

National Agromet Advisory Bulletin

Thursday, 12th April, 2012
(For the period 12th to 16th April, 2012)



Thunderstorm in West
Midnapur
in West Bengal



Hailstorm in Shillong,
Meghalaya



Damaged banana crop in-
Mizoram



Damaged trees and buildings in
Agartala, Tripura



Lodging of Wheat crop in Delhi

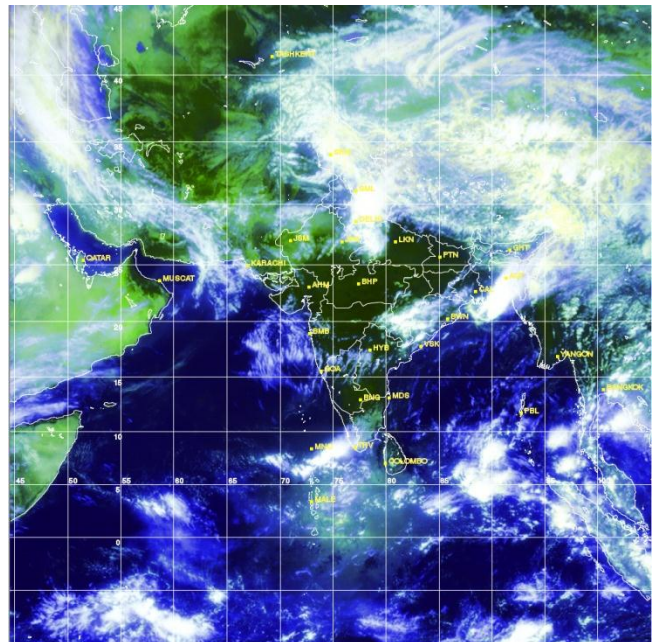
There are reports of occurrence of thunderstorm and hailstorm in Northeast, East and Northwestern regions in the country during last week. Crops affected in different regions are given below:

Eastern region: Wheat, *boro* rice, maize, sesame, vegetables, pulses, sunflower, jute and papaya in Murshidabad, Malda, Dinajpur, West Midnapur, Kharagpur, North and South 24 Parganas districts in West Bengal and wheat, maize and banana in Purnia and Katihar districts in Bihar.

Northeastern region: Maize, banana, citrus and passion fruit in Mizoram and vegetables in Meghalaya.

Northwestern region: Wheat in Amristar, Ludhiana and Malwa region in Punjab, wheat and mustard in Delhi, apple in Kinnaur, Lahul and Spiti and Kullu districts in Himachal Pradesh, wheat, mustard, arhar, gram, field pea, vegetables and mango in Varanasi region in Uttar Pradesh and apple, mango and litchi in Pithoragarh and Nainital districts in Uttarakhand.

Appropriate advisories are issued to different locations under Integrated Agromet Advisory Services to prevent the damage. Detailed report is given inside.



Satellite image 0600 UTC dated 13th April, 2012

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.gov.in>) of the Division

Executive Summary

There are reports of occurrence of thunderstorm and hailstorm in Northeast, East and Northwestern regions in the country during last week, particularly, in Murshidabad, Malda, Dinajpur, West Midnapur, Kharagpur, North and South 24 Parganas districts in West Bengal, Purnia and Katihar districts in Bihar, Kinnaur, Lahul and Spiti and Kullu districts in Himachal Pradesh, Pithorgarh and Nainital districts in Uttarakhand, Amritsar, Ludhiana and Malwa region in Punjab, Varanasi region in Uttar Pradesh, Delhi, parts of Mizoram, Assam and Meghalaya. Matured wheat and other standing crops have been lodged and uprooted due to associated high wind and rainfall. Wheat, *boro* rice, maize, sesame, vegetables, pulses, sunflower, jute and papaya in West Bengal, wheat, maize and banana in Bihar, maize, banana, citrus and passion fruit in Mizoram, vegetables in Meghalaya, wheat in Delhi, apple in Himachal Pradesh and wheat, mustard, arhar, gram, field pea, vegetables and mango in Uttar Pradesh had been damaged. Appropriate advisories are issued to different locations under Integrated Agromet Advisory Services to prevent the damage.

Maximum temperatures were 4⁰C above normal over most parts of Jammu & Kashmir, Himachal Pradesh and some parts of Punjab and West Rajasthan. Thundersqualls with wind speed reaching 55-65 kmph would occur at one or two places over Uttar Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram and Tripura, Punjab, Haryana and Delhi during next 24 hours. Farmers in these States are advised to undertake harvesting of matured wheat, *rabi* pulses and oilseed crops immediately and also arrange for mechanical support for vegetables and young plants in orchards.

Significant rainfall occurred over most of the districts in Arunachal Pradesh, Assam, Jammu & Kashmir, West Bengal and Kerala and few districts over Himachal Pradesh, Punjab, Haryana, Chhattisgarh, Uttarakhand, Bihar, Jharkhand, Orissa, Karnataka and Coastal Andhra Pradesh during last week. Realised rainfall in these districts is beneficial for the standing summer crops. Farmers in these districts are advised to postpone irrigation. As there was no significant rain over most of the remaining parts of the country and no significant rain is likely to occur, farmers are advised to provide irrigation to the standing summer crops and undertake harvesting of matured *rabi* crops.

Due to favourable weather conditions, incidences of fruit borer in mango in Madhya Pradesh, white ant and white grub in groundnut in Orissa, aphids, thrips, mites, hoppers and white fly in rice fallow cotton and mealy bug in vegetables in Tamil Nadu and bacterial leaf blight in rice, shoot and fruit borer and mites in brinjal and fruit borer in tomato in Karnataka are noticed below economic threshold level (ETL). Farmers are advised to undertake appropriate plant protection measures to control the pests and diseases, if their population goes beyond ETL.

Due to favourable weather, farmers are advised to undertake sowing of summer crops with assured irrigation. Sowing of the crops in different States of the country is mentioned below:

Assam: sowing of ladies finger, ridge gourd, sponge gourd and jute and transplanting of early *ahu* rice.

West Bengal: sowing of jute and marigold.

Punjab and Haryana: sowing of summer moong, summer mash, okra.

Delhi: sowing of summer moong.

Rajasthan: sowing of cotton.

Himachal Pradesh: sowing of pea.

Orissa: sowing of jute.

Bihar: sowing of moong and urad.

Maharashtra: sowing of cotton.

Detailed Report on Impact of thunderstorm, hailstorm and high wind and heavy rainfall on standing crops.

Eastern Region

West Bengal

Crop damage due to Hail storm.

Tender mango fruits in most of the orchards and **wheat and paddy cultivation** in **Malda and Dinajpur districts** were damaged. In **Murshidabad and Malda districts**, due to hail storm activity **Boro rice and mango plantations** faced severe damage. At present **mango is in fruiting stage** and hail storm activity has caused **fruit drop** as well as **fruit damage** which might affect the mango production this year. In **Malda district**, thunderstorm along with hailstorm occurred and crop damages were reported in some bolcks (Manikchak, Kaliachak 1 & 2, English Bazar) as follows:

Wheat: grain loss reported where wheat was not harvested yet.

Maize: crop damages was reported.

Vegetables: crop damages occurred in vegetables such as ladies finger, bottle gourd, bitter gourd.

Mango: Fruit drop was reported due to hailstorm.

Due to heavy hailstorm of last week some of the nearby areas of **Kharagpur** block have faced crop loss. Those who have planted **wheat late, they are now facing problem due to rain and heavy storm as the harvesting is continuing as well as the threshing process also.** Farmers of **Keshpur block of west Midnapur** have lost near about **100 bigha of rice and 100-150 bigha sesame crop** due to the natural calamities.

During the past few days there has been thunder storm activity over different districts of West Bengal. The season's first nor'wester claimed several lives along with causing damage to farmers' households. Thunder storms accompanied with hail storm activity has severely affected the **Boro rice as well as the vegetable crops like brinjal, bottle gourd, pumpkin, pointed gourd, chilli which are either at fruiting stage or seedling stage.** Many blocks of **North 24 Paraganas. (Bashirhat, Amarkati and adjoining blocks)** have reported **several hectares of vegetables, pulses, cereals, jute, papaya cultivation damage** due to hail and thunder storms activity.

In **South 24 Paraganas. (Sandeskhali and other adjoining blocks)** there are reports of **salt water upsurge as a result banana crop has been affected. Rice, which is in anthesisstage was also affected** due salt water insurgence and hail storms.

Name of the crop	Stage of the crop	Nature of damage
Boro rice	80% matured	Lodging of panicle
Sunflower	Maturity	Lodging and discoloration nod head
Summer cucurbits	Maturity	Cracking of fruit
Okra	Maturity	Shading of fruits
Water melon	Maturity	Cracking of fruit
Mango	Tender fruit	Cracking and dropping of fruit
Litchi	Going to mature	Fruit shading and cracking

Amount of rainfall received from 11th to 12th April: 18.6mm

Wind speed during storm: 55-60km/hour

Time of storm: Afternoon hours

Bihar

Severe thunder squall/hail storm lashed several parts of Bihar on the night of 9th April. The most seriously hit districts are **Samstipur, East Champaran, West Champaran, Madhubani, Sheohar, Sitamarhi, Muzaffarpur districts (Zone I), Katihar, Purnia, Madhepura and Araria districts (Zone II)**. Scattered hail was also reported from central Bihar districts. **The size of hail at many places was up to 6-15 kg as per news paper report.**

High velocity wind at about 40 to 60 KMPH swept through these districts. Rainfall was reported across many districts of north and central Bihar. The impact of hail storm was quite devastating.

Crop Impacts

- The hail storm severely damaged the standing crops particularly **matured wheat (which is in harvesting stage) and maize crops in the hail storm hit areas. At many places, wheat crop was completely damaged.**
- **Banana crops were chopped off from the top portions** by the impacts of hail storm damaging seriously the prospect of this crop.
- Hail storm and high velocity wind affected **badly mango and litchi crops.**
- High rainfall in the **Purnia division** would facilitate the **sowing and subsequent good growth of Jute crop.** This will boost Jute farming in this area.
- In several areas, hail storm **badly damaged the cucurbits, pumpkin and other summer vegetables.**
- The soil moisture received from rainfall would benefit the moong, urd, summer vegetables and maize crops.

Advisory Benefits

- Farmers were given warning through advisory issued on 7th April. Huge number of farmers followed our advisory and postponed wheat harvesting and removed from the fields the harvested produce.
- Continuous calls from the farmers on mobile armed them with information about impending rainfall and thunder storm. This way, farmers accrued huge economic benefits and avoided quality of grains.
- Looking to rainfall forecast, farmers postponed irrigation and availed large benefits by following our advisory.

Northeast Region

Mizoram :

Due to heavy rain and wind started on 5.4.2012. The following crops suffered heavy damage.

1. **Maize** – (A) Newly sown maize in jhum washed away in sloppy area.(B) Rabi maize which was grown for seed production and attained dough stage lodged due to wind.
2. **Banana** – banana leaves are scattered due to wind and some of the pseudo stem broken from middle which had bunches.
3. **Citrus and Hatkora**– some of the citrus and hatkora plants lodged and uprooted.
4. **Guava** – in some plants branches are broken.
5. **Passion fruit (purple and giant)**- whole training system of bamboo fallen on ground along with vines of passion fruits.
6. **Rubber plantation** – many plants are broken from the middle.
7. **Mist house**- due to wind the cooling system broken and taken away by winds.
8. **Roof of many houses blown away due to heavy wind**

Tripura Agartala

1. Thunderstorm with rain started in Tripura from 07.04.2012

Forecast issued on 07-04-2012 : Rain or thundershower will occur at many places in Tripura .

2. Severity of thunderstorm increased from 08.04. 2012 . There were reports of severe thunder squall with rain at few places in Tripura . There were huge damage to **Rubber plants and other trees** , Electricity poles , kachha houses etc.

Forecast issued on 08.04.2012 : Rain or thundershower will occur at most places in Tripura

WARNING : Thunder squall wind speed exceeding 50 Km / hr accompanied with hail and heavy rain likely to occur at a few places in Tripura during next 48 hours .

