



# *National Agromet Advisory Service Bulletin*

**Thursday 17<sup>th</sup> April 2020**  
**(For the period 17<sup>th</sup> to 21<sup>st</sup> April 2020)**



**Issued by**  
**India Meteorological Department**

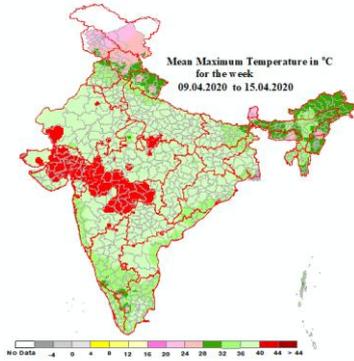
**Weblink For**

**District AAS Bulletin:** <http://www.imdagrimet.gov.in/node/3545>

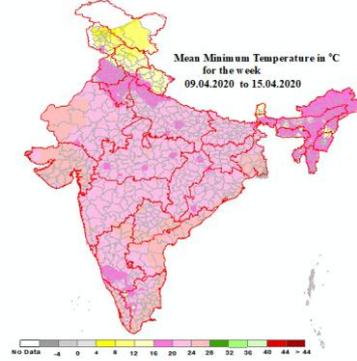
**State Composite AAS Bulletin:** <http://www.imdagrimet.gov.in/node/3544>

## spatial distribution of weather parameters for the week ending on 15.04.2020

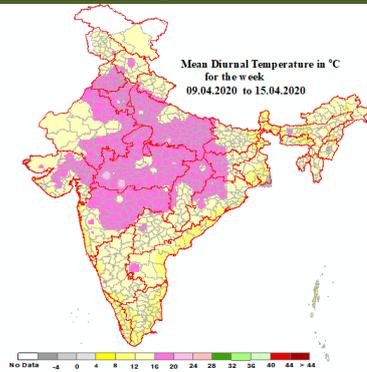
**Mean Maximum Temperature (°C) for the week ending on 15.04.2020**



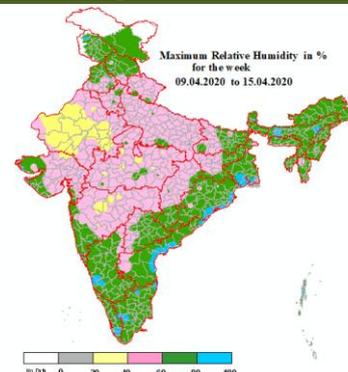
**Mean Minimum Temperature (°C) for the week ending on 15.04.2020**



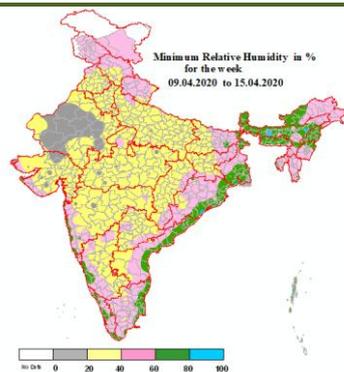
**Mean Diurnal Temperature Variation (°C) for the week ending on 15.04.2020**



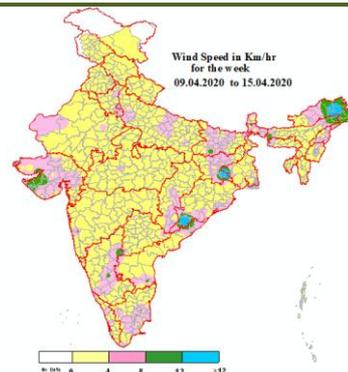
**Mean Maximum Relative Humidity (%) for the week ending on 15.04.2020**



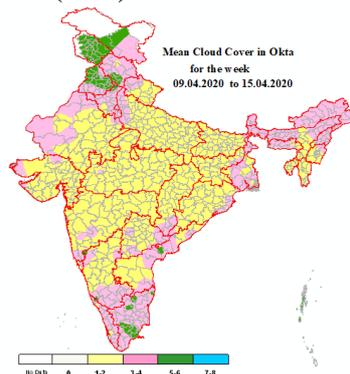
**Mean Minimum Relative Humidity (%) for the week ending on 15.04.2020**



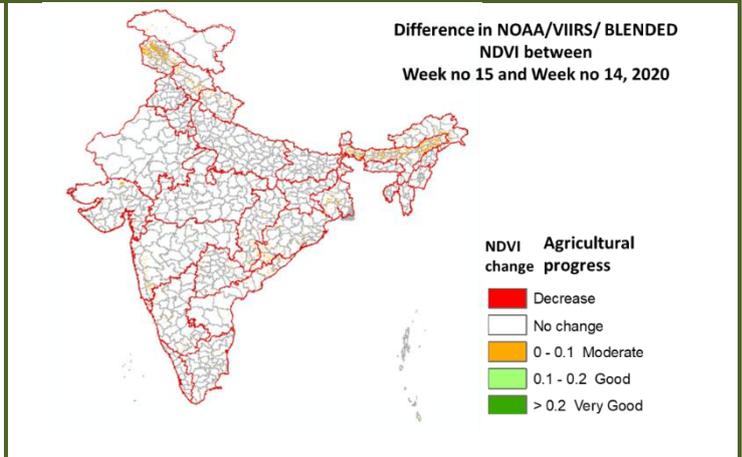
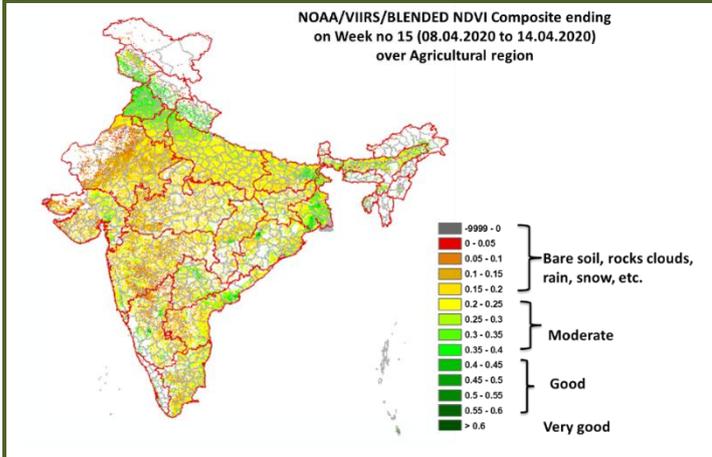
**Mean Wind Speed (km/hr) for the week ending on 15.04.2020**



**Mean Cloud Cover (okta) for the week ending on 15.04.2020**



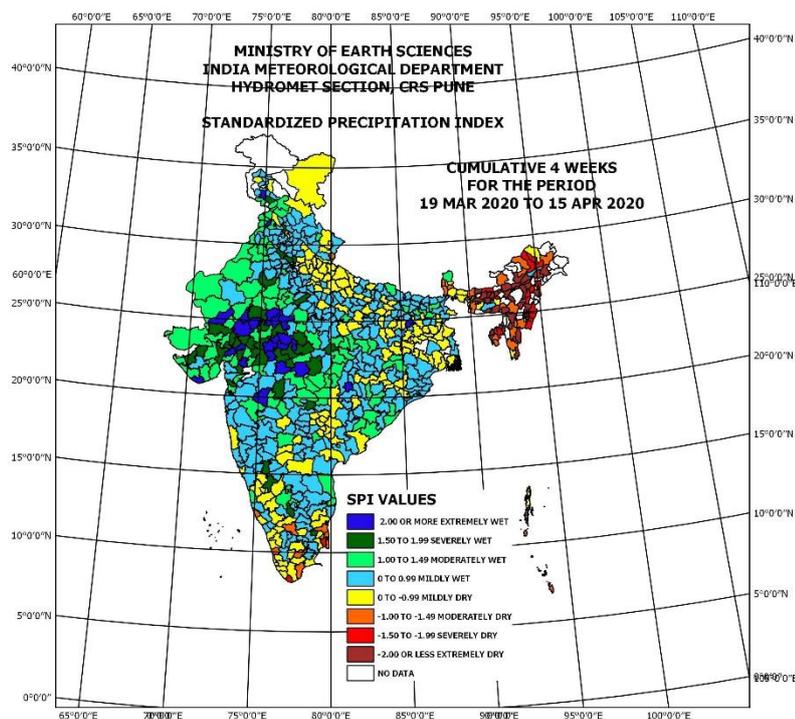
<b>NOAA/VIIRS/BLENDED NDVI composite for the week number 15 (08.04.2020 to 14.04.2020) over Agricultural regions of India</b>	<b>Difference in NOAA/VIIRS/BLENDED NDVI between week number 15, 2020 and week number 14, 2020</b>
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Agricultural vigour was good at isolated places of Gangetic West Bengal, Odisha, Central part of Chattisgarh, North Coastal Andhra Pradesh, Karnataka and Kerala.

