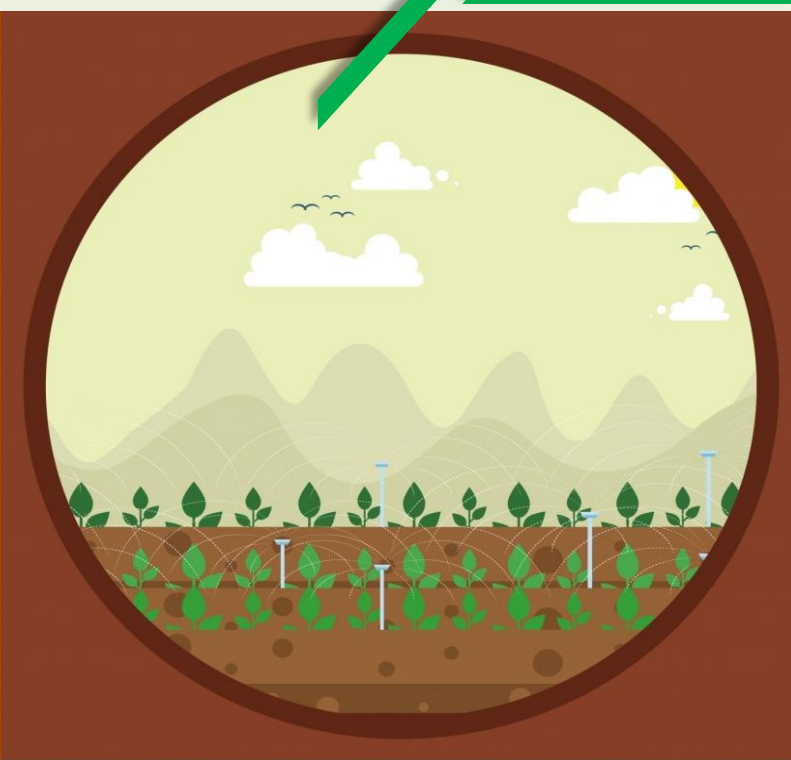


Stress Management Agro-Advisory for the State of Maharashtra

Sep 24-Oct 08, 2026



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Managing Abiotic and Biotic Stresses in Agriculture

Agro-Advisory for the State of Maharashtra

(Sep 24-Oct 08, 2026)

Advisory No.: NIASM/MH/26-12

Date: Sep 24, 2026

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

1.1. Rainfall

- In the first week (24 Sep–01 Oct), daily rainfall is expected to range between 1-5 mm/day in the Konkan, southern part of Madhya Maharashtra and eastern Vidarbha region, remaining 2-4 mm/day below normal in most parts of the state.
- In the second week (02-08 Oct), most parts of the state may receive 1-5 mm/day of rainfall. In the Konkan and southern part of Madhya Maharashtra, it may remain 2-4 mm/day below normal while other parts of state it may remain around normal.

1.2. Temperature

- In the first week (24 Sep–01 Oct), the maximum temperature is likely to range between 30–34°C remaining 1–2°C above normal in most parts of the state. In the second week (02-08 Oct), the maximum temperature may vary between 32–36°C, remaining 1–3°C above normal in most parts of the state.
- The minimum temperature is expected to range between 20–24°C; remaining up to 1°C above normal in most parts of the state.

2. Managing Abiotic Stresses

2.1. Atmospheric Stresses

2.1.1. Crops

- **Grape:** Forward pruning should be scheduled based on local weather conditions especially prediction of showers. One must see that there are no heavy rain predictions immediately after pruning, which may wash out bud break paste, hampering bud sprouting and also during 30-50 days after pruning to avoid damage at flowering stage.
- **Spraying Operation:** Do not spray in windy conditions and on wet foliage immediately after rains. Use sticker adjuvant along with spray solutions.
- **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

- Repair roofs of the animal sheds wherever necessary to ensure protection for animals from rains.
- Keep the animals indoor during thunderstorm/ lightening events.
- To protect livestock from extreme weather events and storms, keep the animals indoor during night hours.
- Avoid overcrowding of animals in livestock shed.
- Control of ecto-parasites and endo-parasites should be carried out.
- The floor of the animal shed should be kept clean and dry.
- Maintain the surrounding of animal shed clean and hygienic and remove the unwanted vegetation nearby the sheds.

2.2. Water Stresses

2.2.1. Crops

- **Grape:** Pre-pruning water stress for 10-15 days is mandatory to encourage natural defoliation, therefore withhold irrigation during pre-pruning period.
- **Pomegranate:** Avoid waterlogging in orchard for more than a day by immediately draining out the rain water.
- **Orchards:** In case rain exceeds 5 mm on a given day, irrigation water application can be skipped for that day. Prepare the drains to move out excess water from orchards and avoid water logging at root zone.