3. Reports sever squall with wind speed 60 – 70 Km / per hours on 09. 04.2012 . Hail also reported from some parts of Tripura like Agartala city area , ShidaiMohanpur , Sabroom , Kailashahar , Kanchanpur areas . But there was no reports of crop damage due to hail .

Forecast issued on 09.04.2012 : Rain or thundershower will occur at most places in Tripura

WARNING : Thunder squall wind speed exceeding 50 Km / hr accompanied with hail and heavy rain likely to occur in different parts of Tripura during next 48 hours .

4. Reports sever squall with wind speed 50 – 70 Km / per hours on 10. 04.2012 . Hail also reported from some parts of Tripura . But there was no reports of crop damage due to hail

Forecast issued on 10.04.2012 : Rain or thundershower will occur at most places in Tripura

WARNING : Thunder squall wind speed exceeding 50 Km / hr accompanied with hail and heavy rain likely to occur in different parts of Tripura during next 48 hours .

Meghalaya

A field littered with hailstones after the first hailstorm of the year at **Upper Shillong** on the 4th April, 2012, Tuesday.

Vegetable crops mainly tomato, potato, brinjal etc. may damage in the **East Khasi hills and West khasi hills districts**. The extent of loss has not been estimated yet. But due to this hail storm tomato production may reduce to a certain extent (10-20%).

Northwest Region

Chandigarh

According to the news paper reports wheat crop in several areas in Punjab was damage due to squall on 10.4.12 and due to rain and high velocity wind on 11.04.12. Maximum damage has been reported in **Malwa region in Punjab**. **Lodging of crops** has also been reported in **Amritsar and Ludhiana districts**.

Delhi

Thunderstorm with squall occurs on 10-04-2012 at around 5.0 pm to 6.0 pm. In IARI experimental fields there was negligible loss in **wheat and mustard** crops because mustard crop is harvested and in wheat mostly dwarf varieties is being used.

Uttar Pradesh

In **Varanasi**, crop damage ranges from **10-15 percent (mature rabi crops like wheat, mustard, arhar, chickpea, fieldpea; vegetables like tomato, watermelon, fruits like mango)** by thunderstorm and hailstorm activities acuurences on 5th & 11th April 2012.

Rain and thundershowers occurs in western UP as a result of Western disturbance. Near about entire western UP is affected by this events. Pocket of some of the districts like **Prabhudhnagar (Shamli), Bagpath, Saharanpur ,bulandsahar** was affected by hailstorm . Impact on crop due to WD on 12-13.4.12 is summarized as below

Wheat: Early shown wheat which was ready to harvest, lodged and pockets where hails occurs damaged. About 20-35 % loss in yield is expected.

Late shown wheat lodged due to fast/high wind speed and slight damage due to hails.

Sugarcane: No loss due the events. Some benefit due to light rain is expected.

Mango: Due to high wind some loss on mango flowering and small fruit fall.

Vegetable: No adverse effect was observed, except are where hails falls.

Uttarakhand

Reports of hailstorm occurrences in **Nainital** and **Pittorgarh** districts on 10 and 11 April 2012.

There has been a Thuderstorm followed by high winds (30 to 40 km/hr), lightning and rainfall (4.6 mm at Pantnagar) activity occurred during 8.15 PM to 9.30 PM on 10-04-2012 in Udham Singh, Nainital, Almora, Champawat, Pithioragarh etc. districts of Uttarakhand. Also in Bareilly, Rampur & Moradabad districts of nearby U.P. Districts. Hail of medium six to small size also noticed during this period in some parts of Udham Singh Nagar and plains of Nainital as per the reports.

Impact / damage : Only 1 % farmers harvested wheat crop during day time on 10-04-2012, but due to low rainfall not much damage. Rest crop is standing. On 11-04-2012 also some drizzle continued during the day time causing drop in maximum temperature temp.from 36.0 °C (10-04-2012) to 28.2 oC(11-04-2012) and minimum humidity rose from 35 % (10-04-2012) to 75 % (11-04-2012). No damage in standing Wheat, Mustard, Sugarcane etc. standing crops.

Since **fruits of Mango & Litchi are of very small size less than 5 mm, so some 5 % damage of fruits dropping has been noticed in the area** due to impact of high winds prevailed during 8.15 to 9.30 PM on 10-04-2012.

Himachal Pradesh

Hail storm has been observed in isolated places on in higher mountains regions of district **Kinnaour**, **Lahual & Spitti**, **Kullu**. There are reports that hail storm in some places have caused **apple flower dropping** in **Kinnaur and Shimla**. The wide spread inkangra, unachamba and hamippur have benefitted the presents crops of wheat, season and no hail storm in lower areas was observed

Vegetables: Benefited due to recent rains in Una, HamirpurBilaspur, Hamirpur and lower region of Chamba and Kangra districts.

Fruit crops: Benefited due to recent rains in Kangra, Una and Chamba. The 5-10 % frost damage has been observed in **Ballarpur and Hamirpur**.

As per news paper report

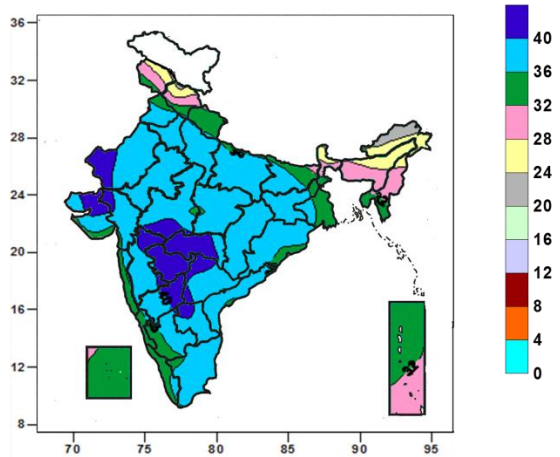
- Loss in matured wheat crop about to be harvested is reported extensively.
- Heavy flower dropping in apple and mango orchards are being reported.
- Loss in horticultural crops and vegetables are also reported from Rampur and Bushahar areas.

Jammu & Kashmir

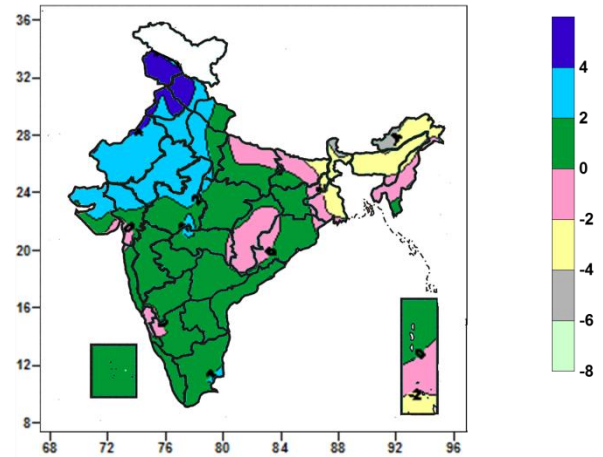
Mild hailstorm was reported in lower altitude of **Doda and Udhampur** district on 11 April, 2012 and high altitude of Doda, Udhampur and Rajouri on 12 April, 2012. It caused **mild flower shattering in apple**.

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 11.04.2012

Actual Mean Maximum Temperature ($^{\circ}\text{C}$) in India for the week ending 11.04.2012



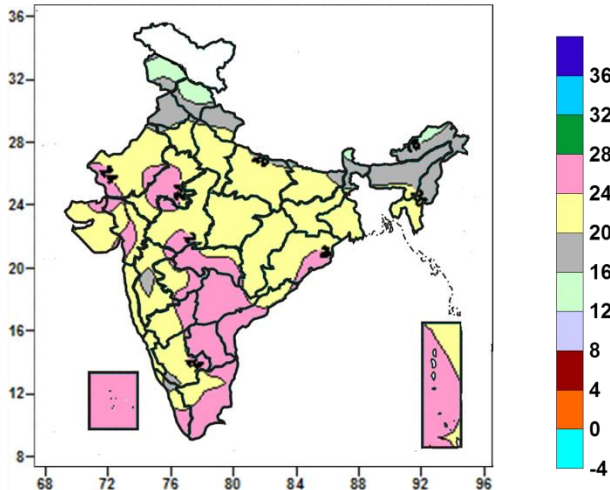
Maximum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 11.04.2012



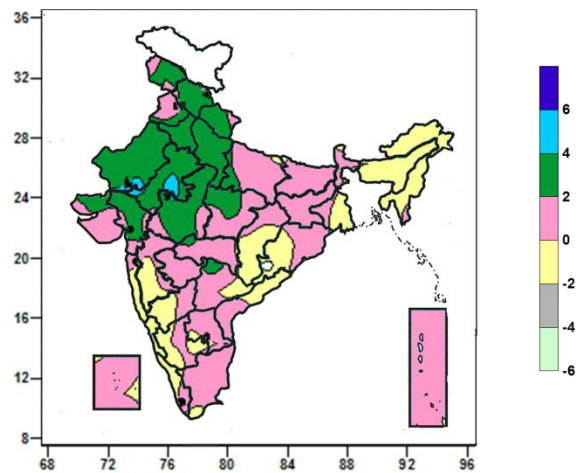
Actual Mean Maximum temperature ranged between 40°C and above over Marathwada, Vidarbha, some parts of Madhya Maharashtra, Telangana, Raylaseema, North Interior Karnataka, 32 to 36°C over most parts of Uttarakhand, Kerala, Coastal Karnataka, Konkan & Goa, Gangetic West Bengal, Lakshadweep, Andaman & Nicobar Islands, some parts of Jammu & Kashmir, Himachal Pradesh, Bihar, Jharkhand, Sub-Himalayan West Bengal, Tripura, South Interior Karnataka, Saurashtra & Kutch and between 24 to 36°C over remaining parts of the country

Actual Mean Maximum temperature anomaly ranged between 4°C and above over most parts of Jammu & Kashmir, Himachal Pradesh, some parts of Punjab, West Rajasthan, -4 to -2°C over most parts of West Bengal, Arunachal Pradesh, Assam & Meghalaya, some parts of Bihar, Jharkhand, Andaman & Nicobar Islands, between -2 to 2°C over rest of the country.

Actual Mean Minimum Temperature ($^{\circ}\text{C}$) in India for the week ending 11.04.2012



Minimum Temperature ($^{\circ}\text{C}$) Anomaly in India for the week ending 11.04.2012



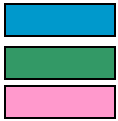
Actual Mean Minimum Temperature ranged between 24°C and above over many parts of Vidarbha, Andhra Pradesh, Tamil Nadu, Kerala, Lakshadweep, Andaman & Nicobar Islands, some parts of Rajasthan, Gujarat, Saurashtra, West Madhya Pradesh, Coastal Orissa, North & South Interior Karnataka, Marathwada, 12 to 16°C over most parts of Jammu & Kashmir, Himachal Pradesh and between 16 to 24°C over remaining parts of the country.

Minimum Temperature anomaly ranged between 4°C and above over some parts of Rajasthan, -2 to 0°C over many parts of Chhattisgarh, Orissa, North East India, Karnataka, Konkan & Goa, Madhya Maharashtra, some parts of Sikkim, Gangetic West Bengal, Andhra Pradesh, Tamil Nadu, Kerala, and between 0 to 4°C over remaining parts of the country.

