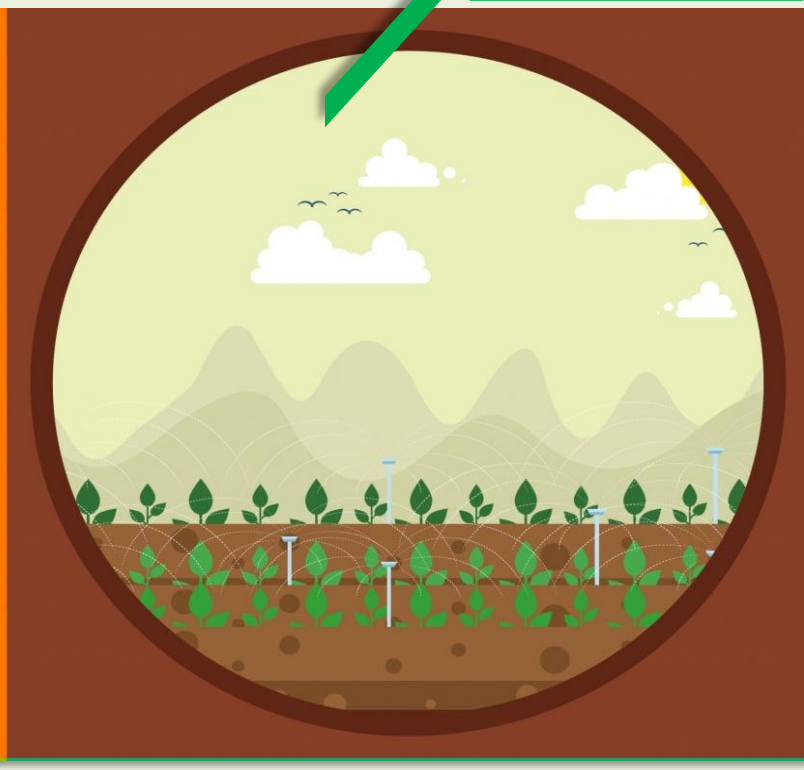
Stress Management Agro-Advisory for the State of Maharashtra

May 01-14, 2026



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Managing Abiotic and Biotic Stresses in Agriculture

Agro-Advisory for the State of Maharashtra

(May 01-14, 2026)

Advisory No.: NIASM/MH/26-06 **Date: May 01, 2026**

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1. Weather Forecast (India Meteorological Department, New Delhi)

1.1. Rainfall

- No rainfall is expected across the state during the next two weeks.

1.2. Temperature

- The maximum temperature is likely to range between 40-43ºC in Vidarbha and Marathwada, while it may vary between 36-40ºC in Konkan and Madhya Maharashtra during both weeks, remaining up to2-4 ºC below normal in first week and near normal in second week.
- The minimum temperature is expected to range between 22 -26ºC in first week and 26-30ºC in second week; it will remain near normal in the first week and may be up to 2ºC above normal in the second week in most parts of the state.

2. Managing Abiotic Stresses

2.1. Atmospheric Stresses

2.1.1. Crops

- **Grape:** For uniform sprouting, keep the cordons of the pruned vines covered with a 25% shade net to minimize the high-temperature stress. Remember to remove the protective covers when 3-5 leaf stage is achieved. Spray water in orchard during the peak heat hours to reduce the heat effect by increasing humidity.
- **Pomegranate:** In case of late hasta bahar, fruit bagging with white butter paper bags is recommended. Protective crop cover as a roof on entire row 0.5 to 1 m from top to sides is recommended to avoid sun burn/ scald on fruits.
- **New Plantations:** In case of newly planted orchards, support the plants by tying them straight using bamboo sticks to avoid damage due to hot sun and heavy winds. To avoid sunburn to saplings, protect them from bright sun with the help of temporary shade.

2.1.2. Livestock

- The animals should be kept under shed during hot hours.
- The sheds should be covered with thatch material to protect the animals from heat stress.
- The roof should be painted with white paint.
- Grazing of animals should be done during 6-10 am and in evening from 5-6 pm so that direct exposure to sunlight may be avoided in peak hours.
- Proper ventilation in animal shed
- Animals should be fed in cool hours
- Animals should be fed with good quality green fodder
- Wet gunny bags should be tied in the animal shed to protect from hot winds
- Avoid overcrowding in animal shed.
- Control of external endoparasites should be carried out.
- Install fan/foggers, wherever possible to reduce the heat stress.

- Provide natural/artificial shade to animals.

2.2. Water Stresses

2.2.1. Crops

- **Orchards:** Irrigation should preferably be done in the evening to reduce evaporation losses. Use plastic or biomass mulch for conserving soil moisture. Sub-surface irrigation technique will also help in minimizing moisture loss due to evaporation.
- **Grape:** After foundation pruning, during the shoot growth stage, apply 30,000 – 37,500 L per ha per day of irrigation water. If the vigour is more than desired, then reduce irrigation water application by 50% or stop irrigation till such time growth is controlled.
- **Sweet orange:** Provide regular irrigation @100-120 L per day per plant for ongoing *hasta bahar*.
- **Mango**: Maintain good soil moisture status through drip irrigation by providing 30-35 L water per day per plant to avoid early fruit drop as well as better fruit growth in case of High Density Plantation.

