



National Agromet Advisory Service Bulletin



Friday 21st April 2017

(For the period 21st to 25th April 2017)



Issued by

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

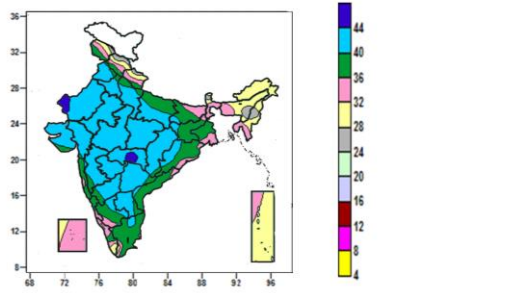
Weblink For

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

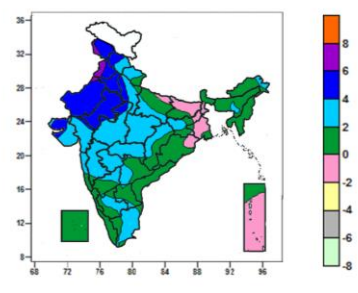
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 19.04.2017

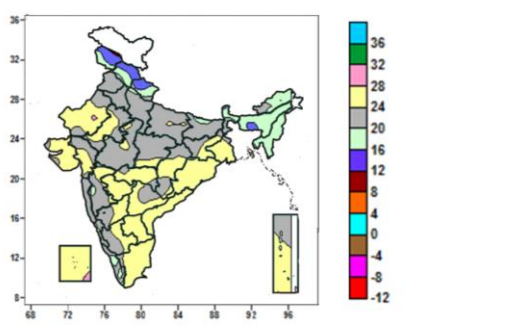
Actual Mean Maximum Temperature (°C) in India for the week ending 19.04.2017



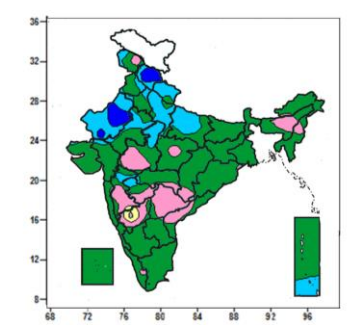
Mean Maximum Temperature (°C) Anomaly in India for the week ending 19.04.2017



Actual Mean Minimum Temperature (°C) in India for the week ending 19.04.2017

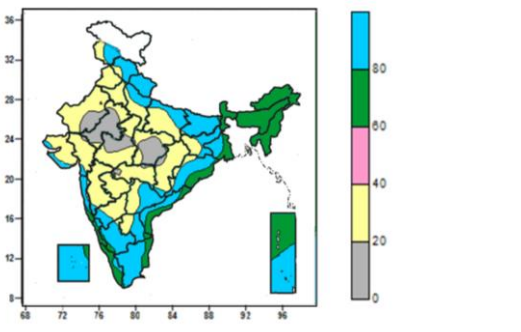


Mean Minimum Temperature (°C) Anomaly in India for the week ending 19.04.2017

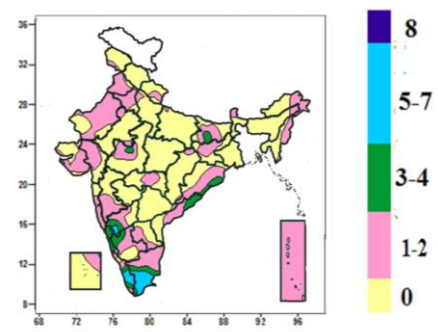


Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 19.04.2017

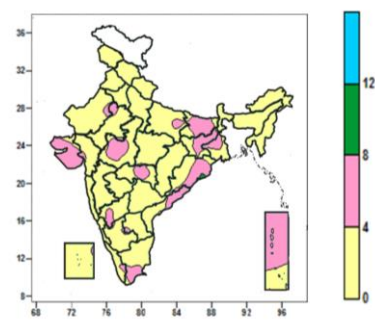
Relative Humidity (%) over India for the week ending 19.04.2017



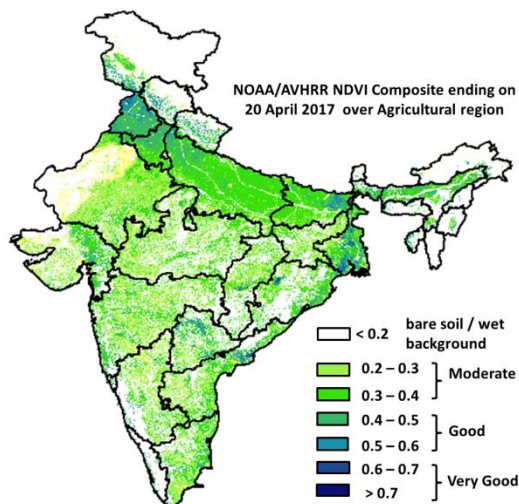
Cloud amount (okta) over India for the week ending 19.04.2017



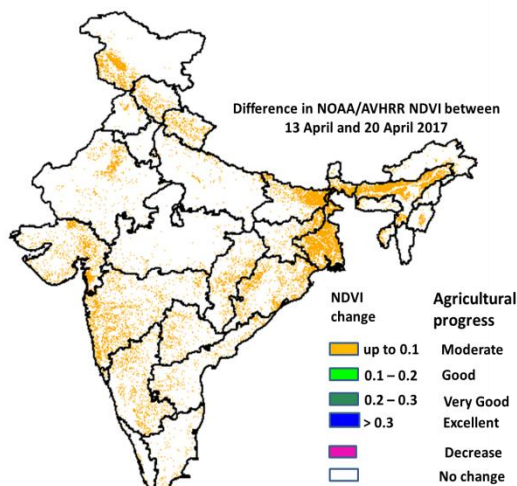
Wind speed (knots) over India for the week ending 19.04.2017



NOAA/AVHRR NDVI composite ending on 20th April 2017 over Agricultural regions of India

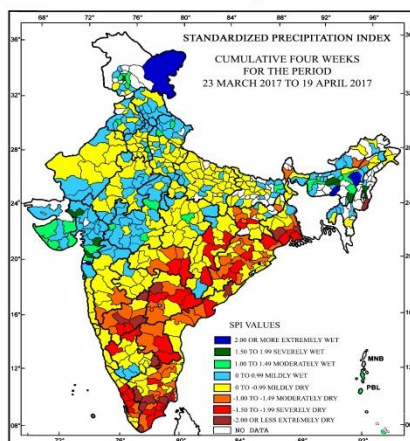


Difference in NOAA/AVHRR NDVI between 13th and 20th April 2017



**Standardised Precipitation Index
Four Weekly for the period 23rd March to 19th April 2017**

MINISTRY OF EARTH SCIENCES
INDIA METEOROLOGICAL DEPARTMENT
HYDROMET SECTION, PUNE



Weather Forecast for next 5 days valid upto 0830 hours of 26th April 2017

- Duststorm likely at isolated places over north Rajasthan during next 24 hours and on 24th & 25th April.
- No significant change in maximum temperature over northwest India during next 24 hours and fall by 2-3°C thereafter and no significant change over rest parts of the county during next 2-3 days.
- Maximum temperatures very likely to remain above normal by 2-3°C over west & south India during next 3 days.

