest cotton and rice when 70% of grains are matured.

Rayalaseema: Farmers are advised to continue sowing of rabi groundnut and nursery preparation of rice.

Telangana: Farmers are advised to undertake sowing of rabi maize, cowpea and sunflower.

North East Region

5. **Assam:** Farmers are advised to harvest the already matured rice crop. Continue nursery raising/ transplanting of boro rice. Also complete land preparation and sowing of rapeseed and mustard, rabi pulses, planting of potato and transplanting of 4-6 weeks old seedlings of winter vegetables like cauliflower, radish, tomato, brinjal, knol-khol, carrot and spinach in the main field. Continue land preparation and sowing of wheat.
6. **Mizoram:** Farmers are advised to continue preparation of nursery for cole crops, preferably in rain sheltered area and also transplanting of these crops.
7. **Nagaland:** Farmers are advised to harvest *jhum* rice, wetland rice and soyabean. Farmers are also advised to continue transplanting of tomato and cabbage.
8. **Manipur :** Farmers are advised to continue land preparation and sowing of maize, pea and zero tillage rapeseed and planting of potato. Farmers are also advised to continue transplanting of cabbage, cauliflower, broccoli, onion etc.
9. **Meghalaya:** Farmers are advised to continue nursery raising as well as transplanting of cole crops and other winter vegetables. Farmers are also advised to continue sowing of rabi maize in low and medium altitude regions.
10. **Tripura:** Farmers are advised to undertake intercultural operation like thinning and weeding in rabi maize. Farmers are also advised to continue sowing of lentil in Tripura.

(Continued on Page 2)



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National Agrometeorological Advisory Service Centre, Agricultural Meteorology Division,
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The bulletin is also displayed in the website (<http://www.imdagrimet.gov.in>) of the Division

Executive Summary

(Continued from page no. 1)

North West Region

11. **Punjab:** Farmers are advised to undertake sowing of short duration varieties of wheat. Harvesting of toria may be completed. Complete transplanting of seedlings of tomato during first fortnight of this month. December is the optimum time for sowing of sunflower. To save sugarcane crop from cold apply irrigation
12. **Haryana :** Farmers in Eastern Zone are advised to complete sowing of wheat crop as soon as possible. Harvest the mature sugarcane crop as per market demand. Take cutting of barseem for fodder. Farmers in Western Zone are advised to continue wheat sowing with late sown varieties. Complete the sowing of multi-cut improved jai and Barseem as fodder crop. Due to humid weather, there is possibility of white rust and Alternaria blight in the mustard crop in Western Zone of Haryana, farmers are advised to spray the recommended fungicide. Farmers are advised to spray recommended fungicide when the weather is clear. Complete sowing of toria and continue sowing of pea, raddish, turnip, coriander, cabbage, knol-khol, broccoli, parsley, lettuce, fennel, cauliflower in Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh. In high hills complete picking of apple and pear.
13. **Jammu & Kashmir:** Farmers are advised to continue sowing of wheat, gram, barley, rabi oilseeds (gobi sarson, mustard), pulses (lentil, pea), oat, and fodder crops like barseem and complete sowing of vegetable crops like potato, raddish, carrot, garlic, spinach and methi without further delay. Also continue planting of garlic, transplanting of onion seedlings in well prepared land may be undertaken.
14. **Uttarakhand:** farmers are advised to continue sowing of wheat and lentil crop. Last week light rainfall and snowfall is very useful for all crops including wheat crop. This week no rainfall is expected and weather will remain dry, farmers having irrigation facilities are advised to give first irrigation in wheat crop at Crown Root Initiation stage. Do weeding and thinning operations in other standing crops like pea, chickpea, rajmash etc. for their better growth and apply grass mulch in between rows to conserve soil moisture.
15. **Rajasthan:** Farmers are advised to continue sowing of wheat, barley, maize, taramira, toria, pea, rainfed gram, mustard, opium poppy, vegetables like carrot, spinach, fenugreek, coriander, garlic and transplanting of seedling of autumn vegetables like tomato, brinjal, cauliflower, cabbage and radish. Complete sowing of winter maize, Autumn planting of sugarcane. Continue harvesting of bajra and kharif pulses.
16. **Delhi:** Farmers are advised to apply irrigation in timely sown wheat crop, which are about 21-25 days old and are in CRI stage. Second dose of fertilizer may be applied 3-4 days after irrigation. Undertake sowing of late wheat varieties. Apply irrigation to timely sown mustard crop, which is about 35 days old. Transplanting of onion may be done this week. Transplanting of matured seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli crop may be done in the raised beds.
17. **Uttar Pradesh:** Dry weather prevailed in Western Uttar Pradesh region during this week. Farmers are advised land preparation and sowing of wheat, barley, chickpea, potato, field pea and berseem is going on. Apply irrigation in early sown wheat, potato, berseem, intercultural operations in chickpea and thinning in mustard crop.

West Region

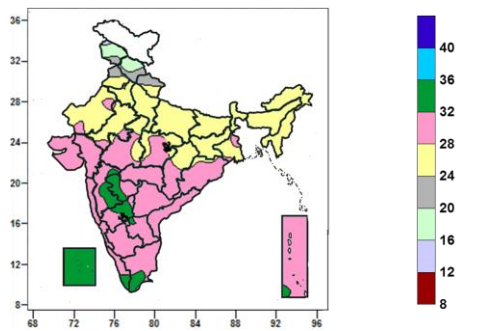
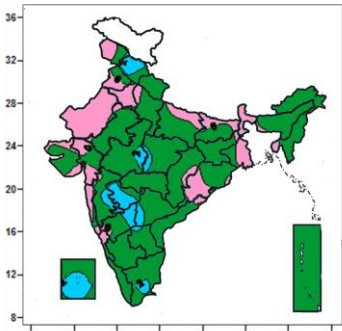
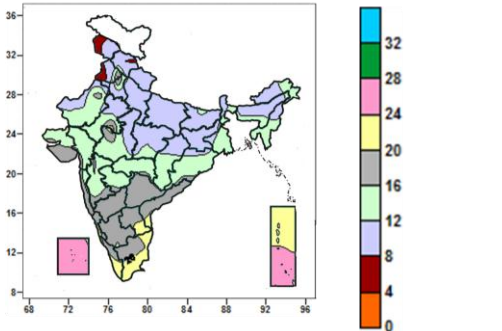
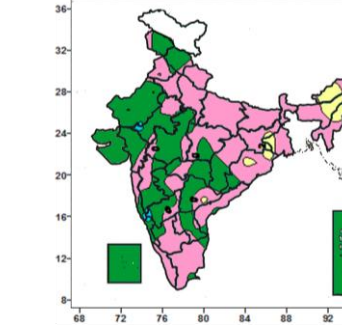
18. **Gujarat:** Complete sowing of rabi crops as early as possible. As dry weather prevailed and is likely to continue, farmers are advised to carry out weeding and apply irrigation to the standing crops like timely sown wheat, castor, fennel, vegetables (brinjal, chilli, tomato, cabbage, cauliflower) and earthing up operations in transplanted fennel. Hand weeding and intercultural operations before flowering stage in mustard and sowing of isabgol may be done. Sowing of the green fodder like lucerne, fodder bajara and jowar may be done.
19. **Maharashtra:** Farmers in Madhya Maharashtra, Marathwada and West Vidarbha are advised to apply irrigation to the sugarcane crop at an interval of 8 to 10 days. As prevailing weather is favourable, farmers in South Konkan are advised to prepare the land and undertake sowing of rabi groundnut. Pulses like horse gram, cowpea and lablab bean may also be sown on residual soil moisture immediately. Weather is also favourable for sowing of mustard in the region. Farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to complete sowing of irrigated wheat. Due to prevailing weather, incidence of hopper, aphids and thrips is observed in rabi vegetable nursery viz., brinjal, tomato, cabbage, chilli, knol knol etc. and incidence of hoppers on new flush of mango and inflorescence is observed in some parts of Konkan. Farmers are advised to take proper plant protection measures.

Central region

20. Madhya Pradesh: Farmers are advised to complete sowing of wheat and rabi crops like chickpea, lentil, mustard, linseed and pea. Apply irrigation in early sown gram, wheat and vegetable crops. Apply fertilizer in wheat crop after 20-25 DAS.

21. Chhattisgarh: Present weather conditions are suitable for sowing of wheat, sugarcane, cabbage, tomato, brinjal, niger, horse gram, lobia, chilli, gram, pea, mustard and linseed. Farmers are advised to undertake transplanting of vegetables.

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 05.12.2012

<p>Actual Mean Maximum Temperature (°C) in India for the week ending 05.12.2012</p> 	<p>Maximum Temperature (°C) Anomaly in India for the week ending 05.12.2012</p> 
<p>Actual Mean Maximum temperature ranged between 32 to 36°C over many parts of Madhya Maharashtra, Marathwada, Lakshdweep Islands, some parts of Kerala, Tamil Nadu, Andaman & Nicobar Islands, 16 to 20°C over of many parts of Jammu & Kashmir, Himachal Pradesh, 20 to 24 over many parts of Uttarakhand, some parts of Jammu & Kashmir, Himachal Pradesh, Punjab, 24 to 32°C over remaining parts of the country.</p>	<p>Actual Mean Maximum temperature anomaly ranged between 2 to 4°C over many parts of Himachal Pradesh, Marathwada, some parts of Madhya Pradesh, Madhya Maharashtra, Telengana, North Interior Karnataka, Tamil Nadu, Lakshdweep Islands, -2 to 0°C over most parts of Punjab, Haryana, Delhi, West Rajasthan, West Bengal, Sikkim, some parts of Jammu & Kashmir, Punjab, Uttar Pradesh, Bihar, Tripura, Orissa, Chhattisgarh, Gujarat, Saurashtra & Kutch, Konkan & Goa, Coastal Karnataka, 0 to 2°C over rest of the country.</p>
<p>Actual Mean Minimum Temperature (°C) in India for the week ending 05.12.2012</p> 	<p>Minimum Temperature (°C) Anomaly in India for the week ending 05.12.2012</p> 
<p>Actual Mean Minimum Temperature ranged between 24 to 28°C and above over most parts of Lakshadweep Islands, some parts of Andhaman & Nicobar Islands, 20 to 24°C over many parts of Tamil Nadu, Andhaman & Nicobar Islands, some parts of Coastal Andhra Pradesh, Rayalaseema, Kerala, 4 to 8°C over some parts of Jammu & Kashmir, Punjab, some parts of Himachal Pradesh, 8 to 24°C over remaining parts of the country.</p>	<p>Minimum Temperature anomaly ranged between 0 to 2 and above over most parts of Jammu & Kashmir, Himachal Pradesh, Rajasthan, Maharashtra, Gujarat, Saurashtra & Kutch, Madhya Pradesh, South Chhattisgarh, North Interior Karnataka, Coastal Karnataka, Lakshdweep, Andaman & Nicobar Islands, -4 to -2°C over many parts Arunachal Pradesh, Meghalaya, Nagaland, some parts of Manipur, Jharkhand, Gangetic West Bengal, Orissa, Telengana, -2 to 0°C over remaining parts of the country.</p>