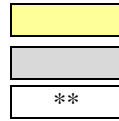
Distribution of rainfall of the country during week ending on 11.04.2012

State/Districts	Actual (mm)	(% Dep.)						
Arunachal Pradesh			Mandi	7.6	-45	Madhepura	23.4	1363
Anjaw	**	**	Shimla	6.6	-37	Madhubani	37.4	1526
Changlang	**	**	Sirmaur	5.6	68	Monghyar	0.0	-100
East Kameng	24.0	-25	Solan	7.5	33	Muzaffarpur	8.7	1347
East Siang	31.0	-33	Una	7.8	101	Nalanda	23.7	3850
Kurung Kumey	**	**	Jammu & Kashmir			Nawada	13.0	4217
Lohit	74.5	-26	Anantnag	54.6	99	Patna	6.6	450
Lower Dibang Valley	**	**	Badgam	32.2	91	Purnea	50.6	1532
Lower Subansiri	47.0	3	Bandipore	**	**	Rohtas	0.0	-100
Papumpara	45.9	11	Baramula	31.7	-23	Saharsha	34.0	1033
Tawang	40.0	117	Doda	66.0	165	Samstipur	5.7	336
Tirap	59.9	-18	Ganderwal	29.6	54	Saran	7.6	1167
Upper Dibang Valley	67.0	-28	Jammu	22.1	245	Sheikpura	14.0	1900
Upper Siang	155.8	36	Kargil	0.6	-92	Sheohar	0.0	-100
Upper Subansiri	63.6	300	Kathua	4.6	-48	Sitamarhi	0.0	-100
West Kameng	77.7	322	Kistwar	**	**	Siwan	2.6	225
West Siang	40.0	-2	Kulgam	53.9	97	Supaul	41.0	1267
Assam			Kupwara	34.7	19	Vaishali	14.9	2887
Baksa	97.4	247	Ladakh(Leh)	0.0	-100	West Champaran	33.4	1185
Barpeta	66.5	137	Poonch	40.0	78	Jharkhand		
Bongaigaon	96.8	256	Pulwama	33.2	57	Bokaro	0.5	-71
Cachar	106.6	86	Rajouri	23.0	203	Dhanbad	13.5	464
Chirang	85.7	215	Ramban	52.9	113	Dumka	0.0	-100
Darrang	**	**	Reasi	29.2	91	East Singbhum	14.5	113
Dhemaji	2.0	-94	Samba	8.6	34	Giridih	13.5	464
Dhubri	66.1	362	Shopian	**	**	Godda	0.0	-100
Dibrugarh	32.5	-31	Srinagar	34.5	79	Hazaribagh	0.0	-100
East Garo Hills	20.0	-47	Udhampur	24.4	59	Jamtara	13.3	225
East Khasi Hills	159.4	216	Uttarakhand			Latehar	0.0	-100
Goalpara	68.2	97	Almora	3.1	-53	Pakur	23.0	597
Golghat	48.3	63	Bageshwar	5.2	-21	Palamau	0.1	-98
Hailakandi	21.4	-54	Chamoli	5.4	-55	Ramgarh	6.4	237
Jaintia Hills	48.0	-3	Champawat	7.5	97	Ranchi	6.2	38
Jorhat	43.7	-1	Dehradun	3.0	-50	West Singbhum	3.4	-42
Kamrup(Metro)	79.2	217	Garhwal Pauri	1.3	-26	Orissa		
Kamrup	154.2	517	Garhwal Tehri	0.8	-90	Angul	2.1	-35
Karbi Analog	13.0	-37	Haridwar	0.0	-100	Balasore	62.9	472
Karimganj	67.5	-5	Nainital	18.2	470	Bargarh	0.0	-100
Kokrajhar	107.6	276	Pithorgarh	37.0	407	Bhadrak	15.5	151
Lakhimpur	44.1	32	Rudraprayag	6.0	-38	Bolangir	1.4	-71
Morigaon	106.1	458	Udham Sing Nagar	3.0	329	Boudh	0.0	-100
N.C.Hills	34.0	-12	Uttarkashi	9.8	-2	Cuttack	49.7	820
Nowgong	53.1	104	Bihar			Deogarh	8.4	189
Nalbari	73.1	91	Araria	36.6	632	Dhenkanal	14.1	292
Ribhoi	89.9	414	Arwal	30.0	2627	Gajapati	2.9	-75
Sonitpur	87.2	184	Aurangabad	**	**	Ganjam	1.6	-82
Sibsagar	42.3	32	Banka	6.2	313	Jagatsingpur	17.6	602
Tinsukia	17.5	-64	Begusarai	11.0	1275	Jajpur	21.0	321
Udalgiri	69.4	112	Bhabua	0.0	-100	Jharsuguda	0.0	-100
West Garo Hills	13.6	-49	Bhagalpur	3.9	24	Kalahandi	4.3	-30
West Khasi Hills	45.0	104	Bhojpur	**	**	Kandhamal	0.9	-87
Himachal Pradesh			Buxar	2.0	300	Kendrapara	19.0	239
Bilaspur	6.1	32	Darbhanga	11.2	331	Keonjhar	9.3	98
Chamba	29.0	39	East Champaran	10.5	704	Khurda	22.3	373
Hamirpur	10.0	32	Gaya	0.0	-100	Koraput	9.3	-36
Kangra	12.6	21	Gopalganj	6.5	491	Malkangiri	46.2	756
Kinnaur	12.3	-48	Jahanabad	5.0	127	Mayurbhanj	43.7	312
Kullu	9.6	-26	Jamui	12.0	532	Nawapara	4.3	-33
Lahaul and Spiti	22.2	-23	Kathihar	43.5	1401	Nawarangpur	17.8	53
			Khagadia	1.5	-2	Nayagarh	20.7	138
			Kishanganj	33.8	412	Puri	35.9	1787
			Lakhisarai	7.2	555	Rayagada	5.5	-53

Sambalpur	1.5	-49	North Sikkim	65.7	-15	Ernakulam	34.9	63
Sonepur	6.4	99	South Dinajpur	22.9	201	Idukki	37.7	17
Sundargarh	7.5	114	South Sikkim	48.7	-3	Kasaragod	0.0	-100
West Bengal			West Sikkim	10.0	-87	Kollam	29.0	-9
GWB			Karnataka			Kottayam	37.8	4
Bankura	24.6	779	South Interior Karnataka			Kozhikode	3.2	-79
Birbhum	11.2	260	Bangalore Rural	0.6	-88	Malappuram	31.8	64
Burdwan	31.8	607	Bangalore Urban	0.2	-95	Palakkad	6.6	-68
East Midnapore	30.2	492	Bellary	4.2	27	Pathanamthitta	30.0	-20
Hooghly	12.3	124	Chamarajnar	12.6	23	Thiruvananthapuram	12.4	-55
Howrah	23.2	130	Chichballapur	0.0	-100	Thrissur	2.5	-87
Kolkata	100.8	1340	Chickmagalur	29.4	149	Wyanad	62.7	260
Murshidabad	15.2	591	Chitradurga	6.9	64	Andhra Pradesh		
Nadia	8.4	55	Davangere	11.1	101	Coastal Andhra Pradesh		
24 Pargana (N)	74.9	1128	Hassan	15.1	72	East Godavari	2.8	65
Purulia	31.3	702	Kodagu	16.3	-1	Guntur	0.0	-100
24 Pargana (S)	29.5	479	Kolar	0.0	-100	Krishna	0.0	-100
West Midnapore	68.8	537	Mandya	4.5	-36	Nellore	0.0	-100
SHWB			Mysore	8.0	5	Prakasam	1.6	-17
Cooch Behar	78.8	629	Ramnagara	6.0	-6	Sirkakulam	2.2	-47
Darjeeling	57.6	208	Shimoga	7.6	8	Visakhapatnam	22.7	184
East Sikkim	54.8	9	Tumkur	8.4	95	Vizianagram	3.0	-44
Jalpaiguri	82.5	571	Kerala			West Godavari	0.0	-100
Malda	72.5	2400	Alappuzha	14.4	-57			
North Dinajpur	0.0	-100	Kannur	2.0	-79			

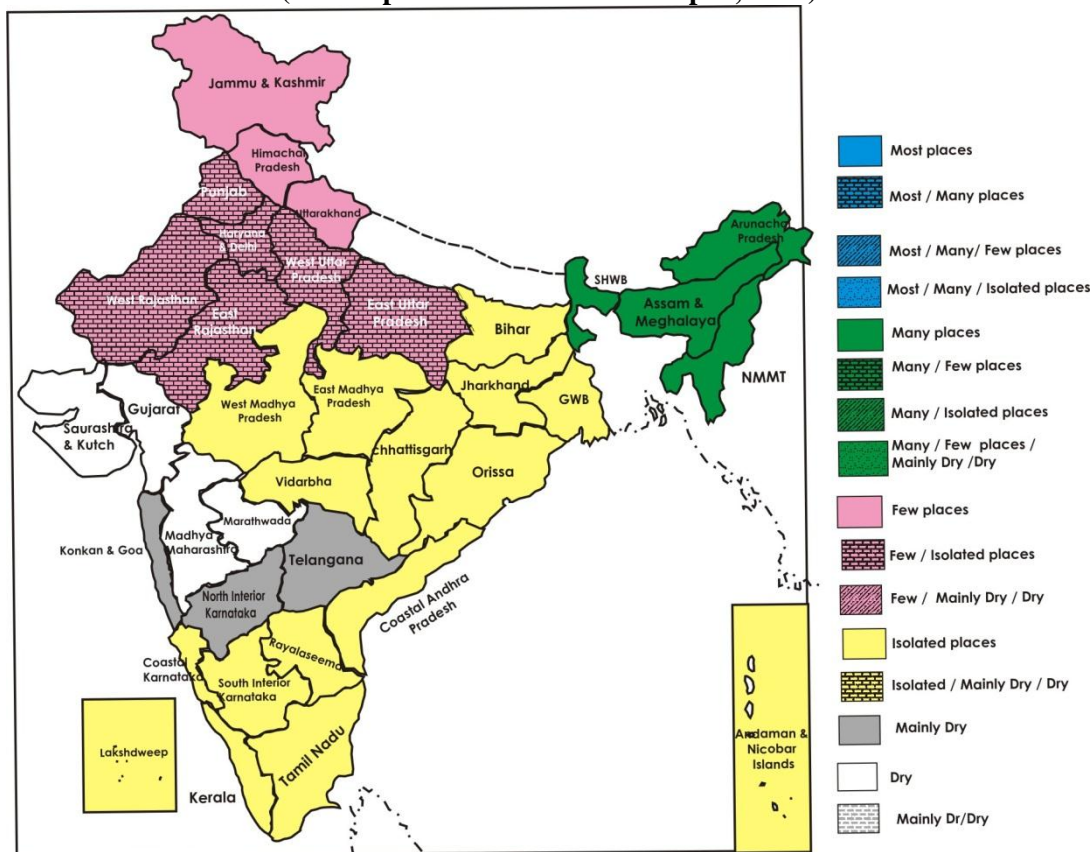


(20% or more) excess rainfall
(-19 to +19%) normal rainfall
(-20 to -59%) deficient rainfall



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

Weather Forecast (Valid upto 0830 hours of 15th April, 2012)



Major Feature of Weather Forecast up to 0830 hours IST of 15th April, 2012

- Rain/thundershowers would occur at many places over Sub-Himalayan West Bengal & Sikkim and northeastern states.
- Rain/thundershowers would occur at a few places over western Himalayan region.
- Rain/thundershowers may occur at one or two places over Punjab, Haryana, Delhi, Uttar Pradesh and Rajasthan during next 24 hours and at a few places thereafter.
- Rain/thundershowers would occur at one or two places over Bihar, Orissa, Gangetic West Bengal and Jharkhand.
- Rain/thundershowers would occur at one or two places over Madhya Pradesh, Chhattisgarh and Vidarbha during next 48 hours.
- Rain/thundershowers would occur at one or two places over Andaman & Nicobar Island, Lakshadweep and south peninsular India.
- Weather would be mainly dry over remaining parts of the country.

Weather Warning

- Thundersqualls may occur at one or two places over east Uttar Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during next 24 hours and over west Uttar Pradesh, Punjab, Haryana and Delhi on 13th April.
- Heat wave conditions would prevail over some parts of Gujarat state during next 2 days.

Weather Outlook up to 0830 hours IST of 17th April, 2012

- Rain/thundershowers would continue to occur at many places over northeastern states and at a few places over western Himalayan region.
- Rain/thundershowers would occur at one or two places over Western Himalayan region and extreme south peninsular India.
- Weather would be mainly dry over rest parts of the country.