Weather Warning during next 5 days

- **21 April (Day 1):** Thunderstorm accompanied with squall & hail very likely at isolated places over Bihar, West Bengal & Sikkim and Odisha. Thunderstorm accompanied with squall very likely at isolated places over Jammu & Kashmir, Himachal Pradesh, Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, South Interior Karnataka, interior Tamilnadu & Kerala. Thunderstorm accompanied with gusty winds very likely at isolated places over Coastal Andhra Pradesh, Telangana and Rayalaseema. Heat wave conditions very likely at a few places over West Rajasthan; at isolated places over Punjab, Haryana, Chandigarh & Delhi, West Uttar Pradesh, East Rajasthan, West Madhya Pradesh, Vidarbha, interior Odisha and western parts of Jharkhand. Heavy rain very likely at isolated places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.
- **22 April (Day 2):** Thunderstorm accompanied with squall and hail very likely at a few places over Jammu &

Kashmir; at isolated places over Himachal Pradesh, Bihar and West Bengal & Sikkim. Thunderstorm accompanied with squall very likely at isolated places over Uttarakhand, Punjab, Haryana, Chandigarh & Delhi, Uttar Pradesh. Heat wave conditions very likely at isolated places over West Rajasthan, Jharkhand and interior Odisha. Heavy to very heavy rain very likely at isolated places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura.

- **23 April (Day 3):** Thunderstorm accompanied with squall and hail very likely at isolated places over Sub-Himalayan West Bengal & Sikkim. Thunderstorm accompanied with squall very likely at isolated places over Jammu & Kashmir and Himachal Pradesh. Heavy to very heavy rain very likely at a few places with extremely heavy fall at isolated places over Assam & Meghalaya. Heavy rain very likely at isolated places over Arunachal Pradesh and Nagaland, Manipur, Mizoram & Tripura.
- **24 April (Day 4):** Heavy rain very likely at isolated places over Arunachal Pradesh and Assam & Meghalaya.
- **25 April (Day 5):** Heavy rain very likely at isolated places over Arunachal Pradesh and Assam & Meghalaya.

Weather Outlook for subsequent 2 days from 26th to 28th April 2017

- Rain/thundershower very likely at many places over northeastern states and at isolated places over Western Himalayan region and extreme peninsular India.

Meteorological sub-division wise detailed 5 day rainfall forecast (Mid day) 21st April 2017

Met Sub-divisions	21 Apr	22 Apr	23 Apr	24 Apr	25 Apr
1. Andaman & Nicobar Islands	ISOL	ISOL	ISOL	ISOL	ISOL
2. Arunachal Pradesh	FWS	FWS	WS	WS	WS
3. Assam & Meghalaya	WS	WS	WS	WS	WS
4. N.M.M. & T.	WS	WS	WS	WS	WS
5. S.H. West Bengal & Sikkim	FWS	FWS	FWS	FWS	FWS
6. Gangetic West Bengal	ISOL	ISOL	ISOL	ISOL	ISOL
7. Odisha	ISOL	ISOL	ISOL	DRY	DRY
8. Jharkhand	ISOL	ISOL	ISOL	DRY	DRY
9. Bihar	SCT	ISOL	ISOL	ISOL	ISOL
10. East Uttar Pradesh	ISOL	ISOL	ISOL	DRY	DRY
11. West Uttar Pradesh	ISOL	ISOL	ISOL	ISOL	DRY
12. Uttarakhand	ISOL	ISOL	ISOL	ISOL	ISOL
13. Haryana, Chd & Delhi	ISOL	ISOL	SCT	ISOL	DRY
14. Punjab	ISOL	SCT	SCT	ISOL	ISOL
15. Himachal Pradesh	SCT	SCT	SCT	ISOL	SCT
16. Jammu & Kashmir	SCT	FWS	SCT	ISOL	ISOL
17. West Rajasthan	DRY	DRY	DRY	DRY	DRY
18. East Rajasthan	DRY	DRY	DRY	DRY	DRY
19. West Madhya Pradesh	DRY	DRY	DRY	DRY	DRY
20. East Madhya Pradesh	DRY	DRY	DRY	DRY	DRY
21. Gujarat Region	DRY	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. Marathwada	DRY	DRY	DRY	DRY	DRY
26. Vidarbha	ISOL	DRY	DRY	DRY	DRY
27. Chhattisgarh	ISOL	ISOL	DRY	DRY	DRY
28. Coastal Andhra Pradesh	ISOL	ISOL	ISOL	ISOL	ISOL
29. Telangana	ISOL	DRY	DRY	DRY	DRY
30. Rayalaseema	ISOL	DRY	DRY	DRY	DRY
31. Tamil Nadu & 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	ISOL	ISOL	ISOL	ISOL	ISOL
35. Kerala	ISOL	ISOL	ISOL	ISOL	ISOL
36. Lakshadweep	ISOL	DRY	DRY	DRY	DRY

% 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		

Salient Advisories

- As rain/thundershowers likely at most places over **Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura** during the period and at most/many places over **Arunachal Pradesh** during the period, along with heavy to very heavy/heavy rain very likely at a few/isolated places over Assam & Meghalaya during the period along with extremely heavy falls at isolated places on 23rd April, heavy to very heavy/heavy rain likely at isolated places over Nagaland, Manipur, Mizoram & Tripura from 21st to 23rd and heavy rain at isolated places over Arunachal Pradesh from 23rd to 25th April, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Drain out excess water from standing crops and vegetables to avoid water stagnation. Postpone sowing of summer crops in the regions and transplanting of rice in Assam & Meghalaya.
- As rain/thundershowers likely at many places over **Sub-Himalayan West Bengal & Sikkim** during the period, and rain/snow likely at many places over **Jammu & Kashmir** on 22nd April, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
- As thunderstorm accompanied with gusty winds very likely at isolated places over **Coastal Andhra Pradesh, Telangana and Rayalaseema** on 21st April, provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
- As thunderstorm accompanied with squall very likely at isolated places over **South Interior Karnataka, Interior Tamilnadu, Kerala, Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura, Jammu & Kashmir, Himachal Pradesh and West Uttar Pradesh** on 21st, over **Punjab, Haryana, Chandigarh & Delhi** on 21st and 22nd, over **Uttarakhand** on 22nd April, provide support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
- As thunderstorm accompanied with squall and hail very likely at a few places over **Jammu & Kashmir** and at isolated places over **Himachal Pradesh** on 22nd, over **Bihar and West Bengal & Sikkim** on 21st and 22nd, over **Odisha** on 21st and over **Sub-Himalayan West Bengal & Sikkim** on 23rd April, use hail net or hail cap for orchard crops and fruit vegetables to protect from mechanical damage, provide support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
- As heat wave conditions very likely at a few places over **west Rajasthan** on 21st and at isolated places on 22nd, heat wave conditions very likely at isolated places over **Punjab, Haryana, Chandigarh & Delhi, East Rajasthan, West Uttar Pradesh, West Madhya Pradesh and Vidarbha** on 21st April, over **interior Odisha and Jharkhand** on 21st and 22nd April, apply light and frequent irrigation to the standing crops to cope up with the excess evaporative demand due to heat wave, undertake mulching with straw/polythene or soil mulching to conserve soil moisture.

Advisory for livestock under heat wave/ high Temperature condition

- In view of prevailing heat wave conditions in **Punjab, Haryana, Chandigarh & Delhi, Rajasthan, West Madhya Pradesh, Vidarbha, Interior Odisha and Jharkhand**, keep animals under shade/shed during noon hours and provide plenty of water mixed with minerals for drinking. Also provide balanced feed & adopt vaccination schedule. For protection of poultry birds from heat, provide curtains from outside the poultry shed and sprinkle it with water. Apply layer of grass or gunny bags on the roof of poultry shed and sprinkle water on it.

Provide fresh and cool drinking water for the poultry birds and chicks.. Make arrangement of curtains and proper ventilation in poultry house. In poultry, there is a probability of drop in feed intake, drop in egg weight and shell quality deterioration in poultry birds; maintain optimum temperature between 18 to 29°C in poultry shed for better egg production.

