

Management Techniques for High Temperature Stress in Crops

Rice

1. Foliar spray of 3% Kaolin or 1% KCl at different physiological stages
2. PPFM-Pink Pigmented Facultative Microbes (seed treatment @ 200 g/ 5 kg seed, soil application basal @ 2.0 kg/ha and foliar spray @ 500 ml/ha at PI & flag leaf stage)
3. Foliar spray of 2% MAP + 1% KCl at 15 days before and at flowering improves grainfilling rate and yield
4. Foliar spray of 1% KCl + CCC @ 500 ppm at vegetative stage (during *kuruvai* season)

Pulses

1. Foliar spray of 2% KCl + Boron @ 100 ppm during dry spell as mid-season management practice during *rabi* season
2. Foliar spray of TNAU Pulse Wonder @ 2 kg/acre in 200 litres of water at flower initiation stage decreases flower shedding, increases yield and moisture stress tolerance
3. Foliar spray of Salicylic acid @ 100 ppm or NAA @ 40 ppm at pre-flowering and 15 days thereafter to reduce flower shedding

Sugarcane

1. Foliar spray of 2.5% MOP + 2.5% Urea during moisture stress period at 15 days interval
2. Soil application of 125 kg/ha MOP additionally at 120 days after planting
3. Foliar spray of Sugarcane booster @ 1.0, 1.5 and 2.0 kg/acre at 45, 60 and 75 days after planting respectively with adequate quantity of wetting agent to improve yield
4. Foliar spray of 5% Kaolin to reduce water loss
5. Trash mulching - removal of dry trash at 5th month and leave it as mulch, in the field to conserve soil moisture
6. Basal incorporation of coir waste @ 25 tonnes/ha at the time of last ploughing to conserve soil moisture

Groundnut

1. Foliar spray of TNAU Groundnut Rich @ 2.0 kg/ac (for each spray) in 200 litres of water at peak flowering and pod filling stage to increase flower retention and pod filling
2. Polythene film mulching to conserve moisture

Cotton

1. Foliar spray of TNAU Cotton Plus @ 2.5 kg/ac with 200 litres of water at flowering and boll formation stages to prevent early shedding of buds and squares
2. Foliar spray of 1% KCl twice on 50 and 70 DAS for delayed sowing (first fortnight of March) of summer irrigated cotton in rice-cotton cropping system
3. Foliar spray of NAA @ 40 ppm at 60 and 90 days after sowing to increase yield

Maize

Foliar spray of TNAU Maize Maxim @ 3 kg/acre in 200 litres of water at tassel initiation and at grain filling stages to improve grain filling, grain yield and abiotic stress tolerance

Cowpea

1. Foliar spray of CCC @ 50 ppm or GA₃ @ 50 ppm at flowering to increase yield

Tomato

1. Foliar spray of Triaccontanol @ 1.25 ppm (625 ml in 500 litres of water) at 15 days after transplanting and at full bloom stage to control flower drop and improve fruit set
2. Foliar spray of 0.5% ZnSO₄ thrice at 10 days interval from 40 days after planting to control flower drop and improve fruit set

Bhendi

1. Foliar spray of 1 % Urea + 1 % MOP at 30 and 45 days after planting to improve yield
2. For hybrids, foliar spray of 0.5% NPK (19:19:19) at 10 days interval from 30 days after planting to improve yield

Brinjal

1. Foliar spray of Triaccontanol @ 2 ppm plus Sodium Borate or Borax (35 mg/l of water) at 15 days after transplanting and at the time of full bloom to increase flower and fruit set
2. Mulch with black LDPE sheets of 25 micron thickness and bury both the ends into the soil to a depth of 10 cm to conserve soil moisture

Chillies

1. Foliar spray of 1% Potassium Sulphate to boost up the flowering and fruit set
2. Foliar spray of NAA @ 10 ppm on 60 and 90 days after planting to increase fruit set
3. Foliar spray of Triaccontanol @ 1.25 ml/l on 20, 40, 60 and 80th day of planting to enhance flower and fruit set

Tapioca

1. Foliar spray of water (500 lit/ha) at weekly twice during evening hours to rejuvenate the crop
2. Foliar application of 0.5% NPK (19:19:19) + 0.5% FeSO₄ + 0.25% ZnSO₄ twice at 15 days interval to rejuvenate the crop

Mango

1. Foliar spray of water when it is hot and dry to prevent heat stress effects
2. Use of wind-breaks for protecting the orchard from warm air during February to May
3. Foliar spray of 0.5% NPK(19:19:19) + 0.5% FeSO₄ + 0.25% ZnSO₄ + 0.3% Borax twice at 15 days interval to rejuvenate the crop
4. Foliar spray of 2% KNO₃ at mustard size will increase the fruit set and retention of fruits
5. Foliar spray of 0.5% Urea or 1% Potassium Nitrate to induce flowering during February (if trees do not flower by that time)
6. Foliar spray of NAA @ 20 ppm at flowering stage to increase the fruit retention

7. A shelter belt in the southwest of the orchard block can control sunscald in mango by decreasing direct sunlight and protect the fruit from over exposure to heat

8. Use of shade nets or shade-frames to decrease strong sunlight in hot, dry seasons can also reduce sun scald. Shading should be 25-50% as heavier shading will reduce fruit set the following season

Banana

1. Foliar spray of GA₃ @ 50 ppm on 35 or 55 days old banana bunches three times on alternate days increase the weight and volume of fingers in both young and old bunches

2. Foliar spray of micronutrients viz., 0.5% ZnSO₄ + 0.2% FeSO₄ + 0.2% CuSO₄ + 0.1% H₃BO₃ at 3, 5 and 7 MAP to increase yield and quality of banana

Custard apple

1. Irrigation and mulching during summer season helps to prevent fruit drop

2. Foliar spray of NAA @ 20 ppm four times at weekly interval during flowering to enhance the fruit set

3. Dipping of freshly opened flower in GA₃ @ 50 ppm to enhance fruit set, retention, size, weight with less seeded

4. Use of black polythene mulch or organic mulch around the tree to conserve moisture and reduced formation of stone fruits

5. Application of super phosphate and bone meal improve crop yield and reduce formation of stone fruits

Tuberose

1. Dipping of bulbs in CCC @ 5000 ppm to enhance flower yield

2. Foliar spray of 0.5% ZnSO₄ + 0.2% FeSO₄ + 0.1% Boric acid.

3. Foliar application of GA₃ @ 50-100 ppm thrice at 40, 55 and 60 days after planting

Jasmine

Foliar spray of CCC @ 1000 ppm to enhance early flower production

Note:

1% - 10 gram dissolved in 1 litre (made up to 1 litre)

1ppm - 1 mg dissolved in 1 litre (made up to 1 litre)