- **Vegetable crops:** Use of mulching and drip irrigation system for new transplantation in vegetable crops for efficient use of water and to avoid weed growth.
- Light irrigation is to be applied in vegetable crops as and when required.
- **Brinjal:** Use of grafted eggplant seedlings for transplanting. Foliar application of salicylic acid (0.3-0.5g/L) at monthly interval after transplanting will help to overcome the effect of water stress.

2.2.2. Livestock

- Mixed silage of sugarcane tops up to 50% level may be prepared with jowar or maize fodder in case excess green fodder is available. The silage thus prepared may be useful for feeding livestock during the upcoming summer/ scarcity period.
- Store feed and fodder in dry, well-ventilated areas to prevent mould growth and spoilage.

2.2.3. Fisheries

Preparation of the pond for stocking of the fish

- Construction of new pond, strengthening of embankment and side slopes may be completed during this period with optimum depth of 2.0-3.0 m with 1.5 m water holding capacity throughout the year.
- Apply cow dung @ 0.75-1.0 ton/ha after lime application in corner of the pond
- cow dung, urea and SSP application applied only after pond filled with water
- Measure turbidity of the pond water with the Secchi disc for maintenance of pond water transparency (30-45 cm)
- Apply powdered lime in pond bottom @ 120-130 kg/ha and after 10 days of lime application water may be filled in the fish pond
- Monitor water quality parameters viz. dissolved oxygen (6.0-7.0 ppm), pH (7.0-8.5), ammonia (0.05 ppm), nitrate (50-150 ppm), nitrite (0.1 ppm), CO_2 (less than 10 ppm), and H_2S (0.002 ppm) in fish pond carefully.

Recommendation for stocked fish

- Fish farmers are advised to use high protein diets (30-35 %) during this month.
- Fish farmers must use farm made pellet feeds to reduce feed wastage and achieve better feed conversion efficiency.

- To avoid the fungal, bacterial and parasitic diseases, fish farmers may advise to use potassium permanganate @ 1-2 kg/acre or limestone @ 50-75 kg/acre. Salt application @ 100 kg/acre also helps in protecting fish against disease outbreak during winters
- Time to time the growth of the fish may be checked for better maintenance of fish stock and diseases protection
- The unutilized feed in the feeding tray may be checked frequently to avoid ammonia toxicity
- Farmers are advised to aerate their ponds either by adding fresh water or by using aerators to maintain oxygen level in fish pond.

2.3. Soil Stresses

- **Grape:** Apply 125 kg urea/ha in 5-6 splits after sprouting. In calcareous soils, instead of urea, use Ammonium sulphate @ 200 kg/ha in at least 7-8 splits from sprouting onwards. Apply Zinc sulphate @25 kg/ha, Ferrous sulphate @25 kg/ha and Magnesium sulphate @ 40 kg/ha in 2 splits at 5-7 leaf stage.
- **Sweet Orange**: Apply 3.5 Kg N, 5.0 Kg P_2O_5 and 5.0 Kg K_2O i.e. Urea 7.5 Kg, Phosphoric acid 6 Kg and MOP 8.30 Kg per hectare at weekly interval through fertigation.
- **Pomegranate:** Immediately after harvest of hasta bahar fruits and pruning, apply 20 - 25 kg Farm Yard Manure + 2 kg Neem-cake per plant along with 205 g N, 50 g P_2O_5, 152 g K_2O, and 80 g Mg (800 g MgSO4) per plant depending on the age of the plant followed by light irrigation during rest period.

- **All orchards:** Pulverize the soil in tree basins to break compaction of top soil to improve soil aeration and weed management.

3. Managing Biotic Stresses

3.1. Crops

- **Mango:** To manage fruit fly infestation, prior to harvest (30-40 days) collect and dispose of infested and fallen fruits to prevent further, multiplication and carryover of population. Three weeks before harvesting, spray Deltamethrin 2.8 EC @ 0.5 ml/L + Azadirachtin (3000 ppm) @ 2 ml/L. To manage various pests, follow IPM practices like waxy polythene band on tree trunk at 30 cm height to manage mealy bug infestation in future and pheromone traps for fruit fly and light traps for fruit borer.
- **Grape:** For thrips management in vineyards after recut or April pruning, give alternate sprays of Spinosad 45 SC @ 0.25 ml/L or Fipronil 80 WG @ 0.06 g/L when thrips population is more than 5 per shoot.
- **Guava**: For flea beetle management after pruning, spray Imidacloprid 17.8 SL @ 0.4 ml/L or Lambda-cyhalothrin 4.9 CS @ 0.5 ml/L during early morning hours.
- **Sweet orange**: To control the incidence of bark-eating caterpillars, remove the wooden frass (larval excrement) and then inject 5-10 ml of the formulation prepared by mixing 3-4 ml of Dichlorvos 76 EC in one-liter water with the help of a disposable syringe and cover the larval tunnel with cotton wool. To combat the incidence of mites, spray Dicofol 1.8 EC @ 2 ml/L.
- **Brinjal:** To manage fruit and shoot borer, use water trap/Leuci lure pheromone traps @ 12/ ha to monitor, attract and kill male moths and change the vial once in three weeks. Also spray Chlorantraniliprole 18.5 SC @ 0. 3 ml/L once in 15 days depending upon the population of the pest.
- **Solanaceous and Cucurbitaceous vegetables:** Fluctuation in daily mean temperature may increase the infestation of mites and to manage them, spray Spiromesifen 22.9 SC @ 0.5 ml/L or Abamectin @ 0.5 ml/L.

