



National Agromet Advisory Service Bulletin



Thursday 13th April 2017
(For the period 13th to 18th April 2017)

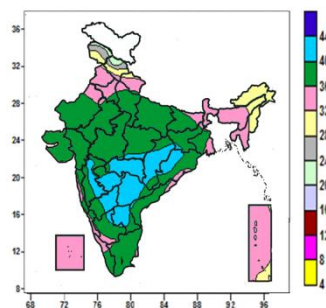


Issued by
National Agrometeorological Advisory Service Centre,
Agricultural Meteorology Division,
India Meteorological Department, Shivajinagar, Pune.

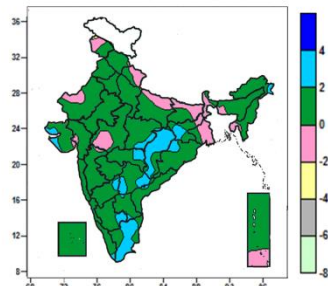
Weblink For
District AAS Bulletin: <http://www.imdagrimet.gov.in/node/3545>
State Composite AAS Bulletin: <http://www.imdagrimet.gov.in/node/3544>

Contour maps for Mean Maximum and Minimum Temperature and their anomaly for the week ending on 12.04.2017

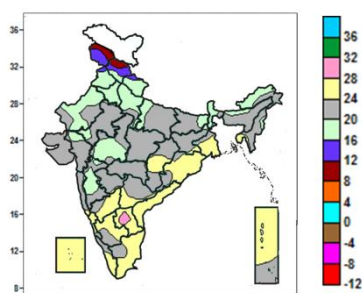
Actual Mean Maximum Temperature (°C) in India for the week ending 12.04.2017



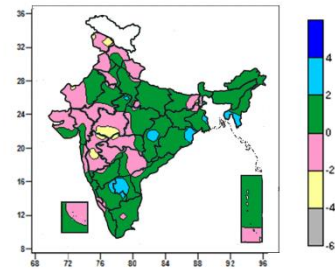
Mean Maximum Temperature (°C) Anomaly in India for the week ending 12.04.2017



Actual Mean Minimum Temperature (°C) in India for the week ending 12.04.2017

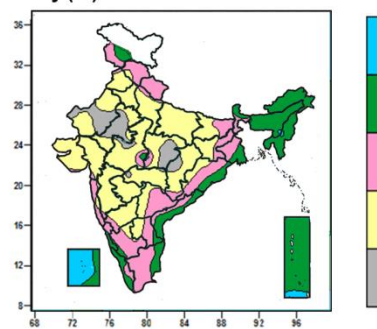


Mean Minimum Temperature (°C) Anomaly in India for the week ending 12.04.2017

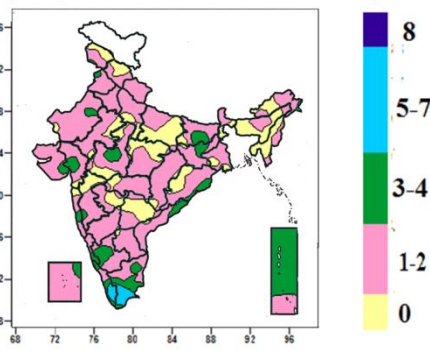


Contour maps for Relative Humidity, Cloud amount and Wind speed for the week ending on 12.04.2017

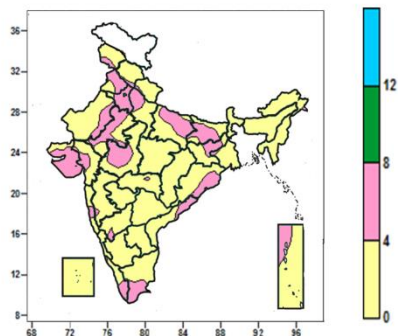
Relative Humidity (%) over India for the week ending 12.04.2017



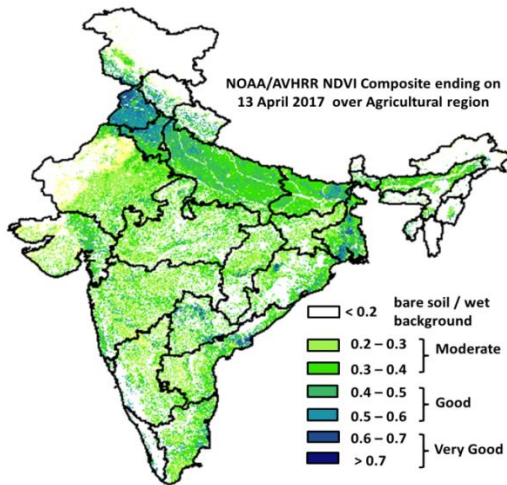
Cloud amount (okta) over India for the week ending 12.04.2017



