



National Agromet Advisory Service Bulletin

Friday 17th May 2019
(For the period 17th to 22nd May 2019)



Issued by
India Meteorological Department

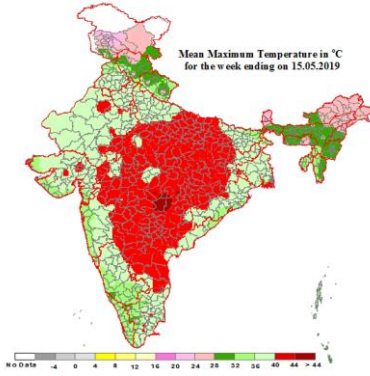
Weblink For

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

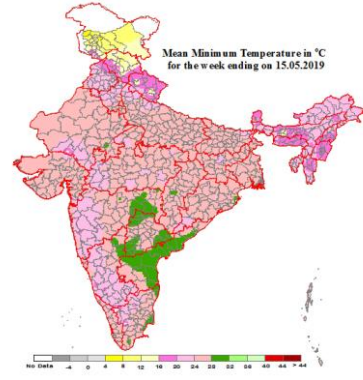
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Spatial distribution of weather parameters for the week ending on 15.05.2019

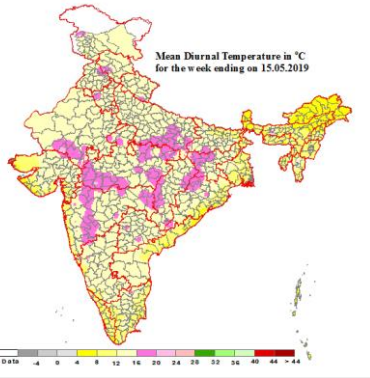
Mean Maximum Temperature (°C) for the week ending on 15.05.2019



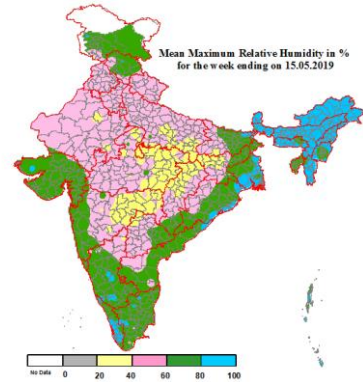
Mean Minimum Temperature (°C) for the week ending on 15.05.2019



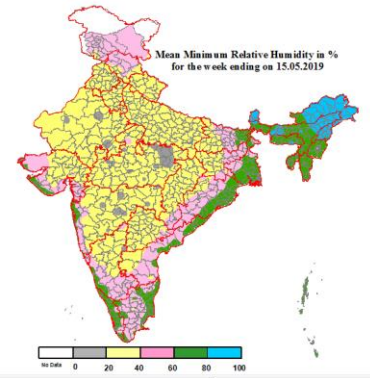
Mean Diurnal Temperature Variation (°C) for the week ending on 15.05.2019



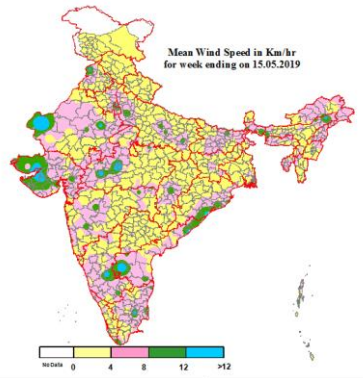
Mean Maximum Relative Humidity (%) for the week ending on 15.05.2019



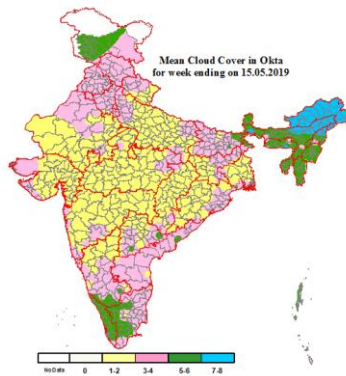
Mean Minimum Relative Humidity (%) for the week ending on 15.05.2019



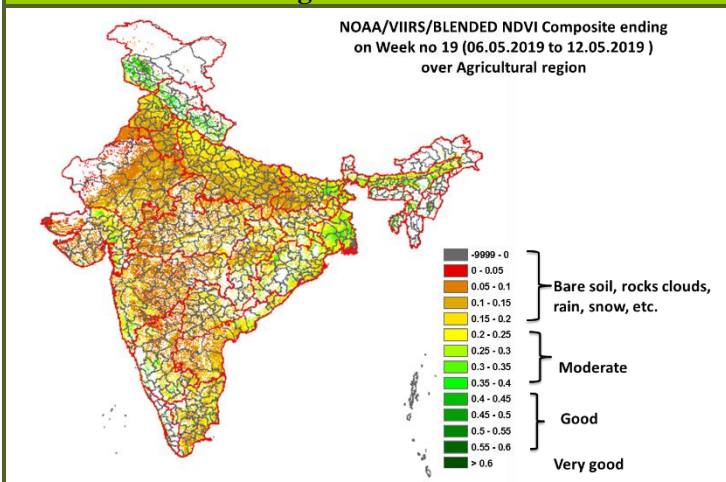
Mean Wind Speed (km/hr) for the week ending on 15.05.2019



Mean Cloud Cover (okta) for the week ending on 15.05.2019

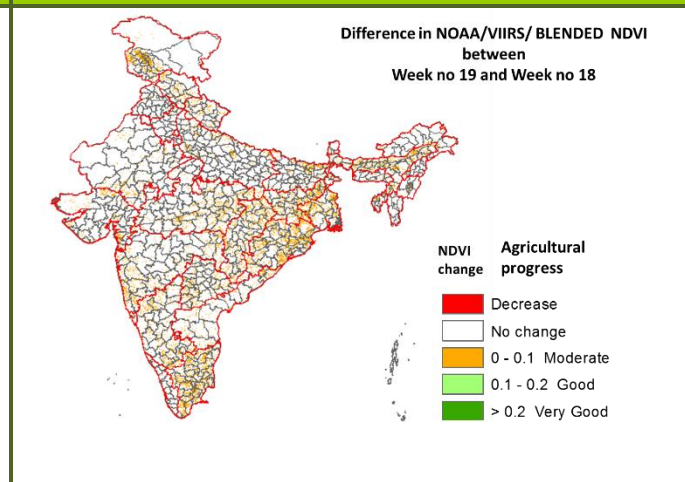


NOAA/VIIRS/BLENDED NDVI composite for the week number 19 (06.05.2019 to 12.05.2019) over Agricultural regions of India



Agriculture vigour is good at a few places over Jammu & Kashmir and at isolated places over South Interior Karnataka (Davangari), North Eastern states Himachal Pradesh and Uttarakhand.