Zonewise Agromet Advisories

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

- **Realised Rainfall:** Significant rainfall occurred in most of the districts of Assam and Arunachal Pradesh.
- **Rainfall Forecast:** Rain / thundershowers would occur at many places over the States of the region.
- **Warning:** Thunder squalls would occur at one or two places over Assam & Meghalaya, Nagaland, Manipur, Mizoram and Tripura.
- **Advisories:**
 - Maize, banana, citrus and passion fruit crops in parts of Mizoram and vegetables like tomato, potato, brinjal, lettuce, cabbage etc. in parts of Meghalaya had been damaged due to hailstorm during last week. Farmers in these regions are advised to keep vigil and undertake re-planting and provide mechanical support to vegetables and young plants in orchards.
 - As significant rainfall occurred in most of the districts of the States of the region and rain / thundershowers would occur at many places over the region during next three days, farmers are advised to postpone irrigation to the standing crops in the region.
 - Farmers in the Hill Zone of Assam are advised to prepare land for transplanting of *ahu* rice and continue sowing of okra and cucurbitaceous crops. Continue land preparation and sowing of black gram and green gram.
 - Farmers in Central Brahmaputra Valley Zone of Assam are advised to continue land preparation and sowing of *Capsularis* jute, summer vegetables, summer pulses and planting of sugarcane. Harvest matured wheat crop.
 - Farmers of Lower Brahmaputra Valley Zone of Assam are advised to continue land preparation and sowing of musk melon, water melon, maize, jute, summer pulses like black and green gram, cow pea, summer vegetable like pointed gourd, pumpkin etc. and planting of sugarcane.
 - Farmers in the Upper Brahmaputra Valley Zone of Assam are advised to undertake sowing of green gram, black gram, jute and summer vegetables.
 - Farmers of Barak Valley Zone of Assam are advised to continue sowing of black gram, green gram, ladies finger, ridge gourd, sponge gourd and jute.
 - Farmers in North Bank Plain Zone of Assam are advised to complete sowing of direct seeded *ahu* rice. Continue land preparation and sowing of summer vegetable, green gram and black gram and planting of sugarcane, ginger and turmeric. Farmers are advised to go for transplanting of early *ahu* rice.
 - Farmers in Sub Tropical Hill Zone of Arunachal Pradesh are advised to undertake sowing of *Jhum* rice. Farmers are also advised to continue land preparation and sowing of maize and summer vegetables.
 - Farmers in Mild Tropical Plain Zone of Tripura are advised to continue land preparation and sowing of upland *aus* rice, maize, summer vegetables and cucurbits.
 - Farmers in Temperate Sub Alpine Zone of Meghalaya are advised to continue sowing of maize, jute and vegetables like ladies finger, pumpkin, French bean, bottle gourd, ash gourd etc. Prepare nursery for brinjal. Undertake harvesting of matured cauliflower, cabbage, lady's finger, pumpkin, French bean, apricot, early sown turnip, Bengal gram and matured mustard. Also undertake new sowing of cauliflower, cabbage of recommended varieties.
 - Farmers of Sub tropical Plain Zone of Manipur are advised to continue land preparation and planting of ginger and turmeric and sowing of French bean and bhindi. Continue transplanting of cabbage in the foot-hills.
 - In Mild Tropical Hill Zone of Mizoram, farmers are advised to continue land preparation and sowing of summer vegetables like okra, beans, cucurbits etc. and also urad and moong. Undertake harvesting of matured maize crop.
 - In Mild Tropical Hill Zone of Nagaland, farmers are advised to continue land preparation and planting of turmeric and ginger and sowing of rajma. Continue nursery preparation for rice. Provide mechanical support with bamboo to banana to prevent the breaking of heavy bunches.
 - Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
 - Blast disease is observed at nursery stage of rice in Mild Tropical Hill Zone of Nagaland; farmers are advised to spray Zineb 75 WP @ 1.25 kg / ha.

- Weather is congenial for infestation of aphids in *khasi* mandarin in Mild Tropical Hill Zone of Mizoram; farmers are advised to monitor *khasi* mandarin crop for taking appropriate plant protection measures.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
- Farmers in Lower Bramhaputra Valley Zone of Assam are advised to vaccinate cattle, goat and pigs against the Foot and mouth disease.
- Poultry farmers in Upper Bramhaputra Valley Zone of Assam are advised to vaccinate poultry against the Ranikhet disease.
- Farmers in Sub Tropical Hill Zone of Arunachal Pradesh are advised to deworm and vaccinate cattle for FMD. Deworm pig and apply preventive measures to goat against diarrhea and provide dry bedding.
- The farmers in Nagaland are advised to vaccinate poultry against bird flu and pigs / piglets against swine flu.
- The farmers in Manipur are advised to vaccinate poultry against Ranikhet, IBD / Gumboro disease and also deworm and vaccinate pigs / piglets. Vaccinate and deworm cattle and buffalo against B.Q. & H.S.
- Farmers in Mild Tropical Plain Zone of Tripura are advised to deworm cattle and goat above 6 months against Haemorrhagic Septicemia disease. Farmers are also advised to vaccinate poultry against Ranikhet disease and vaccinate the piglets against swine fever.
- **Pishiculture**
- The farmers in Nagaland are advised to raise ducks in fish ponds so that much of their manure will go into the water. This will help the fish to grow. At the same time, the ducks will feed on the unwanted plants that grow in the ponds and help to keep the ponds free of plants, weeds and snails. Chickens or pigs can be raised near the ponds. Build the chicken houses and pig pens on the banks or over the ponds, to sweep the manure in to the ponds.

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

- **Realised Rainfall:** Significant rainfall occurred in the districts of Araria, Arwal, Kathihar, Kishanganj, Madhubani, Purnea, Saupal, Saharsha and West Champaran in Bihar and Pakur in Jharkhand, Balasore, Cuttuck, Jajpur, Khurda, Malkangiri, Mayurbhanj and Puri districts in Orissa, Burdwan, East Midnapore, Kolkata, 24 Pargana (N), Purulia, 24 Pargana (S) and West Midnapore, Cooch Behar, Darjeeling, East Sikkim, Jalpaiguri and Malda districts of West Bengal and North Sikkim and South Sikkim districts of Sikkim.
- **Rainfall Forecast:** Rain / thundershowers would occur at many places over Sub-Himalayan West Bengal and Sikkim and at isolated places over rest of the region.

Advisories:

- Wheat, *boro* rice, maize, sesame, vegetables, pulses, sunflower, jute and papaya crops in Murshidabad, Malda, Dinajpur, West Midnapur, Kharagpur, North and South 24 Parganas districts in West Bengal and wheat, maize and banana crops in Purnia and Katihar districts in Bihar had been damaged due to hailstorm during last week. Farmers in these regions are advised to keep vigil and undertake re-planting and provide mechanical support to the vegetables and young plants in orchards.
- As significant rainfall occurred in Araria, Arwal, Kathihar, Kishanganj, Madhubani, Purnea, Saupal, Saharsha and West Champaran districts in Bihar, Pakur in Jharkhand, Balasore, Cuttuck, Jajpur, Khurda, Malkangiri, Mayurbhanj and Puri districts in Orissa, Burdwan, East Midnapore, Kolkata, 24 Pargana (N), Purulia, 24 Pargana (S) and West Midnapore, Cooch Behar, Darjeeling, East Sikkim, Jalpaiguri and Malda districts of West Bengal and North Sikkim and South Sikkim districts of Sikkim, farmers are advised to postpone irrigation to the standing crops in these districts. As there was no significant rain in remaining districts of the region, apply irrigation to the crops.
- Farmers in East and South Eastern Coastal Plain Zone of Orissa are advised to undertake sowing of jute.
- Farmers in North Central Plateau Zone of Orissa are advised to undertake sowing of summer vegetables.
- In South Bihar Alluvial Zone, undertake harvesting, threshing and drying of wheat and keep it in safe place.
- Farmers in Western, Central and North Eastern Plateau Zone of Jharkhand are advised to undertake sowing of vegetables like round gourd, bitter gourd, sponge gourd, cucumber, water melon and musk melon.
- Farmers in New Alluvial Zone of West Bengal are advised to undertake sowing of jute.

- Farmers in Old Alluvial Zone of West Bengal are advised to undertake sowing of jute. Also undertake harvesting of wheat.
- Farmers in Terai Zone of West Bengal are advised to undertake sowing of jute. It is the optimum time for sowing of marigold for the summer and rainy season flowering. Farmers are advised to sow the seeds immediately.
- Farmers in Hill Zone of West Bengal are advised to undertake land preparation and planting of gladiolus. Farmers are also advised to complete the sowing of okra.
- Suitable varieties of the crops for sowing or transplanting are mentioned in Annexure II.
- Different cucurbitaceous vegetables may be attacked by red mites in Western Plateau Zone of Jharkhand. To control the mites, spray neem based insecticides like Achook, Neemerin, Neemetin or Neemesidin @ 5 ml per litre of water.
- White ant and white grub attack has been found on groundnut in East and South Eastern Coastal plain zone of Orissa. Thorough soil drenching with Chloropyriphos solution @ 2 ml / litre water may be done. Bud necrosis also has been found in groundnut; spray 2 ml Endosulphan / litre.
- In East and South Eastern Coastal plain zone and North Eastern Plateau Zone of Orissa, attack of white fly and cutworm are found in summer pulses. Spray 20 ml Rogor / 10 litres of water to control white fly and apply Chloropyriphos or Triozophos dust around the bunds to control cut worm.
- Due to prevailing weather condition in New Alluvial Zone of west Bengal, there are chances of attack of fungal diseases like fruit rot, stem rot or powdery mildew in summer vegetables. To prevent it apply Blitox @ 4 g or Carbendazim @ 1 g for rot and for powdery mildew apply Hexaconazole or Dinocap or Propiconazole @ 1 ml per litre of water.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
- In North Central Plateau Zone of Orissa, foot and mouth disease are noticed in cows. Apply potassium permanganate on lesions in the mouth and sulphur treatment is recommended for foot lesions.
- Farmers of North Eastern Plateau Zone Orissa are advised to give sufficient water and rice water to the animals before leaving them to grazing as the temperature is increasing.
- **Pisciculture**
- Farmers of North Eastern Coastal Plane Zone of Orissa are advised to maintain average water depth at 5 ft level in the pond, feed fishes with oil cake: bran mixture at 2% of their body weight daily and start partial harvesting of fishes above ABW 750 g. The warm weather depletes oxygen so stirring the fish ponds in the morning time is advised for better oxygen availability.

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

- **Realised Rainfall:** Significant rainfall occurred in Chamba, Lahaul and Spiti districts of Himachal Pradesh, most of the districts of Jammu & Kashmir, Pithoragarh district in Uttarakhand. Mainly dry weather prevailed over the rest region.
- **Rainfall Forecast:** Rainfall is likely in Jammu & Kashmir during next 48 hours, isolated rainfall after 24 hours and at a few places thereafter. Mainly dry weather is likely over Himachal Pradesh during next 48 hours and isolated rainfall thereafter. Mainly dry weather is likely over Uttarakhand during next 48 hours and isolated rainfall thereafter. Mainly dry/ dry weather is likely in the remaining States of the region.
- **Warning:** Thundersqualls may occur at one or two places over east Uttar Pradesh, during next 24 hours and over west Uttar Pradesh, Punjab, Haryana and Delhi on 13th April.
- **Advisory:**
- Wheat in Delhi, apple in Kinnaur, Lahul and Spiti and Kullu districts in Himachal Pradesh and wheat, mustard, arhar, gram, field pea, vegetables and mango in Varanasi region in Uttar Pradesh had been damaged due to hailstorm during last week. Farmers in these regions are advised to keep vigil and undertake re-planting and provide mechanical support wherever necessary. Thundersqualls may occur at one or two places over east Uttar Pradesh, during next 24 hours and over west Uttar Pradesh, Punjab, Haryana and Delhi on 13th April. Farmers in these States are advised to undertake harvesting of matured wheat, *rabi* pulses and oilseed crops immediately and also arrange for mechanical support for vegetables and young plants in orchards.
- As there was no significant rain over the region and no significant rain is likely to occur, farmers are advised to apply irrigation to the standing *rabi* crops.