Moderate difference in agricultural vigour was observed over many places of Valley region of Jammu & Kashmir; few places of North eastern states and and isolated over rest of the country.

### Standardised Precipitation Index Cumulative 4 weeks for the period 19<sup>th</sup> March to 15<sup>th</sup> April 2020



- Extremely/ Severely wet conditions exist in Nawada district of Bihar; Ahmedabad, Banaskantha, Kheda, Panchmahal, Sabarkantha, Gandhinagar, Narmada, Navsari, Aravalli, Chhota Udepur, Mahisagar, Jamnagar, Gir Somnath, Morbi districts of Gujarat; Jind, Sonapat districts of Haryana; Reasi, Udhampur districts of Jammu; Gadag, Davangere, Ramanagara districts of Karnataka; Betul, Bhopal, Dewas, Dhar, Harda, Indore, Jhabua, Khandwa, Morena, Neemuch, Raisen, Rajgarh, Ratlam, Sehore, Shajapur, Ujjain, Vidisha, Agar, Chindwara, Jabalpur districts of West Madhya Pradesh; Aurangabad, Buldhana districts of Maharashtra; Kapurthala, Ropar districts of Punjab; Jalore, Banswara, Bhilwara, Bundi, Chittorgarh, Dungarpur, Jhalawar, Kota, Sikar, Udaipur, Baran, Rajsamand districts of Rajasthan; Perambalur district of Tamilnadu; Dadara & Nagar Haveli districts of Union Territory; Sant Ravidas Nagar, Baghpat districts of Uttar Pradesh; Balod district of Chhatisgarh; Adilabad district of Telangana.
- Extremely/Severely dry conditions exist in East Siang, Papumpara, West Siang districts of Arunachal Pradesh; Cachar, Darrang, Goalpara, Kamrup, Lakhimpur, Nagaon, Barpeta, Dibrugarh, Jorhat, Shonitpur, Nalbari, Golaghat, Tinsukia, Baksa, Chirang, Kamrup Metro districts of Assam; Chandel, Imphal East, Imphal West, Senapati, Thoubal, Ukhrul districts of Manipur; East Khasi Hills districts of Meghalaya; Champhai, Kolasib, Saiha, Serchhip districts of Mizoram; Mokokchung, Tuensang, Kohima, Mon, Paren, Wokha districts of Nagaland; Kanyakumari, Tiruvarur districts of Tamilnadu; North Tripura, Dhalai, West Tripura districts of Tripura.
- Moderately wet to moderately dry conditions were experienced in remaining districts in the country.

## Weather Forecast for next 5 days valid upto 0830 hours of 22<sup>nd</sup> April, 2020

- ◆ Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table below.
- ◆ Maximum temperatures in the range of 40-42°C likely to prevail over parts of Telangana, Rayalaseema and North Interior Karnataka and maximum temperatures likely to fall by 2-4°C over plains of northwest India during next 2-3 days. No significant change in maximum temperatures over rest of the country during the same period.

### 5 Day Rainfall Forecast (MID-DAY)

17<sup>th</sup> April 2020

Met-Sub-Division	17-Apr Today	18Apr Sat	19Apr Sun	20Apr Mon	21Apr Tue
1. Andaman & Nicobar Islands	SCT	SCT	SCT	ISOL	ISOL
2. Arunachal Pradesh	FWS	WS	WS	FWS	WS
3. Assam & Meghalaya	WS	WS	WS	FWS	WS
4. N. M. M. & T.	WS	FWS	FWS	FWS	WS
5. S.H. West Bengal & Sikkim	SCT	WS	FWS	FWS	WS
6. Gangetic West Bengal	ISOL	SCT	SCT	SCT	FWS
7. Odisha	ISOL	ISOL	ISOL	ISOL	ISOL
8. Jharkhand	ISOL	ISOL	ISOL	SCT	SCT
9. Bihar	ISOL	ISOL	ISOL	SCT	SCT
10. East Uttar Pradesh	ISOL	DRY	ISOL	ISOL	DRY
11. West Uttar Pradesh	ISOL	ISOL	ISOL	ISOL	DRY
12. Uttarakhand	FWS	FWS	SCT	SCT	SCT
13. Haryana, Chd & Delhi	SCT	SCT	ISOL	ISOL	DRY
14. Punjab	SCT	SCT	ISOL	ISOL	DRY
15. Himachal Pradesh	WS	FWS	SCT	SCT	SCT
16. J & K and Ladakh	WS	FWS	SCT	SCT	SCT
17. West Rajsthan	ISOL	ISOL	ISOL	ISOL	DRY
18. East Rajasthan	ISOL	ISOL	ISOL	ISOL	DRY
19. West Madhya Pradesh	ISOL	ISOL	ISOL	ISOL	DRY
20. East Madhya Pradesh	ISOL	ISOL	ISOL	ISOL	DRY
21. Gujarat Region	DRY	DRY	DRY	DRY	DRY
22. Saurashtra & Kutch	DRY	DRY	DRY	DRY	DRY
23. Konkan & Goa	ISOL	ISOL	ISOL	ISOL	ISOL
24. Madhya Maharashtra	ISOL	ISOL	ISOL	ISOL	ISOL
25. Marathwada	ISOL	ISOL	ISOL	ISOL	ISOL
26. Vidharbha	ISOL	ISOL	ISOL	ISOL	ISOL
27. Chhattisgarh	ISOL	ISOL	ISOL	ISOL	ISOL
28. Coastal A. P. & Yanam	ISOL	ISOL	ISOL	ISOL	ISOL
29. Telangana	ISOL	ISOL	ISOL	SCT	ISOL
30. Rayalaseema	DRY	DRY	DRY	ISOL	ISOL
31. T.N.,Puducherry & Karaikal	ISOL	ISOL	ISOL	ISOL	ISOL
32. Coastal Karnataka	ISOL	ISOL	ISOL	SCT	SCT
33. North Interior Karnataka	ISOL	ISOL	ISOL	SCT	ISOL
34. South Interior Karnataka	ISOL	ISOL	ISOL	SCT	ISOL
35. Kerala & Mahe	SCT	SCT	SCT	SCT	SCT
36. Lakshadweep	DRY	DRY	DRY	SCT	SCT

#### % Station Reporting Rainfall

% Stations	Category	% Stations	Category
76-100	Widespread (WS/Most Places)	26-50	Scattered (SCT/ A Few Places)
51-75	Fairly Widespread (FWS/ Many Places)	1-25	Isolated (ISOL)
No Rain	Dry		

## Forecast for the 2020 Southwest Monsoon Rainfall

- ◆ Southwest monsoon seasonal (June to September) rainfall over the country as a whole is likely to be normal (96-104%).
- ◆ Quantitatively, the monsoon seasonal (June to September) rainfall is likely to be 100% of the Long Period Average (LPA) with a model error of  $\pm 5\%$ . The LPA of the season rainfall over the country as a whole for the period 1961-2010 is 88 cm.