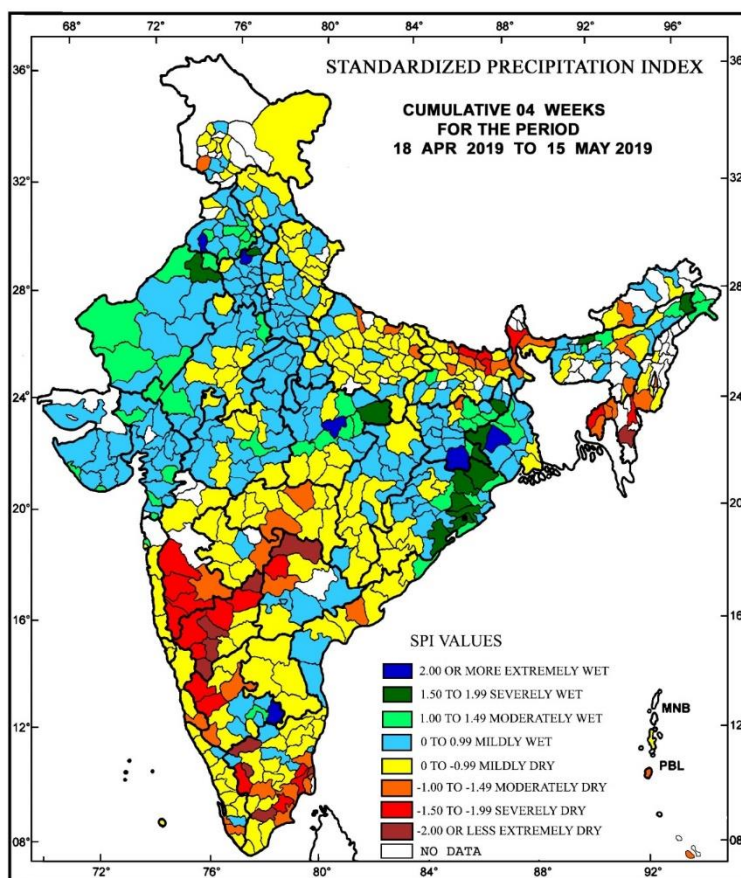
Difference in NOAA/VIIRS/BLENDED NDVI between week number 19 and week number 18



Moderate difference in agricultural vigour was noticed at many places over Jammu & Kashmir & Tamilnadu and at a few places over Gangetic West Bengal and adjoining Jharkhand, North Eastern States, Odisha, Chhattisgarh, East Madhya Pradesh, Konkan & Goa and adjoining Madhya Maharashtra.

Standardised Precipitation Index Cumulative 4 weeks for the period 18th April to 15th May 2019

MINISTRY OF EARTH SCIENCES
INDIA METEOROLOGICAL DEPARTMENT
HYDROMET SECTION, PUNE



- Extremely/severely wet conditions experienced in Tinsukia, Baksa districts of Assam; Bankura, Purulia districts of West Bengal; Cuttack, Dhenkanal, Ganjam, Keonjhar, Khurda, Mayurbhanj districts of Odisha; Dumka, East Singhbhum, West Singhbhum districts of Jharkhand; Kurukshetra, Kaithal districts of Haryana; Muktsar district of Punjab; Hanumangarh district of Rajasthan; Kolar district of Karnataka.
- Extremely/Severely dry conditions experienced at a few districts of Karnataka; West Tripura district of Tripura; Darjeeling district of West Bengal; Madhepura, Madhubani, Supaul districts of Bihar; Kolhapur, Pune, Sangli, Satara districts of Maharashtra; Adilabad, Nizamabad districts of Telangana; Coimbatore, Nagapattinam, Sivaganga, Thanjavur, Virudhunagar, Ariyalur, Tirupur districts of TamilNadu & Puducherry;
- Moderately dry conditions experienced in East Kameng district of Arunachal Pradesh; Cachar, Nagaon districts of Assam; Jalpaiguri, North Dinajpur districts of West Bengal; Koderma district of Jharkhand; Darbhanga, Purnea, Saharsa, Sitamarhi, Vaishali districts of Bihar; Bhaerach, Deoria, Siddharth Nagar districts of Uttar Pradesh; Rajouri district of Jammu & Kashmir; Sholapur, Nanded, Nagpur, Yeotmal districts of Maharashtra; West Godavari district of Andhra Pradesh; Medak district of Telangana; Cuddalore, Dindigul, Pudukkottai, Ramanathapuram, Tiruvarur, Karaikal districts of TamilNadu & Puducherry; Dakshin Kannada, Chitradurga, Kodagu districts of Karnataka; Alapuzha and Kollam districts of Kerala.

Significant weather features

Conditions are becoming favourable for advance of southwest monsoon over southern part of Andaman Sea, Nicobar Islands and adjoining southeast Bay of Bengal during next 24-48 hours.

- Current Western Disturbance, along with the cyclonic circulation over West Rajasthan, is very likely to cause fairly widespread to widespread precipitation over Western Himalayan region and isolated to scattered precipitation over plains of northwest India during next 24 hours. Isolated hail over Western Himalayan region & adjoining plains and Duststorm/thunderstorm over Rajasthan are also likely during next 24 hours. It is likely to decrease in subsequent 24 hours.
- Another Western disturbance which is likely affect Western Himalayan region & adjoining plains from 19th May, is likely to cause isolated to scattered precipitation over Western Himalayan region on 20th May. rain/thundershower over adjoining plains during next 2-3 days.
- Heat wave conditions likely in some parts over Vidarbha during next 5 days and in isolated pockets over North Interior Karnataka and Chhattisgarh from tomorrow onwards.

Forecast for the 2019 Monsoon Onset over Kerala

- This year, the statistical model forecast suggests that the monsoon onset over Kerala is likely to be slightly delayed. **The southwest monsoon onset is likely to set over Kerala on 6th June with a model error of ± 4 days.**

Weather Forecast for next 5 days valid upto 0830 hours of 22nd May 2019

Meteorological sub-division wise detailed 5 days precipitation forecast is given in Table below.

◆ No significant change in maximum temperatures likely over the country during next 3-4 days.