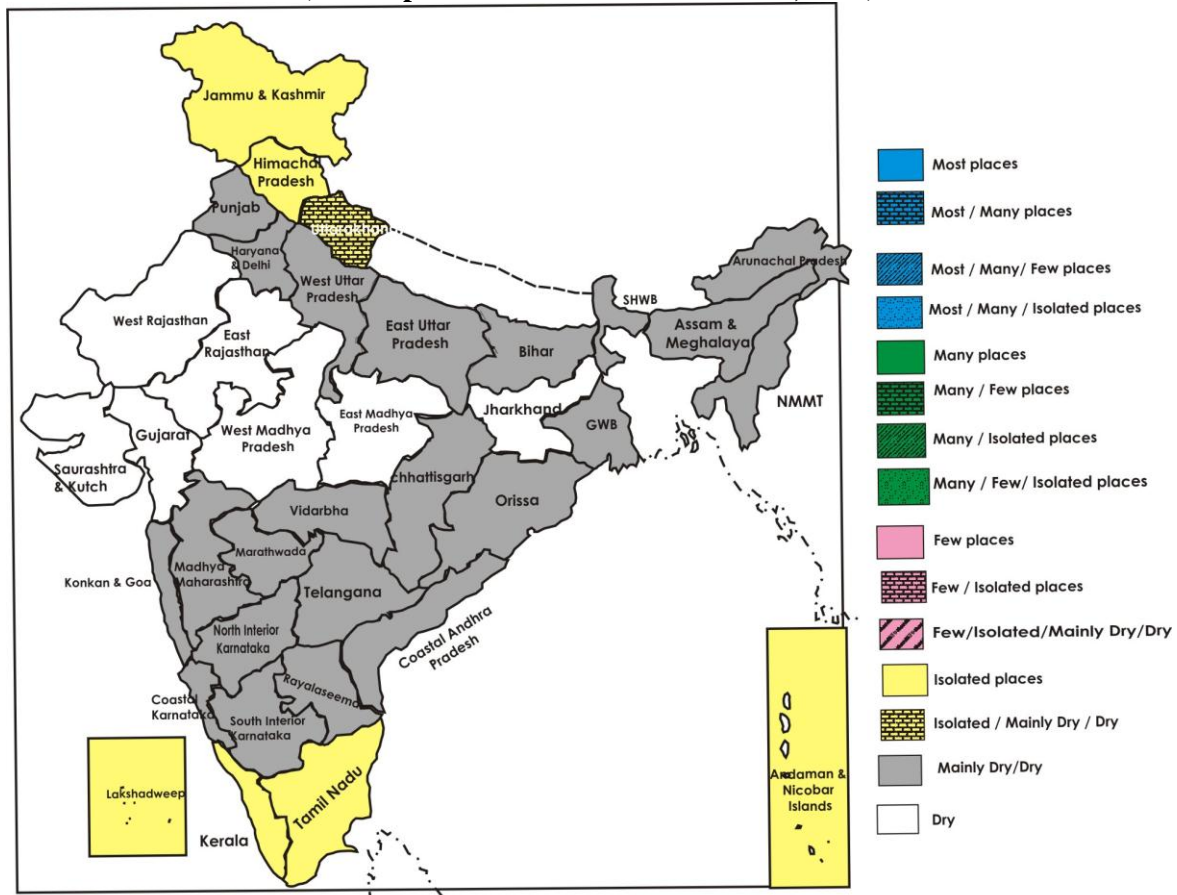
Distribution of rainfall of the country during week ending on 05.12.2012

State/Districts	Actual (mm)	% Dep.			
Karnataka			Ernakulam	0.0	-100
Coastal Karnataka			Idukki	0.0	-100
Dakshin Kannada	0.1	-99	Kasaragod	0.0	-100
Udupi	0.0	-100	Kollam	1.0	-95
Uttar Kannada	0.0	-100	Kottayam	0.4	-97
North Interior Karnataka			Kozhikode	0.0	-100
Bagalkote	0.0	-100	Malappuram	0.0	-100
Belgaum	0.0	-100	Palakkad	0.1	-99
Bidar	0.0	-100	Pathanamthitta	0.0	-100
Bijapur	0.0	-100	Thiruvananthapuram	6.0	-73
Dharwad	0.0	-100	Thrissur	2.3	-80
Gadag	0.0	-100	Wyanad	10.9	42
Gulbarga	0.0	-100	Tamil Nadu		
Haveri	0.0	-100	Ariyalur	0.0	-100
Koppal	0.0	-100	Chennai	93.2	67
Raichur	0.0	-100	Coimbatore	2.1	-87
Yadgir	0.0	-100	Cuddalore	2.3	-97
South Interior Karnataka			Dharmapuri	26.2	62
Bangalore Rural	11.0	55	Dindigul	0.8	-97
Bangalore Urban	15.3	93	Erode	6.1	-65
Bellary	0.0	-100	Kanchipuram	94.5	99
Chamarajnaragar	9.7	-2	Kanyakumari	0.0	-100
Chichballapur	7.1	15	Karikal	11.7	-85
Chickmagalur	0.4	-90	Karur	0.0	-100
Chitradurga	0.3	-87	Krishnagiri	22.3	86
Davangere	0.0	-100	Madurai	0.0	-100
Hassan	0.6	-80	Nagapattinam	10.6	-89
Kodagu	7.8	37	Namakkal	0.0	-100
Kolar	18.7	114	Nilgiris	12.0	-60
Mandya	7.8	136	Perambalur	0.0	-100
Mysore	4.6	40	Pudukcherry	6.9	-87
Ramnagara	14.3	170	Pudukottai	0.1	-99
Shimoga	0.0	-100	Ramanathapuram	13.4	-66
Tumkur	0.8	-79	Salem	13.6	-33
Kerala			Sivaganga	0.6	-98
Alappuzha	0.0	-100	Thanjavur	1.5	-97
Kannur	2.6	-69	Theni	0.0	-100
			Tirunelveli	0.0	-100
			Tirupur	0.0	-100
			Tiruvallur	113.1	156
			Tiruvannamalai	81.4	201
			Tiruvarur	5.6	-93
			Toothukudi	0.1	-99
			Trichy	0.0	-100
			Vellore	39.8	97
			Villupuram	30.2	-24
			Virudhunagar	0.0	-100
			Andhra Pradesh		
			Coastal Andhra Pradesh		
			East Godavari	0.0	-100
			Guntur	0.0	-100
			Krishna	0.0	-100
			Nellore	147.0	303
			Prakasam	0.0	-100
			Sirkakulam	0.0	-100
			Visakhapatnam	0.0	-100
			Vizianagram	0.0	-100
			West Godavari	0.0	-100
			Telangana		
			Adilabad	0.0	-100
			Hyderabad	0.0	-100
			Karimnagar	0.0	-100
			Khammam	0.0	-100
			Mehabubnagar	0.0	-100
			Medak	0.0	-100
			Nalgonda	0.0	-100
			Nizamabad	0.0	-100
			Rangareddy	0.0	-100
			Warangal	0.0	-100
			Royalaseema		
			Anantapur	1.8	-61
			Chittoor	98.2	350
			Cuddapah	29.0	190
			Kurnool	0.0	-100

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

Weather Forecast (Valid upto 0830 hours of 9th December, 2012)



Major Feature of Weather Forecast up to 0830 hours IST of 9th December, 2012

- Rain/snow would occur at one or two places over Jammu & Kashmir and Himachal Pradesh.
- Rain/thundershowers would occur at one or two places over Tamilnadu, Kerala, Lakshadweep and Andaman & Nicobar Islands.
- No Significant change in minimum temperatures over northwest and central India during next 2 - 3 days.
- Weather would be mainly dry over rest parts of the country.

Weather Warning during next 3 days

- No weather warning.

Weather Outlook for subsequent 4 days up to 0830 hours IST of 13th December, 2012

- A fresh western disturbance would affect western Himalayan region around 11th.
- Rain/thundershowers would occur at one or two places over parts of Arunachal Pradesh, Assam & Meghalaya, east India and extreme south peninsular India.
- Fog/shallow fog may occur over plains of northwest India.
- Mainly dry weather would prevail over rest of the country.

Zonewise Agromet Advisories

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

- **Realised Rainfall:** Mainly dry weather prevailed over the States of the region during last week.
- **Rainfall Forecast:** Mainly dry weather will prevail over the States of the region.
- **Advisories:**
 - As there was no significant rain over most of the districts of the States of the region during last couple of weeks and no significant rain is likely to occur during the period, farmers are advised to apply irrigation to the standing crops.
 - Farmers in North Bank Plain Zone and Hill Zone of Assam are advised for nursery raising and transplanting of early sown varieties of *boro* rice. Also continue land preparation and sowing of rapeseed, mustard and lentil, planting of potato. Complete transplanting of the seedlings of winter vegetables. Continue land preparation and sowing of wheat in North Bank Plain Zone and Central Brahmaputra Valley Zone.
 - Farmers in Lower Brahmaputra Valley Zone of Assam are advised to sowing and transplanting of cauliflower, cabbage, knolkhol, tomato and planting of potato.
 - Farmers in Upper Brahmaputra Valley Zone of Assam are advised to continue sowing of brinjal, knolkhol and transplanting of seedlings of cauliflower and cabbage. Farmers are also advised to continue land preparation and sowing of rapeseed and mustard.
 - Farmers in Central Brahmaputra Valley Zone of Assam are advised to continue land preparation and sowing of *rabi* crops (kitchen garden, cole crops, rapeseed and mustard and wheat). The seedlings of cole crops may be transplanted when they become 30-35 days old. Farmers are also advised to complete planting potato at the earliest. Complete sowing for *rabi* pulses like lentil, rajmah, pea, lathyrus and oilseeds like linseed and niger at the earliest.
 - In Mild Tropical Hill Zone of Mizoram, farmers are advised to continue preparation for nursery of cole crops in rain sheltered area.
 - In Mild Tropical Hill Zone of Nagaland, farmers are advised to continue harvesting of jhum rice, wetland rice and soyabean.
 - Farmers in Sub Tropical Plain Zone of Manipur are advised to continue land preparation and sowing of maize, pea and zero tillage rapeseed and planting of potato. Farmers are also advised to continue transplanting of the seedlings of cabbage, cauliflower, broccoli, onion etc. Farmers are also advised to apply light irrigation to zero tillage rapeseed and onion in early vegetative stage.
 - In Temperate Sub Alpine Zone of Meghalaya, farmers are advised to continue nursery raising as well as transplanting of cole crops and other winter vegetables. Farmers are also advised to continue sowing of *rabi* maize in low and medium altitude regions. Sowing of pea, mustard, and garlic in high altitude region may be completed.
 - In Mild Tropical Plain Zone of Tripura, farmers are advised to undertake intercultural operation like thinning and weeding in *rabi* maize. Farmers are also advised to continue sowing of lentil.
 - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
 - Due to favorable weather conditions, there is chance of attack of late blight on tomato, farmers of Hill Zone of Assam are advised to monitor the crop and to prevent the disease alternately apply application of Ridomil MZ-72 (2g/ lit) and Indofil M-45 2.5g / lit.
 - In Mild Tropical Hill Zone of Nagaland, due to favorable weather conditions there is chance of attack of white rust in vegetative and reproductive stage of mustard crop, farmers are advised to monitor crop and maintain proper field sanitation and avoid over irrigation.
 - Due to prevailing weather, infestation of pseudo stem weevils on banana reported. In Mid Tropical Zone of Tripura, farmers are advised to kill weevils and removal of dried and disease leaves may be done.
 - Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - In North Bank Plain Zone and Central Brahmaputra Valley Zone of Assam farmers are advised to vaccinate poultry against Ranikhet disease.
 - Due to prevailing weather conditions in Sub Tropical Hill Zone of Arunachal Pradesh, farmers are advised to protect the birds from cold by using gunny bags/plastic sheets around the poultry shed during night, provide heat by lighting 100W bulb @ 1 bulb per 20 newly born chicks. Maintain warm conditions in the shed of pig and cattle.
 - In Sub Tropical Plain Zone of Manipur, farmers are advised to vaccinate cattle, goat, sheep and buffaloes against Foot and Mouth Diseases, vaccinate poultry against Ranikhet and Coccidiosis, deworm pigs and vaccinate against swine fever.