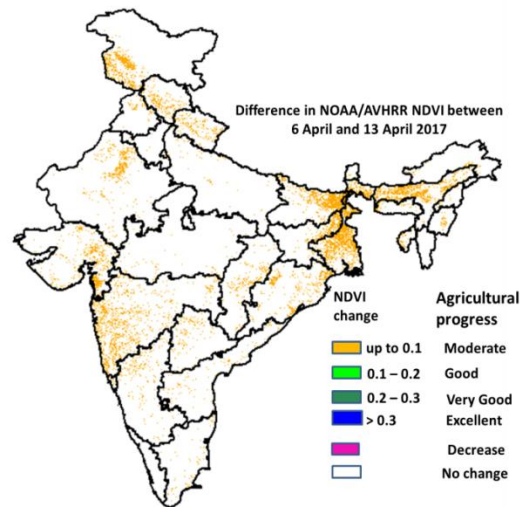
Wind speed (knots) over India for the week ending 12.04.2017



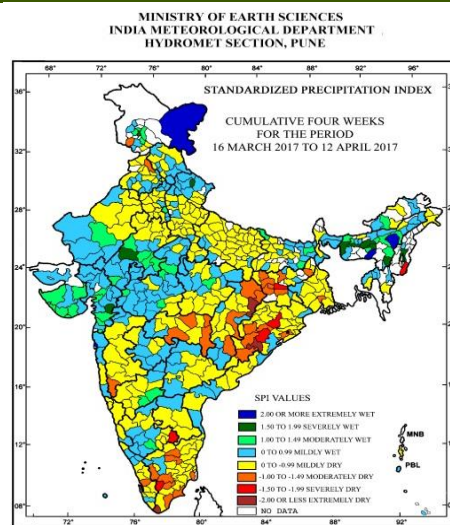
NOAA/AVHRR NDVI composite ending on 13th April 2017 over Agricultural regions of India



Difference in NOAA/AVHRR NDVI between and 6th and 13th April 2017



**Standardised Precipitation Index
Four Weekly for the period 16th March to 12th April 2017**



Weather Forecast for next 5 days valid upto 0830 hours of 18th April 2017

- No significant change in maximum temperature over northwest, central and east India during next 2-3days.

Weather Warning during next 5 days

- 13 April (Day 1):** Thunderstorm accompanied with squall very likely at isolated places over Assam & Meghalaya. Thunderstorm accompanied with gusty winds very likely at isolated places over Andaman & Nicobar islands, south coastal Karnataka and Kerala. Heat wave conditions very likely at many places with severe at a few places over Saurashtra & Kutch. Heat wave conditions very likely at many places over West Rajasthan and at a few places over Gujarat region. Fishermen are advised to be cautious while venturing into the sea along and off Andaman & Nicobar Islands.
- 14 April (Day 2):** Thunderstorm accompanied with squall very likely at isolated places over Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura. Heat wave conditions very likely at many places with severe at a

few places over Saurashtra & Kutch. Heat wave conditions very likely at many places over West Rajasthan; at a few places over Gujarat region and at isolated places over Haryana and East Rajasthan. Heavy to very heavy rainfall very likely at a few places over Andaman & Nicobar Islands. Fishermen are advised not to venture into the sea along and off Andaman & Nicobar Islands.

- **15 April (Day 3):** Thunderstorm accompanied with squall very likely at isolated places over SubHimalayan West Bengal & Sikkim, Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura. Heat wave conditions very likely at many places over West Rajasthan; at isolated places over Punjab, Haryana, East Rajasthan and Saurashtra & Kutch. Heavy rainfall at a few places with very heavy rainfall at isolated places very likely over Andaman & Nicobar islands. Fishermen are advised not to venture into the sea along and off Andaman & Nicobar Islands.
- **16 April (Day 4):** Heat wave conditions very likely at isolated places over Saurashtra & Kutch. Heavy rainfall very likely at isolated places over Andaman & Nicobar Islands. Fishermen are advised not to venture into the sea along and off Andaman & Nicobar Islands.
- **17 April (Day 5):** No Weather Warning.

Weather Outlook for subsequent 2 days from 18th to 20th April 2017

- Rain/thundershower likely at most places over Andaman & Nicobar Islands and at isolated places over extreme south peninsula and northeastern states.