**5 Day Rainfall Forecast (Mid-day)
17th May 2019**

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

% 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		

Weather Warning during next 5 days

17 May (Day 1): ◆ **Thunderstorm & lightning accompanied with squall (50-60 kmph)** at isolated places very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura; with **hail & gusty winds (40-50 kmph)** at isolated places over Jammu & Kashmir, Himachal Pradesh and Uttarakhand; ; with **hail &**

gusty winds (30-40 kmph) at isolated places over West Madhya Pradesh, Punjab, Haryana, Chandigarh & Delhi and Gujarat region; **with gusty winds (40-50 kmph)** at isolated places over Coastal Andhra Pradesh; **with gusty winds (30-40 kmph)** at isolated places over Sub-Himalayan West Bengal & Sikkim, Odisha, South Interior Karnataka, Tamilnadu & Puducherry and Kerala.

◆ **Thunderstorm/Duststorm & lightning accompanied with gusty winds (30-40 kmph)** very likely at isolated places over West Uttar Pradesh and Rajasthan.

◆ **Heat Wave Conditions** in some parts very likely over Vidarbha.

◆ **Heavy rainfall** at isolated places very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

18 May (Day 2): ◆ **Thunderstorm & lightning accompanied with gusty winds (30-40 kmph)** at isolated places very likely over Sub- Himalayan West Bengal & Sikkim and Rajasthan.

◆ **Heat Wave Conditions** in some parts very likely over Vidarbha and at isolated pockets very likely over Chhattisgarh, Coastal Andhra Pradesh, Rayalaseema, North Interior Karnataka and Telangana.

19 May (Day 3): ◆ **Thunderstorm & lightning accompanied with gusty winds (40-50 kmph)** at isolated places very likely over South Interior Karnataka, Tamilnadu & Puducherry and Kerala.

◆ **Heat Wave Conditions** in some parts very likely over Vidarbha and in isolated pockets very likely over Chhattisgarh, Rayalaseema, North Interior Karnataka and Telangana.

◆ **Heavy rainfall** at isolated places very likely over Kerala.

20 May (Day 4): ◆ **Thunderstorm & lightning accompanied with gusty winds (40-50 kmph)** at isolated places likely over South Interior Karnataka and Kerala; **with gusty winds (30-40 kmph)** at isolated places likely over Sub-Himalayan West Bengal & Sikkim.

◆ **Heat Wave Conditions** in some parts with severe heat wave in isolated pockets likely over Vidarbha and in isolated pockets likely over Chhattisgarh, East Uttar Pradesh, North Interior Karnataka and Telangana.

◆ **Heavy rainfall** at isolated places likely over Kerala.

21 May (Day 5): ◆ **Thunderstorm & lightning accompanied with gusty winds (30-40 kmph)** at isolated places likely over Sub- Himalayan West Bengal & Sikkim.

◆ **Heat Wave Conditions** with isolated severe heat wave at some parts likely over Vidarbha and in isolated pockets likely over Chhattisgarh, East Uttar Pradesh, North Interior Karnataka and Telangana.

Weather Outlook for subsequent 2 days from 22nd May to 24th May 2019

- Scattered to fairly widespread rainfall likely over northwest & northeast India, Bay Islands and south peninsula. Isolated to scattered rainfall likely over central & eastern India and Lakshadweep islands.
- Dry weather likely over the rest of the country.

Salient Advisories

- Thunderstorm & lightning accompanied **with hail and gusty winds (40-50 kmph)** at isolated places very likely over Jammu & Kashmir, Himachal Pradesh and Uttarakhand on 17th, thunderstorm & lightning accompanied with hail and gusty winds (**wind speed reaching 30-40 kmph**) at isolated places very likely over West Madhya Pradesh on 17th, thunderstorm/Duststorm & lightning accompanied with gusty winds (**30-40 kmph**) at isolated places very likely over West Uttar Pradesh and Rajasthan on 17th, thunderstorm & lightning accompanied with gusty winds (**30-40 kmph**) at isolated places over Rajasthan on 18th, over Punjab, Haryana, Chandigarh & Delhi on 17th May, provide hail net for orchard crops in Jammu & Kashmir, Himachal Pradesh, Uttarakhand and West Madhya Pradesh to protect from mechanical damage. Provide mechanical support to young fruit plants and vegetables. Keep harvested produce at safer places. Keep cattle/goats indoor during

thunderstorm period.

- **Heat Wave Conditions** in some parts with severe heat wave in isolated pockets likely over **Vidarbha** during the period, heat wave Conditions with isolated severe heat wave conditions very likely at isolated pockets over **Chhattisgarh** from 18th to 21st, over **East Uttar Pradesh** on 20th & 21st, heat Wave Conditions very likely at isolated pockets over **Coastal Andhra Pradesh** on 18th, over **Rayalaseema** on 18th & 19th, over **Telangana** and **North Interior Karnataka** on 18th to 21st May, apply light and frequent irrigation to the standing crops to cope up with the excessive evaporative demand. Do soil mulching or mulching with straw/polythene to conserve soil moisture.
- As **thunderstorm & lightning accompanied with squall (50-60 kmph)** at isolated places very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura on 17th, thunderstorm & lightning accompanied **with gusty winds (40-50 kmph)** at isolated places very likely over Coastal Andhra Pradesh on 17th, over Tamilnadu & Puducherry on 18th, over South Interior Karnataka and Kerala on 18th to 20th, thunderstorm & lightning accompanied **with gusty winds (30-40 kmph)** at isolated places over South Interior Karnataka, Tamilnadu & Puducherry and Kerala on 17th May, provide mechanical support to young fruit plants, banana and staking in vegetables to prevent the crops from lodging due to strong winds. Undertake propping in sugarcane in Tamilnadu & Puducherry and Coastal Andhra Pradesh.
- As rain/thundershowers likely at many places over **Arunachal Pradesh** from 17th to 19th, at most/many places over **Assam & Meghalaya** on 17th, 18th & 21st and at many places over Nagaland, Manipur, Mizoram & Tripura on 17th May, along with **heavy rainfall** at isolated places very likely over **Assam & Meghalaya and** Nagaland, Manipur, Mizoram & Tripura on 17th May, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.
- In **Chhattisgarh Plain Zone**, apply light and frequent irrigation in tomato, brinjal, chilli, okra and other vegetable crops. Farmers having drip irrigation system for vegetables and plantation crops should regulate the water discharge rate accordingly to maintain proper soil moisture around root zone.
- In view of prevailing heat wave conditions over **Vidarbha** and **Chhattisgarh**, keep the cattle under shade/shed during noon hours and provide good ventilation in the cattle sheds. Hang wet gunny bags so as to reduce heat in the cattle shed. Provide cool water, easily digestible liquid food and silage for providing nutrient and healthy food. Add mineral mixture, salt water and integrated and concentrated feed in equal ratio for increasing potassium and sodium levels.