- In Mild Tropical Hill Zone of Nagaland, farmers are advised to vaccinate the livestock against Foot and Mouth Diseases and apply boroglycerine on mouth lesions, mouthwash with 1% KMnO₄, foot wash with 2% copper sulphate or 2-4% sodium carbonate solution for FMD. Vaccinate pigs against swine fever.
- In Temperate Sub Alpine Zone of Meghalaya, farmers are advised to vaccinate poultry against Ranikhet, deworm cattle and vaccinate pigs against swine fever.
- In Mid Tropical Zone of Tripura, farmers are advised to vaccinate cattle, vaccinate poultry against Ranikhet disease and deworm pig/piglet.
- **Pisciculture**
 - Farmers in Central Brahmaputra Valley Zone and North Bank Plain Zone of Assam are advised to apply chemicals Potash @ 4-5 mg / litre of water, Sukrena WS @ 1 lit per bigha of water, Lime in required doses to protect the fish population against various bacterial diseases prevalent in winter season.

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

- **Realised rainfall:** Mainly dry weather prevailed over the States of the region.
- **Rainfall Forecast:** Weather will be mainly dry over the region during the period.
- **Advisories:**
 - Farmers are advised to apply irrigation to the standing crops in Jharkhand, Bihar, Orissa, West Bengal and Sikkim as there was no significant rainfall in most of the districts in States of the region and mainly dry weather is likely during next three days.
 - In South Bihar Alluvial Zone, farmers are advised to harvest matured short duration rice crop and to prepare field for sowing of gram, lentil, peas, sunflower and mustard. Prepare field for sowing of irrigated, non-irrigated wheat, oat and maize crop. Prepare field for sowing of potato.
 - In North West Alluvial Plain Zone of Bihar, farmers are advised to harvest matured rice crop. Where soil moisture is limited in the field, farmers are advised to give light irrigation to potato and tomato crops within interval of 10-20 days. Undertake intercultural operations and thinning in mustard and rapeseed crop, start sowing of normal sown wheat crop as temperature conditions are becoming favorable.
 - In North East Alluvial Zone of Bihar, farmers are advised to undertake weeding, earthing up, irrigation and nitrogen top dressing in potato crop. Complete sowing of late potato, lentil, and yellow mustard crop.
 - Farmers of Western Undulating Zone of Orissa are advised to harvest matured rice crop.
 - Farmers of Nayagarh district of East and South Eastern Coastal Plain Zone of Orissa are advised that weather is favourable for sowing of coriander, lentil, field pea and chickpea and transplanting of onion.
 - Farmers are also advised to complete sowing of mustard, wheat, Bengal gram, *rabi* pulses and sunflower. Go for planting of potato, drum stick.
 - Farmers of North Central Plateau Zone of Orissa are advised that sowing of mustard and groundnut may be completed immediately. Weather is optimum for sowing of sunflower, onion and garlic in irrigated upland and medium land.
 - Farmers of Mid Central Table Land Zone of Orissa are advised to start sowing of black gram, green gram, potato, groundnut etc.
 - Farmers of North Eastern Coastal Plain Zone of Orissa are advised to complete sowing of rapeseed, groundnut and mustard taking advantage of stored soil moisture. They are also advised that this is the ideal time for growing tomato, cauliflower, cabbage, Knol Khol, broccoli and radish, etc.
 - Farmers of North Eastern Ghat Zone of Orissa are advised for sowing of greens, pulses and mustard.
 - In Jharkhand, farmers are advised to undertake sowing of wheat varieties (at Annexure-II) with assured irrigation facility.
 - Farmers in Central and North Eastern Plateau Zone of Jharkhand are advised to undertake sowing of improved varieties of gram as single crop or intercropping with linseed or mustard. Cultivate improved varieties of lentil, toria, mustard, green pea, tomato, cabbage, cauliflower and potato. Raise improved varieties of onion seedlings in prepared nursery bed.
 - In Western Plateau Zone of Jharkhand, farmers are advised to prepare the land immediately after harvesting of rice and sow wheat crop. Farmers are advised to sow *rabi* crops like gram, lentil, linseed, pea, mustard, barley etc. and undertake planting of potato.
 - In Coastal Saline Zone of West Bengal, farmers are advised to harvest *aman* rice and after proper sun drying store them under dry place properly. Farmers are also advised to start sowing *boro* rice in the seed bed @12kg/bigha. Treat the seeds before sowing by *Trichoderma viridi* @4g/kg of seed. Farmers are advised early earthing up at the base of potato plant.
 - In New Alluvial Zone of West Bengal, farmers are advised to start nursery bed preparation of *boro* rice and treat the seeds with Thiram 75% or Bavistin @ 2.5-3 g dissolved in 1.5 lt. of water and soak the seeds for 8-10 hrs. Apply 100kg FYM/kata of seed bed, one week before sowing. Farmers are also advised to start land preparation

for sowing of wheat and sowing of potato, apply 1.5- 2 ton cow dung manure or compost manure for a bigha before land preparation of potato.

- Farmers in Laterite and Red Soil Zone of West Bengal are advised to start sowing of potato and wheat and nursery bed preparation of *boro* rice. Farmers are also advised sowing of seasonal flower like marigold, verbena, jarberra, jinia etc.
- Farmers in Old Alluvial Zone of West Bengal are advised to undertake land preparation and sowing of wheat, potato and mustard and start seedbed preparation for sowing of tomato. Land preparation of potato and wheat should be done utilizing the stored soil moisture.
- Farmers in Terai Zone of West Bengal are advised to prepare main field for planting wheat and potato. For planting of potato treat the seeds before planting with Carbendazim @1gm/lit and Mancozeb @ 2 gm/lit of water for 30 min.
- Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
- In Khurda district of East and South Eastern Coastal Plain Zone of Orissa, mustard is found to be affected by *Crocidollemma* and aphids. Farmers are advised to spray 400 ml Dimethoate per acre for controlling aphids and 200 ml Ethofenprox or Deltamethrin in 200 litre water per acre for *Crocidollemma*.
- Farmers of Western Undulating Zone of Orissa are advised that if yellow mosaic vein appear in leaves of green gram and black gram crops, uproot the plant and destroy it and spray dimethoate or metesystox @2ml/lit of water. To protect the crop from pod borer spray Traizophos or profenofos @2ml/lit. of water as preventive measure. Repeat the spray after 15days of first spray.
- Fruit and shoot borer in brinjal has been found in Mid Central Table Land Zone of Orissa. Farmers are advised to control it, install pheromone trap @12 nos /ac. Alternately spray 4 g Sevin WP or 2 ml Malathion in 1 litre water. If thrips in chilli has been found, spray 300 ml Ethion or 400 ml Carbosulphan in 200 litre water/acre.
- Due to favourable weather condition, in New Alluvial Zone and Laterite and Red soil Zone of West Bengal, there is chance of attack of termites in wheat. Before sowing treat seeds with Aldrin 30EC @ 4ml/kg for the control of termites in the crop.
- In Terai Zone of West Bengal, there is possibility of downy mildew in cucumber due to favourable weather conditions. To manage the disease, spray Mancozeb @ 2gm/lit or Metalaxyl 8% and Mancozeb 64% @1-1.5 gm/lit of water.
- **Animal Husbandry**
 - Farmers of Western Undulating Zone of Orissa are advised to vaccinate cattle with intramuscular Qil Adjuvant FMD vaccine @2ml per one cattle and @1ml per one sheep or goat as a preventive against FMD during the winter season. The poultry should be vaccinated with R₂b strain RD vaccine as a preventive against Ranikhet Disease and administered @0.5ml per bird subcutaneously.
 - Farmers North Eastern Coastal Plain Zone of Orissa are advised that animals should be given mineral mixture along with salt regularly and wheat grains, jaggery etc. may be provided @ 10%-20% in the daily ration during winter season to meet the energy requirement of the animals.
 - In South Bihar Alluvial Zone, farmers are advised to keep animals in shed and they should be protected from cold.
 - Low temperature condition may adversely affect the milk production and performance of domestic animals. Farmers in North West Alluvial Plain Zone of Bihar are advised to give protein enriched diet to the animals and keep them in shed.
- **Pisciculture**
 - As the winter is in the starting phase, there is a possibility of “EUS” disease in fish. Farmers North Eastern Coastal Plain Zone of Orissa are advised to apply ‘Cifax’ @ 400 ml mixed with 40 litre of water in one acre pond area as a preventive measure.
 - Stages of major crops are mentioned in Annexure I.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Dry weather prevailed over the region.
- **Rainfall Forecast:** Weather would be mainly dry over the region.
- **Advisories:**
 - Farmers in Madhya Maharashtra, Marathwada and West Vidarbha are advised to give irrigation to the sugarcane crop at an interval of 8 to 10 days.
 - Farmers in South Konkan region in Maharashtra are advised to continue sowing of *rabi* groundnut and prepare field for *rabi* rice. Pulses like horse gram, cowpea and lablab bean may also be sown on residual moisture immediately. Weather is favourable for sowing of mustard in the region. Sowing of short duration crops like cowpea, wal, kulthi in the harvested rice field may be done following land preparation at 'vapsa' condition. Field preparation and addition of 10 ton FYM may be done for sowing of sunflower.
 - Farmers in Madhya Maharashtra, Marathwada and Vidarbha are advised to complete sowing of irrigated wheat.