Detailed Zonewise Agromet Advisories

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

- **Realised Rainfall:** Rainfall occurred in Erode district of Tamil Nadu, Kollam district of Kerala, Mandya and Mysuru districts of South Interior Karnataka during the week and weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - As thunderstorm accompanied with squall very likely at isolated places over South Interior Karnataka, interior Tamilnadu & Kerala on 21st April and thunderstorm accompanied with gusty winds very likely at isolated places over Coastal Andhra Pradesh Telangana and Rayalaseema on 21st April, provide support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
 - **Andhra Pradesh:**
 - In Nellore district of the Southern Zone, undertake sowing of early *kharif* rice nurseries with proper seed treatment before sowing.
 - In the Krishna Godavari Zone, due to prevailing weather conditions (hot and dry weather), provide irrigation to black gram and green gram at pod filling stage and jowar at grainfilling stage.
 - In the North Coastal Zone, provide irrigations at frequent intervals to sugarcane crop.
 - In the Scarce Rainfall Zone, spray Calcium Carbonate on mangoes and oranges @ 10-15 g/litre of water to avoid the sun scorching and direct radiation effect on the fruits. Provide light irrigation through drip irrigation or check basin method to fruits and vegetables, undertake mulching and spray Potassium Nitrate @ 10g/litre of water in the morning hours.
 - In the North Coastal Zone, prevailing weather conditions are congenial for incidence of termites in sugarcane. To control, spray Chloropyrifos @ 2.5 ml/litre of water.
 - In the Scarce Rainfall Zone, prevailing high temperatures are congenial for incidence of thrips in musk melon. For control, spray Pipronil @ 2ml/litre of water.
 - In the Krishna Godavari Zone, present weather may enhance incidence of powdery mildew in black and green gram. If intensity is more, spray Tridimorph @ 1 g/litre of water.
 - In the Southern Zone, prevailing dry weather condition is congenial for incidences of thrips and mite in chillies. To control thrips, spray Dimethioate @ 2 ml/litre of water and spray Dicopal @ 5 ml/litre of water to control mite.
 - **Telangana:**
 - In South Telangana Zone, prevailing weather conditions are congenial for incidence of fruit fly in mango. To trap the flies in the container, hang the plastic containers with mixture of Methyl Eugenol @ 2 ml + Carbofuran 3G @ 3g/litre of water in the orchard.
 - In North Telangana Zone, as dry weather would prevail, apply irrigation to sunflower at seed filling stage. In North Telangana Zone, spray Dichlorvos @ 1 ml + Chlorpyrifos @ 2.5 ml/litre of water in the evening hours to control incidence of cut worm in rice.
 - **Tamil Nadu:**
 - In the Cauvery Delta Zone, as dry weather would prevail, continue harvesting of rice fallow black gram and cultivation of blackgram (variety ADT5 under irrigated conditions). Provide irrigation to sesame, sugarcane and rice fallow cotton crops, since dry weather is expected in the next five days.
 - In the Western Zone, on the receipt of anticipated rainfall, undertake summer ploughing to harvest summer rains, control erosion, perennial weeds, pest and diseases. Due to increase in temperature and low relative humidity, squally wind may occur. Propping in Sugarcane and stacking in banana crop may be done to avoid lodging.
 - In the Southern Zone, since vegetables crops are at flowering to fruiting stage and due to increase in temperature, apply nutrients through fertigation or foliar spray.
 - In the Western Zone, prevailing dry weather situation is favorable for spiraling white fly in tapioca and hence farmers are requested to monitor the crop carefully and keep yellow sticky trap in 5 to 6 places/ac or spray Acephate @ 2g/litre of water. Continuous dry weather is favourable for early shoot borer in sugarcane. To control, provide frequent irrigation and undertake mulching.
 - In the High Altitude Hilly Zone, utilising received and expected light rainfall, dig pits for planting fruit trees and chow chow and provide shade using shade net or any suitable material like palm leaves etc. to protect seedlings from scorching sunlight.

- In the High Altitude Hilly Zone, due to prevailing high day time temperature, red spider mite infestation is fast spreading in tea plantations. To control, spray Dicofol 18.5% EC @ 2 ml/ litre of water in infested areas.
- **Kerala:**
 - In the Problem Area Zone, continue planting of coconut seedlings, if proper irrigation available, land preparation for next rice crop, planting of pepper and rainfed banana. Protect the newly planted young pepper seedlings from direct sunlight by providing proper shades and properly mulch the intercropped tuber crops in coconut fields for moisture retention.
 - In the Northern Zone, wilting of black pepper is noticed due to prevailing dry conditions. Protect the plants from direct sunlight by covering the basal portions of the pepper vines with dried banana leaves, plated coconut leaves etc. Give protective irrigations one in every two weeks.
 - In the Problem Area Zone, to control incidence of bacterial wilt in vegetables, grow resistant varieties and drench the basin with bleaching powder @ 10 g/litre of water.
 - In the Northern Zone, incidence of bacterial wilt is noticed in pepper. To control, undertake prophylactic spraying of Pseudomonas @ 20g/litre of water If disease is severe, spray 2% Copper hydroxide solution.
- **Karnataka:**
 - In the Eastern Dry Zone, procure seeds for pre monsoon season sowing of cowpea, sesamum, field bean etc. Undertake mulching with crop residues for soil moisture conservation in mango orchard. Wherever possible drip irrigation is recommended to improve the mango fruit set, size and quality. Drip irrigation beneath plastic mulch is recommended for cultivation of vegetables and fruit crops.
 - In Southern Dry Zone, continue land preparation for pre-monsoon crop sowing and procure good quality seeds.
 - In North East Transition Zone, apply irrigation at 15 – 20 days interval in mango. Take up summer deep ploughing.
 - In North East Dry Zone, as dry weather would prevail, continue harvesting of matured mango, groundnut and rice. Due to increase in day and night temperatures sugarcane plants are suffering from lack of soil moisture; provide irrigation to sugarcane crop. Undertake summer deep ploughing to expose the pupae and eggs of insect/pests and weed seeds.
 - In Southern Transition Zone, maintain optimum water level in rice field.
 - In Hill Zone, in view of increasing temperature, provide irrigation to arecanut, coconut and black pepper gardens either in furrows or by drip irrigation.
- **Animal Husbandry**
 - In the Scarce Rainfall Zone of Andhra Pradesh, prevailing high temperatures may cause heat stress in livestock. Do not allow animals to graze during hot periods and provide green fodder cool water to animals.
 - In Karnataka, leave the buffaloes in ponds during afternoon hours or sprinkle cold water 2-3 times a day on the body of the animal to overcome the heat. To minimize thermal stress, keep animals under the shaded place. Animals may preferably be grazed during early morning and late evening to avoid exposure to extreme hot conditions. Clean drinking water be provided to animals. Vaccinate the animals (cow, buffalo, and bullock) against for foot and mouth disease.