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

Realised Rainfall: Rainfall occurred in Erode, Krishnagiri, Nilgiris and Perambalur districts of Tamilnadu, Pathanamthitta district of Kerala, Khammam district of Telangana, Hassan, Mandya, Mysuru, districts of South Interior Karnataka during the week. Weather remained mainly dry over the rest of the region.

Advisories:

- Heat Wave Conditions very likely at isolated pockets over Coastal Andhra Pradesh on 18th, over Rayalaseema on 18th & 19th, over Telangana and North Interior Karnataka on 18th to 21st May, apply light and frequent irrigation to the standing crops to cope up with the excessive evaporative demand. Do soil mulching or mulching with straw/polythene to conserve soil moisture.
- As thunderstorm & lightning accompanied **with gusty winds (40-50 kmph)** at isolated places very likely over Coastal Andhra Pradesh on 17th, over Tamilnadu & Puducherry on 18th, over South Interior Karnataka and Kerala on 18th to 20th, thunderstorm & lightning accompanied **with gusty winds (30-40 kmph)** at isolated places over South Interior Karnataka, Tamilnadu & Puducherry and Kerala on 17th May, provide mechanical support to young fruit plants, banana and staking in vegetables to prevent the crops from lodging due to strong winds. Undertake propping in sugarcane.

Kerala:

- Undertake harvesting of matured *Puncha* rice crop. Undertake land preparation for sowing of *Virippu* rice.
- Banana plantation may be given support so that the plantation can withstand high wind speed, spray Sampoorna KAU multi mix @ 10g/L in areas where micronutrient availability is low (banana at 2 month stage). Apply fertilizers @ 250g Urea, 285g Rock phosphate, 350g Potash, 500 g MgSO₄ and 2 kg lime per plant.
- In arecanut, apply Bordeaux mixture (1%) to the bunch and leaves. Continue harvesting of arecanut according to the stage of nuts.
- In rubber, fungal disease severely affects leaves of young budded plants, spray Copper oxy chloride or Bordeaux mixture.

Andhra Pradesh:

- In North Coastal Andhra Pradesh, undertake land preparation for sowing of green manure crops like bajra, sesame, mesta etc.
- In Scarce Rainfall Zone prevailing temperatures are favorable for incidence of thrips in musk melon. For control spray Fipronil @ 2ml/liter.
- In Nellore district of South Coastal Andhra Pradesh undertake land preparation for nursery sowing of rice.

Telangana:

- In southern Telangana, prevailing weather conditions are congenial for the incidence of Powdery Mildew in Mango. If noticed, control it by spraying Wettable Sulphur @ 3 g or Hexaconazole @ 2ml per liter of water and to control fruit fly in late ripening mango varieties like Neelam, Rumani by spraying Malathion @ 2 ml per liter of water.
- In Northern Telangana, spray Potassium nitrate @ 5g /lit is recommended at early hours on mango.

Tamil Nadu:

- In Cauvery Delta Zone, this is the suitable time for nursery sowing of rice for *kuruvai* season.
- In Western Zone, on receipt of rainfall, turmeric crop may be planted in already prepared land.
- To prevent early shedding of buds and squares in cotton, spray 40 ppm NAA (40 mg of Naphthalene Acetic Acid in one litre of water) at 60 and 90 DAS on the crops. Apply Trichoderma viride 2.5 kg + Pseudomonas fluorescence 2.5 kg + 250 kg well decomposed farm yard manure per hectare as a prophylactic measure for cotton
- The prevailing weather condition is conducive for incidence of citrus canker disease on citrus, spray of Copper Oxychloride (COC) @ 0.3% followed by 4 sprayings with Streptocyclin 100 ppm + COC @ 0.3 % at monthly intervals after pruning.
- Due to the prevailing weather condition the incidence of Shoot webber is expected in mango. The symptoms of damages are, caterpillar webbing of terminal leaves and scrapes the chlorophyll content, drying up of plants. To control, spray Neem oil @ 40ml + sticky agent @ 10ml with 10litres of water 2

times at 12 days intervals.

Karnataka:

- In North Interior Karnataka, continue harvesting of summer groundnut, rice crops and mango fruits. Undertake mulching in sugarcane crop with dry leaves and grass to conserve soil moisture.
- In Coastal Karnataka, undertake harvesting of matured cashew and mango fruits.
- In South Interior Karnataka, undertake land preparation for sowing of Ginger/turmeric. Sowing of ragi, cowpea, black gram, sesame, groundnut, field bean and green gram crops is recommended during May month. Treat the seeds of groundnut, red gram, green gram with Rhizobium and that of sorghum with Azetobactor + PSB before sowing. Strengthen the bunds with fodder grass which will facilitate conservation of rainwater due to pre-monsoon showers.
- In Coastal Karnataka, for control of mites in coconut spray water soluble Sulphur @ 5g/liter of water or spray a mixture of neem oil @20 ml + garlic solution 20 g + soap powder solution 5 g/liter of water to the coconut flower and fruit bunch.
- In South Interior Karnataka, hybrid varieties of tomato and chili are affected with leaf curl disease; remove affected plants and spray Imidocloprid @ 0.5 ml / liter of water or Acephate @ 1 gram /liter of water.

Animal Husbandry

- In view of prevailing high temperatures keep the cattle under shade and provide good ventilation to the cattle sheds. Hang wet gunny bags so as to provide cool weather in the cattle shed. Provide cool water, easily digestible liquid food and silage for providing nutrient and healthy food. Add mineral mixture, salt water and integrated and concentrated feed in equal ratio for increasing potassium and sodium levels.
- In Tamilnadu, in order to mitigate the effect of high temperature on animals, provide adequate cool drinking water, green fodder, addition of electrolytes and vitamin C in drinking water along with feeding management and spray water on gunny bags surrounding the cattle shed and the use of foggers.
- In Karnataka, animals may be allowed for grazing early in morning or later in evening.

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

Realised Rainfall: Rainfall occurred in Anjaw, Changlang, Dibang Valley, East Siang, Kurung Kumey, Lohit, Lower Dibang Valley, Lower Subansari, Papumpare, Tawang, Tirap, Upper Siang, Upper Subansari, and West Siang districts of Arunachal Pradesh; Baksa, Barpeta, Bongaigaon, Cachar, Chirang, Dhemaji, Dhubri, Dibrugarh, Goalpara, Golghat, Hailakandi, Jorhat, Kamrup(Rural), Kamrup(Metro), , Karimganj, Kokrajhar, Lakhimpur, Morigaon, N.C.Hills, Nowgaon, Nalbari, Sonitpur, Sibsagar, Tinsukia and Udalgiri districts of Assam; all districts of Meghalaya; Aizwal and Kolasib districts of Mizoram; Bishnupur, Imphal East and Tamenglong districts of Manipur; Dimapur and Kohima districts of Nagaland and Dhalai and North Tripura district of Tripura.