- Farmers are advised to start sowing of irrigated wheat and complete transplanting of onion in Nasik district in Madhya Maharashtra.
- Under favourable weather conditions, farmers in North Gujarat Zone are advised to start sowing of Isabgol. Optimum time for sowing is upto 20th December. In clear weather conditions, carry out weeding, interculturing in castor, vegetables, fennel and earthing up operations in fennel. Apply regular irrigation and supplement dose of fertilizer, if required, in castor. Complete sowing of remaining *rabi* crops.
- As wheat is in crown root initiation stage in Middle Gujarat Zone, apply irrigation in timely sown wheat. Hand weeding and intercultural operations before flowering stage in mustard and sowing of isabgol with seed rate of 4 kg /ha are recommended. A band of grease or polythene is advised around the stem in mango, guava and custard apple crops. Apply top dressing dose @ 40 kg Nitrogen/ha before initiation of tasseling in *rabi* maize.
- Apply irrigation and split doze of nitrogen fertilizer in early sown crops in Bhal and Coastal Zone of Gujarat. Carry out hand weeding, inter culturing operations in early sown crops like castor, fennel, vegetables (brinjal, chilli, tomato, cabbage, and cauliflower) and earthing up operations in transplanted fennel. Grading in vegetables should be carried out for better return.
- Complete sowing of mustard immediately in North West Zone of Gujarat, if there is facility of irrigation. Apply light irrigation to the cumin crop and use Endosulphan at 35% E.C. to protect the crop from destruction by insects. Sowing of the green fodder like lucerne, fodder bajara and jowar should be done for cattle, if there is facility of irrigation.
- Apply Urea 130 kg/hectare just after irrigation in wheat at crown root initiation in North Saurashtra Zone.
- Complete sowing of *rabi* crops in South Gujarat Heavy Rainfall Zone. Taking advantage of prevailing dry weather, farmers are advised to carry out weeding, intercultural operation and provide irrigation in standing crops. Also carry out picking of cotton during morning hours before evaporation of dew for better quality. Apply urea @ 75 gm per banana plant and make ring around plant for irrigation. Grading in vegetables may be carried out for better return.
- Undertake sowing of coriander in South Saurashtra Zone. Harvest ripe spikelets of castor in time. Apply irrigation in sugarcane, custard apple at regular interval and harvest ripe fruits of custard apple.
- Varieties of *rabi* crops are mentioned in Annexure II.
- Incidence of hopper, aphids and thrips is observed in *rabi* vegetable nursery viz., brinjal, tomato, cabbage, chilli, knol knol etc. in North Konkan region, apply Malathion @ 20 ml or Dimethoate @ 12 ml per 10 litres of water.
- Incidence of hoppers on new flush of mango and inflorescence is observed in some parts of Konkan, spray 25 % Cypermethrin @ 3 ml, or 2.8 % Deltamethrin @ 9 ml or 20 % Fenvalerate @ 5 ml in 10 litres of water on foliage as well as on branches and stem.
- Weather conditions are favorable for outbreak of powdery mildew disease and aphid in mustard crop in North Gujarat Zone and South Gujarat Heavy Rainfall Zone. Spray Mencozeb (75%) @ 25g /10 litres of water to control powdery mildew and spray Phosphomidone (100%) 3ml or Diamethoate (30%) 10 ml added in 10 litres of water for control of aphids attack. For thrips, adopt appropriate control measures.
- During next five days sky will remain clear and there is a chance of occurrence of dew in South Gujarat Heavy Rainfall Zone. Spray Mencozeb @ 30g adding in 10 litre of water as preventive measure against early blight in early sown tomato.
- Weather conditions are favorable for outbreak of sucking pests in cotton in South Gujarat Zone. Spray Acetamiprid 20Sp @ 0.004% (2g /10 litres of water) and for spotted boll worm spray Fenvalerate 20%SC (5ml/10 litres of water).
- Stages of the crops are mentioned in Annexure I.
- **Animal Husbandry**
 - Provide warm water to lactating animals. Keep young calves indoors during night time to avoid cold stress in North Gujarat Zone.
 - Clean animal byres and spray Neon insecticide 1 to 1.5ml per liters of water for control of ecto parasites in animal house in South Gujarat Heavy Rainfall Zone.

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

- **Realised Rainfall:** No significant rainfall occurred over the region except Poonch district in Jammu and Kashmir.
- **Rainfall Forecast:** Rain/snow would occur at isolated places over Jammu & Kashmir and Himachal Pradesh and mainly dry weather is likely in rest of the region.
- **Advisory:**
 - As no significant rainfall occurred over the States of the region except Poonch district in Jammu & Kashmir and no significant rainfall is likely during the period, farmers are advised to apply irrigation to the standing crops in the region.

- Farmers in Flood Prone Eastern plain zone (Bharatpur) of East Rajasthan are advised to continue sowing of *rabi* crops like wheat, mustard, barley, potato and lentil and transplant seedling of autumn vegetables like tomato, brinjal, cauliflower, cabbage and radish.
- Farmers in Semi-arid Eastern plain zone of Jaipur of East Rajasthan are advised to complete sowing of mustard and gram at the earliest and start field preparation for the sowing of *rabi* crops like wheat, barley. Undertake planting nursery of late cauliflower, cabbage and *rabi* onion.
- In Arid Western Plain Zone (Bikaner) of West Rajasthan, farmers are advised to continue sowing of barley and wheat.
- In Arid Western Plain Zone Jodhpur of West Rajasthan, farmers are advised to complete the sowing of mustard and continue sowing of wheat, barley and vegetables. Prepare field for sowing of fodder crop lucerne (Rijka).
- In Transitional plain zone of Inland Drainage of Rajasthan, farmers are advised to continue sowing of taramira, toria, pea, rainfed gram, fenugreek, mustard and vegetables like coriander, garlic, carrot, spinach and radish.
- In irrigated northwestern plain zone of west Rajasthan, farmers are advised to complete sowing of wheat, gram, barley and mustard.
- In Sub Humid Southern Plain zone of Rajasthan, farmers are advised to complete sowing of wheat, barley, gram and opium poppy. Apply first irrigation and top dress timely sown wheat crop.
- In southern humid plain zone of Rajasthan, farmers are advised to continue preparation of field for sowing of *rabi* crops like wheat, barley and gram. Complete sowing of winter maize and planting of autumn sugarcane. Sowing of opium poppy may be continued during this week.
- In southeastern humid plain zone of East Rajasthan, farmers are advised to continue sowing wheat, gram and mustard. Also advised to continue sowing of winter maize in irrigated conditions. Autumn planting of sugarcane may be completed.
- In sub- tropical zone of Jammu & Kashmir, farmers are advised to complete sowing of barley and continue sowing of wheat, gram, *rabi* oilseeds and pulses. Give irrigation and 1st dose of nitrogen fertilizer as top dressing to mustard, early sown wheat and normal sown barley. Sowing of vegetables like potato, radish, carrot, garlic, spinach and methi may be completed without any further delay. Harvest toria crop when pods turn yellow.
- In Intermediate zone of Jammu & Kashmir, farmers are advised to complete sowing of barley and continue sowing of wheat, gram, lentil, oat, pea, oil seeds like gobi sarson, mustard, vegetables and fodder barseem. Harvest toria when pods turn yellow.
- In Valley Temperate Zone of Jammu & Kashmir, farmers are advised to continue sowing of *rabi* cereal (wheat), pulses (pea and lentil), brown sarson, fodder (oat), also sowing of spinach and methi may be continued. Planting of garlic, transplanting of onion seedlings in well prepared land may be done. Maintain surface drainage channels in and around the field so that water is not stagnated in the field during winter months.
- In Barbar & Tarai region of Uttarakhand, farmers are advised for sowing of wheat and lentil crop. Last week's light rainfall and snowfall is very useful for all crops including wheat. This week no rainfall is expected and weather will remain dry, farmers having irrigation facilities are advised to give first irrigation in wheat crop at Crown Root Initiation stage and then top dress @ 2.5 kg Urea per Nali when soil moisture is sufficient. Also if the crop duration is 40 to 45 days then give second irrigation in wheat crop. Keep the crop weed free for its better growth. Do weeding and thinning operations in other standing crops like pea, chickpea, rajmash etc. for their better growth and apply grass mulch in between rows to conserve soil moisture.
- In Hill zone in Uttarakhand, farmers are advised to start land preparation and sowing of wheat if not yet done in irrigated areas. Do irrigation, weeding and thinning in standing crops and in early sown wheat crops.
- In Sub humid sub tropic of Uttarakhand, farmers are advised for land preparation and sowing of wheat crop in irrigated area. Planting of cauliflower, cabbage, brinjal, and chilly may be done. Supplemental irrigation should be done after earthen up and weed removing. In case of water logged field propping of sugarcane leave is advisable to prevent the logging of crop. Ratoon crop should be harvested by the end of this fortnight.
- Farmers in Central plain Zone of Uttar Pradesh, are advised to complete sowing of wheat intercropping with raya, toria, gobhi sarson, pea, gram and potato etc. upto 1st week of December. Also complete sowing of lucerne, oats and senji crop. Apply light irrigation to already sown crops like vegetables, pea & masoor etc. Weather condition is favorable for sowing of garlic.
- In Bundelkhand Zone of Uttar Pradesh, farmers are advised to complete sowing of *rabi* crops like wheat, pea, masoor & gram, fodder barseem after seed treatment and also irrigate already sown *rabi* crops like pea, toria and lahi.
- In North Eastern Zone of Uttar Pradesh, farmers are advised to complete sowing of mustard, pea, lentil, gram, maize and also irrigate already sown *rabi* crops.
- In Western Plain Zone of Uttar Pradesh, farmers are advised to complete sowing of wheat, potato, maize, pea, masoor, alsi, vegetables (like onion, tomato, raddish, carrot, palak, cauliflower, cabbage etc.) and planting of sugarcane, chilli and brinjal. Weeding operation may be done in turmeric.

- In Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh, farmers are advised to do the sowing of Radish (Early Mino white, Japanese white, Chinese pink and Palm Hriday), Peas (Palm priya or Linclon) in the fields and complete late sowing of wheat.
 - Farmers of Mid hill sub humid zone of Nauni of Himachal Pradesh are advised to start coating of lime on the trunk of temperate fruits upto 2-3 ft from ground. Also, complete the sowing of early variety of pea and direct sowing of root crops may be continued. Cultivation of winter fodder crops like Berseem, Oats and Leucerne must be completed in this fortnight.
 - Farmers in Delhi are advised to irrigate timely sown wheat crop, which are about 21-25 days old and are in the CRI stage. Second dose of fertilizer should be applied 3-4 days after irrigation. In view of clear weather for the next five days, farmers are advised for sowing of late wheat varieties. Irrigate timely sown mustard crop, which is about 35 days old. Transplantation of onion should be done this week. Transplanting of mature seedlings of tomato, cauliflower, cabbage, knolkhol and broccoli crop may be done in the raised bed.
 - Farmers in Punjab are advised to undertake sowing of short duration varieties of wheat like PBW 590, PBW 373 and PBW 509.
 - Farmers in Western Zone in Punjab are advised to complete harvesting of toria to avoid losses due to shattering. Complete transplanting of seedlings of tomato in the first fortnight of this month.
 - Farmers in Western Plain Zone of Punjab are advised save sugarcane crop from frost by applying irrigation around mid December. This is optimum time for sowing of sunflower in the region.
 - Farmers in Central Plain Zone of Punjab are advised to give irrigation to normal sown gram crop around mid December and to lentil after about one month of sowing. First cutting of early sown oats may be taken during this month to meet the fodder scarcity.
 - Farmers in Eastern Zone in Haryana are advised to complete sowing of wheat crop as soon as possible with recommended late varieties if not completed till now. Harvest the mature sugarcane crop as per market demand. Take cutting of barseem for fodder.
 - Farmers in Western Zone in Haryana are advised to continue sowing of wheat with late sown varieties. Complete the sowing of multi-cut improved jai and barseem as fodder crop. Apply the irrigation and hoeing in vegetable crops as per requirement.
 - In irrigated northwestern plain zone of west Rajasthan, it is seen that gram is affected by green caterpillar, to control spray Quinolphos 1.5% @ 6 kg per hec.
 - Due to high relative humidity in Delhi, infection of early blight may occur in potato and tomato. Constant monitoring is advised to save the crop from disease.
 - Due to humid weather in Western Zone in Haryana, there is possibility of white rust and Alternaria blight in the mustard crop. Farmers are advised to spray the recommended fungicide.
 - In Sub humid sub tropic of Uttarakhand, farmers are advised for the control of top borer and stem borer apply 2 liter of Thiodan 35 E.C. with 1000 liter of water for a hectare crop.
- **Animal Husbandry**
 - In Babar and Tarai region of Uttarakhand, do proper chopping of maize, sorghum and other fodder and mix it in green fodder equally. Give them fresh water for drinking water for 2 times in a day. Since night temperature will fall further during this week, hence keep all types of small animals under the shed during the night. Put rice straw or dry leaves of sugarcane on the ground for their comfort during the night time.
 - Farmers in Punjab and Haryana are advised to protect animals from cold winds and keep them at dry places. Feed balanced fodder and increase 4 to 5% energy sources in the ration of animals like cereals, grains etc. Newly born calves need special care during cold weather as they are susceptible to attack of pneumonia.
 - In Intermediate zone of Jammu & Kashmir, vaccination of animals against FMD advised. Weather is conducive for ticks and mites attack on animals. For control spray Butox@ 2.0 ml per litres of water. Ensure proper drainage in the surroundings of cowshed.
 - In Valley Temperate Zone, Jammu & Kashmir, farmers are advised as the night temperature is reducing day by day. Proper arrangement should be done to provide warming to the livestock. During day time animals should not be moved out of sheds too early. Animals should be fed with a balanced diet containing higher amount of minerals and vitamins. Animals should not be allowed to graze late in the nights.
 - Farmers in Semi-arid Eastern plain zone of East Rajasthan are advised to keep teats of milch cow & buffalo clean before & after milking to protect them from the attack of Mastitis. Keep their teats clean before & after milking.
 - In Transitional Plain Zone of Inland Drainage, in view of falling night temperatures, farmers are advised to protect their infant animals from pink cold. They are also suggested for deworming of animals.
 - In Semi-arid Eastern plain zone of Jaipur of East Rajasthan, due to cold winds milch and baby animals are likely to be affected with infection of respiratory tracts. If symptoms like droppings from nose, fever etc. are seen in animals, A 3 day course of Cproflaxin, Anorflaxin or Sulpha may be given under the guidance of Veterinary Doctor.