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

- **Realised Rainfall:** Rainfall occurred in Lower Dibang Valley and Upper Siang districts of Arunachal Pradesh, Baksa, Barpeta, Chirang, Dhubri, Kamrup(Rural), Kokrajhar, Morigaon, Nalbari and Udalgiri districts of Assam, East Garo Hills, East Khasi Hills and South Garo Hills districts of Meghalaya, Aizwal district of Mizoram, Wokha district of Nagaland during the week and weather remained mainly dry over rest of the region.
- **Advisories:**
 - As thunderstorm accompanied with squall very likely at isolated places over Arunachal Pradesh, Nagaland, Manipur, Mizoram & Tripura on 21st April, provide support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
 - As rain/thundershowers likely at most places over Assam & Meghalaya, Nagaland, Manipur, Mizoram & Tripura during the period and at most/many places over Arunachal Pradesh during the period, along with heavy to very heavy/heavy rain very likely at a few/isolated places over Assam & Meghalaya during the period along with extremely heavy falls at isolated places on 23rd April, heavy to very heavy/heavy rain likely at isolated places over Nagaland, Manipur, Mizoram & Tripura from 21st to 23rd and heavy rain at isolated places over Arunachal Pradesh from 23rd to 25th April, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Drain out excess water from standing crops and vegetables to avoid water stagnation. Postpone sowing of summer crops in the regions and transplanting of rice in Assam & Meghalaya.
- **Assam, Meghalaya & Arunachal Pradesh:**
 - In Arunachal Pradesh, utilising the realised and expected rainfall, continue transplanting of chilli, tomato, capsicum, nursery raising of cole crops in higher altitudes/cold areas and planting of ginger/ turmeric. Continue sowing of

- maize, pea and nursery sowing/ transplanting of *jhum* rice.
- In Hill Zone of Assam, postpone transplanting of normal *ahu* rice and replanting of dead hills may be done within 7-10 days of transplanting. Postpone sowing of summer vegetables, summer green gram and black gram. Continue land preparation for sowing of maize.
- In North Bank Plain Zone of Assam, postpone sowing of *baor* rice in flood affected low lying area and planting of sugarcane, banana and sowing of maize. Postpone planting of jute.
- In Barpeta, Bongaigaon, Dhubri and Goalpara districts of Lower Brahmaputra Valley Zone of Assam, postpone nursery sowing of summer rice (early *ahu*) and harvesting of *rabi* maize.
- In Upper Brahmaputra Valley Zone of Assam, postpone planting of banana, guava and mango.
- In Central Brahmaputra Valley Zone of Assam, postpone sowing of summer green gram and black gram, summer vegetables and Capsularis jute/Olitorius jute and planting of ginger and turmeric. Postpone sowing of *baor* rice. Postpone harvesting of matured crop of wheat.
- In Barak Valley Zone of Assam, postpone sowing of *ahu* rice (direct seeded) and summer vegetables.
- In Meghalaya, postpone nursery raising of brinjal and transplanting of tomato. Postpone planting of ginger/turmeric and spring potato. Postpone land preparation and sowing of maize in high and mid altitudes.
- In Hill Zone of Assam, in present weather condition there is chance of trunk borer/shoot borer pest in khasi mandarin, hence it is advised to prune and destroy the affected branches without causing any injury to the trunk or main branches and also paint the main trunk upto one metre from the base with Sevin/Monocrotophos + lime and water (1:1:25). At the late stage of infestation plug the hole with cotton soaked in Nuvan (0.07%) or Dimecron (0.05%) and plastered it with wet clay after current spells of rain.
- In Arunachal Pradesh, for bark eating caterpillar attack in citrus, remove wooden frass and inject Dichlorovos (0.1%) @ 5ml with disposable syringe after current spells of rain.
- In Barak Valley Zone of Assam, there is chance of attack of rice bug in *boro* rice at milky stage. To control the pest apply 5% Malathoin dust @ 20 kg per ha of land after current spells of rain.
- In North Bank Plain Zone of Assam, due to increase in temperature and relative humidity, the weather condition is favourable for the attack of blast disease in *ahu* rice. Spray Mencozeb (Dithene M-45) @ 2g/litre or Carbendazime (Dirosol) @ 1g/litre of water on dry weather for controlling the blast disease after current spells of rain.
- **Nagaland, Manipur, Mizoram and Tripura:**
- In Nagaland, complete sowing of okra and green gram. Continue land preparation and sowing for upland rice. Continue sowing of cucurbits crops, transplanting of brinjal and harvesting of tomato after current spells of rain.
- In Manipur, maintain 5-8 cm of water level after 3-4 days of transplanting of Pre-kharif rice. Continue main land preparation for main *kharif* rice and *kharif* maize.
- In Mizoram, continue sowing of maize (*jhum*), nursery sowing of pre-*kharif* rice, okra, cow pea and planting of ginger and turmeric. Continue harvesting of potato and onion after current spells of rain. Undertake sowing of *jhum* rice.
- In Tripura, continue land preparation of *jhum* rice. Allow 5cm water to stand in the field of *boro* rice and drain out excess water.
- In Manipur, to control the infestation of purple bloch in onion/garlic. Apply 1kg Trichoderma viride/ sangam when there is moisture in soil and avoid excess application of Nitrogen in case of onion and garlic to avoid Purple Bloch after current spells of rain.
- In Tripura, in the present weather condition, there are chances of attack of fruit & shoot borer in summer brinjal & tomato at flowering/fruited stage. Apply Cypermethrin @ 1.5ml or Flubendamid 0.5 ml per litre of water to manage the attack after current spells of rain.
- **Animal Husbandry**
- In North-eastern states, keep cattle under shed during heavy rainfall period. Proper sanitary measures are to be taken against ranikhet disease. Poultry house, incubators should be properly disinfected sterilization of utensils may be carried regularly. Vaccination may be done during this period. Vaccinate pig against swine fever. Deworming should be done in calves with consultation with veterinary practitioner.

WEST INDIA [GOA, MAHARASHTRA, GUJARAT]

- **Realised Rainfall:** Weather remained dry over the region during the week.
- **Advisories:**
 - **Maharashtra:**
 - As heat wave conditions very likely at isolated places over Vidarbha on 21st April, apply light and frequent irrigation to the standing crops to cope up with the excess evaporative demand due to heat wave, undertake mulching with straw/polythene to conserve soil moisture.
 - In Konkan, as dry weather is prevailing, harvest mature varieties of rice. Also plough the field after harvest to destroy the stubbles. Do not apply any insecticides/fungicides 8 days before harvesting of mango fruits. Also there is a increase in maximum temperature hence mulching with grass should be done to avoid the water loss in mango

orchards in lateritic soil. Harvest the matured sunflower crop. Harvest matured Okra fruits, leafy vegetables and water melon.