- Farmers in Delhi are advised to sow summer green gram or green manure crop where harvesting of *rabi* crops are over.
- In Rajasthan, due to rise in temperature farmers are advised to irrigate summer vegetables, young fruit plants and other standing crops as per need. Undertake harvesting of matured wheat, barley, gram, mustard, cumin, fenugreek, coriander. Start land preparation and sowing of cotton.
- Farmers in Punjab and Haryana are advised to undertake sowing of summer moong and mash. Transplanting of chilli, brinjal and okra may be undertaken. Apply irrigation to sunflower and sugarcane crop at 8-10 days interval. Sow the nursery of *kharif* onion to produce bulbs. Harvest the gram and matured crop on clear days. Apply preventive measures to save fruit trees from drought, windstorm and sun injury. Whitewash the trunk, provide shelter to young trees and give frequent irrigation.
- In Sub Tropical Zone of Jammu and Kashmir, farmers are advised to complete transplanting of tomato, onion, brinjal, chilli crop and sowing of bhindi, beans and cucurbits without any further delay. Start harvesting of matured mustard crop. Undertake field preparation for sowing of jowar under irrigated condition and also for sowing of summer pulses like mash, moong in vacated field after harvesting of early sown mustard and potato crop. Suspend the cutting of berseem crop in order to take quality production of berseem seeds.
- In Valley Temperate zone of Jammu & Kashmir, farmers are advised to give second dose of nitrogen as per university guidelines if not done earlier to wheat, brown sarson, pea, lentil, oat crops which were in dormant stage upto previous week. Undertake field preparation for rice and harvesting of oats.
- In Intermediate Zone of Jammu & Kashmir, farmers are advised to carry out nursery sowing for tomato, brinjal, chillies and capsicum. Also undertake direct sowing of bottle gourd, bittergourd, cucumber, pumpkin, sowing of okra, beans, potato, bhindi, radish, turmeric. During these days also undertake planting of evergreen fruit trees such as mango, guava, litchi, citrus etc. and deciduous plants such as pear, peach, plum and grapevine.
- Farmers in Mid Hills Sub-Humid Zone of Himachal Pradesh farmers are advised to complete planting of apple and stone fruits plants. In high hills planting can be done after melting of snow. Preparation of nursery beds for raising the nursery of tomato, capsicum, brinjal and chilli may also be carried out.
- Farmers in Sub-Montane & Low Hills Sub-Tropical Zone of Himachal Pradesh are advised for continue sowing of potato after the tubers are treated with Dithane M-45 @ 0.5% for 20-25 minutes in mid hills and surgmukhi in lower plains area. Also continue sowing of chari, bajra and maize in low hills.
- Farmers in High Hill Temperate Dry Zone of Himachal Pradesh, are advised to go for the sowing of peas in Pattan valley.
- In Bhabar and Tarai Zone & Hill zone of Uttarakhand, farmers are advised to undertake harvesting of matured wheat crop during this week.
- In western Plain Zone of Uttar Pradesh, farmers are advised to continue sowing of summer sugarcane in vacated field.
- In western Plain Zone of Uttar Pradesh, farmers are advised to continue sowing of urad, moong, maize and sunflower.
- In Western Plain Zone of Uttar Pradesh, farmers are advised to harvest early sown mustard crop.
- In Irrigated North Western Plain Zone of Rajasthan, chepa insect is observed in wheat crop during this time. For control spray Thayomethozam 25 WG 50 gm per bigha.
- Downy mildew in cole crops is appearing as weather is conducive, farmers are advised to spray Dithane M-Z 2-3 g per litre of water at the interval of 10-15 days in Himachal Pradesh.
- Weather in Delhi is favourable for attack of mite on ladies finger, red pumpkin beetle on cucurbitaceous crops and thrips on onion. Farmers are advised to monitor the crop and take proper plant protection measures.
- Stages of major crops are mentioned in Annexure I.
- **Animal Husbandry**
 - Farmers in Punjab and Haryana are advised to vaccinate all the animals against FMD, if still not, then get them vaccinated immediately, keep their record and repeat after six months.
 - In Transitional Plain Zone of Inland Drainage (Fatehpur), cow, sheep & goats are likely to be affected by blood parasites specially protozoa attack. This disease is spread by external parasites like ticks. Treat affected animals immediately by approaching veterinary doctor.

- **Apiculture**

- In Intermediate Zone (Pahalgam/Rajouri), April is the most ideal for beekeeping. weather and floral conditions are most conducive for beekeeping activity. Pollen and nectar is available in abundant to bees. For beginners this is the right time to start beekeeping as pollen and nectar are in plenty and bee activity is at its peak with least problems.
- Artificial feeding of the bee colonies with sugar: water solution 1:1 ratio may be done. Provide ample space for newly mated queen for egg laying is advised in sub tropical zone (Chatha / Jammu) of Jammu & Kashmir.

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

- **Realised Rainfall:** Ernakulam, Idukki, Kollam, Kottayam, Malappuram, Pathanamthitta and Wynad in Kerala, Vishakapatnam in Andhra Pradesh and Chickmagalur in Karnataka received sufficient rainfall last week. No significant rainfall occurred over remaining parts of the region.
- **Rainfall Forecast:** Rain/thundershowers would occur at one or two places over Tamil Nadu, Kerala, South Interior Karnataka, Coastal Karnataka, Rayalaseema and Coastal Andhra Pradesh. Weather would be mainly dry over remaining parts of the region.

Advisories:

- As Ernakulam, Idukki, Kollam, Kottayam, Malappuram, Pathanamthitta and Wynad in Kerala, Vishakapatnam in Andhra Pradesh and Chickmagalur district in Karnataka received sufficient rainfall last week, postpone irrigation to the crops. Apply irrigation to the standing crops in the remaining parts of the region, since there was no significant rainfall occurred during last week and no significant rainfall is likely to occur during next 3 days.
- Maize crop is facing moisture stress conditions in the Scarce Rainfall Zone of Andhra Pradesh. Farmers are advised to provide supplementary irrigation to save the crop. Farmers in the Eastern Dry Zone of Karnataka are advised to plough the land in the areas where rainfall received, across the slope to improve infiltration and conservation of rain water and to avoid soil erosion. Test soil mineral content in crop lands and prepare required dosage of fertilizers for next sowing season.
- Farmers in the North East Transition Zone of Karnataka are advised to undertake harvesting of rice and undertake summer deep ploughing to expose the pupae and eggs of insect pests and weed seeds.
- Farmers in the North Dry Zone of Karnataka are advised to undertake summer pruning in fruit crops.
- Farmers in the Coastal Zone of Karnataka are advised to provide irrigation to arecanut and undertake summer ploughing to expose the soil for solarisation and to expose the hibernating insect pests and pathogens to kill them.
- Farmers in the North Transition Zone of Karnataka are advised to take up rain water harvesting, since there was light rainfall during week.
- Farmers in the North East Dry Zone of Karnataka are advised to give proper irrigation and shading for vegetable
- Farmers in the Cauvery Delta Zone of Tamil Nadu are advised to provide irrigation to sugarcane, banana and rice fallow cotton and harvest pulses, since dry weather condition will prevail for the next five days.
- Farmers in the North Eastern Zone of Tamil Nadu are advised to undertake field preparation for planting of horticultural crops in the irrigated land.
- Farmers in the High Rainfall Zone of Tamil Nadu are advised to undertake field preparation for sowing of ginger.
- Farmers in the Southern Zone of Kerala are advised to start harvesting of early sown rice, irrigate coconut palms and banana plants and provide mulching in banana basins. They are also advised to start tapping of rubber, only after few good showers of rain.
- Incidences of aphids, thrips, mites, hoppers and white flies in rice fallow cotton and mealy bug infestation in vegetables are noticed in the Cauvery Delta Zone of Tamil Nadu. Farmers are advised to use yellow trap smeared with castor oil or white grease, spray Azadirachtin 0.03% (3 ml/l) along with sticking agent in the morning or evening using hand sprayer to control aphids, thrips, mites, hoppers and white flies and release encyrtid parasitoid @ 100 to control mealy bug infestation .
- Sooty mould incidence was noticed on guava and sapota in the Southern Dry Zone of Karnataka .Farmers are advised to spray 20gms of cornflour @ 20gms/lit.of water to control it.

- Incidences of shoot and fruit borer and mites in brinjal and fruit borer in tomato are noticed in the North East Dry Zone of Karnataka. Farmers are advised to undertake plant protection measures. Moderate to severe incidence of bacterial blight was also noticed in paddy on early varieties of paddy like Sujata and IR-64. Farmers are advised to spray the following chemicals(in combination) like Streptocyclene(0.5 to 1.0g) +Copper Sulphate(0.5 to 1.0g)/10 lit of water or Agrimiycin-100 (3.0g)+Copper Oxychloride(1.0g)/10 lit of water or Bromopal(3.0g)+ CopperOxy chloride(1.0g)/10 lit of water wherever the disease is noticed.
- Farmers in the Southern Zone of Kerala are advised to keep vigil against anthracnose in cow pea, downy mildew in cucurbits, fungal diseases in vegetables, red palm weevil and leaf roller in coconut, bug in rice, pseudostem weevil in bananas and undertake plant protection measures.
- **Animal Husbandry**
- Farmers in the Eastern Dry Zone of Karnataka are advised to take up silkworm and poultry rearing houses to maintain optimum room temperature and take care against the rapid increase in air temperature and decrease in relative humidity.
- Farmers in the North East Transition Zone of Karnataka are advised to give mineral supplements to animals, based on the deficiency in the region, make cool water should be made available to the birds because of peak hot temperature, add electrolytes (KCl, NaCl and Na₂CO₃) in the feed as well as in water and spray water on the floor and roof of shelter periodically during peak hot hours to lower the temperature and consequently reduce the heat load on animals
- Farmers in the Southern Dry Zone of Karnataka are advised not to graze the animal between 12 p.m to 5 p.m, supply adequate quantity of drinking water, sprinkle the water on the animals before milking, keep floor cool and clean and deworm calves during summer months to increase the appetite of the animals due to high day temperature.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Mainly dry weather prevailed over Maharashtra and Gujarat State during last week.
- **Rainfall Forecast:** Mainly dry / dry weather would prevail over the region during the period.
- **Advisories:**
- As mainly dry weather prevailed during last few weeks in most parts of the State and mainly dry weather is likely to prevail during next 2-3 days, farmers are advised to apply irrigation to standing crops.
- Farmers in Konkan and East Vidarbha regions are advised to maintain proper water level in rice field.
- Farmers in Marathwada region are advised to apply drip irrigation in banana orchard and cover banana bunch with banana leaves to protect from bright sunshine.
- Due to increase in temperature and decrease in relative humidity, fruit dropping in mango trees is observed in some parts of Konkan region, apply irrigation @ 150-200 litres of water per tree having mango fruits of arecanut size. Do not apply water to the trees bearing mature fruits. Farmers of Sindhudurg district are advised to start harvesting of already matured summer rice in the morning hours.
- Farmers of Central Vidarbha Zone are advised to spray 20 ppm NAA to avoid mango fruit dropping. Spray 50 PPM NAA on orange at pea stage.
- Prevailing minimum temperature (18 to 20⁰C) in North Madhya Maharashtra is favourable for sowing of irrigated cotton in the region; farmers are advised to undertake sowing in the first fortnight of this month. Farmers of Madhya Maharashtra are advised to complete preparatory tillage and field may be kept ready for planting of turmeric and ginger during last week of April.
- Farmers in Middle Gujarat Zone are advised to apply 25 kg N/ha as Ammonium Sulphate in paddy during evening hours. Keep mulching in mango orchard to conserve moisture. Apply irrigation to cabbage, cauliflower, brinjal, tomato and groundnut crop.
- Farmers in Bhal and Coastal Zone of Gujarat are advised to irrigate summer groundnut at 10 days interval. Avoid irrigation in the afternoon hours mainly in onion crop.
- Farmers in South Saurashtra Zone of Gujarat are advised to apply irrigation in sugarcane, summer pearl millet and peanut at regular intervals. Apply dose of chemical fertilizer in the form of urea @ 32 kg/ha in sugarcane.
- Farmers in North Gujarat Zone are advised to irrigate summer pearl millet, green gram, groundnut and vegetable crops. Under the prevailing weather conditions complete harvesting of *rabi* crops followed by threshing. Cut fully matured spikes of castor regularly and dry under sun. Carry out harvesting of matured onion and keep at well aerated place. Undertake picking of okra fruits.
- As there is increase in temperature, farmers in South Gujarat Zone are advised to apply irrigation to vegetables at an interval of 3 to 4 days.