- **Dragon fruit:** Pruning of diseased cladodes followed by fungicide spray Mancozeb + Carbendazim @2.5g/L or Bordeaux mixture @10g/L after harvesting fruits.
- **Acid lime:** If citrus trees are showing oozing symptoms of gum then scrap the area with a sharp knife and apply Mefenoxam MZ-68 or Fosetyl Al paste on it. Apply Bordeaux paste on the tree trunk up to height of 60 cm by paint brush.
- **Pomegranate:** To manage thrips pest, install yellow/ blue sticky traps @ 75 per hectare randomly at 15 cm below from the canopy top of the plant. To control fruit borer infestation, remove all the damaged fruits with holes and dispose them by burying in pit and take a spray with Cyantraniliprole 10.26% OD @ 0.75 ml/L or Chlorantraniliprole 18.5% SC @ 0.75 ml/L water.
- **All vegetable crops:**
  - To avoid incidence of disease and pest in solanaceous vegetable crops, maintan optimum /recommended plant spacing.
  - Procure healthy and disease-free seedlings from certified nursery only.
  - Spray liquid formulation of *Trichoderma* sp. @ 5ml/litre as a preventive measure for effective management of diseases
  - To manage soil-borne pathogens, apply *Trichoderma* sp. + *Pseudomonas* sp. @ 1litre/acre through drip irrigation system.
  - Follow integrated pest and diseases management practices such as disease-free seedlings from certified nursery, drenching with copper oxychloride @ 2.5 g/L of water to avoid post-transplanting damping-off in addition to use of systemic insecticides like Imidacloprid @ 0.5 ml/L to manage sucking pests.

3.2. Livestock

- There is a very high risk (VHR) of Haemorrhagic Septicaemia (HS) in the Bid district and VHR of Anthrax in Ahmadnagar, Akola and Pune districts. VHR of Black quarter (BQ) in Ahmadnagar, Akola and Pune districts and Enterotoxaemia in Ahmadnagar, Akola, Mumbai, and Pune districts.
- Affected animals may be isolated and treated with suitable antibiotics and vaccination is to be done in consultation with the local veterinarians.
- There is a very high risk of Peste des Petits Ruminants (PPR) in Bid district, and Sheep and Goat pox in Bid and Pune districts.
- There is a very high risk of Foot and Mouth Disease (FMD) in Ahmadnagar, Akola, Kolhapur, Mumbai, Pune, Sangli and Satara districts.
- There is a very high risk of Lumpy Skin Disease (LSD) in Hingoli, Mumbai, and Mumbai suburb
- There is a very high risk of Classical Swine Fever (CSF)) in Bid and Pune districts and African Swine Fever (ASF) in Wardha district.
- Vaccination for FMD, PPR, LSD, ASF CSF and Sheep and Goat Pox in the concerned districts may be done in consultation with the local veterinarians.
- There is a very high risk of Babesiosis in Ahmadnagar, Akola, Mumbai suburb and Pune districts VHR of Fascioliasis in Ahmadnagar, Akola and Pune districts.
- There is a very high risk of Theileriosis in Ahmadnagar, Akola and Mumbai suburb districts. and Trypanosomiasis in Ahmadnagar, and Akola districts.
- Ensure 100% vaccination with timely boosters for PPR, HS and S & G pox alongside routine testing in VHR districts to enable early disease detection.
- Enforce strict biosecurity protocols, including controlled farm access, equipment disinfection, and quarantine for newly introduced animals.

- Control vector populations through integrated management practices, including tick control, fly-proof shelters, and molluscicide use in snail-infested areas.
- Monitor animals for any sickness particularly related to digestive, dermal, or respiratory problems, and treat them by consulting a veterinarian.
- Regular deworming should be carried out by consulting local Veterinarians.
- For treatment of ectoparasitic infestation, dipping (if not done during the last three months) needs to be carried out with Ectomin/Butox, post-shearing on sunny days.
- Anti-parasitic drugs should be used under the guidance of a veterinarian.
- Spot the sick animals and isolate them in a separate shed for treatment.

4. General

- **Grape:** Complete the back pruning before 10th of May. In early pruned vineyards retain only 10 uniform shoots per sq.m area.
- **Sweet orange:** The dead wood on the trees should be pruned about 2cm below the dead portion followed by spraying with Carbendazim @1.0 g/L.
- **Pomegranate:** After harvest of hasta bahar fruits, medium to deep pruning (removal of criss cross, diseased, broken and overcrowded branches) should be done and basal dose of nutrients should be applied.

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