- **Horticulture**

- In Valley Temperate Zone of Jammu & Kashmir, farmers are advised to start pruning in apple trees. Older trees should be pruned first as younger trees are more prone to winter injury. Cease all pruning operations well before any chance of a severe temperature drop.
- In Sub-Tropical zone of Jammu & Kashmir, young evergreen plants should be provided with thatches prepared from Sarkanda or any other material, however, it should be kept open on eastern side to allow sufficient sun shine and air for the plant.

- **Apiculture**

- In Intermediate and Sub-tropical Zone of Jammu & Kashmir, weak colonies may be provided sealed brood from strong ones. Provide ample space for queen bee by giving drawn comb. Weak colonies may be provided sealed brood from strong one to equalize the strength of all the colonies. Stimulating feeding of sugar, syrup should be given for expansion of brood area, if needed at the start of the month. Queenless colonies should be united with strong ones. (Sulphur dusting should be avoided in temperate regions).

- **Floriculture**

- In valley temperate zone of Jammu and Kashmir, farmers are advised to complete planting of tulip bulbs and spring annuals as early as possible. Harvesting of gladiolus corms should be completed as early as possible to avoid frost injury.
- It is optimum time for raising the nursery of winter flowers like Calendula, arctotis, dog flowers, sweet pea, dianthus, petunia, stock and flox in fields in Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh.
- Farmers of Mid hill sub humid zone of Nauni of Himachal Pradesh are advised to complete the harvesting of chrysanthemum and marigold flowers. Planting of gladiolus corms in the lower hill areas and planting of Liliium bulbs in low and mid hills should be done.

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

- **Realised Rainfall:** Nellore in Coastal Andhra Pradesh, Chittoor and Cuddapah in Rayalaseema and Chennai, Kancheepuram, Madurai, Tiruvallur, Thiruvannamalai, Vellore and Villupuram in Tamil Nadu received sufficient rainfall during last week. No significant rainfall occurred over remaining parts of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at one or two places over Tamilnadu, Kerala, Lakshadweep and Andaman & Nicobar Islands. Mainly dry weather is likely to prevail over remaining parts of the region during next three days.
- **Advisories:**
 - As Nellore in Coastal Andhra Pradesh, Chittoor and Cuddapah in Rayalaseema and Chennai, Kancheepuram, Madurai, Tiruvallur, Thiruvannamalai, Vellore and Villupuram in Tamil Nadu received sufficient rainfall during last week, postpone irrigation to the standing crops in these districts.
 - Farmers in Coastal Zone of Karnataka are advised to harvest the paddy crop. Farmers who have already harvested paddy and are going in for pulse crops in next season, are advised to grow the varieties mentioned in Annexure-I.
 - Farmers in the Eastern Dry Zone of Karnataka are advised to harvesting of Ragi.
 - Farmers of North Transition zone of Karnataka are advised to irrigate wheat and jowar immediately as there is forecast of no rainfall for next 5 days.
 - Farmers of Hill Zone of Karnataka are advised to complete sowing of *rabi* crops after seed treatment.
 - Farmers of Southern Transition Zone are advised to harvest and thresh the paddy crop and harvest the maize crop and allow the cobs to sun dry.
 - Farmers in the North East Dry Zone of Karnataka are advised to undertake inter cultivation (more than 20 days age) in *rabi* crops like jowar, Bengal gram and safflower. Farmers are also advised to continue picking of cotton and harvesting of paddy.
 - Farmers of the High altitude Zone of Kerala is advised to apply fertilizers (275g Urea, 300g Rock phosphate, and 500g Potash) to irrigated coconut palms. In pepper fields they are advised to keep the field weed free and start irrigation.
 - In the Northern Zone of Kerala the season is ideal for planting intercrops in coconut gardens. The soil water content will remain in moist to wet regime. There is no need of irrigation to any of the crops. Mulch the soil to prevent evaporation loss of water. Sprayings if any may be done only when the sky is clear. This is the right time for raising cool season vegetables like cabbage and cauliflower etc.
 - Farmers in the North Eastern Zone of Tamil Nadu are advised to harvest paddy, postpone field preparation and sowing of groundnut for a week, undertake field preparation for paddy transplantation and drain out excess water from paddy fields.
 - As light rainfall is expected in the coming days, farmers in the Western Zone of Tamil Nadu are advised to postpone irrigation to garden land crops.

- Farmers in the South Zone of Tamil Nadu are advised to undertake foliar spraying of 1% MgSO₄ and 0.5% ZnSO₄ on cotton at squaring stage, in soil moisture deficit situation and 1 % KCl on maize and sorghum at vegetative stage, as a measure of tolerating water scarcity situation.
- Farmers in the North Western Zone of Tamil Nadu are advised to cultivate low water requirement crop such as sesame with short duration (80-85 days) varieties like TMV-7 and SVPR-1. Existing tomato crops are found to have fruit cracking and flower dropping due to micronutrient deficiency which can be controlled by spraying micronutrients at the rate of 5g/lit along with sticking agent.
- Farmers in the Scarce Rainfall Zone of Andhra Pradesh are advised to continue sowing of groundnut crop under irrigated conditions.
- Farmers in the Southern Telangana Zone of Andhra Pradesh are advised to go for irrigated dry crops like maize, groundnut, sunflower etc. wherever feasible instead of rice cultivation due to insufficient ground water.
- Farmers in the North Coastal Zone of Andhra Pradesh are advised to undertake sowing of *rabi* groundnut and pulses.
- Farmers in the High Altitude Zone of Andhra Pradesh are advised to undertake nursery sowing of *rabi* paddy. The recommended varieties are Cottondora sannalu(MTU 1010), Vijetha (MTU 1001), Pushkala varieties.
- Farmers in the Northern Telangana Zone of Andhra Pradesh are advised to undertake sowing of maize, cowpea and sunflower. Sugarcane farmers are advised to harvest the matured cane depending on variety, date of planting and juice quality.
- Farmers in the South Coastal Zone of Andhra Pradesh are advised to harvest the mature rice crop when more than 70% grains are mature. Cotton growing farmers are advised to pick the cotton which was affected due to rains separately and dried in shade and packed to avoid discolouration. Farmers are also advised to take up sowing of rice fallow maize and pulses. The recommended varieties for pulses are LBG 645, LBG685,LBG 648, LBG 402, LBG 752.
- Farmers in the Southern Zone of Andhra Pradesh are advised to undertake sowing of *rabi* ground nut and nursery preparation of rice. Spray monochlorophos @1.6 ml/lit or emidoclopid @0.3ml/lit on the groundnut crop which is twenty days old.
- Incidence of *maruca* and *leaf* webber is noticed in red gram in South Telangana of Andhra Pradesh. Farmers are advised to spray 5%NSKE or neem oil @ 5 ml /lit should be taken up before flower bud initiation to avoid egg laying by Maruca adults.
- Farmers in the North East Dry Zone of Karnataka are advised to spray mixture of 3 gm sulphur/litre of water and Chlorpyrifos 2.5 ml or quinolphos 2 ml/litre of water as powdery mildew disease and Helicoverpa insects are reported on vegetables like chilli and bhendi. Green Caterpillars are reported in 20-25 days old *rabi* sorghum crop and Helicoverpa pod borer is noticed in early sown Bengal gram so follow suitable control measures by spraying general insecticides like Profenophos or Chlorpyrifos @ 2ml/liter of water. 2 to 4 larva /Plant observed on Redgram hence, spray Emmamection Banzoate 1.2g/l of water, as part of integrated Helicoverpa management practice.
- Boll worm incidence and grey mildew in desi and non Bt cotton, early leaf blight (ELB) in tomato and root grub in sugar-cane is noticed in the North Transition Zone of Karnataka. Farmers are advised to spray the crop with monocrotophos @ 2.5ml/lit and Carbendizim 50 WP @ 1g/lit of water for effective control of boll worm incidence and grey mildew, mancozeb @ 2 g/L or cuprous oxide @ 2.5 g/L. to control early leaf blight and drench the soil with chlorophyriphos (20 EC) @ 10 ml / L to control root grub. Leaf reddening is increasing in Bt genotypes due to drop in temperature and prolonged dry spell. Farmers are advised to apply foliar application of 2 % of urea or DAP with 1% MgSO₄ to the crop. Mirid bug is also reported in parts of the zone. It is suggested to spray Acephate 75 SP @ 1 g/lit or Fipronil 5 SC @ 1.0 ml/lit of water to developing squares immediately.
- In the Problem Areas Zone of Kerala in already sown punja rice, present weather condition is highly favorable for the incidence of leaf thrips. Hence farmers are requested to strict field surveillance. Similarly, present weather is most conducive for the incidence of dieback and leaf fall diseases in nutmeg and incidence of viral diseases mostly in cucurbitaceous vegetables.
- Farmers of the Southern Zone of Kerala are advised to control red palm weevils by closing all the holes at lower portion of the palm leaving a hole at the top portion open and pouring a solution of Sevin @ 8 g/litre of water. Adopt a comprehensive management package against the mid-whorl yellowing in coconut. Crown cleaning, phytosanitation, provision of proper drainage and regulation of shade should be given priority.
- Leaf folder incidence, bacterial leaf blight and bacterial leaf streak is noticed in samba / thaladi paddy fields in the Cauvery Delta Zone of Tamil Nadu due to prevailing weather condition. Farmers are advised to spray chloripyriphos 500 ml/acre to control leaf folder incidence, streptomycin + tetracycline 120 g + copper oxy chloride 500 g mixture/acre or copper hydroxide at 500 g/ac in 200 litre of water to control bacterial leaf blight and bacterial leaf streak and apply nitrogenous fertilizers in four splits to reduce the incidence of pests and diseases in rice crop.