- In Madhya Maharashtra, as dry weather is prevailing apply irrigation in vegetables and orchards. Also apply mulch with crop residue or plastic sheet to vegetables and orchards like pomegranate and banana. Summer groundnut is at pegging & grain filling stage. Considering high temperature reduce the intervals between two irrigation & irrigation should be given during evening hours. Uproot big weeds. To take the *Mrig bahar* in orange, citrus and pomegranate orchards give water stress to plants. As dry weather is prevailing irrigate sugarcane crop at an interval of 8 to 10 days. If there is shortage of water irrigate the alternate furrow. Considering the present dry weather and rise in temperature mango plants should be irrigated @ 150 to 200 litres of water per plant at an interval of 15 days. Start April pruning in grape orchards.
- In Marathwada, as dry weather is prevailing and likely to continue irrigation management should be done in sugarcane, groundnut, sapota orchard and vegetables through micro irrigation system i.e. drip or sprinkler method. Crops should be irrigated during evening hours to avoid loss of water by evaporation. Apply mulch in vegetable crops and orchards for soil moisture conservation. For *mrug bahar* in citrus and pomegranate, give water stress to plants. If irrigation facility is available then take short duration fodder crop.
- In Vidarbha, as dry weather is prevailing and maximum temperature is likely to remain above normal irrigate summer groundnut, sunflower and vegetables at an interval of 6-8 days. Undertake irrigation in mango orchards. Maintain water level of 5-7 cm in summer rice field in East Vidarbha.
- In Maharashtra, present weather situation is favourable for infestation of fruit fly in cucurbitaceous crop, install “Rakshak” fruit fly traps @ 4 traps/ha in the field.
- **Gujarat:**
 - In North Saurashtra Zone of Gujarat, in view of prevailing high temperature, apply irrigation in groundnut (flowering stage) and vegetable crops at regular intervals.
 - Carry out weeding and intercultural operations in timely sown green gram, black gram in South Saurashtra Zone.
 - In North Gujarat Zone and North West Zone of Gujarat, in view of the high temperature condition, apply irrigation in groundnut, sesame, pearl millet, cluster bean, green gram and cowpea. Carry out weeding and inter cultural operations to conserve soil moisture.
 - In South Gujarat Heavy Rainfall Zone, maintain 3-5 cm water level in transplanted rice field. Undertake weeding in vegetable crops. Apply irrigation in summer groundnut, cluster bean and pulses.
 - In South Gujarat Zone, undertake sowing of Bt. Cotton with irrigation. As there is an increase in temperature, irrigate the summer vegetable crops at an interval of ten to twelve days. Provide shadow with shade net or coconut branch leaves, give support to small mango plants with stick; due to bright sunlight evaporation rate increases, apply irrigation by drip irrigation for 1/2 to 3/2 hrs.
 - Thrips infestation is observed above ETL in summer groundnut, sesame and vegetable crops in North Saurashtra and in groundnut in South Saurashtra Zone; spray 500 ml of 5 % neem seed extract or neem seed oil @ 50 ml with Profenofos @ 20 ml or Imidacloprid 30.5 SC @ 3 ml or LemdaCyhelothrin @ 10 ml/10 litre of water. Constant monitoring of lady finger crop against attack of mite is advised. Spraying of propargite @ 2 ml/litre of water is advised.
- **Animal Husbandry**
 - In Vidarbha, keep animals in shed/shade during noon hours and keep good aeration in animal sheds. For protection of poultry birds from heat, provide curtains from outside the poultry shed and sprinkle it with water. Apply layer of grass or gunny bags on the roof of poultry shed and sprinkle water on it. Provide fresh and cool drinking water for the poultry birds and chicks.
 - In Gujarat in view of prevailing high temperature, keep animals under shade/shed during noon hours and provide plenty of water mixed with minerals for drinking. Also provide balanced feed & adopt vaccination schedule. For protection of poultry birds from heat, provide curtains from outside the poultry shed and sprinkle it with water.

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

- **Realised Rainfall:** Rainfall occurred in all districts of Andaman & Nicobar Islands, Murshidabad district of Gangetic West Bengal, North Sikkim district of Sikkim during the week and weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - As thunderstorm accompanied with squall and hail very likely at isolated places over Bihar and West Bengal & Sikkim on 21st and 22nd, over Odisha on 21st and over Sub-Himalayan West Bengal & Sikkim on 23rd April, use hail net or hail cap for orchard crops and fruit vegetables to protect from mechanical damage, provide support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.

- As heat wave conditions very likely at isolated places over interior Odisha on 21st and 22nd, over western part of Jharkhand on 21st and over Jharkhand on 22nd April, apply light and frequent irrigation to the standing crops to cope up with the excess evaporative demand due to heat wave, undertake mulching with straw/polythene to conserve soil moisture.
- **Odisha:**
 - In North Eastern Coastal Plain Zone, due to dry weather and rise in temperature, apply irrigation in maize and sunflower. In North Eastern Ghat Zone, complete sowing of cowpea.
 - In North Central Plateau Zone, The rise in temperature coupled with sunny weather favours attack of powdery mildew in pulses and Aphid attack in groundnut. To control powdery mildew, spray Sulfex @ 5g/litre of water and spray Thiomethoxam @ 1g/3litres of water if the infestation of aphids crosses the ETL.
 - In East and South Eastern Coastal Plain Zone, undertake sowing of summer vegetables.
 - In East and South Eastern Coastal Plain Zone, infestation of thrips has been occurred on summer groundnut. Spray Endosulphan @ 2 ml/litre of water. Increased temperature may aggravate the white ant and white grub attack in groundnut. Go for thorough soil drenching with Chloropyriphos solution @ 2ml/litre water.
 - In East and South Eastern Coastal Plain Zone, early stem borer infestation has been found on sugarcane crop. If it crosses the ETL level (5% dead heart) undertake hoeing, weeding and apply 4 kg Phorate or 12 kg Carbofuran or 10 kg Cartap followed by earthing up or spray 400 ml Monocrotophos/Tryozophos/Profenophos.
 - In North Central Plateau Zone, due to current fluctuation in temperature gradient, white fly population has considerably increased leading to appearance of YVM disease. Destroy the YVM affected plants and spray Thiomethoxam @ 70g/acre to control whitefly population.
- **West Bengal:**
 - As rain/thundershowers likely at many places over Sub-Himalayan West Bengal & Sikkim during the period, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - In the New Alluvial Zone, continue land preparation for jute cultivation.
 - In Purba Mednipur and South 24-parganas, complete the harvesting of *boro* rice and sunflower, transfer the seeds in threshing floor for sun drying.
 - In the Hill Zone, drainage channel should be maintained as moderate rainfall has been forecasted. Undertake pit preparation for orchards and for existing trees, foliar spraying of Zinc sulphate 0.5% and Borax @ 0.25% should be given at least three times at 10-15 days intervals.
 - In Malda, Dakshin Dinajpur, maintain 5cm water in field of *boro* rice at panicle initiation stage.
 - In the New Alluvial Zone, present temperature and humidity conditions are congenial for the rapid spread of thrips and mites leading to the leaf curling in chilli. As a control spray Difenthiuron @ 0.75g per litre of water at 7-10 days interval. In this weather condition Stem-borer may be found in *boro* rice, apply Cartap 4 G @ 25 kg/ha or Phorate 10 G @ 10 kg/ha.
 - In Old Alluvial Zone, in the present weather condition, there is chance of attack of Mango hopper in mango, for control, spray Carbaryl 50 W.P @ 2.5g/litre of water at pea stage of fruit set. To control, chilli leaf curl, spray Imidachloropid @ 0.2ml/litre of water after current spells of rain.
- **Andaman and Nicobar Islands:**
 - In North, South & middle Andaman, carry out land shaping activity such as bunding, ring basin around the coconut tree and terrace in coconut garden as the soil condition is conducive.
 - In North, South & middle Andaman, spray Carbendazim @ 2 g/litre to control powdery mildew in Bhindi during rain free days.
 - In Nicobar Islands, clean the crown portion of coconut and garden before onset of monsoon.
- **Bihar:**
 - In North East Alluvial Zone of Bihar, maintain minimum 2-3 inch water in the *boro* rice fields. Undertake sowing of Jute crop.
 - In North West Alluvial Plain Zone of Bihar, in view of rainfall, undertake harvesting of matured wheat, pigeon pea and *rabi* maize crops. Undertake land preparation for sowing of elephant foot yam. Intercultural operation is advised in summer vegetables such as lady's finger, pumpkin, cucumber, sponge gourd, bottle gourd.
 - In North East Alluvial Zone of Bihar, to control stem borer in maize, apply Fipronil 0.3% GR @ 20-25 Kg/ha or Chlorantranileprale 0.4% GR @ 10Kg/ha. To control yellow stem borer in rice, apply Fipronil 0.3% GR @ 20-25 Kg/ha or Chlorantranileprale 0.4% GR @ 10Kg/ha.
 - In South Bihar Alluvial Zone of Bihar, continue harvesting of matured wheat and continue sowing of green gram. Farmers are advised to keep harvested crops and grains in the protected place. Adequate drying of harvested grains before storage should be done.
- **Jharkhand:**
 - In South Eastern Plateau Zone, rice crop is at panicle initiation or at booting stage hence, at both stages hand weeding should be done and then broadcast urea @ 30 kg per acre. Remove excess water during broadcasting of

urea. Also apply Phorate 10 G @ 4 kg per acre for stem borer protection.