Advisories:

- As rain/thundershowers likely at many places over **Arunachal Pradesh** from 17th to 19th, at most/many places over **Assam & Meghalaya** on 17th, 18th & 21st and at many places over Nagaland, Manipur, Mizoram & Tripura on 17th May, along with **heavy rainfall** at isolated places very likely over **Assam & Meghalaya and** Nagaland, Manipur, Mizoram & Tripura on 17th May, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.
- As **thunderstorm & lightning accompanied with squall (50-60 kmph)** at isolated places very likely over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura on 17th May, provide mechanical support to young fruit plants, banana and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.

Arunachal Pradesh:

- Continue nursery sowing/sowing of rice. Adopt sowing of leguminous crops like cowpea, French bean, soybean etc at 2-3 rows across the slope of Jhum field at desirable intervals or ratios with rice to prevent soil erosion and conserve moisture and fertility.

Assam & Meghalaya

- In Assam, undertake nursery bed preparation for sowing of Sali rice. Collect seeds of recommended sali rice varieties like, Ranjit, Bahadur, Gitesh, Kushal, Piolee, Satyaranjan, Basundhara, Mahsuri, Ketekijoha

etc. for obtaining higher yield. In multiple cropping areas select medium duration varieties like Satyaranjan, Basundhara T.T.B.-404, and short duration varieties such as Disang, Luit, Kapilee, Dikhow etc. Mulagabharu, Kanaklata, Joymoti, IR-36, IR-64 etc etc. Select submergent tolerant rice varieties such as Jalashree, Jalkunwari, Ranjit-Sub-1, Bahadur-Sub-1, Swarna Sub-1 etc. for flood prone areas.

- In Hill Zone of Assam, undertake gap-filling by replanting of dead hills with seedlings of same age of transplanted normal Ahu Paddy. Undertake land preparation and sowing of pigeon pea and cotton and harvesting of matured wheat crop.
- In Lower Brahmaputra Valley of Assam, propping / staking of partially lodged /uprooted fruit trees is advised. In banana, remove lodged plant to allow one good sucker to replace the mother plant. Remove excess water from maize, green gram, black gram and plantation crop fields. Collect seeds of HYV of *Sali* rice namely Ranjit, Bahadur, Satyaranjan, Basundhara, Mahsuri, Ketekijoha etc. Select Satyaranjan and Basundhara in double cropping areas having crop duration of 130-135 days. Ranjit Sub-1, Jalashree and Jalkunwari are some suitable varieties of Sali rice for flood affected areas.
- In Central Brahmaputra Valley of Assam, continue planting of papaya and citrus fruit plants and sowing of Jute. Undertake harvesting matured Boro paddy, summer green and black gram mainly in clear weather.
- In Meghalaya, farmers are advised to make raised bed of size 1m width, 15cm height for planting of ginger/ turmeric and drainage channels for draining excess rain water. Continue sowing of maize at high and mid altitude region , transplanting of tomato, chilli, brinjal and capsicum, land preparation for new plantation of pineapple by ploughing or digging followed by leveling

Manipur, Mizoram, Tripura and Nagaland:

- In Nagaland, continue nursery preparation for chilli. Install yellow sticky trap for monitoring white flies and hopper in the fields of okra crop. Undertake field preparation for TRC/WRC paddy. Collect seeds of recommended short to medium duration HYV rice varieties like CAU R1, CAU R3, RCM-9 and RCM-11 for timely harvesting of paddy. Gitesh, short duration variety can also be incorporated as it can be transplanted with 40 – 60 days old seedlings.
- In Manipur, maintain water level just to submerge the soil surface and expose the green aerial sprouts. Drain out excess water if accumulated due to rains in the nursery bed of *kharif* rice. Continue nursery raising for sowing of *kharif* rice and undertake land preparation for transplanting of rice seedlings. Continue land preparation for sowing of *kharif* maize, soybean/ groundnut, black gram. Apply Lambda cythothrin 5% @ 15 ml/ 15 litre of water against the attack of leaf folder and case worm in pre-kharif rice at panicle initiation to flowering stage . In case of case worm infestation, drain out the field immediately when possible.
- In Mizoram, continue sowing of Jhum rice, green gram, black gram, cucurbitaceous crops, maize, cowpea and okra.
- In Tripura, continue sowing of Jhum rice. Weather is conducive for Fruit & Shoot Borer infestation in summer brinjal and tomato. To manage the attack, apply Cypermethrin @ 1.5ml or Flubendamid 0.5 ml per litre of water after current spells of rain. To manage the attack of Gandhi bug in Boro rice at flowering stage, apply Imidacloprid 2 ml per litre of water. Maintain moisture in the field of rabi maize and cow pea.

Animal Husbandry:

- In Upper Brahmaputra Valley and Lower Brahmaputra Valley of Assam, undertake vaccination against Foot & Mouth disease, BQ and other bacterial diseases in cattle and Buffaloes before the start of monsoon season. After cessation of rainfall, external parasites like mosquitoes will be a major problem. Due care should be taken to maintain the shade house properly.
- In Central Brahmaputra Valley of Assam, cattle should not be allowed to feed on submerged rotted grass during rainy season. Cattle house should be protected any damage due to heavy wind by some mechanical support.

Fishery:

- In Assam, with the rise of pond water level due to rain, fishery owners are advised to release fingerlings of recommended fish species according to the size of their ponds / fisheries. Farmers interested in rice fish farming should select field having capacity to hold water continuously to a depth of 30cm for several months. The land should be selected keeping in view that it will not be over flooded. Prepare the fingerling rearing tanks and nurseries by cleaning them and applying agricultural lime for raising fingerlings. Apply cow dung at the rate of 500 gm per sq m. at least 15 days ahead of releasing

fingerlings into the tanks. Nylon net barrier may be given to the fisheries in the low lying areas to prevent escape of fishes during heavy rainfall.

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

Realised Rainfall: Rainfall occurred in Nicobar district of Andaman & Nicobar Islands; in Kishanganj district of Bihar; in Deogarh, Dumka and Sahebganj districts of Jharkhand; in Koraput district of Odisha; in Hooghly and North 24 Paragana districts of Gangetic West Bengal and in Cooch Behar, East Sikkim, Jalpaiguri, North Sikkim and South Sikkim districts of Sub-Himalayan West Bengal and Sikkim. Weather remained mainly dry over rest of the region.