- As the temperature is expected to shoot up to 32°C with intermittent rainfall, the weather is favourable for bacterial leaf blight incidence in paddy. Hence, the farmers in the Western Zone of Tamil Nadu are requested to take appropriate control measures.
- The expected weather is conducive for powdery mildew incidence in pulses, sucking pests, whiteflies and aphid infection in cotton, bacterial leaf spot, blight and blast, stem borer and leaf folder in paddy in the Southern Zone of Tamil Nadu. Farmers are advised to undertake plant protection measures.
- Incidence of wilt in Bengal gram, leaf webber in red gram, aphids in safflower, rhizome rot and leaf spot in turmeric is noticed in the Southern Telangana Zone of Andhra Pradesh. Farmers are advised to undertake plant protection measures.
- Incidence of gram caterpillar and blight in Bengal gram, leaf webber in red gram, botrysis in castor, sheath rot in paddy was noticed in the Scarce Rainfall Zone of Andhra Pradesh. Farmers are advised to undertake plant protection measures.
- **Animal Husbandry**
 - With the prevailing weather conditions in the North Western Zone of Tamil Nadu, feed intake and egg production in poultry will be close to normal. Farmers are advised to feed the birds with toxin free feed using dried feed ingredients to sustain the production performance.
 - During night time temperature will go down up to 19 °C. Hence farmers in the North Eastern Zone of Tamil Nadu are advised to protect young calves, lambs and kids from chillness during night time by covering with dry gunny bags and by covering the side of the animal sheds.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Mainly dry weather prevailed over the region.
- **Rainfall Forecast:** Weather would be mainly dry over the region.
- **Advisories:**
 - Farmers in Madhya Pradesh are advised to provide irrigation to the standing crops as per requirement of crops since there was no rainfall during last week and no significant rainfall is likely during next three days.
 - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised to prepare field immediately in residual soil moisture for the sowing of chickpea, lentil, mustard, and linseed crops. As minimum temperature decreasing, this is proper time for sowing of wheat and pea. Seedlings of cabbage, cauliflower and onion may be transplanted in the field. Also, broadcast urea in field after 30-35 days after transplanting. Apply irrigation in tomato, chilli and egg plant as per the recommendations, and harvest the mature fruits.
 - Farmers in Malwa Plateau Zone of Madhya Pradesh are advised to complete sowing of *rabi* crops also apply nitrogen fertilizer and irrigate wheat crop. They are also advised to do earthing up in potato and apply 1/3 dose of nitrogen fertilizer. Undertake sowing/ transplanting of vegetables and planting of onion.
 - Farmers in Jhabua Hills Zone of Madhya Pradesh are advised for sowing of wheat. Apply irrigation in early sown wheat crop at 21 DAS. Also semi-irrigated/ 2 irrigation wheat crop may be irrigated after 30-35 DAS. Also irrigate early sown gram crop. Apply irrigation in cotton field at the time of boll opening. Apply fertilizers in chilli, capsicum, tomato, papaya, onion etc. and irrigate. This is suitable time for sowing of carrot, radish, pea, methi, palak, potato and transplanting of tomato, brinjal, cauliflower and other vegetables etc.
 - Farmers in Gird Zone of Madhya Pradesh are advised field preparation and sowing of wheat and linseed.
 - Farmers in Bundelkhand region of Madhya Pradesh are advised for sowing of medium varieties of wheat and also treat the seed before sowing with fungicide carboxin or carbendazim @ 2.5g/kg to control of loose smut there after treat the seeds with azotobacter and PSB culture. Irrigate the wheat crop, which is about 20-25 days old and is in CRI stage. Apply remaining half dose of nitrogen fertilizer after irrigation. They are also advised to do inter-culture operations in mustard crop thereafter irrigate the field. They are also advised to irrigate the vegetable and fruit crops and broadcast / apply urea. Farmers are also advised to do weeding and hoeing in onion and garlic vegetable crops.
 - Farmers in Central Narmada Zone of Madhya Pradesh are advised for sowing of gram, linseed, lentil, wheat and vegetable pea. Planting of winter sugarcane and garlic may be done. Apply irrigation in cabbage and cauliflower field. They are also advised to apply fertilizer to chilli, tomato, brinjal, cabbage, cauliflower and onion etc.
 - Farmers in Nimar valley zone of Madhya Pradesh are advised for sowing of wheat and gram. Sowing may be done up to 4-5cm depth.
 - Farmers in Vindhya Plateau Zone of Madhya Pradesh are advised to irrigate wheat and gram crop and apply urea in wheat crop. Transplanting of vegetables may be done.
 - In Chhattisgarh Plain Zone, presently weather is favorable for the germination of gram, pea and wheat. Hence, farmers are advised for sowing of above crops as soon as possible. Before sowing of pulse crops, farmers are advised for seed treatment.
 - Farmers are advised for transplanting of cauliflower, tomato, brinjal, chilli etc. in the main field during evening hours in Chhattisgarh Plain Zone. Farmers can also sow the leafy vegetables. Present weather conditions are

favourable for sowing of potato and garlic and also for raising seedlings of Onion. Farmers having proper irrigation facilities are advised for sowing.

- Farmers are advised to harvest the matured rice crops utilizing dry weather and keep it for proper sun drying. Looking to the present weather conditions, farmers are advised for the sowing of autumn sugarcane as early as possible in Districts Raigarh, Kabirdham and Durg.
 - Farmers in Bastar Plateau Zone in Chhattisgarh are advised to prepare field and undertake sowing of cowpea. Farmers are also advised for planting of cassava, colocasia, ginger, elephant foot yam and diascorea and support may be given by bamboo sticks. Colocasia and daag kanda harvesting may be done as per crop maturity.
 - Winter season vegetables may be sown in the main field beds. Leafy vegetables like spinach, methi, maranthus and laal bhaji may be sown in the beds. Sowing of urad, niger, kulthi crops may be completed at the earliest.
- **Animal Husbandry & Poultry**
 - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised that temperature is decreasing therefore improve temperature conditions in the poultry and dairy farms.
 - Farmers in Jhabua Hills of Madhya Pradesh are advised to vaccinate their cattle for FM disease. For control of Ranikhet disease in bird vaccinate them by F-1 or Lasota vaccine.
 - Farmers in Bundelkhand region of Madhya Pradesh are advised that in view of fall in sunshine duration, provide 3-4 hours light in poultry houses during night otherwise, insufficient light may affect egg production.
 - Farmers in Malwa Plateau and Central Narmada Zone of Madhya Pradesh are advised to provide clean and concentrate feed to the cattle and de-worm the cattle.

Annexure I

Major Crops

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

- Sugarcane (elongation), *sali* rice (maturity/ harvesting), *boro* rice (nursery raising/transplanting), black gram, green gram (pod maturity / harvesting), cole crops (transplanting/ early vegetative / vegetative), winter vegetables (transplanting / vegetative), wheat (sowing / germination), rapeseed, mustard (vegetative/flowering), potato (planting/stolon formation), *rabi* pulses like lentil, rajmah, pea, lathyrus (sowing / seedling) in Assam.
- *Rabi* maize (vegetative), cauliflower, cabbage (vegetative/maturity), brinjal, tomato (fruiting/maturity), potato (vegetative), pea (sowing / vegetative) in Arunachal Pradesh.
- Potato (planting), pea (sowing / early vegetative), tomato (seedling / transplanting), cauliflower, cabbage (transplanting / early vegetative), rapeseed (sowing / early vegetative), *rabi* maize (sowing), onion (transplanting / vegetative) in Manipur.
- *Kharif* rice (grain maturity / harvesting), *rabi* maize (sowing / vegetative), cole crops (transplanting / vegetative), groundnut (harvesting), turmeric, ginger (vegetative / rhizome formation), pea, mustard, garlic (sowing), toria (vegetative) in Meghalaya.
- Cole crop like cauliflower, cabbage, broccoli, knolkhol (nursery preparation / transplanting), tomato (nursery preparation / transplanting), ginger / turmeric (vegetative / rhizome formation), groundnut, soybean (vegetative / flowering), beans (vegetative / flowering), pea, lentil (sowing) in Mizoram.
- Jhum and wetland paddy (harvesting), tomato, cabbage (transplanting / vegetative), pea (germination / vegetative / flowering / fruiting), mustard (vegetative/flowering), soybean (pod maturity / harvesting) in Nagaland.
- *Aman* rice (harvesting), *rabi* maize (sowing), *rabi* legumes, rapeseed, mustard etc. (sowing), toria (flowering), turmeric, ginger (rhizome formation/harvesting), tomato (vegetative), banana(vegetative) in Tripura.

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

- Mustard, gram, peas, sunflower, maize (land preparation / sowing), sugarcane (vegetative), fodder crops like sorghum, bajra, meth, kalai, boda and dinanath grass (vegetative), *kharif* rice (harvesting), urad, arhar, bajra etc. (grain formation), mango, litchi, guava (early vegetative / vegetative), winter vegetables, wheat (sowing) in Bihar.
- Kulthi, African marigold, French marigold (sowing), urad, potato, green pea, toria, tomato, cauliflower, cabbage and bell pepper (sowing), gram (land preparation / sowing), rapeseed, linseed and mustard (sowing) radish, turnip, spinach, carrot (sowing), wheat (land preparation/sowing) in Jharkhand.
- Sugarcane (grand growth), banana (vegetative), rice (maturity/harvesting), mustard, sunflower, sesame, groundnut, cow pea (sowing) and fruit crops (planting / seedling) in Orissa.
- *Aman* rice (grain filling / maturity / harvesting), *boro* rice (seedbed preparation), wheat (land preparation/sowing), cauliflower (sowing / seedling / transplanting), marigold, Gladiolus (planting), potato (land preparation/sowing), winter vegetables (vegetative), onion (sowing) in West Bengal.
- Ginger (germination / early vegetative), orange (transplanting / seedling), large cardamom (vegetative / primary flowering / secondary flowering), vegetables (vegetative), rice (grain formation / maturity) in Sikkim.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- Sugarcane (*suru*) (active tillering in Madhya Maharashtra and Marathwada), sugarcane *adsali* (elongation / cane maturity), sugarcane pre seasonal (elongation / cane maturity), sugarcane (new *adsali*) (early tillering), sugarcane (new pre seasonal) (sprouting), cotton (maturity / picking), red gram (pod formation / pod maturity), *rabi* jowar (early vegetative / vegetative), safflower (early vegetative / vegetative), maize (germination / early vegetative in Marathwada and early vegetative /vegetative in Madhya Maharashtra), gram (sowing / germination / branching), wheat (sowing / germination / crown root initiation / tillering) in Maharashtra.
- Wheat (sowing / germinating / crown root initiation), gram (sowing / branching), cumin (germination / branching), cotton (harvesting), sugarcane (elongation), new sugarcane (early vegetative), sesamum, castor (flowering and capsule development / spike initiation), winter vegetables (onion, cauliflower, potato) (transplanting / vegetative), chilli, brinjal (flowering / fruiting), mustard (seedling / bud initiation), pigeon pea (flowering), fodder jowar, maize (tillering) in Gujarat.

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

- Wheat (late sowing/seedling/CRI), apple (harvesting/new planting), pea, raddish, turnip, coriander, cabbage, Knol khol, broccoli, parsley, lettuce, fennel and cauliflower (sowing), in Himachal Pradesh.
- Cauliflower, cabbage, broccoli and tomato (vegetative), carrot, pea(vegetative), sarson saag, bathua, radish, spinach, fenugreek ,coriander and turnip (vegetative), Mustard(vegetative), Onion(vegetative), wheat(CRI stage) in Delhi.