- In South Eastern Plateau Zone, continue sowing of summer moong.
- In Central and North Eastern Plateau Zone, continue sowing of green gram and land preparation for sowing of okra. Undertake sowing of high yielding variety of maize (Birsa Makka-1, BirsaVikash Makka-2, Suwan-1(Hybrid),HQPM (Hybrid) with assured irrigation.
- In South Eastern Plateau Zone, because of increased day and night temperature, all cucurbitaceous vegetables are prone to insects attack, hence, spraying of Chlorpyrifos @ 1 ml/litre of water is advised.
- In Central and North Eastern Plateau Zone, to control black tip disease of mango ,spraying of boric acid @ 4g per liter of water solution at an interval of 15 days. And if there is attack of anthracnose disease, apply Indofil M- 45@ 2.5 g/liter of water.
- In Western Plateau Zone, irrigate the fruit bearing trees at regular interval. Spray Planofix @ 5 ml per 10 litre of water to check dropping of tiny fruits. Spray sulfex @ 2 gm per litre of water against Powdery mildew disease.
- **Animal Husbandry**
- In interior Odisha and Jharkhand, in view of heat wave condition, grazing/feeding of cattle/goats may be done during morning/evening hours. Keep animals under shade/shed during noon hours and provide plenty of water mixed with minerals for drinking. Also provide balanced feed & adopt vaccination schedule. Make arrangement of curtains and proper ventilation in poultry house.

CENTRAL INDIA [M.P., CHHATTISGARH]

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

- **Advisories:**

- **Madhya Pradesh:**

- As heat wave conditions very likely at isolated places over West Madhya Pradesh on 21st April, apply light and frequent irrigation to the standing crops to cope up with the excess evaporative demand due to heat wave, undertake mulching with straw/polythene to conserve soil moisture.
- In Satpura Plateau Zone, as dry weather would prevail, apply irrigation in moong and urad. Apply irrigation in sugarcane and undertake weeding. Apply irrigation in vegetables in Nimar Valley Zone.
- In Malwa Plateau Zone, continue sowing of cucurbits and okra. Continue sowing of green gram and black gram.
- In Central Narmada Valley Zone, apply irrigation in vegetables and moong. Undertake sowing of amaranthus, lady's finger, bottle gourd, cluster bean and summer radish. Undertake digging of matured tubers of onion.
- In Jhabua Hill Zone, continue nursery preparation of vegetables, sowing of cucurbits and okra. Apply irrigation in cucurbit crops.
- In Grid Zone and Bundelkhand Zone, complete harvesting of matured wheat, mustard and gram. Apply irrigation in moong and vegetables.
- In Vindhya Plateau Zone, continue sowing of urad and moong, cucurbitaceous crops, bhindi and maize. Continue transplanting of vegetables like chilli, tomato, brinjal.
- In Kymore Plateau and Satpura Hill Zone, undertake weeding and intercultural operations in moong and urad followed by irrigation. Apply light irrigation in vegetables.
- In Chhatarpur, Datia, Tikamgarh districts of Bundelkhand Zone, there may be chances of leaf curl disease in chilli and tomato, spray Dimethoate 30 E.C. @ 2 ml per litre of water.

- **Chhattisgarh:**

- In North Hill Zone, as temperature is increasing, apply irrigation in summer rice, sugarcane and summer moong and vegetable crops as per requirement. Continue digging of matured tubers of onion and garlic.
- In Bastar Plateau Zone, continue sowing of summer moong, urad, til, summer vegetables like okra, sponge gourd, cucumber, ridge gourd and bitter gourd. Continue planting of summer sweet potato. Apply last dose of urea in summer rice.
- In Chhattisgarh Plain Zone, apply irrigation in vegetables, summer rice, groundnut and sunflower as per requirement.
- In Bastar Plateau Zone, there are chances of leaf curl disease in lady's finger, cowpea, pumpkin, chilly and tomato, spray Dimethoate 30 EC @ 1-1.5 ml/litre of water.

- **Horticulture**

- In Kymore Plateau and Satpura Hill Zone of Madhya Pradesh, apply irrigation in mango, pomegranate, sapota and citrus orchards.
- In Chhattisgarh Plain Zone, prepare basin around trees of mango, pomegranate and lemon and apply irrigation.

- **Animal Husbandry**

- In West Madhya Pradesh in view of prevailing heat wave conditions, keep animals under shade/shed during noon hours and provide plenty of water mixed with minerals for drinking. Also provide balanced feed & adopt vaccination schedule. For protection of poultry birds from heat, provide curtains from outside the poultry shed and

sprinkle it with water. Apply layer of grass or gunny bags on the roof of poultry shed and sprinkle water on it. Provide fresh and cool drinking water for the poultry birds and chicks. Make arrangement of curtains and proper ventilation in poultry house.

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

- **Realised Rainfall:** Weather remained dry over the region during the week.
- **Advisories:**
 - As thunderstorm accompanied with squall and hail very likely at a few places over Jammu & Kashmir and at isolated places over Himachal Pradesh on 22nd April, use hail net or hail cap for orchard crops and fruit vegetables to protect from mechanical damage, provide support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
 - As thunderstorm accompanied with squall very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi on 21st and 22nd, over Jammu & Kashmir, Himachal Pradesh and West Uttar Pradesh on 21st, over Uttarakhand on 22nd April, provide support to banana, young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds. Keep harvested produce at safer places.
 - As heat wave conditions very likely at a few places over West Rajasthan on 21st and at isolated places on 22nd and heat wave conditions very likely at isolated places over Punjab, Haryana, Chandigarh & Delhi, East Rajasthan and West Uttar Pradesh on 21st April, apply light and frequent irrigation if required to the standing crops to cope up with the excess evaporative demand due to heat wave, undertake mulching with straw/polythene or soil mulching to conserve soil moisture.
 - **Jammu & Kashmir:**
 - As rain/snow likely at many places over Jammu & Kashmir on 22nd April, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops.
 - In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, continue sowing of Mash (Pant U-19, Uttara) and Moong (PDM-54, ML-131, ML 818, PS-16, PS-7) in irrigated areas. Continue harvesting of matured early sown mustard crop and early sown/normal sown matured wheat crop in clear weather.
 - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, continue transplanting of cucurbits (cucumber, bottle gourd, bitter melon, sponge gourd and pumpkin) in low and mid intermediate areas and solanaceous vegetables (tomato, brinjal, chilli and capsicum) in mid and high intermediate areas of the district. Complete sowing of okra, turmeric and French bean at the earliest in clear weather.
 - In Valley Temperate Zone of Jammu and Kashmir, continue transplanting of cucurbits, cole and solanaceous crops. Continue sowing of leafy vegetables and cucurbits in poly houses. Continue planting of potato tubers in clear weather. Undertake land preparation and nursery sowing for summer rice.
 - In Cold Arid Zone of Leh, continue sowing of vegetable seeds under trenches to get early nursery seedlings. Continue harvesting of leafy vegetables (Chinese cabbage, Haenssaag, Palak, mongol and Lettuce) in protected structures.
 - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, weather conditions are favourable for blight on very late sown wheat, take proper plant protection measures to control the above pest/disease if observed in clear weather.
 - **Uttarakhand:**
 - In Udham Singh Nagar district of Bhabar and Tarai Zone, continue harvesting of matured crops like lentil, gram and wheat and barley in the morning. Undertake harvesting of matured pea and sowing of turmeric, ginger and arbi.
 - In Nainital district of Bhabar and Tarai Zone, in mid hilly regions, necessary irrigation should be applied in the plants attained the age 20 days after transplantation and top dressing of Urea should be done in moist soil for the growth of plants in the evening. Irrigation should be given till two days after top dressing. Continue harvesting of wheat and mustard crops in clear weather. In irrigated valley regions, continue sowing of French bean with varieties Arkakomal or Contender. In mid hilly regions, to save the standing crop like rai, cabbage, cauliflower or radish from hail, nylon net should be used. Seedlings of cucumber and chappankaddu, grown in the polyhouse should be transplanted in the main field.
 - In Hill Zone, continue transplanting of tomato, brinjal, capsicum cucurbits in poly houses. Continue sowing of French Bean and okra in High to Mid altitude areas. Continue land preparation in high altitude areas for sowing of pea, French bean, lobia, ginger, turmeric, rajama and potato.
 - In Sub Humid and Sub Tropic Zone of Uttarakhand, continue sowing of sunflower, urad, mung, lobia, fodder maize and elephant grass etc. Intercultural operation in summer vegetables and sugarcane are advised under moist soil condition. Continue sowing of lady's finger, ridge gourd, water melon, etc. Complete the sowing of summer green gram during the month. Continue planting of summer sweet potato.
 - In Udham Singh Nagar district of Bhabar and Tarai Zone, there may be attack of stem and fruit borer in brinjal, spray Emamectin benzoate 5SG @ 200g/ha, Cypermethrin 25 EC @ 200ml/ha, Lambda cyhalothrin 5CS @