### Weather Warning during next five days:

**17 April (Day 1):** ◆ **Thunderstorm accompanied with lightning & squall** (speed reaching 50-60 kmph) likely at isolated places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

- ◆ **Thunderstorm accompanied with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh and Uttarakhand; **with lightning & gusty winds** (speed reaching 30- 40 kmph) at isolated places over Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh, Arunachal Pradesh and Madhya Maharashtra and **with lightning** at isolated places over Chhattisgarh, Bihar, Jharkhand, West Bengal & Sikkim, East Madhya Pradesh, Odisha, Marathwada, Coastal Andhra Pradesh & Yanam, Telangana, Karnataka, Tamilnadu, Puducherry & Karaikal and Kerala & Mahe.
- ◆ **Dust/Thunderstorm accompanied with gusty winds**(speed reaching 30-40 kmph) very likely at isolated places over Rajasthan.
- ◆ **Heavy rainfall** likely at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- ◆ **Squally weather** (wind speed 45-55 kmph) likely to prevail over northwest Bay of Bengal off West Bengal-Odisha coasts. Fishermen are advised not to venture into these areas.

**18 April (Day 2):** ◆ **Thunderstorm accompanied with lightning, hail & squall** (speed reaching 50-60 kmph) very likely at isolated places over Assam & Meghalaya.

- ◆ **Thunderstorm accompanied with lightning & squall** (speed reaching 50-60 kmph) very likely at isolated places over Nagaland, Manipur, Mizoram & Tripura and West Bengal & Sikkim.
- ◆ **Thunderstorm accompanied with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh, Uttarakhand and Arunachal Pradesh; **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, Jharkhand, Odisha, Coastal Andhra Pradesh & Yanam, Telangana and Madhya Maharashtra and **with lightning** at isolated places over East Madhya Pradesh, Chhattisgarh, Bihar, Marathwada, Karnataka, Tamilnadu, Puducherry & Karaikal and Kerala & Mahe.
- ◆ **Heavy rainfall** likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Coastal Andhra Pradesh & Yanam.
- ◆ **Squally weather** (wind speed 45-55 kmph) likely to prevail over northwest Bay of Bengal off West Bengal-Odisha coasts. Fishermen are advised not to venture into these areas.

**19 April (Day 3):** ◆ **Thunderstorm accompanied with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Madhya Maharashtra and Telangana; **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over Uttar Pradesh, Chhattisgarh, West Bengal & Sikkim, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura and Marathwada and **with lightning** at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh, Uttarakhand, West Madhya Pradesh, Vidarbha, Bihar, Jharkhand, Odisha, Arunachal Pradesh, Coastal Andhra Pradesh & Yanam, Karnataka, Tamilnadu, Puducherry & Karaikal and Kerala & Mahe.

- ◆ **Dust/Thunderstorm accompanied with gusty winds**(speed reaching 30-40 kmph) likely at isolated places over Rajasthan.
- ◆ **Heavy rainfall** likely at isolated places over Sub-Himalayan West Bengal & Sikkim, Arunachal Pradesh.

**20 April (Day 4):** ◆ **Thunderstorm accompanied with lightning & squall** (speed reaching 50-60 kmph) likely at isolated places over Bihar; **with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Chhattisgarh, Madhya Maharashtra, Marathwada and Telangana; **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over Uttar Pradesh, Jharkhand, West Bengal & Sikkim, Odisha, Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura, Coastal Andhra Pradesh & Yanam, Karnataka and Kerala &

Mahe and **with lightning** at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh, Uttarakhand West Madhya Pradesh, Vidarbha, Arunachal Pradesh, Konkan & Goa, Rayalaseema and Tamilnadu, Puducherry & Karaikal.

**21 April (Day 5): ♦ Thunderstorm accompanied with lightning & squall** (speed reaching 50-60 kmph) likely at isolated places over Sub-Himalayan West Bengal & Sikkim; **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over Bihar, Jharkhand, Gangetic West Bengal, Odisha, Arunachal Pradesh, Assam & Meghalaya, Coastal Andhra Pradesh & Yanam, Telangana, Coastal Karnataka and Kerala & Mahe and **with lightning** at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh, Uttarakhand, Chhattisgarh, Nagaland, Manipur, Mizoram & Tripura, Madhya Maharashtra, Marathwada, Rayalaseema, Interior Karnataka and Tamilnadu, Puducherry & Karaikal.

♦ **Heavy rainfall** likely at isolated places over West Bengal & Sikkim, Arunachal Pradesh and Assam & Meghalaya.

### **Weather Outlook for subsequent 2 days from 22<sup>nd</sup> to 24<sup>th</sup> April, 2020**

- Fairly widespread to widespread rain/thundershowers with isolated heavy falls likely over Northeast India and over West Bengal & Sikkim.
- Scattered to fairly widespread rain/thundershowers likely over Western Himalayan region and isolated to scattered rain /thundershowers likely over adjoining plains of Northwest India. Isolated to scattered rain/thundershowers are likely over parts of East & South Peninsular India and Islands.
- Weather is likely to be dry over rest parts of the country.

### **Salient advisories**

#### ➤ **Advisory for Desert Locust:**

In Arid Western Plain Zone of Rajasthan, where there is attack of desert locust in Bikaner and Jaisalmer districts, apply Chloropyriphos (50%) @ 1 ml/litre or (20%) @ 2.5 ml/litre of water in standing crops.

- **As Thunderstorm accompanied with lightning, hail & squall** (speed reaching 50-60 kmph) very likely at isolated places over Assam & Meghalaya on 18<sup>th</sup>; **with lightning & squall** (speed reaching 50-60 kmph) likely at isolated places over Assam & Meghalaya on 17<sup>th</sup> and over Nagaland, Manipur, Mizoram & Tripura on 17<sup>th</sup> & 18<sup>th</sup>, over West Bengal & Sikkim on 18<sup>th</sup>, over Bihar on 20<sup>th</sup> and over Sub-Himalayan West Bengal & Sikkim on 21<sup>st</sup>; **with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh and Uttarakhand, on 17<sup>th</sup> & 18<sup>th</sup>, over Arunachal Pradesh on 18<sup>th</sup> and over Chhattisgarh, Madhya Maharashtra, Marathwada and Telangana on 20<sup>th</sup>; **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over Punjab, Haryana, Chandigarh & Delhi and Madhya Maharashtra on 17<sup>th</sup> & 18<sup>th</sup>, over Uttar Pradesh on 17<sup>th</sup>, 19<sup>th</sup> & 20<sup>th</sup>, over Arunachal Pradesh on 17<sup>th</sup> & 21<sup>st</sup>, over West Uttar Pradesh on 18<sup>th</sup>, over Odisha on 18<sup>th</sup> & 20<sup>th</sup>, over Jharkhand and Coastal Andhra Pradesh & Yanam on 18<sup>th</sup>, 20<sup>th</sup> & 21<sup>st</sup>, over Telangana on 18<sup>th</sup> & 21<sup>st</sup>, over Chhattisgarh and Marathwada on 19<sup>th</sup>, over West Bengal & Sikkim and Nagaland, Manipur, Mizoram & Tripura on 19<sup>th</sup> & 20<sup>th</sup>, over Assam & Meghalaya from 19<sup>th</sup> to 21<sup>st</sup>, over Karnataka on 20<sup>th</sup>, over Kerala & Mahe on 20<sup>th</sup> & 21<sup>st</sup> and over Bihar, Gangetic West Bengal and Coastal Karnataka on 21<sup>st</sup>; **with lightning** at isolated places over West Bengal & Sikkim and Telangana on 17<sup>th</sup>, over East Madhya Pradesh on 17<sup>th</sup> & 18<sup>th</sup>, over Bihar, Karnataka and Kerala & Mahe from 17<sup>th</sup> to 19<sup>th</sup>, over Tamilnadu, Puducherry & Karaikal from 17<sup>th</sup> to 21<sup>st</sup>, over Chhattisgarh and Marathwada on 17<sup>th</sup>, 18<sup>th</sup> & 21<sup>st</sup>, over Jharkhand, Coastal Andhra Pradesh & Yanam and Odisha on 17<sup>th</sup> & 19<sup>th</sup>, over West Madhya Pradesh, Vidarbha and Arunachal Pradesh on 19<sup>th</sup> & 20<sup>th</sup>, over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh and Uttarakhand from 19<sup>th</sup> to 21<sup>st</sup>, over Konkan & Goa on 20<sup>th</sup>, over Rayalaseema on 20<sup>th</sup> & 21<sup>st</sup> and over Interior Karnataka, Marathwada and Nagaland, Manipur, Mizoram & Tripura on 21<sup>st</sup>, provide mechanical support to banana, young fruit plants and vegetables and carry out propping up in sugarcane to prevent the crops from lodging due to strong winds. Provide hailnet for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.
- **As rain/thundershowers likely at most places** over Arunachal Pradesh on 18<sup>th</sup>, 19<sup>th</sup> and 21<sup>st</sup>, over Assam & Meghalaya on 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup> & 21<sup>st</sup>, over Nagaland, Manipur, Mizoram & Tripura (NMMT) on 17<sup>th</sup> and 21<sup>st</sup>, over Sub-Himalayan West Bengal & Sikkim on 18<sup>th</sup> & 21<sup>st</sup> and over Jammu & Kashmir and Himachal Pradesh on 17<sup>th</sup>; **at many places** over Arunachal Pradesh on 17<sup>th</sup> & 20<sup>th</sup>, over Assam &