- Sugarcane (planting), papaya (planting), sunflower (early vegetative / vegetative), maize (Normal sown –grain formation stage, early sown- harvesting stage, very late sown- cob maturity), garlic, cucurbits, okra(seedling), potato (sowing), radish (sowing), cabbage, cauliflower (nursery sowing), carrot, turnip (sowing), knol-khol, cole crops (transplanting), mustard (emergence), brown sarson (rosette stage), barley, pulses (pea, lentil) (sowing / germination / vegetative), gram (vegetative), toria (maturity), vegetables {Methi early bunching and kasuri methi, spinach, radish, (sowing), tomato, brinjal, chillies (nursery sowing) }, *rabi* oilseeds [normal (6th leaf stage), Early sown (early flowering / flowering)] Wheat(sowing / emergence/ tillering), barley (sowing / emergence), Berseem (vegetative / 1st cutting) in Jammu & Kashmir.
- Wheat (sowing/CRI), groundnut, sorghum, urad, moong, rajma (harvesting), arhar and ginger (vegetative), autumn sugarcane, mustard, yellow serson, karan rai, brinjal, chilli, lady's finger, barley, oat, pea, chick pea, potato, lentil and vegetable (sowing/germination/vegetative) in Uttarakhand.
- Wheat (sowing/CRI), sugarcane (vegetative growth/ripening), chana, pea, masoor, alsii, barseem, jai(sowing), vegetables like onion, garlic, radish, carrot, coriander (vegetative/flowering), mustard, pea, lentil & gram, maize(sowing/germination) in Uttar Pradesh.
- Rice (harvesting), spring sugarcane (sprouting/tillering), radish, carrot, turnip, (sowing / germination/vegetative), cauliflower (transplanting/vegetative), tomato, sunflower (early vegetative), cotton (boll formation), okra, chilli, brinjal (transplanting/early vegetative), maize, mung, mash, tur (early vegetative), toria (sowing), maize (cob formation) in Punjab.
- Rice (harvesting), sugarcane (grand growth) (early vegetative/vegetative), barseem (vegetative / last cut), fodder (maize + cowpeas) (vegetative/ 1st cutting), moong, mash, pigeon pea (vegetative), cauliflower, cabbage, carrot, potato (transplanting), radish, cotton (flowering), turnip (sowing/seedling) in Haryana.
- Cauliflower, cabbage, onion (transplanting / germination), sugarcane (new planting/ vegetative), maize (maturity), mirch, simla mirch, guar, vegetable (tinda, water melon, pumpkin, cucumber, coriander, bhendi, ridge gourd) (sowing/seedling), green gram, cowpea (harvesting) and groundnut (pod maturity/harvesting), short duration moth and guar (pod maturity/harvesting), moong (vegetative), kinnow (fruiting), oilseeds (sowing/emergence), early sown mustard (growth / flowering) , wheat, barley (sowing / germination to CRI), mustard (sowing / vegetative), gram, potato (sowing) in Rajasthan.

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

- Sugarcane (grand growth), late planted paddy (harvest), sunflower (flowering), cowpea (vegetative), pigeon pea (flowering/pod filling), pearl millet (harvest), desi cotton (vegetative), cotton (boll opening / picking) and chilli (fruiting), *rabi* crops - wheat (late tillering/flag leaf initiation), jowar (flowering), safflower (sowing), red gram (pod formation), vegetables (nursery/transplanting) in Karnataka.
- Sugarcane (June planted) (cane formation/cane maturity), vegetables (vegetative), early sown rice (harvest), late sown rice (flowering), castor (1st picking stage), late sown groundnut (pod formation/pod filling), *rabi* groundnut(sowing/ early vegetative), *rabi* maize, sunflower, pulses (sowing), jowar (grain filling stage), cotton (boll maturation –1st picking stage), Bengal gram (vegetative/ flowering), red gram (pod formation), Bt. cotton (flowering/boll development) and *rabi* paddy (nursery sowing) in Andhra Pradesh.
- Coconut (flowering / nut development), punja rice (transplanting/tillering), cardamom (harvesting), rubber (tapping), vegetables (harvesting), mundakan paddy (tillering), banana /cardamom/vegetables (new planting) in Kerala.
- Late samba rice (tillering/vegetative), samba rice (panicle initiation), thaladi (transplanting), rainfed maize (flowering), sorghum (vegetative), cowpea (vegetative), rainfed groundnut (vegetative/flowering), pulses (pod development), pulses (pod formation), cotton (vegetative), maize crop (vegetative), vegetables (vegetative) in Tamil Nadu.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Ladies finger, cucurbits (vegetative/flowering), pea, potato, sugarcane (sowing/planting), *rabi* vegetables (transplanting), wheat (sowing/crown root), maize, gram (branching stage), fodder crops (sowing), chickpea, lentil, mustard, linseed (sowing) in Madhya Pradesh.
- Rice (grain maturity/ harvesting), sugarcane (planting/vegetative), groundnut (pod filling), sesame (late vegetative), ginger, turmeric, papaya, mango and guava (vegetative), onion (planting), vegetables (transplanting / vegetative), millet (vegetative), tapioca, ginger, colocasia, dioscorea, elephant foot yam and cassava (planting), wheat niger, kulthi (land preparation/sowing) in Chhattisgarh.

Annexure II List of Varieties

Assam

Boro rice: Mahsuri, IR-50, Bishnuprasad, Jyotiprasad, Kanaklata and Dinanath, Boro 1, 2, 3, Kalinga-3, Joymati, Swarnav.
Lentil: B-77, L-9-12.

Cauliflower: Early Kunwari, Pusa Katki, Pusa Deepali.

Cabbage: Golden Acre, Pride of India, Pusa Mukta (Sel – 8), Japanese, Pusa Synthetic, Pusa Snowball and for late maturing varieties Snowball-16, Pusa Snowball, K-1 and Hissar 1 etc.

Tomato: Punjab Chhuhara, S-12, Punjab Kesri, Pusa Early Dwarf, Sioux, Pusa Ruby, VC- 48-1, Arka Abha (BWR-1).

Brinjal: Pusa Kranti, Pusa Purple Long, Pusa Purple Round, Pusa Vairab, Pant Samrat etc.

Rapeseed and Mustard: M-27, TS- 36, TS-38.

Potato: Kufri Chandramukhi, Kufri Jyoti, Kufri Megha, Kufri Badshah, Kufri Sindhuri, Pukhraj

Wheat: Sonalika, UP 262, K 7410, WH 291 and HDR-77, DBW-14, and HUVV-468.

Manipur

Cauliflower: White Shot.

Pea: Arkel, Azad Pea.

Meghalaya:

French bean: Arka Suvridha, Arka Anoop (bush type) and Naga local, RCMFB-1 (pole type).

Cabbage: H-139 and Pride of India.

Cauliflower: Pusa Meghna, Pusa Sharad and Meghalaya Local.

Broccoli: Puspa, Aiswarya and Fiesta.

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.

Pea: Arkel, Arka Ajit, TRCP- 8, 9.

Cowpea: Kashi Kanchan.

Rabi maize: HQPM- 1.

Lentil: WBL – 58.

Orissa

Cowpea: SEB-2, Pusa Barsati.

Brinjal: Utkala Tarini, Utkala Madhuri, Blue Star, Green Star, Pusa Purple Cluster.

Tomato: BT-2, BT-10, BT-12, Niladri, Sadabahar, Madhuri, Maharathi, Rasmi, Naveen, etc.

Mustard: Parbhathi, Anuradha, TS-29 & M-27, M-27, Pusa Jaikisan, Pusa Bold

Groundnut: Smruti and JL-24, TMV-2, Devi

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

Onion: Nasik Red, Patna Red, Pune Red, Bellary Red, Pusa Ratnar, Pusa Madhavi, Arka Niketan , Arka Pragati, Agrifound light red, Agrifound dark, Punjab Selection, Patna white, Bombay white, Pusa white round.

Sugarcane: Early-CO-6907, CO7508

Medium-CO-7219, CO-86249

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

Green Pea: Rachana, Arkel. and T -163.

Coriander: CO-1, CO-2, CO-3, Swati, Sadhana, Ram Selction and Udi.

Bengal gram- Gourav, Annegiri, Radhey, Pea- Rachana, Arkel,

Lentil- Asha, Pant-L-4, Pant-L-6,

Green gram- TARM-1, Samrat, OUM-11-5, PDM-54,

Black gram- Pant-U-19, Pant-U-30, T-9, B-3-8-8,

West Bengal:

Cauliflower: Kanwari, Jowhar, Moti, Early Patna.

Tomato: Pusa Rubi, Pusa Early, S-2, Roma Super.

Mustard: Agrani (B-54), Panchali (T.W.C.-3), B-9, Rai-5 and Bhagirothi (R.W.-351) etc.

Sugarcane : Co- 7218, Co- 527, Co- 1148, Co- 6203 etc

Wheat : PBW-343, K-307, UP,-262, Janak, C-306, Raj-911 etc

Boro Rice : Supriya, Jamini, Bhupen, IET-2233, Satabdi (IET-4786), Kitish (I.E.T.-4094), Ratna, Bikash etc.

Potato : Chandramukhi, Joyti.

Jharkhand:

Wheat: H.U.W.-468, K-9107 & Birsa Genhu – 3.

Okra: Pusa A-4, Prabhani Kranti, Arka Anamika, Versha Uphar & Hybrid varieties like Sonal and Sarika.

Potato: Kufri Pushkar, Kufri Lalima and Kufri kanchan .

Toria: T-9, Panchali, Bhawani, PT-303.

Tomato: Pusa Ruby, Swarna Sampda, Swarn Lalima.

Cabbage: Golden Acre, Pride of India, Early Drum Head.

Cauliflower: Pusa Depali, Patna Early, Hazipur Extra Early, Pusa Ketki.

Mustard: Shivani, Pusa Jaikisan, Pusa Bold, Vardan.

Rapeseed: Panchali, Bhawani, P.T.-303.

Linseed: Sweta, Shubhra, T-397.

Gram: KAK-2, ICC-2, HK94-134(Kabuli) and Pusa 256, Pusa 372, Pant G-114, KWR 108, ICC 37.

Pea: Arkel, Kashi Nandini, PE - 6 and Birsa Matar.

Lentil: P.L.-406, P.L.-639, K.L.S-218 and K- 75.

Bihar

Gram: Rajendra Chana, Uday, Pusa 256, RAU 52, SG2.

Peas: Ratna, Aparna, Harbhajan, Malbai, Malviya mator 15, Harbhajan, Arpana and Pusa Prabhat.

Lentil: BR 25, Pant L 406, 639, Malika, Arun.

Cauliflower: Aghani, Early Snowball, Patna Main and Pusa Shuvra.

Rai: Baruna, Pusa Bold and Kranti.

Carrot: Pusa Keser, Pusa Meghali, Pusa Yamdagini, Desi Lal, Desi Kali, American beauty and Kalyanpur Yellow.

Sunflower: Morden, Surya, Paradovic, KBSH 1, 44.

Maize: DHM117, Saktiman 1, 2, 3, 4; Laxmi, Rajendra Shankar Makka 1 and 2.

Oyster mushroom: Sejoor Kaju, Florida.

Wheat: C306, HD2733, K9107.

Sarson: Rajendra Sarson-1, Swarna etc.

Potato: Kufri Lalima, Kufri Kuber, Kufri Alankaar, Khufri Jyoti, Khufri Chandramukhi, Ranjendra Aloo1, 2 And 3, Khufri Badshah.

Gujarat:

Gram: Gujarat Gram-1, 2, 3, Dahod Yellow or Chafa or ICCV-10 or PG-1.