Advisories:

- As thunderstorm & lightning accompanied with gusty wind (**wind speed reaching 30-40 kmph**) at isolated places very likely over Odisha on 17th, over Sub-Himalayan West Bengal & Sikkim on 18th, 20th, 21st May, provide mechanical support to young fruit plants, banana and staking in vegetables to prevent the crops from lodging due to strong winds. Undertake propping in sugarcane in Odisha.
- As rain/thundershowers likely at many places over Sub-Himalayan West Bengal & Sikkim and Andaman & Nicobar Islands during the period, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.

Odisha:

- Harvest paddy crops when 80% of grains have matured. Harvest summer pulses and onion crops. Keep the harvested crops in safer places. Sugarcane crop is at vegetative growth stage. Take up planting of yam. Complete the sowing of jute by utilizing the recent rain.
- To avoid fruit rot in brinjal, spray Streptocycline 1.5 g +20 g Copper Oxychloride in 10 litres of water. To control Chilli thrips, apply Dimethoate @ 2 ml/liter of water.

Bihar:

- Harvest matured rabi maize, black gram and green gram crops. Continue planting of ginger and turmeric crops. Apply irrigation to summer maize, onion and vegetable crops as per requirement. Carry out land preparation for paddy nursery. Apply cow dung while nursery preparation for healthy seedling.
- To control fruit and shoot borer in brinjal and tomato crops, spray Spinosad 48EC @ 1 ml /4 litres of water in clear weather.

Jharkhand:

- Maintain optimum water level in summer paddy fields. Maintain proper soil moisture in summer maize field as the crop is at tasselling stage. Continue sowing of improved varieties of summer cowpea, planting of ginger, turmeric and elephant foot yam. Irrigate vegetable crops at regular intervals. Make pits for planting new orchards of mango, Guava and litchi.
- For the control of red pumpkin beetle in cucurbit vegetables, apply Carbaryl dust 4 to 5 kg per acre or spray mixture of kerosene oil + ash in adequate proportion. To control Gundhi bug in summer paddy, spray Quinalphos 1.5% dust @ 10 kg/acre.

West Bengal:

- In Sub-Himalayan West Bengal, keep the okra fields weed free. Harvest matured Boro rice. Carry out thinning of jute crop. Continue planting of ginger and turmeric to main field. To control sucking pest in green gram, spray Acephate 25% + Fenvelerate 3% @ 1.5g/litre of water at evening hour. Spray Imidacloprid 17.8% SL @ 2ml/10 litres of water with sticker for control of sucking pest in Mandarin orange.
- In Gangetic West Bengal, carry out deep summer ploughing in the harvested boro paddy fields to destroy eggs and pupa of insects. Sow green manuring crop like cluster bean, daincha, etc. after harvesting of boro paddy in order to fertilize the field and conserve moisture in soil. Provide fencing to protect betel vine crop from strong winds. Continue sowing of Olitorius jute. Complete the harvesting of groundnut crop and dry the pods for 4-5 days. Harvest the sesamum crop when capsules turn yellow and keep the bundles for 5-7 days for drying. Spray spinosad@1.5ml/litre of water for fruit borer attack in bhindi and brinjal crops. Spray Fipronil @ 2 ml/litre of water for jassid attack in watermelon and ash gourd.

Andaman & Nicobar Islands:

- Provide trap in the vegetable garden to attract the adult flies and destroy them. Make ring basin around the coconut tree and terrace across the slope for water and soil conservation.

Animal Husbandry:

- In Bihar, give salt on daily basis to Animals (2 - 3 spoons to goat and 4 - 5 spoons to cow/buffalo)..
- In Jharkhand, rise in temperature increases the possibility of death in poultry. Preventive measure should be taken by giving mixture of vitamin C and anti-stress solution of cool water and spraying of cool water during noon time. Dip the bird in cool water and keep it in shed when affected with heat stroke. Vaccinate cow, buffalo, goat and sheep against HS & FMD.
- In West Bengal, to avoid loss of essential body salts in animals ensure that a salt mixture in appropriate quantity is mixed with the feed and water and given to animals.
- In Andaman & Nicobar Islands, before onset of monsoon season, Anthelmintic treatment of goats is advised for de-worming.
- In Odisha, avoid grazing of cattle and goats during noon hours. Keep the animals under shade and provide cool water for drinking.

Fisheries:

- In Odisha, if the water temperature of the pond goes above 30⁰C or water level goes below 1 meter depth, farmers are advised to go for early harvest and discontinue fish seed production and culture activity. Fish breeding and culture activity is discouraged.
- In Andaman Islands, fish farmers are advised to raise Indian major carps.
- In Jharkhand, add cow dung and lime in the pond as a natural food for fishes and provide alternative feeds like Rice Bran and Mustard cake (each of 5 kg per day per acre area of pond).

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

Realised Rainfall: Weather remained dry over the region during the week.

Advisories:

- Heat Wave Conditions very likely in some parts with isolated severe heat wave over Vidarbha during the period, apply light and frequent irrigation to the standing crops to cope up with the excessive evaporative demand. Do soil mulching or mulching with straw/polythene to conserve soil moisture.
- As thunderstorm & lightning accompanied with gusty winds (**wind speed reaching 30-40 kmph**) at isolated places very likely over Gujarat region on 17th May, provide mechanical support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds.

Maharashtra:

- In South Konkan, Undertake nursery bed preparation for rice. Complete harvesting of groundnut and mango. For stone grafting programme of mango, procure fresh mango stones (seed) and sow them on beds. Before sowing they should be thoroughly washed with water and dipped in Carbendazim solution @ 1g per litre of water to control wilt. Apply irrigation to vegetables and orchards.
- In Madhya Maharashtra, continue harvesting of groundnut. Undertake ploughing in harvested crop fields. As dry weather is prevailing, minimize interval between two irrigations in orchards and vegetables. For control of nematode infestation grow marigold plants as intercrop in banana plantation. For taking pulse crop in kharif season carry out deep ploughing followed by 2 harrowing, mix Compost @ 5 ton per hectare before last harrowing which will help in better mixing of compost in soil.
- In Marathwada, as dry weather is prevailing and likely to prevail for next 5 days, apply irrigation to sugarcane orchards and vegetables. Apply irrigation to Ambia Bahar citrus orchard. To minimize fruit dropping in citrus orchard, spray Chealzed Zinc @ 5 g + 00:00:50 @ 10 g per 10 liters of water.
- In Vidarbha, Continue harvesting of matured rice, groundnut and sesame. Undertake ploughing in harvested crop fields. As heat wave conditions is likely during next 5 days, apply light and frequent irrigation to standing crops like groundnut, green gram, sesame, orchards and vegetables. Farmers are advised to provide shade for protection of young fruit plants from scorching sun.