**Meteorological sub-division wise detailed 5 day rainfall forecast (Mid day)
13th April 2017**

Met-Sub-Division	13 Apr	14 Apr	15 Apr	16 Apr	17 Apr
1. Andaman & Nicobar Islands	FWS	WS	WS	WS	FWS
2. Arunachal Pradesh	ISOL	ISOL	FWS	SCT	DRY
3. Assam & Meghalaya	ISOL	ISOL	SCT	SCT	ISOL
4. N. M. M. & T.	DRY	ISOL	ISOL	ISOL	ISOL
5. S.H. West Bengal & Sikkim	ISOL	ISOL	SCT	ISOL	ISOL
6. Gangetic West Bengal	ISOL	DRY	ISOL	DRY	DRY
7. Orissa	DRY	DRY	DRY	ISOL	ISOL
8. Jharkhand	DRY	DRY	DRY	DRY	DRY
9. Bihar	DRY	ISOL	ISOL	DRY	DRY
10. East Uttar Pradesh	DRY	DRY	DRY	DRY	DRY
11. West Uttar Pradesh	DRY	DRY	DRY	DRY	DRY
12. Uttarakhand	DRY	DRY	DRY	DRY	DRY
13. Haryana, Chd & Delhi	DRY	DRY	DRY	DRY	DRY
14. Punjab	DRY	DRY	DRY	DRY	DRY
15. Himachal Pradesh	DRY	ISOL	DRY	DRY	DRY
16. Jammu & Kashmir	ISOL	ISOL	DRY	DRY	DRY
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. Gujrat 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. Vidharbha	DRY	DRY	DRY	DRY	DRY
27. Chhattisgarh	DRY	DRY	DRY	DRY	DRY
28. Coastal Andhra Pradesh	DRY	DRY	DRY	ISOL	ISOL
29. Telangana	DRY	DRY	DRY	DRY	DRY
30. Rayalaseema	DRY	DRY	DRY	DRY	DRY
31. Tamilnadu & Puducherry	ISOL	ISOL	ISOL	ISOL	ISOL
32. Coastal Karnataka	DRY	DRY	DRY	DRY	DRY
33. North Interior Karnataka	ISOL	DRY	DRY	DRY	DRY
34. South Interior Karnataka	ISOL	ISOL	ISOL	DRY	DRY
35. Kerala	ISOL	ISOL	ISOL	ISOL	ISOL
36. Lakshadweep	DRY	DRY	DRY	DRY	ISOL

% 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 a **low pressure area** is likely to form over southeast Bay of Bengal & neighbourhood during next 24 hours and likely to concentrate gradually in to a **depression** during subsequent 48 hours over east central Bay of Bengal & neighbourhood, fishermen are advised to be cautious while venturing into the sea along and off Andaman & Nicobar Islands on 13th and not to venture into the sea from 14th to 17th April.
- As rain/thundershowers likely at most/many places over **Andaman and Nicobar Islands** during the period along with heavy/ heavy to very heavy rainfall at a few places from 14th to 16th April, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields.
- As thunderstorm accompanied with gusty winds very likely at isolated places over **Andaman and Nicobar Islands, south Coastal Karnataka and Kerala** on 13th 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 heat wave conditions very likely at many places with severe heat wave at a few places over **Saurashtra & Kutch** on 13th & 14th and heat wave conditions very likely at many places over **West Rajasthan** and at a few places over **Gujarat region** on 13th & 14th, heat wave conditions very likely at isolated places over **Haryana and East Rajasthan** on 14th & 15th April, over **Punjab** on 15th and **Saurashtra & Kutch** on 15th & 16th 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.
- As thunderstorm accompanied with squall very likely at isolated places over **Assam & Meghalaya and Nagaland, Manipur, Mizoram & Tripura** from 13th & 15th and over **Sub Himalayan West Bengal & Sikkim** on 15th 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.

Advisory for livestock under heat wave/ high Temperature condition

- In view of prevailing heat wave/severe heat wave conditions in **Rajasthan, Saurashtra & Kutch and Gujarat region**, 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 Cannur, Kottayam, Kollam, Kozhikode, Pathanamthitta and Wynad districts of Kerala, Dakshin Kannada district of Coastal Karnataka and Kodagu, Mandya and Mysuru districts of South Interior Karnataka. Weather remained mainly dry/dry over rest of the region during the week.
 - **Advisories:**
 - As thunderstorm accompanied with gusty winds very likely at isolated places over **south Coastal Karnataka and Kerala** on 13th 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.

▪ **Andhra Pradesh:**

- 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 and continue harvesting of maize and ragi.
- 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 Krishna Godavari Zone, present weather may enhance incidence of powdery mildew in black and green gram. If intensity is more, spray tridimorph @ 1 gram or belaton @ 1 gram per liter of water.
- In the Southern Zone, prevailing dry weather condition is congenial for incidence of early shoot borer in sugarcane. To control go for frequent irrigation at regular intervals and spray Chloripyriphos @ 2.5 ml/litre of water.