300ml/ha and fruit should be used after 5 days of last spraying of chemicals.

▪ **Himachal Pradesh:**

- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, as mainly dry weather would prevail, continue harvesting of matured mustard crop. In lower regions, continue sowing of green gram and black gram, cucurbits crops, early okra, spinach, coriander, fenugreek. Continue sowing moong and mash in irrigated areas. It is optimum time for nursery sowing of tomato, brinjal, chillies and capsicum crops in poly house. Continue intercultural operation in radish, carrot, turnip, palak and methi carrot, broccoli, lettuce. Continue transplanting of young seedlings of tomato, chilli and colecrop. In High hills regions undertake sowing of peas, French bean, Opla, palak, raddish, turnip and carrot in addition to transplanting of cabbage, Cauliflower, brocoli and exotic vegetables.
- In Mid Hills Sub-Humid Zone of Himachal Pradesh, in Solan, Shimla, Bilaspur, Sirmaur districts, apply irrigation twice a day during early morning and evening hrs as the weather will remain dry with low RH to tomato, capsicum, brinjal at seedling growth stage.
- In Mild Hills Sub-Humid Zone of Himachal Pradesh, in Kullu and Mandi districts, continue pruning up to half branch and paste with Chaubatia paints to prevent the infection in apple and per orchards and stone fruits. Continue preparation of tree basins and start pruning by removing diseased and dense unwanted branches etc. in pomegranate orchards. Apply second half dose of Nitrogen i.e. 1Kg. Cal. Nitrate + Urea 500 gm. in full grown trees after fruit set in lower valley areas or spray Urea @ 1.0 kg. in 200 litres of water, where there is dry conditions.
- In High Hills Temperate Dry Zone of Himachal Pradesh, in Kinnaur and Lahaul & Spiti, undertake sowing of peas using 250 kg seed/hectare. Treat the seed with 2.5 g Bavistin per kg of seed to avoid yellowing of the plants which occur at lower stage. Undertake beds preparation for sowing of vegetative nursery in poly house.
- In Mid Hills Sub-Humid Zone of Himachal Pradesh, in Solan, Shimla, Bilaspur, Sirmaur districts, present weather is conducive for attack of fungal disease in pea crop for control, spray Sulfax @ 30 gram or Methyl Dematon @ 15 ml in 15 litres of water.
- In Mild Hills Sub-Humid Zone of Himachal Pradesh, in Kullu and Mandi districts, present weather is conducive for attack of stigmata blight in stone fruit orchards, for control spray Captan @ 600 gm. / Cavach @ 400 g in 200 litres of water after the fruit set.
- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, present weather is conducive for attack of blight in potato and tomato crop, for control spray Carbendazim @ 1.0 gm per litre of water or Dithane-M-45 @ 2.0 gm per litre of water.

▪ **Punjab, Haryana and Delhi:**

- In Western Plain Zone, continue harvesting of matured wheat crop. Undertake land preparation for sowing of cotton.
- In Western Plain Zone of Punjab, complete sowing of summer moong (varieties SML-668 and SML 832) and summer mash (varieties Mash -1008 or Mash-218). Continue harvesting of matured mustard.
- In Undulating Plain Zone of Punjab, continue harvesting of matured wheat crop and complete harvesting of lentil and gram crop.
- Complete sowing of summer moong (varieties SML-668 and SML 832) in Western Zone of Punjab. Undertake transplanting of Chilli in Central and Western Zone of Punjab and irrigate the crop. In Western Zone of Punjab, prepare the field for sowing of Okra. Varieties recommended for sowing are Punjab Padmini, Punjab-7 and Punjab-8.
- In Central Plain Zone of Punjab, continue planting of sugarcane with recommended varieties.
- In Western Zone of Haryana, continue harvesting of matured early sown mustard and wheat crop and apply the irrigation in late sown wheat crop. Undertake sowing of ladyfinger, bottle gourd, cucumber, ridge gourd and summer radish and apply irrigation to planted vegetable crops. Due to possibility of dry weather, prepare the field and sowing of Desi cotton crop (varieties HD 123, HD 324 and HD 432).
- In Eastern Zone of Haryana, undertake planting of spring season sugarcane and harvesting of matured wheat crop.
- In New Delhi, continue sowing of ladies finger- A-4, ParbaniKranti and Arkaanamika cultivars. Seed rates should be 10-15 kilogram per acre. Undertake sowing of French bean, cluster bean, summer radish as present temperature is suitable for germination of seeds. Undertake transplanting of young seedlings of brinjal and chilli. Complete sowing of green gram and black gram. Continue harvesting of matured mustard and wheat. Undertake direct sowing of amaranthus (Pusakiran, Pusalalchaulai), bhindi (A-4, ParbaniKranti and ArkaAnamika), bottle gourd (Pusanaveen, Pusasandesh), hybrid cluster bean (PusaKomal, PusaSukomal) and summer radish (Pusachetki).
- In Undulating Plain Zone of Punjab fruit borer in tomato may be noticed due to favourable weather conditions, spray Indoxcarb 14.5 SC @ 200 ml/acre. Due to congenial weather powdery mildew may appear in mango, spray Karathane @ 500 ml in 500 litre of water.

▪ **Uttar Pradesh:**

- In Central Plain Zone of Uttar Pradesh, continue harvesting of timely sown matured wheat crop, barley crop. Continue sowing of bhindi. Undertake sowing of fodder crops like maize, lobia. Apply irrigation in tomato and

onion crop as per requirement. Complete sowing of mung, bajra. Apply irrigation to timely sown urad crop after 30 to 35 days of sowing as per requirement. Apply first irrigation to maize crop after 20 to 25 days of sowing and to jowar after 20 to 25 days of sowing. Undertake nursery preparation for *kharif* onion. Apply 40 kg Urea in maize and 30 kg urea in multi cutting jowar fodder after 30 days of sowing.