Meghalay on 20<sup>th</sup>, over Nagaland, Manipur, Mizoram & Tripura (NMMT) on from 18<sup>th</sup> to 20<sup>th</sup>, over Sub-Himalayan West Bengal & Sikkim on 19<sup>th</sup> & 20<sup>th</sup>, over Gangetic West Bengal on 21<sup>st</sup>, over Uttarakhand on 17<sup>th</sup> & 18<sup>th</sup> and over Jammu & Kashmir and Himachal Pradesh on 18<sup>th</sup> with **Heavy rainfall** very likely at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad on 17<sup>th</sup>, over Assam & Meghalaya on 17<sup>th</sup>, 18<sup>th</sup> & 21<sup>st</sup>, over Nagaland, Manipur, Mizoram & Tripura on 17<sup>th</sup> & 18<sup>th</sup>, over Sub-Himalayan West Bengal & Sikkim on 18<sup>th</sup> & 19<sup>th</sup>, over Arunachal Pradesh on 18<sup>th</sup>, 19<sup>th</sup> & 21<sup>st</sup>, over Coastal Andhra Pradesh & Yanam on 18<sup>th</sup>, and over West Bengal & Sikkim on 21<sup>st</sup>, avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.

➤ **As Dust/Thunderstorm accompanied with gusty winds**(speed reaching 30-40 kmph) likely at isolated places over Rajasthan on 17<sup>th</sup>, keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.

➤ **Undertake the following operations:**

- sowing of ragi, corn, soybean, sesame, green gram, black gram crops; planting of ginger and turmeric and nursery sowing of chilli in South Interior Karnataka.
- sowing of Oiltorius jute and summer vegetables like lady's finger, bottle guard, pumpkin, ridge guard, cucumber, etc. in Central Brahmaputra Valley Zone.
- sowing of okra and cucurbitaceous vegetables like bitter gourd, ridge gourd and cucumber and planting of ginger in Odisha.
- sowing of sweet corn and coriander in Bastar Plateau Zone.
- transplanting of chilli on ridges or raised beds in Valley Temperate Zone of Jammu & Kashmir.
- sowing of peas and French beans in Himachal Pradesh.
- sowing of Bt cotton or desi cotton in Western Zone of Punjab.
- preparation of nursery for tomato in East Uttar Pradesh.

## *Detailed Agromet Advisories*

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

**Realised Rainfall:** Significant rainfall occurred in Kodagu and Ramnagara districts of South Interior Karnataka; in Idukki, Pathanamthitta and Wayanad of Kerala; in Coimbatore, Perambalur, Sivaganga, Tirunelveli, Tirupur, Trichy of Tamilnadu and in Nellore district of Coastal Andhra Pradesh & Yanam. Weather remained dry/mainly dry over rest of the region.

➤ **Advisories: As Thunderstorm accompanied with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Telangana on 20<sup>th</sup>; **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over Coastal Andhra Pradesh & Yanam on 18<sup>th</sup>, 20<sup>th</sup> & 21<sup>st</sup>, over Telangana on 18<sup>th</sup> & 21<sup>st</sup>, over Karnataka on 20<sup>th</sup>, over Kerala & Mahe on 20<sup>th</sup> & 21<sup>st</sup> and over Coastal Karnataka on 21<sup>st</sup>; **with lightning** at isolated places over Telangana on 17<sup>th</sup>, over Karnataka and Kerala & Mahe from 17<sup>th</sup> to 19<sup>th</sup>, over Tamilnadu, Puducherry & Karaikal from 17<sup>th</sup> to 21<sup>st</sup>, over Coastal Andhra Pradesh & Yanam on 17<sup>th</sup> & 19<sup>th</sup>, over Rayalaseema on 20<sup>th</sup> & 21<sup>st</sup> and over Interior Karnataka on 21<sup>st</sup>, provide mechanical support to banana, young fruit plants and vegetables and carry out propping up in sugarcane to prevent the crops from lodging due to strong winds. Provide hailnet for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.

➤ **As Heavy rainfall** very likely at isolated places over Coastal Andhra Pradesh & Yanam on 18<sup>th</sup>, avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.

#### **Kerala**

➤ In Southern Zone, apply mulching in banana basins to reduce temperature and conserve moisture; irrigate banana plants as scarcity of water may lead to weak bunch formation. Apply Propiconazol 1ml / litre of water and Copper Oxochloride 4 g/ litre of water alternately at two weeks interval to control Sigatoka

disease in banana.

- In High Altitude Zone, it's ideal time for planting material preparation and planting of rooted pepper cuttings. Apply mulch and protect the plants from the scorching sun.
- In Problem Area Zone, to control root rot diseases in leguminous crops, prepare a mixture of cow dung, neem cake and Trichoderma in 90:10:1 ratio; apply 200 gm mixture in each pit.
- In Central Zone, weather is congenial for mosaic virus attack in vegetables; as a precautionary measure, spray 2% neem oil garlic emulsion once a week.

#### **Andhra Pradesh**

- In Scarce Rainfall zone of Andhra Pradesh, lift and tie the rice plants lodged due to wind and rain and spray 5% salt solution in the crop at/nearing maturity to prevent germination. Harvest maize cobs if crop is completely lodged; dry them quickly to minimize the loss.
- In Southern Zone, increasing temperatures are highly favourable for thrips and mite attack in chillies; spray Fepronil @ 2 ml or Spinosad @ 0.25 ml or Dimethoate @ 2 ml/litre of water for thrips and to control mites, spray Dicophol @ 5 ml or Omite @ 1 ml/litre of water.
- In North Coastal Zone, continue harvesting of rice and maize; keep the harvested produce in safe place.
- In Krishna Godavari Zone, considering the increasing temperatures, provide irrigation to maize crop which is in grain filling/grain hardening stage.

#### **Telangana**

- In Southern Telangana Zone, prevailing weather conditions are congenial for incidence of whorl maggot and stem borer in rice; to control, apply Cartap Hydrochloride 50% SP @ 2 g per litre of water. If incidence of thrips is noticed in rice, spray Fipronil @ 2ml per litre of water during clear weather.
- In North Telangana Zone, prevailing weather conditions are favourable for powdery mildew and sucking pest in sesame; to control powdery mildew, spray Micobutanil @ 1g or wettable Sulphur @ 3 g per litre of water; to control sucking pest, spray Acephate @ 1.5 g or Imidacloprid @ 0.3 ml per litre of water.