▪ **Telangana:**

- In North Telangana Zone, as dry weather would prevail, apply irrigation to rice(flowering to maturity stage) and to sunflower at seed filling stage.
- In North Telangana Zone, spray Dichlorvos @ 1 ml + Chlorpyriphos @ 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, due to prevailing high maximum and minimum temperature and low humidity, provide irrigation to all irrigated crops including coconut. Provide support to five months and above banana crop.
- In the North Western Zone, protect coconut trees from prevailing drought by following drip irrigation (40 litres/day/tree).Undertake mulching by spreading coconut husk 100 numbers/tree or dry coconut fronds (15 numbers) or coir pith to about 10 cm height around the base of the tree to conserve moisture.
- In the High Altitude HillyZone, 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 Karaikal& Pondicherry, to control wilt and root rot disease in vegetables, drench the soil with Carbendazim + Iprodione @ 1 g/ litre of water at the base of the diseased plant as well as around the healthy plant so as to wet 10-15cm depth of soil.

▪ **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 Southern Zone, in Kollam district, undertake land preparation for pulses in rice fallows.
- 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 Central Zone, there is chance for red palm weevil in small coconut trees. As a control measure, mix Imidachloprid @ 1 ml/ litre of water and pour on its crown.

▪ **Karnataka:**

- In the Eastern and Southern Dry Zone, undertake mulching with crop residues for soil moisture conservation in mango orchard.
- In North East Transition Zone, provide protective irrigation to standing crops which is suffering from soil moisture stress.
- 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.
- In Southern Transition Zone, maintain optimum water level in rice field. Continue sowing of ginger/turmeric and harvesting of matured arecanut and coconut.
- In Hill Zone, in view of increasing temperature, provide irrigation to arecanut, coconut and black pepper gardens either in furrows or by drip irrigation. Each coconut tree requires 60-70 litres of water per day.

- In the Eastern Dry Zone, due to continuous dry spell, fruit drop is observed mango due to lack of moisture stress. Wherever possible drip irrigation is recommended to improve the fruit set, size and quality. Mango fruit drop can be controlled by spraying spraying of NAA (Naphthalene Acetic Acid) at 20ppm twice at an interval of 15 days.
- **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 the Southern Zone of Andhra Pradesh, as there is high temperature forecast, protect birds of all ages and save cattle and goats from high temperature and heat waves by arranging foggers and sprinklers, provide light and ventilation in the sheds along with cool water for drinking, arrest the ammonia smell in the sheds by arranging fans and coolers.
- In the Southern Zone of Tamil Nadu, in order to mitigate the effect of high temperature on animals, provide adequate cool drinking water and green fodder and spray water on gunny bags surrounding the cattle shed.

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

- **Realised Rainfall:** Rainfall occurred in all districts of Arunachal Pradesh except Papumpare, Tawang, Upper Subansari, West Kameng, all districts of Assam except Baksa, Dhemaji, Golaghat, Kamrup (Metro), Karbi Anglong, Kokrajhar, Lakhimpur, N.C.Hills, Nagaon, Sonitpur, Udalgiri, in East Khasi Hills, South Garo Hills, West Garo Hills districts of Meghalaya, Imphal West district of Manipur, Wokha district of Nagaland, all districts of Tripura except South Tripura. Weather remained mainly dry/dry over rest of the region during the week.
- **Advisories:**
 - As thunderstorm accompanied with squall very likely at isolated places over **Assam & Meghalaya** and **Nagaland, Manipur, Mizoram & Tripura** from 13th & 15th 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.
 - **Assam, Meghalaya & Arunachal Pradesh:**
 - As rain/thundershowers likely at many places over **Arunachal Pradesh** on 15th April, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in standing crop fields.
 - 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 and nursery sowing of *jhum* rice. Undertake transplanting of *jhum* rice.
 - In North Bank Plain Zone of Assam, continue sowing of *bae* rice in flood affected low lying area and planting of sugarcane, banana and sowing of maize. Complete planting of ginger and turmeric.
 - In Barpeta, Bongaigaon, Dhubri and Goalpara districts of Lower Brahmaputra Valley Zone of Assam, continue nursery sowing of summer rice (early *ahu*).
 - In Hill Zone of Assam, continue transplanting of normal *ahu* rice and replanting of dead hills may be done within 7-10 days of transplanting. Continue sowing of summer vegetables, summer green gram and black gram. Continue land preparation for sowing of maize.
 - In Upper Brahmaputra Valley Zone of Assam, complete sowing of *bae* rice and planting of sugarcane. Undertake planting of banana, guava and mango.
 - In Central Brahmaputra Valley Zone of Assam, continue sowing of summer green gram and black gram and land preparation and sowing of summer vegetables and Capsularis jute/Olitorius jute and planting of ginger and turmeric. Continue land preparation for sowing of *bae* rice. Continue harvesting of matured crop of wheat and *rabi* pulses.
 - In Meghalaya, continue nursery raising of brinjal and transplanting of tomato. Continue planting of ginger and spring potato. Continue 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.
 - In Arunachal Pradesh, spray Triazophos 40EC @ 4 ml/litre against stem borer attack in rice nursery as well as in the main fields on non rainy day.
 - **Nagaland, Manipur, Mizoram and Tripura:**
 - In Nagaland, continue sowing of okra and green gram. Continue land preparation and sowing for upland rice. Undertake sowing of cucurbits crops, transplanting of brinjal and harvesting of tomato.
 - In Manipur, maintain 5-8 cm of water level after 3-4 days of transplanting of Pre-kharif rice and continue planting of ginger, turmeric and bhindi. Continue main land preparation for main *kharif* rice and *kharif* maize.
 - In Mizoram, continue sowing of maize (*jhum*), okra, cow pea and planting of ginger and turmeric. Continue harvesting of potato and onion. Undertake nursery sowing of pre-*kharif* rice.
 - In Tripura, undertake land preparation of *jhum* rice.