- In Eastern plain Zone of Uttar Pradesh, apply irrigation in sugarcane, summer vegetables, fodder crops and maize crops as per requirement. Undertake summer ploughing in fallow lands for reducing the infestation of weeds and also harmful insect-pest/diseases and to increase the soil moisture retention capacity of the field.
- In Bundelkhand Zone of Uttar Pradesh, complete sowing of urad, mung. Continue sowing of bhindi, cucurbitaceous vegetables and transplanting of tomato, chilli and brinjal. Apply irrigation to spinach, fenugreek, radish, carrot and cabbage, cauliflower, tomato, chilli, brinjal crop as per requirement.
- In Western Plain Zone of Uttar Pradesh, as dry weather forecast and increase in maximum and minimum temperature for the next five days farmers are advised for light irrigation in all vegetable and fodder crops. Irrigation should be done in the morning or evening hours. Apply light irrigation in the mature onion and garlic crops one week before digging.
- In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of red pumpkin beetle in cucurbitaceous crops and fruit borer in tomato crop, for control red pumpkin beetle broadcast Malathion @ 5 %, for control fruit borer, spray Malathion @ 0.1% after plucking of fruit.
- In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of red insects in pumpkin for control spray Endosulfan 20 EC @ 250-300 ml per litre of water.
- In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of leaf hopper in green gram and black gram, for control spray Endosulfan 35 EC @ 1.25 litres per 1000 litres of water.
- In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of grass hopper and hairy caterpillar in sunflower, for control spray Phosphomidan 250 ml or Endosulfan 35 EC @ 1.25 litres in 600 litres of water.

▪ **Rajasthan:**

- In Sub Humid Southern Plain and Aravali Hill Zone, in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts, Due to rise in temperature, transpiration rate will be increased in vegetables, so maintaining for proper moisture, apply irrigation at 5 to 6 days intervals. Undertake deep summer ploughing in vacant field. Undertake sowing of green manuring crops like as daincha, sunhemp etc. for increase the soil fertility.
- In Irrigated North Western Plain Zone, Hanumangarh and Sriganganagar, Undertake field preparation and sowing of Desi cotton. Apply first irrigation in sugarcane crop at 45 days of sowing.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, Looking into the rise in temperature farmers are advised to irrigate their summer vegetables & infants fruit plants as per requirement. Undertake deep summer ploughing just after harvesting of *rabi* crops to control insects, disease, nematode attack. This will also help in conserving rainfall insitu.
- In Jaisalmer and Bikaner districts of Arid Western Plain Zone, continue harvesting of matured *rabi* crop like wheat, barley, gram, cumin, isabgol etc. Undertake sowing of fodder sorghum, pearl millet, cowpea.
- In Barmer, Churu, Jalore, Jodhpur, Pali districts of Arid Western Plain Zone, undertake land preparation for sowing of cotton.
- In Alwar, Bharatpur, Dhauipur, Karauli, Sawaimadhapur districts of Flood Prone Eastern Plain Zone, undertake transplanting of 15 cm seedlings of tomato at 60 cm x 45 cm spacing in ridges during evening time. Apply light irrigation after transplanting.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing dry weather condition is congenial for attack of mosaic virus in summer Okra, for control spray Malathion 50 EC @ 1.0 ml per litre of water.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of termite in standing onion crop, for control, spray Chlorpyrifos 25 EC @ 4 litre per hectare.
- In Irrigated North Western Plain Zone, Hanumangarh and Sriganganagar, prevailing weather condition is congenial for attack of early stem borer in sugarcane crop, for control broadcast Furedon 3% @ 6 kg or Foret 10% @ 4 kg per bhiga.

• **Horticulture**

- In Irrigated North Western Plain Zone, Hanumangarh and Sriganganagar, prevailing weather condition is congenial for fruit drops in kinnow orchards, for control spray Propineb 70 WP @ 2 gm per litre of water along with Gibberlic Acid @ 20 mg.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing weather condition is congenial for attack of mango hopper attack on mango plants, for control spray Malathion 50 EC @ 1.0 ml per litre of water.
- In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of premature fruit drop in mango, for control spray Naphthalene acetic acid @ 20g in 1 litre of water or spray Plenifix @ 5 ml per 10 litres of water. In Eastern plain Zone and Bundelkhand Zone of Uttar Pradesh, apply irrigation in aonla, banana, ber,

- guava and papaya etc as per requirement.
- In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of leaf spot or leaf rot in banana, for control spray Bavistine or Carbendazim @ 1 gm per litre of water.
 - In Bhabar and Tarai Zone of Uttarakhand, on severe occurrence of powdery mildew in mango, spraying of wettable Sulphur @ 2g/litre or Carathin @ 6ml/10litre should be done as per recommendation.
- **Floriculture**
 - In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts of Himachal Pradesh, for inflorescence rotting disease in marigold crops spray Bavistin @ 1 gram per litre or Indofil-M 45 @ 2 ml per litre of water. The flowers affected with aphids, for control spray Malathion @ 0.05%.
 - In Valley Temperate Zone of Jammu and Kashmir, this is the ideal time for planting bare-rooted rose plants. Start preparation of land for sowing seeds of herbaceous perennials.
- **Apiculture**
 - In Himachal Pradesh, the winter packing may be taken away as the temperature is rising. The weak apiary should be given artificial food, also insert empty frame/combs for egg laying to the queen as the population starts building up. Dust sulphur on sealed brood in the colony and not on larvae to control mites attack on honeybees.
 - In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, for protection from ants, keep the leg of apiary in water so that ants could not attack the apiary.
- **Animal Husbandry**
 - In Rajasthan, Punjab, Haryana, Chandigarh & Delhi and West Uttar Pradesh, in view of prevailing heat wave conditions, keep animals under shade/shed during noon hours and provide plenty of water mixed with minerals for drinking. Grazing /feeding of cattle/goats may be done during morning/evening hours. Also provide balanced feed & adopt vaccination schedule.
 - In Himachal Pradesh, monitor the animals for FMD and advised Vaccination. Ecto-parasite attack is expected in this weather, for control, spray Butox @ 2ml per litre in cow shed and give mixture of hay & green fodder. Protect the animals from ticks by spraying Cypermethrin @ 2 to 2.5 ml per litre of water.
- **Fishery**
 - In Himachal Pradesh, fish seed, stockings should be put in newly constructed/ renovated fish ponds having 6 feet depth. Water depth of atleast 5 feet should be maintained in order to rear all the three types of fish viz., mirror carp, grass carp and silver carp. The rate of stocking recommended for this zone is 15,000 fingerlings per ha with artificial feeding. It is good to stock the ponds with fingerlings of 40-60 mm size for better survival and high production. It is better to stock the pond after 15 days of manuring in early hours of day or in the evening. The cloudy day or warmer part of day is to be avoided for stocking.
- **Poultry**
 - In Himachal Pradesh, as temperature is rising, so ensure proper ventilation in poultry houses. Replace the poultry houses with fresh litter and keep the houses clean and ensure drinking water to the birds. Normal feeding schedule should be continued. For precautionary measures spray Formaline 40% @ 1litre in 9 litres of water in outside or surrounding of farm.
 - In Rajasthan, for protection of poultry birds from heat, provide curtains from outside the poultry shed and sprinkle it with water. Apply layer of grass or gunny bags on the roof of poultry shed and sprinkle water on it. Provide fresh and cool drinking water for the poultry birds and chicks. In poultry, there is a probability of drop in feed intake, drop in egg weight and shell quality deterioration in poultry birds; maintain optimum temperature between 18 to 29°C in poultry shed for better egg production.

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