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

- Construction of new ponds, strengthening of embankments, and maintenance of side slopes may be completed during this period. The pond should have an optimum depth of 1.5–2.0 m with a water-holding depth of about 1.2 m throughout the year.
- Apply cow dung @ 0.75–1.0 t/ha after lime application, preferably in the corners of the pond.
- Cow dung, urea, and single super phosphate (SSP) should be applied only after the pond is filled with water.
- Measure the turbidity of pond water using a Secchi disc and maintain water transparency between 30–45 cm.
- Apply powdered lime at the pond bottom @ 120–130 kg/ha. Water should be filled into the pond after 10 days of lime application.
- Use an aerator during rainfall to maintain adequate dissolved oxygen (DO) levels and stabilize the water quality.
- It is recommended to maintain sufficient freeboard in the pond to accommodate excess rainwater during the pre-monsoon period.
- Proper maintenance and strengthening of pond dykes are recommended in low-lying areas where a large volume of runoff from adjoining catchment areas may enter the pond.
- To prevent erosion of pond dykes due to heavy rainfall, grow grasses and other vegetation on the slopes as well as the top crest of the dykes to reduce soil erosion and excess turbidity.
- Regularly monitor important water quality parameters such as dissolved oxygen (6.0–7.0 ppm), pH (7.0–8.5), ammonia (≤ 0.05 ppm), nitrate (50–150 ppm), nitrite (≤ 0.1 ppm), carbon dioxide (CO_2) (< 10 ppm), and hydrogen sulfide (H_2S) (< 0.002 ppm) in the fish pond.
- To prevent fungal, bacterial, and parasitic diseases, fish farmers are advised to apply potassium permanganate @ 1–2 kg/acre or agricultural limestone @ 50–75 kg/acre. Application of salt @ 100 kg/acre may also help protect fish against disease outbreaks, especially during winter.
- The growth of fish should be monitored regularly for proper stock management and early detection of diseases.
- Unutilized feed in the feeding trays should be checked and removed regularly to prevent deterioration of water quality and ammonia toxicity.

2.3. Soil Stresses

- **Grape:** Potassium application is required from cane maturity stage onwards. Sulphate of potash (water soluble grade) 64 kg per ha should be applied in this stage. Soil application of FYM @ 25 metric ton and SSP @ 200 Kg/ha should be given 8-10 days before pruning.
- **Pomegranate:** During dry spell pulverize the soil in basins and apply FYM treated with *Trichoderma* as a biological control measure against root rot due to heavy moisture during rainy period.
- **All orchards:** In case of monsoon rains, remove mulch cover on the bund/ basins and allow the rain water to seep into the soil. This will leach the accumulated salts in the root zone. The mulch so removed can be mixed with the soil to improve the soil porosity. If mulch was not there, carry out soil pulverization in the plant basins to break top-soil compaction and to improve soil aeration.

3. Managing Biotic Stresses

3.1. Crops

- **Grape:** Spray Bordeaux mixture 1% or Copper oxy chloride @ 2.5 g/L along with Wettable sulphur 2 g/L to avoid defoliation if pruning is to be delayed.
- **Acid lime:** During this month there is rapid spread of citrus canker in Acid lime hence the affected leaves and branches should be pruned and burnt. Spray Copper Oxychloride 3.0 g per L.
- **Sweet orange:** To manage fruit sucking moth, destroy all the fallen fruits by burying in the pit and poison baiting with 10 ml Malathion mixed with 100 g jaggery and 100 ml Orange juice in 900 ml water (in two bottles per 25 trees). To control fruit fly use male attracting trap containing methyl eugenol @ 20 traps/ hectare from 60 days before fruit harvest and change the lure every 30 days.
- **Custard apple:** Spray Mancozeb @ 2.0 g per L to avoid blackening of fruits and spray Buprofezin 25 SC @ 1.25 ml per L to manage mealybugs.
- **Biological Control Measures:** Use biological control agents like *Trichoderma viridae*, *Pseudomonas fluorescence*, *Beauveria bassiana* and *Metarhizium anisopliae* through soil drenching and foliar spray, for management of various pests and diseases in orchards.
- **All vegetable crops:**
 - To avoid incidence of disease and pest in solanaceous vegetable crops, maintain 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 Ahilyanagar, Dhule and Latur districts and VHR of Black Quarter (BQ) in Latur district.
- 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 Ahilyanagar, and Dhule districts. There is a VHR of Foot and Mouth Disease (FMD) in Ahilyanagar, Latur, Dharashiv, and Sindhudurg districts. There is a VHR of Lumpy Skin Disease (LSD) in Nashik district. There is a very high risk (VHR) of Bluetongue in Kolhapur, Latur, Mumbai and Pune districts. There is a very high risk (VHR) of African Swine Fever in Akola, Nandurbar and Pune districts. There is a VHR of Sheep and Goat Pox Disease in Amravati, Dhule, Mumbai, Nandurbar, Satara and Yavatmal districts
- Vaccination for FMD, PPR, LSD, ASF 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 Theileriosis in Ahilyanagar, Jalgaon, Latur and Nashik districts. There is a very high risk of Trypanosomiasis in Ratnagiri district.
- Ensure 100% vaccination with timely boosters for PPR, HS and LSD 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:** Carry out frequent de-suckering and remove extra shoot growth to avoid depletion of stored food and to avoid foliar diseases.
- **Citrus:** To increase the size of Ambia crop (June-July) fruits, spray Mono-potassium phosphate 5g per L along with Gibberllic Acid (GA₃) 15ppm.
- **Foliar spraying:** Use good quality water for spraying of agrochemicals preferably neutral or slightly acidic. If water is alkaline (pH~8), use Citric acid @ 0.5 g/L, to increase spray efficacy.

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