- In Manipur, to control the infestation of leaf minor in onion/garlic, spray Dichlorovos 36 EC @ 0.5ml/litre of water or Monocrotophos 76EC @ 1ml/litre of water to protect the crop from infestation.
- In Tripura, in the present weather condition, there is chances of attack of Yellow Stem Borer in *boro* rice at panicle initiation. Apply Thiomethoxam @ 1ml per 10 litre of water.
- **Animal Husbandry**
- In Assam, Meghalaya, Nagaland, Manipur, Mizoram & Tripura, 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.
- In Tripura, 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:**
 - In Konkan, as dry weather is prevailing, undertake harvesting of early maturing variety of rice. Undertake harvesting of finger millet, cowpea, kulthi and wal crops and okra, leafy vegetables and water melon. In transplanted *rabi* rice (grain filling), maintain water level up to 8-10 cm, by applying at 4-5 days interval. Apply protective irrigation for alphonso mango @ 150 to 200 lit. of water at 10 days interval to reduce fruit drop and increase the size of fruits. If immature fruit drops of sapota are observed, spray combined fungicides of (Metalxyl-M 8% + Mancozeb 64%) @ 0.2% i.e. 20 g per 10 lit. of water on whole plant canopy
 - 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 the high temperature reduce the intervals between two irrigation schedule & irrigation should be given at evening. To take the *Mrig bahar* in orange, citrus, pomegranate orchards by giving water stress to plants. Considering the present dry weather and rise in temperature the mango plants should be given irrigation @ 150 to 200 litres of water per plant at an interval of 15 days. Newly planted mango saplings should be protected from bright sunshine by providing shade to it. Start April pruning in grape orchards.
 - In Marathwada, as dry weather is prevailing apply irrigation in vegetables through micro irrigation system i.e. drip or sprinkler method. The crops should be irrigated during early morning, evening or at night to avoid loss of water by evaporation. Apply mulch in vegetable crops and orchards for soil moisture conservation. Also Apply irrigation to orchards like pomegranate, sapota and citrus. As dry weather is prevailing, continue harvesting of chickpea and turmeric rhizomes.
 - In Vidarbha, as dry weather is prevailing, continue harvesting of okra. In summer sesame, weeding should be carried out after 2 weeks of sowing and after 30 to 35 days of sowing to conserve soil moisture. Apply irrigation to summer groundnut, vegetables, sugarcane and mango orchards. Maintain water level of 5-7 cm in summer rice field in East Vidarbha.
 - In Marathwada, due to increase in temperature and water scarcity attack of stem borer may observed in sugarcane crop. Use 2 to 3 Tricocards (*Tricodermma chilonis*) per acre. Irrigate the crop by using drip irrigation method only.
 - **Gujarat:**
 - As heat wave conditions very likely at many places with severe heat wave at a few places over **Saurashtra & Kutch** on 13th & 14th and heat wave conditions very likely at a few places over **Gujarat region** on 13th & 14th, heat wave conditions very likely at isolated places over **Saurashtra & Kutch** on 15th & 16th 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 North Saurashtra Zone of Gujarat, in view of prevailing heat conditions, apply irrigation in vegetable crops and fodder crops at regular intervals.
 - In North Gujarat Zone and North West Zone of Gujarat, in view of the high temperature condition, reduce the interval between two irrigations in standing crops. Carry out weeding and inter cultural operations to conserve soil moisture.
 - In South Gujarat Heavy Rainfall Zone, maintain 3-5cm water level in transplanted rice field. Apply irrigation in summer groundnut and pulses.
 - In South Gujarat Zone, as there is an increase in temperature, to irrigate the summer vegetable crops, with the intervals of ten to twelve days. To control of water evaporation from sugarcane field to spread dry leaves of sugarcane in between to row of sugarcane.
 - 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 Lemda Cyhelothrin @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 view of prevailing heat wave/severe heat wave conditions in Saurashtra & Kutch and Gujarat region, 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.
- 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.