Wheat: GW- 496, GW -503, GW -273, GW -322, GW-366, Lok-1.

Lok-1, GW-120, GW-173, GW-405 (for late sown wheat).

Mustard: Varuna or Gujarat Mustard-1, 2, 3.

Cumin: Cumin Guj.- 4.

Potato: Kufri Badshah, Kufri Bahar, Laukar.

Maharashtra

Irrigated Wheat: NIAW-301, NIAW-917, MACS-6122 and NIDW-295 for Madhya Maharashtra, HD-2189, AKW-1071, AKW-3722, MACS-2496 or MACS-2846 for East Vidarbha, HD-2189, AKW-1071, HD-2380 or MACS-2496 in Central Vidarbha Zone and HD-2278 or HD-2189 in Marathwada.

Groundnut: Kokan Gaurav, Kokan Tapora, Phule Pragati, TG-26, SB-11 and TAG-24.

Mustard: Varuna, Pusa Bold.

Sunflower: Modern, S.S.56 and B.S.H – 1.

Himachal Pradesh:

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

Barley: HBL-316 and Dolma

Oat: Palampur-1

Cauliflower: Pride of India, Shweta, Madhuri, Himrani.

Cucumber: Kiyani seedless/243, Matgaura, Maliniseeded

Pea: Ageta – 6 or Arkal pea

Raddish : Japani white and early mino white

Turnip : PTWG-1,

Cabbage : Snow ball K-1 Palam uphar, golden acre,

Knol khol : White Bina,

Broccoli : Palm kanchan, Palam vichitra and palam samridhi.

Jammu & Kashmir

Potato : Kufri Badshah, K. Jyoti

Radish: P.Reshmi, Japanese White, Minowase

Carrot: Pusa Kesar, P. Yamdagani, Nantes, Chaman

Turnip: PTWG,

Garlic: Local, large segmented, Agrifound Paravati

Onion: Pusa Red, N-53, Agrifound Dark Red & Agrifound Light Red, Punjab Selection

Knolkhol: King of Market and White Vienna

Spinach: prickly seeded

Methi : Pusa early bunching and kasuri methi

Gobi sarson: GSS-1, GSL-2 & DGS -1.

Mustard: KOS-1, KS-101

Peas: Bonnevillea, AP-1, AP-3

For Direct sowing: Radish (Pusa Himani, Japanese White and Minowase), Spinach beet (All Green) and Spinach (prickly seeded).

For Nursery sowing: Tomato (Punjab Chuhara, DVRT-2, Pusa Ruby, Hisar Arun & Hisar Lalit) ; Chillies (NP-46A, Pusa Sadabahar, Punjab Surakh, Punjab Guchedar and Pusa Jawala) and Brinjal (Pusa Purple Round, Pusa Kranti, Pusa Purple long).

Mustard: RLM-514, 619, 198, Kranti, Varuna, Pusa Basant, Pusa Bahar, RH-30, RSPR-01, RL 1359

Gram: C-235, K-468, Gourav, PBG-1, SCS-3

Wheat : Irrigated- PBW-550, PBW-502, PBW-621-50, DBW-17, Raj-3077, RSP-303, HD-2967, HD-2687 WH-542, PBW-502, HD-2687

Unirrigated: PBW-396 VL-738 and PBW-175 under the rainfed conditions. VL-738, VL-804, HS-240 under irrigated and rainfed areas. RSP-81 (jitto) HD-1553, HS-277, VL- 616 & SKW-196., Raj 1482 (suitable for heavy soils), Raj 3077, and Raj 4120. Important varieties of barley suitable for zone 1c are RD 2052, RD 2035 (suitable for saline and alkali soils) and RD 2715 (dual purpose).

Barley: RD-2052, RD-2552, RD-2035, RD-2503, RD-2508, Ratna, Jyoti and Sonu etc.

Gram: RSG-44, Dahod yellow, GNG-16, ICCV-10 RSG-888 and Pratap Chana-1 and for Kabuli Chana kak- 2.

Lentil: L-9/12 and PL-406, Pea: T-163, PG-2 and Rachna.

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

Punjab & Haryana

Punjab :

Wheat: PBW 621, DBW-17, PBW-502, PBW-343, WH-542, HD 2967 and durum wheat WHD 943, PDW 314, PDW 291, PDW-274 and PDW-233

Radish: Punjab Safed, Punjab Pasand and Japanese White.

Turnip: L-1

Carrot: Selection 21 and PC-34

Gram: PBG 5 and PBG-1

Peas: Punjab 87, Punjab 88, Punjab 89 and Mithi Phali.

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

Gobhi sarson: GSC-5, GSL-1, GSL-2, PGSH-51, Hyola (PAC-401) should be sown from 10th of October to end of October.

Delhi

Late wheat varieties: P.B.W.373, WR-544, U.P.2338, U.P.2425.

Rajasthan

Vegetables : Tomato: Pusa Ruby, Pusa Early and Vihar, Brinjal: Pusa long, Meghdoot, Arka Bahar, Pusa summer and prolific round, Cucumber: Balam, Pusa Sahyog.

Radish: Japanese White and Hill Queen, Early cauliflower: Pusa hybrid-2, Improved Japanese and Pusa Himjyoti,

Cabbage: Pusa Drum Head and Hybrid 10, Cauliflower: Pusa Snowball 1 and Hissar 1, **Taramira:** Karan Tara, Narendra Tara,

Mustard Early sown: NPJ112, EJ17, Pusa Mahak and Kanti Early Pea: Arkil, Hara bona, VL-3, Jawahar Matar-4, Matar Ageti-6 . Normal sown (irrigated)-Maya, Rohini, Pusa Jai kisan, Varuna, RGN13, RGN73, like Bharat Sarson-1 (NRCD-2), Bharat Sarson-2 (NRCHB 101), Bharat Sarson-3 (NRCHB506), Laxmi and Pusa bold. Normal sown (rainfed) -Arawali, RGN48, Geeta and PBR 97, Saline sodic soils - CS52, CS54, CS56, Narendra Rai 1. Yellow Sarson - NRCYS-05-02, YSH401

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

Mustard: Jay Kisan (Bio-902), Rajat- P. C. R. -7 R.H. - 30, R.H.-819, G.M.-2, Uravashi, Pusa bold, Aravali- I.N. 393, R.N.505, Ashirwad - 48, R.G.N.- 145, R.G.N.-73, R.G.N.-13 Gobi sarson (GSL-1, DGS-1), T-59, RGN- 48,

Gram: G.N.G. 663 (Vardhan), G.N.G 469 (Samrat), G.N.G 1581 (Gangaur), Gram (Rainfed area): C-235, RSG-44, 945, 807, RSG-888, C-235, H-208 and GNG-146, K-468, Gourav and PBG-1 . Early pea: Arkil, Hara bona, VL-3, Jawahar Matar-4, Matar Ageti-6., Pea: T-163, PG-2, Rachna, HFP-3

Kabuli Chana: G.N.G 1499 (Gauri) and G.N.G 1292

Wheat: Raj-3077, Raj-3765, Raj-3777, Raj-1482 & Lok-1 Improved varieties : GW-273, GW-322, Raj-3777, Raj-3765, HI-8498, Raj 4037, Raj 4021, HD-2329, WH 147, PBW502 etc

Barley: R.D.-2035, 2552, 2592, 2052, 2660, 2035, 2503, 2508,2668, RD-2052, RD-2503, BL 2.
Garlic (Ladva, Maleva), carrot (Nantis) and Ajwain. Labh Saleksha-1, Labh Saleksha-2 and RA-180,
Cumin & Isabgol: RMT-1, RMT-143 Fenugreek. RS-1, RZ-19, RZ-209,

Uttar Pradesh

Rai : Narebdra rai 8301, Rohini, Vaibhav, Varuna(Ta 59)

Potato: kupri, ashok, kupri chandramuki, kupri jawahar.

Non-irrigated wheat :lok-1, sujata, gomati, Indira.

Wheat:VL616, 829, 802, 804, 738, 719 and HS277.

Chana : KWR-108, JG-16, JGK-1(kabuli), pusa-256, radhe, PG-114, type-3, k-468, JD-1168, WR108.

Pea: Indira, JP-850, malviya matar-15, rachana malviya matar-2, panta matar-5, JP-885.

Masoor: Bokar-2, 3, K-75, IPL-81.

Alsi: bokar, Lakshmi-27, padmini, parvati, K-2, LC-2023, LC-54.

Sugarcane: GD1168, WR 108, Radhe, JG 315

Wheat : C-306, K-8027, K-8962, K-9465, K-9107, K-9006, Malviya-533, UP-2383, 2338, HD-3338, HD-2687, HD- 2888, HD-4713, HD-2894, HD-2851, HD 2781, PBW- 502, PBW-343, PBW-502, SCW 468, WH-147.

Sarson:Varun type-59, Rohini, Urvashi, Vaibhav, Maya, Narendra suvarna rai-8, Narendra agate rai-4.

Uttarakhand

Pea: VL Ageti Mater-7, Vivek Mater-10, Pant Subjee Mater-3, Azad Mater-3

Toria: PT-303, PT-507.

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

Barley : Jyoti, Vijaya or Jagrati etc, ;

Oat : UPO-212, UPO-94, JHO-822, UPO-50 or Kent etc.

Wheat: irrigated UP-2572, UP-2584, UP-1109, VL-802, VL-804, VL-738, VL-719, VL-421, HS-240. un-irrigated: VL-616, HS-277, VL-829, UP-2382, UP_2338, UP-2554, HD-2687, PBW-550, PBW-502 WH-542, PBW-343, PBW-154, UP – 2572, UP – 2384, UP- 2795 and HS – 420 etc.

Masoor: VL masoor-4, Panta masoor-5, VL masoor-1, VL masoor-203, PRB-502, PRB-507, PRB-701.

Mustard: Varuna, Vardan, Rohini etc and For Pea V.L.Ageti matar-7, Vivek Matar-3,

Potato: Kufri Chandramukhi, Kufri Jyoti, Kufri Anand, Kufri Jawahatr, Kufri Satlaj, Kufri Ashok etc.

Karnataka

Green gram: PS-16

Cow pea: C-152, TVX-944

Black gram: T-9, TAU-

Horse gram: PHG-9

Madhya Pradesh

Wheat: Sujata, HW- 2004, HI-1500, HI- 1531, HD-2004, JWS- 17, HD-4672,

Timely sown: HI-8498, HI -1418, HI- 1479, HI – 1544, GW -273, GW- 322, GW – 366

Gram: JG-130, JG-11, JG-315, JG-16, Jaki – 9218, Kabuli kak-2, JG-412, Vijay, JG-226

Lentil: RVL-31, JL-2

Maize: JVM -421, JM-16,

Pea: Pusa pragati, Jawahar Pea 1, Jawahar Pea 2, Jawahar Pea 5 and Bonvile

Sugarcane: KO-J-N- 86572, KO-J-N- 86141

Chattisgarh

Wheat : GW-273, Kanchan, GW-173, Amar, Lok-1, Ratan and HD-2329

Gram : Vaibhav, JG-74, JG-11, TG-315, ICC-2 (Kabuli)

Maize: Proagro-4640, 4212, Pusa Hybrid -42, MH-10, MH-11, Navjyot, HM-9.

Niger: JNC-1, JNC-6, JNC-9, GA-10, Ootakmund, KGN-2

Kulthi: AK-21, Ak-42, Bastar Kulthi, Birsa Kulthi and VLG-9

Annexure III

Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 05.12.2012