#### **Tamil Nadu**

- In Cauvery Delta Zone, harvest matured blackgram and greengram; after drying properly under sun, thresh and separate the grains; dry the grains to 9% moisture before storage.
- In Western Zone, prevailing weather condition is conducive for the mealy bug attack in tapioca and papaya; monitor the crops and, if required, spray neem oil 2% or neem seed kernel extract @ 5% or Profenophos @ 2ml /litre of water.
- In Southern Zone, weather is conducive for the incidence of fruit rot in chilli; collect and destroy the infected fruits and spray Mancozeb 1 kg/ ha.
- In Hill Zone, to control leaf spot & powdery mildew in beans, spray Pseudomonas liquid inoculant 5 ml / litre of water and if the disease incidence is very severe, spray Mancozeb 2 g / litre of water.
- In North Western Zone, tomato crop is highly affected by pin worm (Tuta absolute); the pest feeds on Chlorophyll in the leaves, causes mining and drying of leaves and also make pin holes in fruits; to control, apply foliar spray of Indoxacarb 14.5 % SC@ 100 ml or Azadiractin 400 ml /acre along with sticking agent.

#### **Karnataka**

- In South Interior Karnataka, undertake sowing of ragi, corn, soybean, sesame, green gram, black gram crops and planting of ginger and turmeric. Provide irrigation to mango orchards. Undertake ploughing or passing the cultivator in the areas where rainfall is received. As a precautionary measure, spray Carbendizim + Mancozeb (SAAF) @ 2.0 g/litre of water followed by (15 days after) Chlorothalanil @ 2 g/litre of water in banana against leaf spot/sigatoka.
- In Coastal Karnataka, apply irrigation to the arecanut, coconut and pepper gardens. Mulching with farm waste is advised.
- In North Interior Karnataka, complete threshing of crops. Dip the lemon fruit size watermelon into 20 ppm (20 mg in 1 litre water) Gibberellic acid to increase size and quality of the fruit. Apply irrigation in

standing crops. Shoot borer menace has been noticed in some of the hotspot sugarcane areas in the district; grow onion /coriander / garlic on one side of the furrows of sugarcane crop which helps in reducing the incidence of shoot borer to some extent. In tomato, if fruit borer is noticed, spray Thiodicarb 75WP @ 1gm per litre of water.

#### **Animal Husbandry**

- In Karnataka, apply 4-6 inch thick hay thatch as a roofing material. Spray the floor and roof of shelter with water periodically during peak hot hours so as to lower the temperature in poultry sheds. Provide cool water for poultry birds; add electrolytes (KCl, NaCl and NaCO<sub>3</sub>) in feed and water. Leave the buffaloes in ponds during afternoon hours or sprinkle cold water 2-3 times a day on the body of the animals to overcome the heat.
- In Tamilnadu, due to the prevailing weather, the feed intake of chicks decreases; increase the amount of amino acids, mineral mixture with the chick feed. Also, during the summer season the egg shells are much thinner than usual; to avoid this, put large amount of oyster in plates and make it available for the layer birds. During summer, increase the number of water tanks atleast by 20% to 30% and, to reduce dehydration, add more minerals to the water.

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

**Realised Rainfall:** Significant rainfall occurred in Upper Siang district of Arunachal Pradesh; in Dhemaji, Dhubri and Kamrup (Rural) of districts of Assam and in East Garo Hills, East Khasi Hills, Jaintia Hills and West Khasi Hills district of Meghalaya. Weather was mainly dry over the rest of the region.

- **Advisories: As Thunderstorm accompanied with lightning, hail & squall** (speed reaching 50-60 kmph) very likely at isolated places over Assam & Meghalaya on 18<sup>th</sup>; **with lightning & squall** (speed reaching 50-60 kmph) likely at isolated places over Assam & Meghalaya on 17<sup>th</sup> and over Nagaland, Manipur, Mizoram & Tripura on 17<sup>th</sup> & 18<sup>th</sup>; **with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Arunachal Pradesh on 18<sup>th</sup>; **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over, over Arunachal Pradesh on 17<sup>th</sup> & 21<sup>st</sup>, over Nagaland, Manipur, Mizoram & Tripura on 19<sup>th</sup> & 20<sup>th</sup> and over Assam & Meghalaya from 19<sup>th</sup> to 21<sup>st</sup>, ; **with lightning** at isolated places over Arunachal Pradesh on 19<sup>th</sup> & 20<sup>th</sup> and over Nagaland, Manipur, Mizoram & Tripura on 21<sup>st</sup>, provide mechanical support to banana, young fruit plants and vegetables to prevent the crops from lodging due to strong winds. Provide hailnet for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.
- As **rain/thundershowers** likely **at most places** over Arunachal Pradesh on 18<sup>th</sup>, 19<sup>th</sup> and 21<sup>st</sup>, over Assam & Meghalaya on 17<sup>th</sup>, 18<sup>th</sup>, 19<sup>th</sup> & 21<sup>st</sup>, over Nagaland, Manipur, Mizoram & Tripura (NMMT) on 17<sup>th</sup> and 21<sup>st</sup>; **at many places** over Arunachal Pradesh on 17<sup>th</sup> & 20<sup>th</sup>, over Assam & Meghalaya on 20<sup>th</sup>, over Nagaland, Manipur, Mizoram & Tripura (NMMT) on from 18<sup>th</sup> to 20<sup>th</sup>, with **Heavy rainfall** very likely at isolated places over Assam & Meghalaya on 17<sup>th</sup>, 18<sup>th</sup> & 21<sup>st</sup>, over Nagaland, Manipur, Mizoram & Tripura on 17<sup>th</sup> & 18<sup>th</sup>, and over Arunachal Pradesh on 18<sup>th</sup>, 19<sup>th</sup> & 21<sup>st</sup>, avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.

#### **Arunachal Pradesh**

- In Arunachal Pradesh, continue sowing of maize and nursery sowing of chili. If sowing of maize gets delayed due to lockdown, farmers are advised to arrange for short-duration like Prakash, DHM 115 and KH 5991. Undertaking planting of ginger.

#### **Assam & Meghalaya**

- In Hill Zone of Assam, continue land preparation/sowing of summer vegetables, green gram and black gram. Undertake harvesting of wheat. Keep harvested crop produce in safe places.
- In Hill Zone and Lower Brahmaputra Valley Zone of Assam, to control the fall army worm attack in maize at vegetative to early flowering stage, spray alternate pesticides in consequent sprays; 1. Emamectin benzoate 5 SG @ 0.4g; 2. Spinosad 15 SC @ 0.3 ml and 3. Chlorantraniliprole 18.5 SC @

0.4 ml per litre of water.