- Due to high temperature in South Gujarat Heavy Rainfall Zone, farmers are advised to irrigate vegetable crops during morning hours. Carry out land preparation and sowing of summer crops like groundnut, moong and pearl millet.
- Due to prevailing weather conditions, farmers in North Saurashtra Zone are advised to apply irrigation to groundnut, onion and garlic.
- Farmers in North West Zone are advised to harvest *rabi* crops and then deep plough the field. Also carry out sowing of vegetables.
- Suitable varieties of the crops for sowing are mentioned in Annexure II.
- Prevailing weather conditions are favourable for the incidence of mealy bugs and fruit borer in mango in South Konkan region, spray Dimethoate @ 10 ml and Quinalphos @ 10 ml per 10 litres of water. Do not spray insecticides 20-25 days prior to maturity of fruits. The incidence of thrips may be increased on mango fruits, spray Spinosid @ 2.5 ml per 10 litres of water. There may also be incidence of anthracnose in immature mango fruits, spray Carbendazim @ 10 g or Thiophanate Methyl @ 10 g or Propineb @ 20 g per 10 litres of water.
- Due to rise in temperature there is chance of attack of thrips and mites in summer chilli in Western Maharashtra Scarcity Zone, spray Methyl Demeton 25 EC @ 15 ml or Dimethoate 30EC @ 16 ml + Sulphur 80% @ 20 g in 10 litres of water.
- As day temperature is rising there may be infestation of stem borer in *suru* sugarcane in Madhya Maharashtra, spray Endosulfan twice @ 750 ml / ha in 500 litres of water at 15 days interval. Remove shoots infested by smuts and destroy them.
- There may be attack of sap sucking pests in flower crops in Marathwada, spray Thimethoxam @ 4 g or Trizophos @ 20 ml in 10 litres of water to control the pest.
- Stages of major crops are mentioned in Annexure-I.
- **Animal Husbandry:**
 - Due to high temperature and humidity forecast in North Gujarat Zone, keep animals under shade during noon hours and avoid feeding between 11 a.m to 3 p.m. Make arrangement of curtains for poultry house.
 - Put curtains on north-east direction in poultry to protect against hot winds in Middle Gujarat Zone.
 - In South Gujarat Heavy Rainfall Zone, give shower with cold water two to three times in a day to cattle, provide fresh and cold water for drinking and increase the green fodder quantity for feeding.
 - Give Anthrax vaccination and tablet for controlling karamia in cattle in North Saurashtra Zone.

CENTRAL INDIA [M.P., CHHATTISGARH]

- **Realised Rainfall:** Rainfall occurred in Bastar, Bijapur, Durg, Janjgir and Raipur districts in Chhattisgarh. Mainly dry weather prevailed in Madhya Pradesh.
- **Rainfall Forecast:** Isolated rainfall is likely to occur in East Madhya Pradesh and mainly dry weather is likely to prevail in West Madhya Pradesh and Chhattisgarh.
- **Advisories:**
 - As rainfall occurred in Bastar, Bijapur, Durg, Janjgir and Raipur districts in Chhattisgarh, farmers are advised to postpone irrigation to the standing crops in the above districts. As mainly dry weather prevailed during last week in the remaining districts of Chhattisgarh and Madhya Pradesh and no significant rainfall is likely, farmers in these regions are advised to provide irrigation to the standing crops.
 - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised to harvest and thresh *rabi* crops (wheat and chickpea.). Due to high temperature and evaporation rates provide frequent irrigation to summer crops like moong, urad, sunflower, cucurbitaceous crops, lady's finger, cowpea and other vegetable crops as per requirement. Weeding, intercultural operations and top dressing of urea should be carried out in summer vegetables. Undertake sowing of maize, sorghum, cowpea etc. as summer fodder crops.
 - Farmers in Kymore Plateau and Satpura Hills region of Madhya Pradesh are advised to give irrigation in mango due to dry weather conditions prevail.
 - Farmers of Gird Zone of Madhya Pradesh are advised to sow bajra, jowar, maize and lobia for green fodder purpose and give irrigation to okra, chilli, tomato, melon and mango.
 - Farmers in Bundelkhand region of Madhya Pradesh are advised to harvest matured *rabi* crops as favourable weather conditions prevail.
 - Farmers in Vindhyan Plateau region of Madhya Pradesh are advised to irrigate sugarcane crop at 12-15 days interval.

- Farmers in Central Narmada Zone of Madhya Pradesh are advised to irrigate maize crop and harvest matured wheat crop. Farmers in Nimar valley Zone of Madhya Pradesh are advised to undertake planting of sugarcane.
- In Chattisgarh Plain Zone, groundnut and sunflower are at flowering/pod formation/ grain filling stage. This stage is crucial for moisture; hence it is advised to irrigate the crops frequently.
- Weather conditions are suitable for proper germination of summer green gram; hence it is advised to prepare the fields after harvesting of wheat/gram and complete sowing of green gram at the earliest.
- Attack of fruit borer in mango is observed in Kymore Plateau and Satpura Hills region of Madhya Pradesh, farmers are advised to undertake spraying Dimethoate or Trizophose 2 gm/litre of water.
- **Animal Husbandry & Poultry**
 - Farmers in Kymore Plateau and Satpura Hills region and Central Narmada Zone and Gird zone of Madhya Pradesh are advised to provide cold water to cattle three times daily and keep them in airy and shady place as temperature is high during day time. Arrange for vaccination for Foot and Mouth disease in cattle.
 - Farmers in Vindhya Plateau Zone of Madhya Pradesh are advised to vaccinate cattle against FMD.

Annexure I Major Crops

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

- Sugarcane (new) (planting), *Boro* rice (flowering / grain formation), *ahu* rice (direct seeded) (tillering), *ahu* rice (transplanted) (transplanting), wheat (maturity / harvesting), tomato, pumpkin, bottle gourd (vegetative / flowering / fruiting), okra, pointed gourd, musk melon, water melon, ridge gourd, sponge gourd (sowing), black gram, green gram (sowing / seedling / vegetative), maize (sowing / vegetative), summer pulses, *Capsularis* / *Olorius* jute, summer vegetables (sowing / seedling / vegetative), cow pea (sowing / seedling), cucurbits (sowing / vegetative), ginger / turmeric (planting) in Assam.
- *Jhum* and WRC rice (sowing), maize, black gram, green gram, sesame (early vegetative / vegetative), okra, beans, cucurbitaceous vegetables (early vegetative / vegetative) in Arunachal Pradesh.
- Summer rice (panicle initiation / flowering), cucurbits (sowing / transplanting / vegetative), tomato, brinjal, chilli (transplanting / vegetative / flowering), cauliflower and cabbage (new) (transplanting), onion (bulb formation / harvesting), okra, French bean, ginger, turmeric (sowing) in Manipur.
- *Boro* rice (flowering / grain formation), wheat (grain formation), mustard, rapeseed (maturity / harvesting), cabbage and knol-khol (head maturity / harvesting), okra (sowing / vegetative / flowering), pumpkin, French bean (vegetative / flowering / fruiting/ maturity), maize, jute, bottle gourd, ash gourd (sowing) in Meghalaya.
- *Khasi* mandarin (vegetative / flowering), banana (vegetative / fruiting / maturity / harvesting), tomato (fruiting / harvesting), maize (maturity / harvesting), bean, okra, cucurbits (early vegetative / vegetative), ginger / turmeric (sowing) and urad, moong (sowing) in Mizoram.
- Rice (nursery preparation), pea (pod maturity / harvesting), maize (cob formation), tomato (vegetative), ginger, turmeric (planting), rajma (sowing / germination), banana (vegetative) in Nagaland.
- *Aus* rice (sowing), *boro* rice (panicle initiation / flowering), summer vegetables (sowing), cucurbits (sowing) in Tripura.

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

- Sugarcane (vegetative), lobia for green fodder (vegetative), mishrikand (vegetative), fruit trees (transplanting / early vegetative), wheat (maturity / harvesting), vegetables (flowering / fruiting / harvesting), maize (silking and tasseling), sugarcane, onion (planting), *boro* rice (panicle initiation / flowering), moong, summer maize (vegetative) in Bihar.
- Turmeric and ginger (rhizome formation), elephant foot yam (tuber elongation), wheat (maturity / harvesting), papaya (transplanting), summer moong (vegetative), summer vegetables (transplanting / vegetative / flowering / fruiting), okra, summer maize (vegetative), onion (transplanting) in Jharkhand.
- Summer rice (flowering / grain filling), summer groundnut (flowering / pegging), sunflower (vegetative / pre-flowering), sugarcane (new) (tillering), wheat (maturity / harvesting), banana (vegetative), tomato (flowering / fruiting / maturity), jute (sowing) in Orissa.
- *Boro* rice (panicle initiation / flowering / grain formation), wheat (maturity / harvesting), groundnut (flowering / pegging), chilli (flowering / fruiting), mango (flowering), green gram (flowering), jute (sowing) in West Bengal.
- *Rabi* vegetables (harvesting), orange (harvesting), large cardamom (vegetative), wheat (maturity / harvesting), mustard (seed maturity / harvesting), vegetables (sowing / nursery sowing) in Sikkim.

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

- Wheat (harvesting), sugarcane (planting), *rabi* onion (vegetative), cauliflower, cabbage, broccoli, knolkhol (vegetative / fruiting/harvesting), carrot, turnip, early sown tomato radish, spinach and coriander (vegetative/fruiting/harvesting), chilli, tomato, brinjal, cucurbits (vegetative), ladies finger(sowing), *Rabi* onion (bulb formation), french bean, cluster bean, summer radish (sowing/early vegetative) in Delhi.

- Wheat (harvesting), vegetables (bhindi, cucurbits), potato (sowing/germination), mirch, brinjal (nursery sowing in polyhouses), cucurbits viz. cucumber, summer squash, bitter gourd, bottle gourd (nursery sowing in polytubes inside polyhouse), bush type French bean (Contender), bhindi, surajmukhi (sowing/germination), tur, brinjal, Shimla mirch, and tomato (transplanting/seedling), apple and other temperate fruits (vegetative), arbi, amaranthus, turmeric, rice, maize, barley, radish, onion, pea, garlic, coriander, cabbage, knolkhol, parsley, lettuce, fennel, cauliflower, broccoli (sowing / planting/germination), in Himachal Pradesh.
- Early sown wheat (harvesting), Normal sown wheat, late sown wheat (maturity), Early sown barley (harvesting), normal sown barley (maturity), very late sown barley (dough), onion (transplanting), cole crops viz. early cauliflower, cabbage, knoll khol, broccoli (vegetative/flowering), bhindi, radish, turmeric (sowing), jowar, summer moong, mash (land preparation / sowing), fodder crops like oats (vegetative (2nd cut)), berseem (reproductive), turnip, cruciferous crop (viz. cabbage, cauliflower, knolkhol, kale, broccoli, solanaceous crops (tomato, brinjal and chilli, capsicum), paprika, onion, cucurbits in polybags (Leh region) (nursery sowing/transplanting), Horticultural crops (various stages) viz. [peach, plum & mango (flowering), ber, orange & guava (fruiting)] in Jammu & Kashmir.
- Chilli, capsicum, cauliflower, broccolli (germination/vegetative), sugarcane (planting), litchi, loquat, peach, citrus (flowering / fruiting/maturity), mango (early varieties) (flowering/fruiting), foxtail millet, okra, bottle gourd, bitter gourd, ginger, turmeric (germination / vegetative/flowering), mustard (pod formation/pod maturity), papaya (planting), sorghum, pigeon pea, chick pea (pod maturity/harvesting), urd and pearl millets (early vegetative/vegetative), onion, garlic (transplanting/germination), wheat (harvesting), brinjal, potato (germination/vegetative), sunflower(germination) in Uttarakhand.
- Wheat (harvesting), winter sugarcane (vegetative growth), sunflower, summer moong, urad (germination/vegetative), vegetables [tomato, brinjal, lady's finger, cucurbits like bottle gourd, bitter gourd, cucumber] (sowing/germination/vegetative), coriander (vegetative/ flowering/maturity), onion (transplanting / vegetative growth), mustard/ sarson (siliqua formation/ grain formation), barley (vegetative / tillering), arhar, jai, gram, alsi, maize, masoor, pea, pigeon pea, berseem (vegetative growth), fodder maize, lobia, jowar (sowing), sugarcane (planting) in Uttar Pradesh.
- Spring sugarcane (sprouting/tillering), berseem (vegetative), gram, lentil (pod formation), mustard, rape seed (pod formation/maturity), barley (heading) radish, carrot, turnip, onion, cauliflower (transplanting/vegetative), wheat (grain filling), tomato, cucurbits, okra, sunflower(sowing) in Punjab.
- Sugarcane (spring season) (early vegetative), barseem (vegetative), moong, mash, pigeon pea (vegetative), cauliflower, cabbage, carrot, potato (transplanting), barley (heading/pre heading), mustard, sarson, raya (vegetative/flowering), radish, turnip (sowing), wheat (grain filling) in Haryana.
- Wheat (maturity / harvesting), sweet potato, chilli and cluster bean (vegetative/pod formation), mustard (harvesting), barley (maturity / harvesting), fenugreek, coriander, cumin (harvesting), oats, lentil, lucerne, taramira, linseed, opium poppy, vegetables (potato, brinjal, radish, chilli, carrot, palak, berseem, isabgol, ajwain, garlic (vegetative growth/flowering), summer tomato (germination/vegetative), cauliflower, cabbage, rabi onion (transplanting/germination), summer cucurbits, summer green fodder(sowing/germination), okra, *zaid* pearl millet fodder, *zaid* sorghum fodder, *zaid* green gram, groundnut, sweet corn (sowing), sugarcane (new planting), cotton (land preparation / sowing) in Rajasthan.