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

- **Realised Rainfall:** Rainfall occurred in Nicobar district of Andaman & Nicobar Islands, East and North Sikkim districts of Sikkim, Banka district of Bihar, during the week and weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - **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 Eastern Coastal Plain Zone, stem borer attack has been widely noticed on rabi rice. Use pheromone trap @ 20-25 no. per hectare to notice it's population. Apply Fipronil or Triazophos @ 2ml/litre when pest population reaches at ETL level.
 - In North Eastern Coastal Plain Zone, due to fluctuation in temperature, white fly population has considerably increased leading to appearance of YMV disease in pulses. Destroy the YMV affected plants and spray Thiomethoxam @ 70g/acre to control whitefly population.
 - In East and South Eastern Coastal Plain Zone, summer pulses are at 2 to 3 weeks stage. YMV infestation has been found. Spray 20 ml Rogor/10 litre water to control the white fly. The increased temperature may aggravate the infestation of leaf eating caterpillar and spray Chloropyriphos 2 ml/litre of water to control it.
 - 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 apihds crosses the ETL.
 - In North Central Plateau Zone, The present weather condition favours infestation of white fly, leaf hopper and thrips in blackgram and greengram. Spray Thiomethoxam @ 1g/3l of water if the infestation crosses the ETL.
 - **West Bengal:**
 - As thunderstorm accompanied with squall very likely at isolated places over **Sub Himalayan West Bengal & Sikkim** on 15th April, provide support to young fruit plants and staking in vegetables to prevent the crops from lodging due to strong winds
 - In the New Alluvial Zone, continue land preparation for jute cultivation.
 - In the Hill Zone, as mainly dry weather would prevail, apply irrigation in standing crop as per the requirement. 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 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/liter of water.
 - **Andaman and Nicobar Islands:**
 - As a **low pressure area** is likely to form over southeast Bay of Bengal & neighbourhood during next 24 hours and likely to concentrate gradually in to a **depression** during subsequent 48 hours over east central Bay of Bengal & neighbourhood, fishermen are advised to be cautious while venturing into the sea along and off Andaman & Nicobar Islands on 13th and not to venture into the sea from 14th to 17th April.
 - As thunderstorm accompanied with gusty winds very likely at isolated places over Andaman and Nicobar Islands

on 13th 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 rain/thundershowers likely at most/many places over Andaman and Nicobar Islands during the period along with heavy/heavy to very heavy rain very likely at a few places on 14th to 16th April, postpone irrigation, intercultural operation and application of plant protection measures and fertilizers to the standing crops. Provide adequate drainage in vegetables and other standing crop fields.
- In Nicobar Islands, make basin around the coconut and arecanut tree to harvest rain water.
- **Bihar:**
 - In North East Alluvial Zone of Bihar, maintain minimum 2-3 inch water in the boro rice fields. Undertake sowing of Jute crop. Give irrigation in onion crop at a regular interval of 10-12 day.
 - In North West Alluvial Plain Zone of Bihar, in view of dry and clear weather, undertake harvesting of matured wheat, pigeon pea and rabi maize crops. Provide irrigation in summer maize, sunflower, fodder crop and vegetables such as lady's finger, pumpkin, cucumber, sponge gourd, onion etc in evening time.
 - 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.
 - Present temperature conditions are conducive for incidence of powdery mildew disease in cucurbitaceous crops in South Bihar Alluvial Zone; if symptoms are noticed, spray Carbendazim @ 1 g per litre of water. Also in present weather condition, constant monitoring against attack of thrips is advised in timely sown onion crop in South Bihar Alluvial Zone; if population is more, spray Carbaryl @ 2 g per litre of water with sticky material (Tipol @1.0 g/litre).
- **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 Gangetic West Bengal, interior Odisha and Jharkhand, 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:**
 - In Satpura Plateau Zone, as dry weather would prevail, apply irrigation in moong and urad.
 - In Malwa Plateau Zone, apply irrigation and keep optimum moisture in late sown wheat crop at grain filling stage. Continue sowing of cucurbits and okra. Continue sowing of green gram and black gram.
 - 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, continue harvesting of matured wheat, mustard and gram. Apply irrigation in moong and vegetables.
 - In Vindhya Plateau Zone, continue harvesting of matured gram, mustard and wheat crops. 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, continue harvesting of matured timely sown wheat crop and chickpea. Continue sowing of moong and urad in irrigated areas.
 - 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, complete harvesting of matured wheat. As temperature is increasing, apply irrigation in summer rice, sugarcane and summer moong and vegetable crops as per requirement. Continue intercultural operations in cucurbits. Undertake digging of matured tubers of onion and garlic.
- In Bastar Plateau Zone, as temperature conditions are favourable, continue sowing of summer moong, urad, til, summer vegetables like okra, sponge gourd, cucumber, ridge gourd watermelon, muskmelon and bitter gourd. Continue planting of summer sweet potato.
- In Chhattisgarh Plain Zone, continue harvesting of matured wheat. Complete sowing of summer green gram. Apply irrigation in one month old transplanted vegetables and summer rice crops as per requirement.
- In North Hill Zone, farmers are advised to fix pheromone traps and light traps in the fields for the control of stem borer in summer paddy.