- In Upper Brahmaputra Valley Zone, undertake gap filling within 7-10 days after transplanting of *Ahu* rice seedlings. Repair the bunds of *Ahu* rice fields to conserve rain water.
- In Lower Brahmaputra Valley Zone, continue sowing of jute and summer vegetables and continue planting of banana. Continue transplanting of *Ahu* rice.
- In Barak Valley Zone, undertake stem cutting, leaf-bud cuttings and air layering in Assam lemon. Stem cuttings may be raised in polyethylene bags under partial shade as the best nursery techniques.
- In Central Brahmaputra Valley Zone, continue sowing of Oiltorius jute and summer vegetables like lady's finger, bottle guard, pumpkin, ridge guard, cucumber, etc. Complete planting of ginger and turmeric. Complete sowing of normal direct seeded *Ahu* rice and *Bao* rice within April.
- In Hill Zone, Lower Brahmaputra Valley Zone and Central Brahmaputra Valley Zone, apply Chloropyrifos 20 EC at the concentration of 0.02% solution or Carbofuran 3G @ 4 kg/bigha during clear weather against major insect pests like, whorl maggot, hispa, stem borer etc. at tillering stage of summer rice.
- In North Bank Plain Zone, continue transplanting of early *Ahu* rice. Continue planting of banana, sugarcane and papaya. Complete planting of ginger and turmeric There is a chance of stem borer attack in citrus plants during this period; apply paste made by mixing lime, water and 5% Malathion dust on the stems of the plants up to a height of about 1m from the ground to prevent the attack.
- In Meghalaya, continue transplanting of 1 month old seedlings of cucurbits, brinjal, chilli, tomato and capsicum; irrigate immediately. Continue land preparation for sowing of maize. Provide shade and protect the newly grafted plants of Khasi Mandarin.
- In Manipur, maintain water level at 5-8 cm after transplanting pre-kharif rice. Start land ploughing for nursery of kharif rice. Undertake land preparation of soybean.
- In Mizoram, continue land preparation/sowing of *urdu* green gram, black gram and cowpea. Continue sowing of *Jhum* maize and cucurbit crops and apply fertilizer dose @ 80:60:40 kg N, P<sub>2</sub>O<sub>5</sub> and K<sub>2</sub>O/ha incorporate with soil before sowing.
- In Tripura, continue land preparation for sowing of *Jhum* rice. There is chance of attack of stem borer in *Boro* rice; to control, flood the field to kills larvae and pupae. The level of irrigation water can be raised periodically to submerge the eggs deposited on the lower parts of the plant. The attack can also be managed by application of Thiomethoxam 1ml per 10 litre of water, twice at 7 days interval. To manage the attack fruit & shoot borer in summer brinjal and tomato, apply Cypermethrin @ 1.5ml or Flubendamide 0.5 ml per litre of water.
- In Nagaland, continue land preparation for sowing of *Jhum* rice, maize and planting of ginger.

### **Animal Husbandry**

- In Northeastern region, before the onset of monsoon, immunize the farm cattle against FMD (Foot & Mouth Disease), HS (Hemorrhagic Septicemia) and BQ (Black Quarter) diseases after consultation with local veterinary doctor. Vaccinate pig against Swine Fever.

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

**Realised Rainfall:** Significant rainfall occurred in Araria, Begusarai, Bhagalpur, Khagaria, Kishanganj, Madhepura, Purnea, Vaishali and West Champaran districts of Bihar; in Gajapati and Koraput districts of Odisha and in East Sikkim, Jalpaiguri, Malda and North Sikkim districts of Sub-Himalayan West Bengal & Sikkim. Weather remained dry/mainly dry over the rest of the region.

- **Advisories:** As **Thunderstorm accompanied with lightning & squall** (speed reaching 50-60 kmph) likely at isolated places over West Bengal & Sikkim on 18<sup>th</sup>, over Bihar on 20<sup>th</sup> and over Sub-Himalayan West Bengal & Sikkim on 21<sup>st</sup>; **with lightning & gusty winds** (speed reaching 30- 40 kmph) at isolated places over Odisha on 18<sup>th</sup> & 20<sup>th</sup>, over Jharkhand on 18<sup>th</sup>, 20<sup>th</sup> & 21<sup>st</sup> over West

Bengal & Sikkim on 19<sup>th</sup> & 20<sup>th</sup> and over Bihar on 21<sup>st</sup> ; **with lightning** at isolated places over West Bengal & Sikkim on 17<sup>th</sup> , over Bihar from 17<sup>th</sup> to 19<sup>th</sup> , over Jharkhand and Odisha on 17<sup>th</sup> & 19<sup>th</sup> , provide mechanical support to banana, young fruit plants and vegetables and carry out propping up in sugarcane to prevent the crops from lodging due to strong winds. Provide hailnet for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.

- As **rain/thundershowers** likely at **most places** over over Sub-Himalayan West Bengal & Sikkim on 18<sup>th</sup> & 21<sup>st</sup> ; **at many places** over Sub-Himalayan West Bengal & Sikkim on 19<sup>th</sup> & 20<sup>th</sup> and over Gangetic West Bengal on 21<sup>st</sup> , with **Heavy rainfall** very likely at isolated places over over Sub-Himalayan West Bengal & Sikkim on 18<sup>th</sup> & 19<sup>th</sup> and over West Bengal & Sikkim on 21<sup>st</sup> , avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.

#### **Odisha**

- Continue sowing of okra and cucurbitaceous vegetables like bitter gourd, ridge gourd and cucumber. Continue planting of ginger rhizomes having 2-3 eyes. Green gram and black gram crops are at maturity stage; carry out harvesting and store in a safe place. Continue harvesting of onion crop during clear weather when the leaves turn yellow. Transplanted summer paddy is at flowering to maturity (9-13 week) stage; to control stem borer infestation, spray 80ml Chlorantraniliprole 18.5% SC @ 0.4ml/litre water or 400g Cartap Hydrochloride 50% SP @ 2g/litre water per acre.

#### **Bihar**

- Prepare field for sowing summer paddy. Continue sowing of summer green gram. Carry out harvesting of wheat crop during clear weather. Avoid irrigation to maize crop in case of rainfall. Mango fruits are at pea stage; to prevent fruit drop, apply Acephate @ 0.5 gm mixed with Planofix @ 1.0 ml per 4 litres of water. Spray Imidacloprid @ 0.25 ml per litre of water during clear sky if there is high infestation of aphids in vegetable crops on a clear day.

#### **Jharkhand**

- Carry out harvesting of wheat, linseed, lentil and gram crops; dry the grains at 8-10% moisture level and store in gunny bags dipped in 5% *neem* solution and subsequently dried. Keep 5 cm water level in summer paddy field during PI to flowering stage. High temperature and high humidity may favour the attack of blast in paddy; to control spray Tricyclazole @ 2g /litre of water; to control shoot borer, apply granular insecticide Carbofuran-3G @ 12kg or Forate-10G @ 4 kg/acre.

#### **West Bengal**

- In Sub-Himalayan West Bengal, carry out intercultural operations like weeding and earthing up in maize crop. Prepare land for turmeric cultivation. Continue planting of ginger after placing them in hot water for 10 minutes and treating them with Trichoderma @ 5g per kg rhizomes. Carry out harvesting of mature mustard crop. Drain out excess water from jute fields. To control leaf roller in tea plants, pluck pupa and destroy them; place pheromone traps and spray Carbosulfan @ 2ml or Chlorpyrifos @ 2.5 ml per litre of water.
- In Gangetic West Bengal, to control BHP attack in Boro rice, spray Imidachlorpid @ 3ml/10 litres of water at the base of plant during evening hours; carry out stirring of plants at each 6th row for better penetration of solar radiation as BPH attack takes place at the base. Ground nut crop may be attacked by leaf miner at pod formation stage; collect the adult egg masses and destroy affected plant parts; spray neem oil @ 20 litres/ha under clear weather condition.

#### **Andaman & Nicobar Islands**

- Make soil mounds around the cucurbit and provide life saving irrigation with the available water from pond or water channel. Carry out mulching with dried leaves around clove and nutmeg trees to conserve moisture.

## Animal Husbandry

- As temperature is increasing, do not take out domestic animals for grazing between 11 am and 3 pm. Provide sufficient clean drinking water to cattle and keep their sheds clean. Provide vaccination at regular interval.

## Fishery

- For the preparation of pond, cultivate Dhaincha 1.5 kg/bigha and after 30-45 days, mix it with soil and prepare the pond.

## WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

**Realised Rainfall:** Weather remained dry/mainly dry over the region.

- **Advisories: As Thunderstorm accompanied with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Madhya Maharashtra and Marathawada on 20<sup>th</sup>; **with lightning & gusty winds** (speed reaching 30- 40 kmph) at isolated places over Madhya Maharashtra on 17<sup>th</sup> & 18<sup>th</sup>, over Marathwada on 19<sup>th</sup>; **with lightning** at isolated places over Vidarbha on 19<sup>th</sup> & 20<sup>th</sup>, over Konkan & Goa on 20<sup>th</sup> and Marathwada on 21<sup>st</sup>, provide mechanical support to banana, young fruit plants and vegetables and carry out propping up in sugarcane to prevent the crops from lodging due to strong winds. Provide hailnet for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.