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

- Sugarcane (vegetative), summer groundnut (pegging), jowar (harvest), safflower (harvest), maize (harvesting), sunflower (harvesting), late planted paddy (harvesting), wheat (harvesting), black gram /green gram (harvest), mango (fruiting), cotton (picking), vegetables (fruiting) and horticultural crops (fruit development) in Karnataka
- Rabi groundnut (maturity/harvesting), rabi paddy (maturity/ harvesting), rabi maize (maturity/ harvesting), rice fallow maize (grain filling), rice fallow jowar (grain filling), rice fallow pulses (pod formation), sunflower (heading), sugarcane (planting/ tillering/ ratooning), jowar (grain setting/grain maturity), vegetables (fruiting), chilli (fruiting), green gram & black gram (maturity), tomato (fruiting) and bhindi (various stages), mango (fruiting), fruit crops (flowering to fruit initiation), water melon (sowing) and sesasum (sowing) in Andhra Pradesh.
- Pepper & ginger (planting), rubber (tapping), irrigated banana (bunching), cardamom (nursery), nutmeg (maturity/harvest), sugarcane (grand growth/elongation), vegetables (fruiting bearing/harvest), pancha paddy (tillering), virippu paddy (nursery sowing), coconut (seed nut collection) in Kerala.

- Rice - Samba (harvest), Thaladi (harvest), rice fallow black gram (maturity), sugarcane (vegetative), gingelly (vegetative/flowering), tomato (maturity), irrigated cotton, pulses (flowering), pulses (flowering/grain formation), cotton (vegetative), vegetables (maturity/harvest), maize (vegetative / tasseling), pearl millet (grain filling/ grain maturity), sorghum (harvesting), irrigated groundnut (harvesting), chilli (fruiting), ginger and turmeric (harvesting) in Tamil Nadu.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- Sugarcane - new *adsali* (active tillering), sugarcane - new pre-seasonal (early tillering / tillering), sugarcane - new *suru* (early vegetative) in Madhya Maharashtra and Marathwada, summer rice (grain formation/grain maturity in south Konkan & ear head emergence/flowering in North Konkan and East Vidarbha), summer groundnut (pod development in South Konkan and pegging / pod formation in Madhya Maharashtra, Marathwada and West Vidarbha), bajra (flowering/grain formation in Pune and Nashik divisions) in Maharashtra.
- Summer groundnut (vegetative), summer rice (early tillering / tillering), summer bajra (tillering), summer moong, urad, cowpea (seedling / early vegetative), wheat (maturity / harvesting), *rabi* maize (cob formation/ maturity), sugarcane (early vegetative), castor (maturity / harvesting), vegetables (flowering / fruiting / harvesting), cluster bean (sowing / seedling) and cauliflower, cabbage (maturity / harvesting) in Gujarat.

CENTRAL INDIA [M.P., CHHATTISGARH]

- Sugarcane (knee height stage), vegetables (fruiting), mustard (maturity/harvesting), moong (early vegetative), maize (harvesting), onion, garlic (harvesting), tomato, brinjal, chilli (sowing/transplanting), fodder crops (sowing) in Madhya Pradesh.
- Sugarcane (planting), groundnut, green gram and sesame (late vegetative), ginger, turmeric, papaya, mango and guava (vegetative), cauliflower, pigeon pea (pod filling), linseed (pod maturity stage), tomato, brinjal, chilli, niger, horse gram, ramtil, toria, niger, kulthi (maturity), wheat (maturity/harvesting), onion (planting), summer rice (tillering), summer vegetables (land preparation), moong, urad and maize (early vegetative) in Chhattisgarh.

Annexure II

List of Varieties

Assam

Ridge gourd: Pusa Nasdar, AAUJ-1, AAUJ-2, AAUC-3.

Sponge gourd: Pusa Chikni.

Musk melon: Pusa Sharbati, Hara Madhu, Punjab Sunehri, Durgapur Madhu, Arka Rajhans and Arka Jeet.

Water melon: Asahi, Pusa Bedana, Sugar Baby, Faizabadi.

Sugarcane: Kolong, Luhit, Dhansiri, Doris, Co 1148.

Ahu rice: Luit, Kopilee, Rasi, Cauvery, Culture-1, Chilarai, Gopinath, Krishne, Kushal, Puthichapali, Nilajee, Hasakumra, Gobind, IR-36, IR 50.

Tall varieties: Banglami, Dubaichenga, Rangadaria (115-120 days), Ahujoha (110-120 days).

Short duration variety: Dogaranga (85-95days).

Okra: Pusa Sawani, Arka Anamika, Parbhani Kranti, Panchasira.

Capsularis jute: JRC 321 (Sonali), UPC 94 (Reshma), JRC212, JRC 7447.

Olitorius Jute: JRO 524 (Navin), JRO 785 (Basudev), JRO 632 (Baisakhtissa), Set-2 (Bahagi).

Bao Paddy: Maguri, Kekua Bao, Negheri Bao, Tara Bao.

Cow pea : Pusa Barsati.

Ginger : Nadia, Karkai, Maran, Jorhat, chaina

Turmeric : Shillong type, CL-24, PTS-38, PCT-13, VK-145

Meghlaya

Kharif maize: Vijay, RCM-76, Local white and yellow, DA-61-A and QPM.

Okra: Arka Anamika, Pusa Sawani, Parbhani Kranti.

Brinjal : Umroi, Mutakesh, Narrow.

Bottle gourd: Pusa Summer, Prolific Long, Prolific Round, Pusa Meghdoot.

Capsularis jute: JRE-21, JRC-321, D-154, JRC-7447.

Olitorious jute: JRO-632, JRO-514, JRO-7835, JRO-878.

Mizoram

Okra: Pusa Sawani, Pusa Makhmali, Punjab Padmini, Arka Anamika, Arka Abhay.

Moong: Jawahr, Pusa Baishakhi, KM

Urad: PDU 1, Barkha, Type 1ND U 99-2

Manipur

Cabbage: Rare ball & Golden Acre

Cauliflower: Pusa Snow Ball 1, Pusa Snow Ball 2 & Snow Ball

Tripura

Okra : Arka Anamika, Parbhani, Kranti

Ridge gourd : Pusa Nasdar, Satputia.

Gourds Cucumber : Japanese long, Straight 8

Sweet Gourd : Indigenous

Orissa

Okra: Utkal Gourav, Arka Anamika, Varsha Uphar, Parvani Kranti and all available hybrid varieties

Bitter gourd: Pusa Domousumi, Coimbatore Long Green, and Arka Harit,

Ridge gourd: Pusa Najdar, Jaypur Long, and any local variety

Cluster bean: Pusa Naubahar,

Cow pea: Arka Garima, Utkal Manika, Selection-2-6-3 and Pusa Kamal.

Jute: JRO-524 (Naveen).

West Bengal

Jute: Chaitali, Basudev, Naveen, Sonali, Sobujsona, Shyamali.

Himachal Pradesh :

Lettuce: Iceberg,

Brinjal: Arka Nidhi, PPC

Agetibhindi: P-8, Prabhnikranti, Arka Anamika,

Frenchbean: Contender

Pepper : Surjmukhi,
Broccoli: PalamSamridhi,
Rajmash: Triloki, Jwala, baspa Kailash
Raddish: japani white and early mino white,
Turnip: PTWG-1.
Cabbage: Snow ball K-1 Palamuphar, golden acre.
Knolkhol : White Bina,
Cauliflower: Pride of India.
Peas: Angoori, PS1100/Azad1.

Jammu & Kashmir

Vegetable crop like **radish** (var. Pusachetki, Japanese white & Pusareshmi), **carrot** (var.Pusakesar), **turnip** (var PTWG), **garlic** (var. local, large segmented), **spinach** (prickly seeded) and **methi** (P.E.B.K methi), **Cauliflower** (var. PusaDipali), **knoll khol** (White Vienna), **Broccoli** (Early green), **Bottle gourd** (Pusa Summer Prolific Long, Punjab Komal, Punjab Round, Pusa Summer Prolific Round), **Sponge gourd** (Pusa Chikni, Pusa Supriya), **Ridge gourd** (Pusa Nasadar, Swaran Manjari, Pant Tori-I), **Bitter gourd** (Pusa Domousmi, Pusa Vishesh, Coimbatore Long, Pusa Hybrid- Kalyanpur Baramasi), **Cucumber** (Japanese Long, Straight Eight Poinsette), **Pumpkin** (Arka Suryamukhi, Arka Chandan), **Bhindi** (Hissar Unnat, A-4, Varsha – Uphar, Parbhani Kranti), **Radish** (Pusa Chetki) and **turmeric** (local), **Jowar** : Ujjain, Swarna-413, M.P.chari & PoineerJowar ,**Summer mash**: Mash Pant, U-19, T-9) and **moong**: PDM-54, PS-16, PS-17, ML-131
Beans : **Contender, Pusa Parvati, Arka Komal**

Punjab

Sugarcane: CoJ-85, CoJ-83, CoJ-64 (early maturing), CoJ-88, CoS-8436 for mid season and CoJ-89 and Co-1148 (late maturing variety).
Summer moong: SML-668, SML 832
Summer mash: Sathi mash, Mash 1008 , Mash-414 ,Mash-218.
Onion: Agri Found Dark Red, N 53
Okra: PusaSawani , PunjabPadmini ,Punjab 7 or 8.

Haryana

Sugarcane: CoJ-85, CoJ-83, CoJ-64 (early maturing), CoJ-88, CoS-8436 for mid season and CoJ-89 and Co-1148 (late maturing variety).
Summer moong: SML-668, SML 832
Summer mash: Sathi mash, Mash 1008 , Mash-414 ,Mash-218.
Onion: Agri Found Dark Red, N 53
Okra: PusaSawani , PunjabPadmini ,Punjab 7 or 8.

Delhi

Green gram: Pusa-9531, PusaVisal, PusaVaisakhi, PDM-11, SML-32
Black gram : Pant Urd 19, Pant Urd 30, Pant Urd 35, PDU1.
Maize: African Tall
Cluster bean: PusaKomal, PusaSukomal.
Baby corn : HM-4
Sugarcane: Karan-1, Karan-2, Co-64, and Co-1496.

Uttarakhand

Sunflower: KBSH-44, PAC-36, PAC-1091, PAC-3776, PAC-6457, DRSH-1.
Okra: Pusa Savani, Punjab Padmini, Selection -1, HissarUnnat, Vaishali, Madhu, Parbhani Kranti etc.
Sugarcane :Co Pant 84211, Co-238, Co-241, Co Pant 3220, COS-8436, COS-88230 etc. and medium to late sown varieties like Co Pant 90223, Co Pant-96219, COS-97222, COS-767, COS-1148 etc.
Urd : PU-19, PU-30, Pant Urd-31, Pant Urd-35, Pant Urd-40, Narendra Urd-1 etc.
Cucurbits: Pant Kheera-1 of cucumber, Pant Kakari-1 of Long melon, Pant Karela-1 of Bitter Gourd, Pant Summer Lokee-1,2 of Bottle Gourd and of Water Melon and Musk Melo
ChiateeDhan : VL-Dhan-207, VL-Dhan 208 & VL - Dhan 209
ChiateeDhan.