• **Horticulture**

- In Vindhya Plateau Zone and Bundelkhand Zone of Madhya Pradesh, apply irrigation in mango orchards.
- In Chhattisgarh Plain Zone, apply irrigation in banana, papaya and mango orchards.

• **Animal Husbandry**

- In Madhya Pradesh, provide green fodder, clean and fresh water to cattle 3-4 times a day.
- In Chhattisgarh, provide plenty of clean drinking water to animals and keep them in shaded place during noon hours.

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

- **Realised Rainfall:** Rainfall occurred in all districts of Himachal Pradesh except Kangra, Sirmaur, Solan, Una, all districts of Jammu & Kashmir except Samba, all districts of Uttarakhand except Champawat, Garwhal Tehri, Nainital and Udham Singh Nagar, in Faridkot district of Punjab during the week and weather remained mainly dry/dry over rest of the region.
- **Advisories:**
 - As heat wave conditions very likely at many places over **West Rajasthan** on 13th & 14th, heat wave conditions very likely at isolated places over **Haryana** and **East Rajasthan** on 14th & 15th April, over **Punjab** on 15th 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.
 - **Jammu & Kashmir:**
 - In Jammu, Kathua, Samba and Reasi districts of Sub Tropical Zone, utilizing the realized rainfall, undertake sowing of Mash (var.) Pant U-19, Uttara and Moong (var.) PDM-54, ML-131, ML 818, PS-16, PS-7 in irrigated areas. As mainly dry weather would prevail, continue harvesting of matured early sown mustard crop.
 - In Rajouri, Ramban, Poonch and Udhampur districts of Intermediate Zone, undertake transplanting of cucurbits (cucumber, bottle gourd, bitter gourd, 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.
 - In Valley Temperate Zone of Jammu and Kashmir, continue sowing of cole and solanaceous crops. Continue sowing of leafy vegetables and cucurbits in poly houses. Continue planting of potato tubers in clear weather.
 - 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, yellow rust on normal sown wheat, take proper plant protection measures to control the above pest/disease if observed.
 - **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.
 - In Nainital district of Bhabar and Tarai Zone, continue transplanting of tomato, capsicum and brinjal in the main fields in the valley region. Continue harvesting of wheat and mustard crops in clear weather. Apply top dressing of urea to 20-25 days of germinated crop of potato and cover them with the soil. 8-10 cm thick layer of mulch for moisture conservation. In irrigated valley regions, undertake sowing of French bean with varieties Arkakomal or Contender.
 - In Hill Zone, continue transplanting of chilli, tomato and brinjal 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, urd, mung, lobia, fodder maize and elephant grass etc. Intercultural operation in summer vegetables and sugarcane are advised under moist soil

condition. Undertake sowing of lady's finger, ridge gourd, water melon, etc.

- In Udham Singh Nagar district of Bhabar and Tarai Zone, there may be attack of fruit borer in tomato, spraying of Chlorantraniliprole 18.5 SC @ 150ml/Ha and Indoxacarb 14.5 SC @ 500ml/ha is advised 3 to 5 days before harvesting.

▪ **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 sowing of French bean, cluster bean, summer radish as present temperature is suitable for germination of seeds. Continue transplanting of young seedlings of tomato, chilli and cole crop.
- In Mid Hills Sub-Humid Zone of Himachal Pradesh, in Solan, Shimla, Bilaspur, Sirmour districts, summer vegetables onion, garlic at vegetative stage, undertake hoeing and weeding operation in garlic and onion. Undertake transplanting of tomato and capsicum in the main field.
- 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.
- In High Hills Temperate Dry Zone of Himachal Pradesh, in Kinnaur and Lahaul & Spiti, present weather is conducive for scab in apple plants, spray Captan @ 600 gm per 200 litres or Dodine @ 200 gm per 200 litres of water.
- 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.
- In Sub-Montane and Low Hills Sub-Tropical Zone, in Una, Hamirpur, Kangra and Chamba districts, present weather is conducive for attack of leaf feeders in cole crop and downy mildew in cruciferous vegetables, for control leaf feeders in cole crop, spray Spinosad @ 1 ml per 3 litres of water and for control of downy mildew in cruciferous vegetables spray Ridomil M-Z @ 25 g per litre of water at 15 days of interval.