### Maharashtra

- In Konkan, continue harvesting of matured rice, groundnut, mango and cashew. Keep harvested produce in safer place. To control stem borer in cashew, spray Chlorpyrifos 20 EC @ 5 ml per litre of water on the stem. Maintain 5cm water level in rice fields (grain filling stage). Apply irrigation to plantation crops like banana, coconut and mango, sapota orchards as per requirement of the crops..
- In Madhya Maharashtra, undertake intercultural operation like weeding in 4 months old suru sugarcane. Apply irrigation to mango, pomegranate orchards and banana plantation as per requirement of the crops. Cover the banana bunches with banana leaves to protect the fruits from bright sunlight. To control thrips in chilli, spray Fipronil 5 EC @ 15 ml or Spinosad 45 EC @ 4 ml in 10 litres of water. Farmers are advised to stop when onion crop attains maturity (10-15 days before harvesting). To control thrips in groundnut, spray Thiamethoxam @ 4 g per 10 litres of water. Continue harvesting of matured cashew. Keep the harvested produce in safer place. To control fruit borer in tomato, spray Chlorantraniliprole 18.5% SC @ 3ml per 10 litres of water.
- In Marathawada, apply irrigation to vegetables and orchards like pomegranate, amba bahar (citrus) as per requirement of the crops. To control white fly in sugarcane, spray Chlorpyrifos 20 % @ 30 ml or Fipronil 5 % @ 30 ml per 10 litres of water.
- In Vidarbha, continue harvesting of watermelon & muskmelon. Keep the harvested produce in safer place. Apply irrigation to green gram, sesame, orchards and vegetables as per requirement of the crops. Undertake cultivation of vegetables like bitter gourd, tinda, ridge gourd, smooth gourd, bottle gourd, cowpea, clusterbean and coriander. To control brown plant hopper in rice, spray Imidacloprid 17.8% SL @ 2.5 ml or Fipronil 5% SC @ 20ml in per 10 litres of water. To control amba bahar fruit drop in mandarin orange (sweet and acid lime), spray Gibberlic acid @1.5 g or NAA @ 1 g + Urea @ 1kg + Carbendazim @ 100 g per 100 litres of water.

### Gujarat:

- In Saurashtra and Kutch, in view of prevailing hot weather conditions, apply irrigation to summer vegetable, groundnut and fodder crops during morning/evening hours. Mite infestation in lemon orchard is observed due to high temperature conditions; to control, spray Propargite 57 % EC @10/10 litres of water.
- In South Gujarat, maintain optimum water level in transplanted rice fields. Apply irrigation in mango orchards. Undertake weeding in rice and sugarcane crops as per need and earthing up in sweet potato and sugarcane crops. Collect and destroy the egg masses of borers in sugarcane crop.
- In North Gujarat, carry out intercultural operations in groundnut, pearl millet, sesame, green gram,

vegetable and cowpea crops. Apply light and frequent irrigation in standing summer crops. Mulching with straw/polythene is recommended to conserve soil moisture.

- In Middle Gujarat, carry out harvesting of tobacco and threshing of wheat; store the produce at a safe place. Undertake intercultural operations in green gram, pearl millet, cowpea and vegetable crops. Apply irrigation in standing crops.

#### **Animal Husbandry**

- In Gujarat, grazing /feeding of cattle/goats may be done during morning/evening hours. Keep animals under shade during noon hours and provide plenty of water mixed with minerals. Also provide balanced feed & adopt vaccination schedule. Make arrangement of curtains and proper ventilation in poultry house.

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

**Realised Rainfall:** Significant rainfall occurred in Bijapur district of Chhattisgarh. Weather remained dry/mainly dry over the rest of the region.

- **Advisories: As Thunderstorm accompanied with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Chhattisgarh on 20<sup>th</sup>; **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over Chhattisgarh on 19<sup>th</sup>; **with lightning** at isolated places over East Madhya Pradesh on 17<sup>th</sup> & 18<sup>th</sup>, over Chhattisgarh on 17<sup>th</sup>, 18<sup>th</sup> & 21<sup>st</sup>, over West Madhya Pradesh on 19<sup>th</sup> & 20<sup>th</sup>, provide mechanical support to banana, young fruit plants and vegetables and carry out propping up in sugarcane to prevent the crops from lodging due to strong winds. Provide hailnet for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.

#### **Madhya Pradesh**

- In Malwa Plateau Zone, carry out harvesting of wheat crop at physiological maturity or at 12-14% grain humidity; before storage, clean grains properly and dry them to the recommended level of moisture content; clean the storage place; repair the cracks and crevices in the walls and if possible, spray 0.5 % Malathion solution and keep the chamber closed for 7-8 days. Undertake sowing of green gram after seed treatment with rhizobium culture and PSB. Apply irrigation and mulch in newly planted fruit plants.
- In Jhabua Hills Zone, harvest wheat crop, dry it properly, carry out threshing and store it in a safe place. Dig out mature rhizomes of ginger and turmeric. Apply irrigation to summer green gram and black gram crops at 7-10 days interval. Apply irrigation to fruited mango orchard at 10 days interval. Cut the leaves of mature onion crop and let it dry in the field for one week; dig onion crop when properly dried and store it in a safe place. To control fruit rot disease in jackfruit, apply two sprays of Mencozeb @ 2.0 g/ml per litre of water at 15 days interval.
- In the Nimar valley Zone, clean the harvested grains properly and dry them to recommended moisture level before storage. After harvesting, do not burn the residual waste of wheat crop as it would kill the beneficial bacteria in soil as well as destroy the soil structure. Apply light irrigation to all vegetable crops in the morning or evening hours.
- In Vindhya Plateau Zone, harvest standing Rabi crops immediately and store the grains at up to 8% moisture. Prepare field for the sowing of *mung*, *urd* and cucurbitaceous vegetables. Continue transplanting of brinjal and tomato. Carry out gap filling in mango orchards with new plants.
- In the Satpura Plateau Zone, harvest mature wheat crop, dry it sunlight and thresh it as early as possible. Farmers having good irrigation facility may undertake sowing of summer *moong* as well as prepare fallow fields for sowing of summer maize (for green cobs, baby corn and sweet corn), *mung*, *urd*, groundnut and sunflower. Uproot and destroy infested plants of *bhindi* and chilli; spray Imidacloprid @ 0.3 ml per litre of water.

#### **Chhattisgarh**

- In the Chhattisgarh Plains Zone, farmers and agricultural labourers involved in crop cutting, plucking of fruits/vegetables and poultry/fishery are advised to take necessary precautions against the spread of COVID-19 virus and follow social distancing.
- In Northern Hill Zone, apply need-based irrigation and carry out intercultural operation in tomato, brinjal, chilli, okra and other vegetable crops; increase frequency of irrigation as per environmental temperature. As temperature is increasing, dig out onion and garlic tubers from the fields. Irrigate the fruit bearing mango trees at regular interval.
- In Bastar Plateau Zone, undertake sowing of sweet corn. Prepare sunken bed and undertake sowing of

coriander.

### **Animal Husbandry**

- Keep cattle in shed/shade; provide clean and fresh water twice in a day. Give 50-60 grams of salt mixed with water to animals. Vaccinate cattle for FMD, HS and black quarter diseases. Apply Malathion/Cleaner/Butox @ 2ml/litre of water on the whole body of animals as protection from ticks/lice and tie *mushika* on the mouth of animal after application of medicines.

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

**Realised Rainfall** : Significant rainfall occurred in Ganderbal, Kulgam and Kupwara districts of Jammu and Kashmir. Weather was mainly dry over rest of the region.