Uttar Pradesh

Sugarcane : KS-8436, KS-88230, KS-95255

Sunflower : K.P.S.H. 1, Divyamukhi, Jwalamukhi

Moong : Type-44, Pant Moong-1,2, Narendra Moong-1, PDM-11, MUM-2, Malviya Jagruti, Samrat, Pusa Vaishakhi K. , K-851, JM-721 etc.

Urad : Azad Urd-1,2, Bhokhar-1,2, Type-9, Uttara etc. JT-9, pant u-19, Narendra ;, pant U-35

Vegetables : Bitter gourd: KalyanSona, Arka, Harit, Bottle gourd: KalyanpuriHari, Lambi Azad, Nootan, Pusa, Navin, Narendra, NarendraDharidar, NarendraBhankar, Lowki-4, Pumpkin: PusaVishwas, Coimbatore-1,2, Kalyanpur Pumpkin-1, NarendraAgrim, NarendraAmrut, Cucumber: Fine set, China, Japani, Langreen, Taroi: Pusachikani, PusaNasdar, Satputiya, Punjab, Sadabahar, Lady's Finger: Azad Bhindi-1,2, ParmaniKranti, P-7, Varsha, Uphar, Hissar, Unnat, P-Kanti.

Rajasthan

Summer Groundnut : improved varieties : TAG-24, SB-11, DH-86 and GG-2

Zaid green gram : improved varieties K-851 (60-70 days), PDM-11 (60-65 DAYS), PusaBaisakhi (60-80 days), RMG-268 (65-70 days)

Cotton : R.G. -8, R.G.-18, H.D. 123, hybrid Var. : Raj D.H.-9

Sugarcane : C.O. 6617, C.O. 7717, C.O.S. 95255, C.O.S. 767

Cucurbits : **Bottle guard** : Pusa Naveen, ArkaBahar, **Pumpkin** :Pusa Vishwas, ArkaChandan, PusaAlankar, ArkaSuryamukhi, **Bitter guard** :Arka Harit Pusa Vishesh, Priya,

Round gourd : Arkatinda, Bikaneri green, Punjab-48.

Gujarat:

Summer bajra: GHB-526 , GHB-558, MH-169, GHB-538.

Green gram: Gujarat Mung-3, 4, K-851, Pusa Baisakhi.

Cow pea: Pusa Falguni, Gujarat cow pea-2

Urad: T-9

Cluster bean: Gujarat Guar-2.

Maharashtra

Fodder (Madhya Maharashtra): Ruchira, Phule Amruta, Maldandi 35-1, M.P. Chari, **Bajra**: Jayant, **Maize**: African Tall

Fodder (East Vidarbha): Pusachari, M.P. Chari and SSG 898.

Irrigated cotton: Phule-492, NHH-44(Nanded-44)

Madhya Pradesh

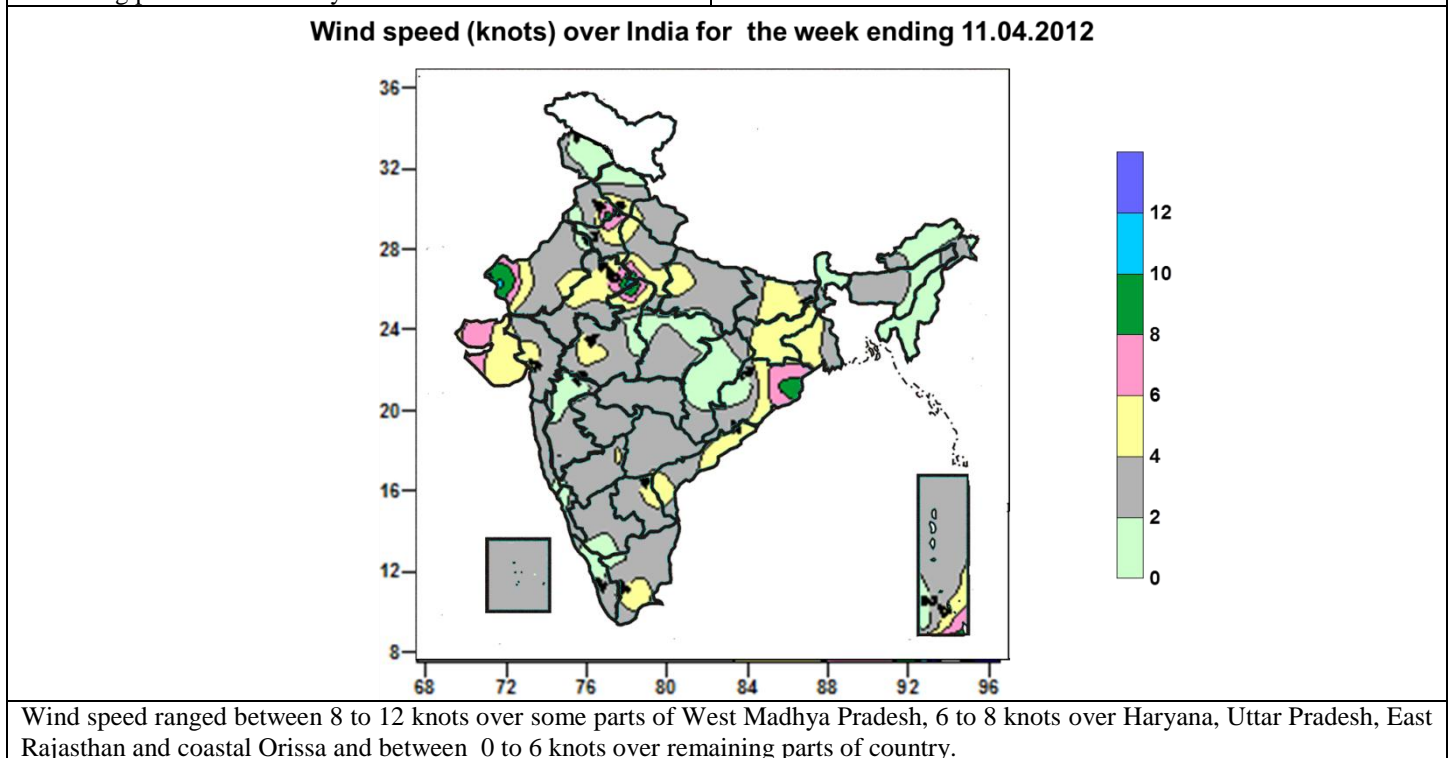
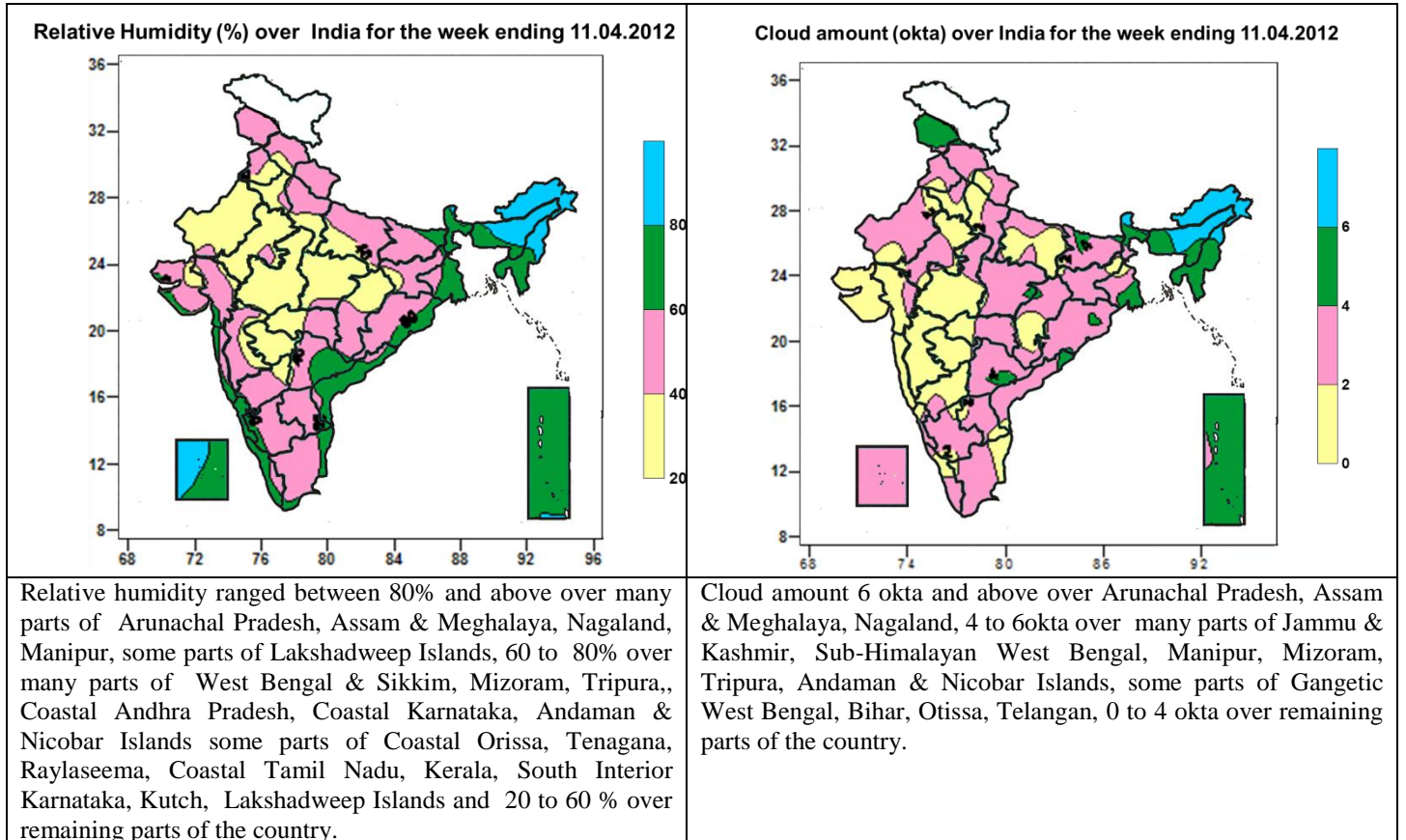
Ladies Finger- Pusa Makhamali, Pusa Sawani, A-4 or Parbhanikranti

Chattisgarh

Sugarcane- Co 86032, Co 86141

Annexure III

Contour maps for Relative Humidity, Cloud Amount and Wind speed for the week ending on 11.04.2012



Images of Impact of thunderstorm, hailstorm and high wind and heavy rainfall on standing crops.



Thunderstorm in West Midnapur City in West Bengal



Hailstorm in Shillong, Meghalaya



Leaf scattered due to high wind speed and rainfall in Mizoram



Damaged banana bunch - Mizoram



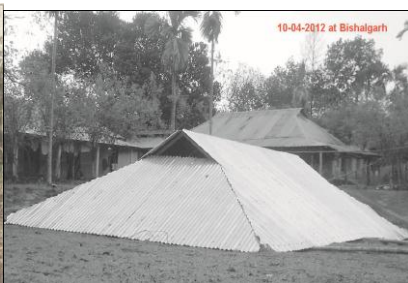
Leaf scattered due to high wind speed and rainfall - Mizoram



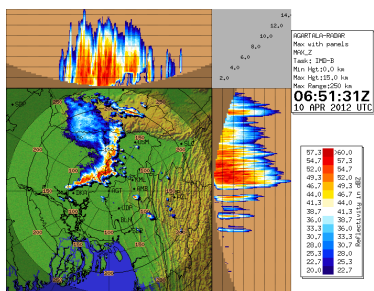
Guava branches broken - Mizoram



Damaged trees and buildings in Agartala, Tripura



Strong Thunderstorm and lightning in Agartala Tripura



Doppler Radar Picture of Thunderstorm in Agartala, Tripura



Lodging of Wheat crop in Delhi