Gujarat:

- In Saurashtra & Kutch, continue harvesting of green gram, black gram sesame and pearl millet crops before seed shattering. Apply light irrigation in cluster bean crop.
- In South Gujarat, continue nursery bed preparation for rice crop. Undertake weeding in rice, groundnut and pulses crops. Complete sowing of leafy vegetable (Fenugreek, Coriander, Green Garlic) crops. Continue sowing of cluster bean and cowpea crops. As there is increase in temperature, apply irrigation in vegetable and fruit crops.
- In North Gujarat, undertake harvesting of matured fruits of citrus, papaya, sapota and pomegranate etc. Do not carry out weeding and intercultural practices in groundnut (pegging stage) crop. Apply light

irrigation in groundnut (pegging), pearl millet (ear head emergence), cluster bean, green gram (flower initiation), cow pea crops and pomegranate, sapota, lemon and papaya orchards.

- In Middle Gujarat, carry out intercultural operations in cow pea and green gram crops.
- In Saurashtra & Kutch, due to high temperature mite infestation in lemon orchard observed. To control spray Propargite 57 % EC @ 10ml/10 liters of water.
- **Animal Husbandry**
- In Gujarat, keep animals under shade/shed during noon hours. Put curtains on south-west side of poultry house and sprinkle water on curtains during noon time. Provide plenty of cold water mixed with minerals for drinking and shower the animals with cold water two to three times in a day.

CENTRAL INDIA [M.P., CHHATTISGARH]

Realised Rainfall: Weather remained dry over the region during the week.

Advisories:

- As thunderstorm & lightning accompanied with hail and gusty winds (**wind speed reaching 30-40 kmph**) at isolated places very likely over West Madhya Pradesh on 17th May, provide hail net for orchard crops, mechanical support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds.
- Heat Wave Conditions with isolated severe heat wave conditions very likely at isolated pockets over Chhattisgarh from 18th to 21st May, apply light and frequent irrigation to the standing crops to cope up with the excessive evaporative demand. Do soil mulching or mulching with straw/polythene to conserve soil moisture.

Madhya Pradesh

- In Kymore Plateau and Satpura Hill Zone, complete sowing of moong and summer vegetables and sowing of watermelon, melon, cucumber etc.
- In West Madhya Pradesh, do not burn crop residues in the harvested field, mix them in soil by deep ploughing. Irrigate summer greengram, blackgram, okra & cucurbitaceous vegetables and given recommended dose of fertilizer. Prepare pits for developing new orchard at proper distance.
- Give irrigation in mango plants by Thala method at 10 days interval . To control of anthracnose and gummosis disease in citrus, spray Blitox or Phytolon @ 2.5 gm/litre of water. Apply irrigation in fruit orchards at regular intervals to keep optimum moisture in the basin.
- In Bundelkhand Zone, the possibility of leaf curl disease in the chilli, brinjal and tomato crops, farmers are advised monitoring the crops. If found, spray of Methyl demeton 25 E.C. @ 2 ml. or Imidachloprid @ 0.5 ml. per litre of water for their control.

Chhattisgarh:

- In Chhattisgarh Plain Zone, apply light and frequent irrigation in tomato, brinjal, chilli, okra and other vegetable crops. Farmers having drip irrigation system for vegetables and plantation crops should regulate the water discharge rate accordingly to maintain proper soil moisture around root zone. Undertake planting of summer sweet potato.
- In Northern Hill Zone, this is the proper time for summer ploughing for preparing land for kharif crops. After first ploughing, FYM or Compost should be spread in the field and then mix it properly in the soil. Neem or karanj cake may be mixed in the soil at the time of final land preparation to protect the crop against termites. In view of increasing temperature, the water need of the standing crops would increase, it is advised to apply irrigation in summer maize, sugarcane and summer vegetable crops during night time.
- Farmers are advised to arrange the seeds and prepare the nursery for sowing of long duration rice varieties. Treat paddy seed with carbendazim (2 gm/kg of seed) fungicide before sowing in nursery.
- For control of powdery mildew diseases in cucurbitaceous family crops like bottle gourd, pumpkin, ridge gourd, and snake gourd, spray Karathan @ 1 gm/liter of water of water.

Animal Husbandry

- In Madhya Pradesh, farmers are advised to keep animal in shade and give plenty of water to them Farmer are advised to cover Animal and poultry sheds with gunny bag so that temperature may be reduced. To prevent Ranikhet disease, vaccinate the poultry. Provide windows for fresh air in poultry shed and animal shed. During summer, @50-60 grams salt per animal per day must be fed.
- In Chhattisgarh, for each animal make sure that 40-60 gm salt should be supplemented during summer season. Give 25-30 kg green fodder per day in the ratio of 3:1 Green and dry fodder.
- To prevent from important disease (Haemorrhagic Septicaemia (H.S.), Block quarter (B.Q.), Anthrax,

Theileriosis & worms) in animal consult the veterinary Doctor. This is the high time for de worming. The medicine like Piperagen, Benminth & Panaraquar are effective. Consult the veterinary Doctor.

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

Realised Rainfall: Rainfall occurred in Kullu and Shimla districts of Himachal Pradesh and Anantnag, Baramula, Kulgam, Kupwara and Rajouri districts of Jammu & Kashmir, Faridkot and Moga districts of Punjab during the week. Weather remained mainly dry/dry over rest of the region.

➤ **Advisories:**

- Thunderstorm & lightning accompanied **with hail and gusty winds (40-50 kmph)** at isolated places very likely over Jammu & Kashmir, Himachal Pradesh and Uttarakhand on 17th, thunderstorm/Duststorm & lightning accompanied with gusty winds **(30-40 kmph)** at isolated places very likely over West Uttar Pradesh and Rajasthan on 17th, thunderstorm & lightning accompanied with gusty winds **(30-40 kmph)** at isolated places over Rajasthan on 18th, over Punjab, Haryana, Chandigarh & Delhi on 17th May, provide mechanical support to young fruit plants and vegetables. Provide hail net for orchard crops in Jammu & Kashmir, Himachal Pradesh and Uttarakhand to protect from mechanical damage. Keep harvested produce at safer places. Keep cattle/goats indoor during thunderstorm period.
- Heat Wave Conditions with isolated severe heat wave conditions very likely at isolated pockets over East Uttar Pradesh on 20th & 21st May, apply light and frequent irrigation to the standing crops to cope up with the excessive evaporative demand. Do soil mulching or mulching with straw/polythene to conserve soil moisture.
- As rain/thundershowers likely at most places over Himachal Pradesh and Jammu & Kashmir, at many places over Uttarakhand on 17th May, avoid irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Keep harvested produce at safer places.