- **Advisories:** As **Thunderstorm accompanied with lightning, hail & gusty winds** (speed reaching 30-40 kmph) likely at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh and Uttarakhand on 17<sup>th</sup> & 18<sup>th</sup>, **with lightning & gusty winds** (speed reaching 30-40 kmph) at isolated places over Punjab and Haryana, Chandigarh & Delhi on 17<sup>th</sup> & 18<sup>th</sup>, over Uttar Pradesh on 17<sup>th</sup>, 19<sup>th</sup> & 20<sup>th</sup>, over West Uttar Pradesh on 18<sup>th</sup>; **with lightning** at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad, Himachal Pradesh and Uttarakhand from 19<sup>th</sup> to 21<sup>st</sup>, provide mechanical support to banana, young fruit plants and vegetables and carry out propping up in sugarcane to prevent the crops from lodging due to strong winds. Provide hailnet for orchard crops to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.
- As **rain/thundershowers** likely at **most places** over Jammu & Kashmir and Himachal Pradesh on 17<sup>th</sup>; **at many places** over Jammu & Kashmir and Himachal Pradesh on 18<sup>th</sup> with **Heavy rainfall** very likely at isolated places over Jammu & Kashmir, Ladakh, Gilgit-Baltistan, Muzaffarabad on 17<sup>th</sup>, avoid irrigation, intercultural operations and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.
- As **Dust/Thunderstorm accompanied with gusty winds**(speed reaching 30-40 kmph) likely at isolated places over Rajasthan on 17<sup>th</sup>, keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm.

### **Jammu & Kashmir**

- In Valley Temperate Zone, undertake transplanting of chillies on ridges or raised beds. Carry out weeding in vegetable crop fields.
- In Intermediate Zone, undertake harvesting of mustard. Undertake harvesting of rabi pulses like chick pea and pea. Undertake sowing of okra. Undertake transplanting of chilli.
- In Sub-Tropical Zone, make preparations for harvesting of wheat. Undertake harvesting of mustard. Carry out hoeing and weeding operations in green gram.

### **Himachal Pradesh**

- In Sub Montane and Low Hills Sub Tropical Zone, continue harvesting of matured mustard. Continue harvesting of matured wheat. Continue sowing of peas and French beans. Undertake sowing of fodder maize, cowpeas and soybean. Carry out intercultural operations in sunflower. This is the optimum time for picking of tea leaves at 6-7 days interval to maintain the quality and productivity.
- In High Hill Temperate Dry Zone, continue sowing of peas. Treat the seeds with 2.5g Bavistin/kg of seed carefully to avoid yellowing of the plants. Treat the cabbage and cauliflower seeds with Bavistin (2.5-3g/kg of seed) before sowing in nursery beds.
- In Mid Hills Sub Humid Zone, complete grafting in apple nursery. To control grass hopper in Mango, spray Monocrotophos/Nuacron/Mascrown @ 200 ml per Imidacloprid Confidor/Maharaja 50 ml in 200 litres of water. Make a layer of grass mulch of six inch thickness in the basins of temperate fruits for soil moisture conservation and moderating of soil temperature; it will convert into FYM in due course of time.

### **Punjab, Haryana, Delhi**

- In Western Zone of Punjab, monitor the crop fields for infestation of disease/insect-pest and take appropriate measures. Undertake sowing of Bt cotton or *desi* cotton during this month. Undertake harvesting of early sown wheat and mustard crop on a clear day. Undertake planting of evergreen fruit

plants such as citrus, guava, mango, papaya, sapota, litchi, loquat etc. Observe the fields for appearance of aphids, if the population reached the economic threshold level (ETL) i.e. 5(five) aphids per ear head, spray the crop with 20g Actara/Taiyo 25 WG (thiamethoxam) in 80-100 litre of water per acre. Prevailing weather is favourable for early blight of tomato, spray Indofil M-45 @ 600 gm in 200 litre of water per acre to protect tomato from late blight on a clear day.

- In Undulating Plain Zone of Punjab, plan harvesting of mature crops. Apply need based irrigation and fertilizers as per weather in sugarcane, mango and litchi.
- In Central Plain Zone of Punjab, undertake sowing of Bt cotton or *desi* cotton during this month. For early kharif fodders, undertake sowing of bajra, maize, cowpea etc. after harvesting rabi crops. Prevailing weather is favourable for early blight of tomato; spray Indofil M-45 @ 600 gm in 200 litre of water per acre to protect tomato from late blight on a clear day.
- In Western Zone of Haryana, keep weather in mind while harvesting/threshing of matured mustard/wheat/chickpea crops and store them at safe place. Monitor timely sown onion crop against attack of thrips. To control shoot and fruit borer in brinjal, collect infested fruits and shoots and bury them in the soil.
- In Eastern Zone of Haryana, undertake harvesting of timely sown wheat crop; tie the harvested crops properly to avoid being carried away by winds. Undertake sowing of green gram. Monitor lady finger crop against attack of mite; spray Ethion @ 1.5-2 ml/litre of water.
- In Delhi, keep harvested crops and grains in a protected place. Undertake sowing of green gram and direct sowing of french bean, amaranthus, vegetable lobia, lady finger, bottle gourd, cucumber, ridge gourd and summer radish. In present temperature, incidence of powdery mildew disease in cucurbitaceous crops and late pea may occur; spray Carbendazim @ 1.0 gram per litre when sky remains clear. Monitor lady finger crop against attack of mite; if population is high, spray Ethion @ 1.5-2 ml/litre of water when sky is clear. Due to prevailing high temperature, light irrigation at short interval is advised.

#### **Uttar Pradesh:**

- In East Uttar Pradesh, continue harvesting and threshing operations of wheat and mustard crop. Prepare nursery for tomato crops. Spray Endosulfan 35 EC dissolved in 500 litre of water in sugarcane to avoid outbreaks of termites, kansua, black sundi and pyrilla. Undertake sowing of baby corn (maize). To prevent mango fruits from falling, sprinkle the tree with a 2 % solution of urea.
- **In West Uttar Pradesh**, continue harvesting of wheat, Bengal gram and chick pea. Continue sowing of maize, green gram, bajra, sorghum, lobia and black gram. To prevent mango fruit from falling, spray Naphthalene Acetic acid in 20 mg / litre of water or Planofix 5 mg / 10 litres of water when sky is clear. There is a possibility of outbreak of leaf-eating insect in okra and cowpea crops; spray Imidacloprid 17.8% SL @1.5 litres / hectare in 600-700 litres of water. Apply bio pesticides like neem oil, jeevamitra and nemastra to control of pest and diseases in vegetable crops.

#### **Uttarakhand**

- In Sub Humid Sub Tropic Zone, continue harvesting of wheat crop. Undertake sowing of spring sugarcane.
- In Hill Zone, complete sowing of barnyard millet. Carry out earthing up operation in potato crops 30-35 days after sowing; use dry grass for mulching between the rows. Maintain proper soil moisture in onion crop. If the leaves in onion are yellowing from upper to lower portion, apply Copper Oxy Chloride @ 2.5 gm / litre water + sticker @ 0.5 ml; second spraying may be done at 10 days interval. Apply NPK 19: 19: 19 @ 5 gm / litre water 4-5 days after first spray.
- In Bhabar and Tarai Zone, dry the harvested wheat produce under sun for 3-4 days. Apply irrigation to maize crop. Undertake sowing of barnyard millet. Continue sowing of French bean. Continue plucking of vegetable pea. Complete transplanting of capsicum.

#### **Rajasthan**

- In Arid Western Plain Zone, complete the harvesting and threshing of matured rabi crops.
- In Irrigated North Western Plain Zone, undertake harvesting of wheat and chick pea crops.

- In Internal Drainage Dry Zone, harvest timely sown wheat crop. If attack of red pumpkin beetle is found in cucurbitaceous crops, spray Diclorvos 76 EC (DDVP) @ 1 gram per litre of water.
- In Hyper arid Partial Irrigated Zone, harvest wheat, fenugreek, gram and fennel crops at physiological maturity stage.
- In Sub Humid Southern Plain Zone, undertake deep ploughing of fields after harvesting of rabi crops so that eggs and pupating stages of insects and weed seeds are destroyed

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