▪ **Punjab, Haryana and Delhi:**

- In Western Plain Zone, as dry weather would prevail, 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.
- 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 Western Zone of Haryana, continue harvesting of matured early sown mustard 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, Parbani Kranti 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.
- In Delhi, monitor timely sown onion crop against attack of thrips, spraying of Carbaryl @ 2 grams per litre of water with sticky material (Tipol 1.0 gram /litre) and control shoot and fruit borer in brinjal and tomato crops, if pest population is high, spray Spinosad 48 EC @ 1 ml /4 litres of water.
- Due to dry and variable weather condition monitor wheat crop regularly against attack of yellow rust in Western Zone of Haryana, if symptom observed spray 200 ml Tilt 25% EC (Propiconazole 25% EC) in 200 liter water per acre.

▪ **Uttar Pradesh:**

- In Central Plain Zone of Uttar Pradesh, as dry weather would prevail, continue harvesting of timely sown matured wheat crop, barley, pea, gram, arhar crop. Continue sowing of bhindi. Complete sowing of mung, bajra. Apply first irrigation to maize crop at 20 to 25 days of sowing and in jowar at 20 to 25 days of sowing. Undertake nursery preparation of kharif onion.
- In Eastern plain Zone of Uttar Pradesh, as dry weather is forecasted during the week, farmers are advised to continue harvesting and threshing of matured wheat crop.

- In Bundelkhand Zone of Uttar Pradesh, continue harvesting of matured mustard, linseed, gram, pea crops. Continue sowing of bhindi, cucurbitaceous vegetables and transplanting of tomato, chilli and brinjal.
- In Western Plain Zone of Uttar Pradesh, in view of increasing temperature farmers are advised to apply light irrigation to wheat crop at milking and grain filling stage and vegetable crops as per requirement. Undertake transplanting of onion.
- In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of stem borer in bhindi, for control spray Endosulfan 35 EC @ 2 ml per litre of water.
- In Central Plain Zone of Uttar Pradesh, due to prevailing weather condition, there may be chances of attack of thrips or white fly in urad crop, for control, spray Methyle-O-Demeton 25 EC @ 1 litre or Dimethoate 30 EC @ 1 litre in 600 to 700 litres of water per ha.
- 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, for control, broadcast Malathion @ 5 %.
- **Rajasthan:**
- In Sub Humid Southern Plain and Aravali Hill Zone, in Bhilwara, Chittorgarh, Rajsamand, Sirohi and Udaipur districts, apply irrigation in summer groundnut crop at pegging stage and in vegetable crops. Continue harvesting of matured timely sown wheat crop and barley crop.
- In Irrigated North Western Plain Zone, Hanumangarh and Sriganganagar, continue planting of sugarcane and sowing of urad and mung. Undertake field preparation for sowing of Desi cotton. Do not apply irrigation in Kinnow orchards at flowering stage.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, looking into the increase in temperature, farmers are advised to irrigate their summer vegetables as per requirement.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, prevailing dry weather condition is congenial for attack of termite in standing onion crop, for control, spray Chlorpyrifos 25 EC @ 4 litre per hectare.
- In Alwar, Bharatpur, Dhaulpur, Karauli, Sawaimadhopur districts of Flood Prone Eastern Plain Zone, prevailing weather condition is congenial for attack of red pumpkin beetle in summer cucurbits, for control broadcast Carbaryl 5% dust @ 20 kg per hectare or Acephate 75 SP @ 0.5 g per litre during morning or evening hours at 15 days interval.
- In Alwar, Bharatpur, Dhaulpur, Karauli, Sawaimadhopur districts of Flood Prone Eastern Plain Zone, prevailing weather condition is congenial for attack of leaf curl and mosaic disease in chilli crop for control uproot & burn affected plants to check the spread of disease and spray Dimethoate 30EC @ 1.0 ml per litre of water.
- **Horticulture**
- In Rajasthan, 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.
- In Jaipur, Ajmer, Tonk and Dausa districts of Semi-Arid Eastern Plain Zone, milch animals may be affected by Mastitis. In mastitis swelling is seen on teats & blood spots may be seen in milk. Treat the affected animal under the guidance of Veterinary Doctor.
- 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 Plenofix @ 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 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.
- **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 builds 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, in view of prevailing heat wave/severe 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.
- **Poultry**
- 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.

Detailed NAAS Bulletin is available in www.indagrinet.gov.in