Jammu & Kashmir:

- In Valley Temperate Zone, undertake preparation of nursery beds of rice and during night hours cover the seed beds with polyethylene sheets so as to maintain temperatures. Maintain drainage channels in the wheat fields. In apple, ensure orchard sanitation through destruction of pruned or diseased/infected twigs by burning. Adopt proper central drainage system. Maintain a gap of 3-4 days between insecticide and fungicide spray. Avoid mixing of fungicides, insecticide and spray suspensions. Adjuvants/Stickers may be added for better efficacy of fungicides especially during rainy days. Stickers should not be used with Dodine. Do not spray pesticides during bloom. Same systemic fungicides should not be repeated continuously in two sprays.
- In Sub Tropical Zone, carry out hoeing and weeding operations in summer pulses. To check the attack of red pumpkin beetle in cucurbits, spray Chlorpyrifos during clear weather @ 1.5ml/litre of water followed by dusting of ash to protect plants from attack. Spray Mancozeb @ 2.5gm/litre of water to control the crop from anthracnose. Carry out earthing up operation in brinjal and tomato with proper formation of raised beds. Carry out weeding operation in okra.
- In Intermediate Zone, complete harvesting of wheat crop on a non rainy day. Provide mechanical support for better crop stand in young plants of tomato and cucurbits. As rainfall coupled with cloudy weather is expected, there are chances of early blight appearance in tomato. If observed, spray Mancozeb @ 2 gm/liter of water on a non-rainy day.

➤ **Himachal Pradesh:**

- In Mid and High hill regions of Sub Montane Zone, undertake harvesting of wheat on clear days. Carry out deep ploughing of fields after harvesting of rabi crops. It helps in destroying the eggs and pupating stages of insects and weed seeds. Carry out intercultural operations and weeding in green gram and black gram in irrigated areas. In rainfed region ensure proper moisture in green gram and black gram. This is the optimum time to resume picking of tea leaves at 8 days interval to maintain its quality and productivity.

Punjab, Haryana and New Delhi

- In Punjab, continue harvesting of wheat and pulses and store harvested grain in safe and dry place. Continue sowing of summer moong, summer mash, cowpea and cucurbits. Undertake transplanting of vegetables (tomato, chilli, brinjal). Continue sowing of cotton including Bt cotton or desi Cotton and planting of turmeric. Undertake sowing of Okra.

- In Haryana, continue sowing of cotton, transplanting of matured seedlings of tomato, cauliflower, cabbage in prepared field and sowing of ladyfinger, bottle gourd, cucumber, ridge gourd and summer radish. Undertake field preparation of nursery sowing of rice.
- In Delhi, continue sowing of spinach, coriander, fenugreek. Continue sowing of lady finger, green gram. Undertake sowing of pigeon pea and cotton. Harvest the matured vegetables at morning and evening hours. Maintain optimum moisture level in cucurbitaceous crops by light and frequent irrigation as dry conditions may lead to poor fruiting and thus drop in yield of the crop. High temperature is suitable for deep ploughing of fields after harvesting of Rabi crops.

Uttar Pradesh:

- In East Uttar Pradesh, undertake nursery preparation for sowing of rice. Spray 4% Potassium Sulphate to protect against cracking of fruits in citrus. Irrigate cucurbit crops at an interval of 5-6 days. Apply irrigation in rose as per requirement. Undertake summer deep ploughing in harvested fields.
- In West Uttar Pradesh, continue harvesting/threshing of wheat and undertake preparation for storage of wheat. Undertake irrigation in maize, urad, moong, jowar and bajra as per requirement.
- In Hill Zone, continue harvesting of matured wheat and barley and keep in safe place. Apply bio-fungicide in onion and garlic field to minimize the pathogen attack. Carry out earthing up and mulching operations in potato fields. Undertake field preparation for sowing of ginger. Carry out staking and mulching operations in tomatoes, chilli, capsicum, brinjal, and cucurbitaceous crops.
- In Bhabar and Tarai Zone, apply irrigation to spring maize in case of insufficient soil moisture. On the occurrence of leaf spot disease on tomato and chilli, spray Mancozeb @ 2.5g/litre of water. Undertake transplanting of capsicum and brinjal in the polyhouse in Mid and High hills and apply irrigation if required.
- In Sub-Humid Sub-Tropic Zone, undertake harvesting of matured wheat crop. Undertake sowing of summer maize. Undertake harvesting of matured sugarcane.

Rajasthan:

- Undertake deep summer ploughing in harvested and empty fields. Soil sample should be collected from each plot and test in the laboratory. For increase the soil fertility, sowing of green manuring crops like as Daincha, sunhemp etc are advised.
- Heat waves may cause damage to horticultural crop. Provide frequent and light irrigations. Chilli crop is affected by leaf curl and mosaic disease. Uproot & burn affected plants to check the spread of disease and spray Dimethoate 30EC @ 1.0 ml per litre water.
- Due to rise in temperature, evapo-transpiration rate will be increased, so, maintaining for proper moisture for vegetables, irrigation should be applied at 5 to 6 days intervals.
- In Semi Arid Eastern Plain Zone, field preparation may be started for the sowing of B.T. cotton crop.
- In Arid Western Plain Zone, fruit borer may attack in brinjal crop, pick up the affected fruit and bury in the soil, spray Quinalphos @ 1 ml per liter of water.
- Spray 30EC dimethoate 800 ml dissolve in 800 litre water/ ha to control thrips, jassids and white fly in zaid moong

Apiculture:

- In Sub Tropical Zone of Jammu & Kashmir, harvest honey from the bee colony. Migrate bee colonies to flora rich areas. Avoid antibiotics. For protection against ants, put the legs of apiary into water so that ants could not attack the apiary. Keep colonies in shade or cover with wet gunny bags.
- In Himachal Pradesh, give artificial feed of 50% sugar and 50% water solution to honey bees. Insert the brood chamber without frame for ensuring aeration. Dust Sulphur on sealed brood in the colony and not on larvae to control mite's attack on honeybees. Also insert empty frame /combs for egg laying.

Animal Husbandary

- In Uttar Pradesh, vaccinate all the cattle against Anthrax and B.Q. disease. Vaccinate the chicks against chicken pox.
- In Sub-Humid Sub-Tropic Zone in Uttarakhand, provide fresh drinking water to cattle. Keep the cattle in shade during day time. Add mineral mixture in dry hay for feeding to animals.

The Agromet Products in this Bulletin are generated by Agrimet Division, weather forecast issued by NWFC, New Delhi and AgrometAdvisories are prepared based on the DAAS Bulletins issued by different Agrometeorological Field Units.