

## ADVISORY FOR FLOOD AFFECTED POMEGRANATE ORCHARDS

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### A. Advisory for Orchards in rest period or flowering/fruit bearing

1. Once flood water recedes, efforts should be made to drain out excess water from the root zone by the best method as per local orchard conditions/planting method and soil type to reduce the ill effect on the standing trees.
2. Partially uprooted trees should be pulled back in the same direction of their fall to reduce root damage. In big trees, branch may be pruned. Staking of the main trunks should be done in the opposite direction of the pull back to prevent further movement. If trees are bearing fruits, reduce the crop load by pruning of branches and providing support to the trees.
3. In trees where roots have become exposed /naked due to washing away of soil, these roots need to be covered by soil mixed with fully decomposed manure (cow dung manures, poultry manures etc.) @ 15 - 20 kg/tree. Before adding manure, give one drench (+ lower stem washing) to all plants with fungicide/s mentioned at **S. No. 10**, to avoid further damage due to root/crown rot pathogens.
4. Tree having breakage of main/primary branches need to be given a slanting cut at breakage points and apply 10% Bordeaux paste (1 kg Copper sulphate, 1 Kg hydrated (slaked) lime and 10litre water; soak both separately in 5 liter water at night, mix in morning to form a thick paste). Same paste can be used for stem pasting with 115g zinc oxide and 20ml Chlorpyrifos 20 EC.
5. Tipping of terminal/apical growth and spray growth retardant cycocel or Uniconazole at 500 ppm for arresting apical dominance and promoting lateral growth.
6. Spray brassinolide@0.5ppm (0.5mg/l= 50mg/100 l water), Putrescine @ 0.5 mM (0.44 mg/l) ORspermidineORspermine@ 0.1-0.5 mM (20-100mg/l)for improving photosynthetic activity of pomegranate trees.
7. For immediate recovery foliar application of potassium nitrate @ 18-20 g/lit or calcium nitrate @ 25-30 g/lit with sticker may be undertaken in the affected orchards.
8. Give 1-2 foliar application of salicylic acid @ 3 g/10 lit (30 g dissolve in 250 ml ethanol then dissolve in water) may be undertaken at 15-20 days interval. This is a universal stress reliever.
9. Amino acid based micronutrient formulation containing Fe, Mn, Zn, Cu and B may be sprayed @ 1.5-2.0 ml/lit on the foliage for rapid recovery of affected trees.
10. Drenching of root zone of trees with any of the following to arrest soil borne disease  
(Note; orchards that did not have wilt before floods should follow schedule at S.No. (a) only and orchards- that had wilt before floods should follow all schedules at (a) OR (b) OR (c) below:)

- (a) 1st drenching Propiconazole 25 EC@2ml/l+Chlorpyrifos 20 EC@ 2ml. After 30 days of first application 2<sup>nd</sup> drenching with *Aspergillus niger* AN 27 (Kalisena) @ 5g/plant with 2Kg FYM/plant after 30 days of 2<sup>nd</sup> drenching 3<sup>rd</sup> drenching – Mycorrhiza [*Rhizophagus irregularis* Syn. *Glomus irregularis* ] @ 25g/plant with 2Kg FYM/plant. OR

- (b) Three (3) drenchings at 20 days interval with propiconazole 25EC (2.0 ml/l) + chlorpyrifos 20EC (2.0 ml/l) use 5-10 l solution/plant. OR
  - (c) 1<sup>st</sup> and 3<sup>rd</sup> drenching with fosetyl Al 80% WP @ 6g/plant, 2<sup>nd</sup> and 4<sup>th</sup> drenching with tebuconazole 25.9% w/w EC @ 3ml/plant. Make solution volume 10 l with water for each drenching.
11. Prophylactic sprays in blight affected orchards may be taken to keep under check bacterial blight disease with Copper hydroxide @ 2.0 g + Streptocycline @ 0.5 g/lit water or alternated with Carbendazim @ 1g/l + 2-bromo 2-nitropropane 1-3 diol @ 0.5 g/lit at 7-10 days interval.
  12. Orchards that do not have history of bacterial blight need not spray Streptocycline and 2-bromo 2-nitropropane 1-3 diol, however, many fungal diseases may increase due to humidity and favourable temperatures, hence preventive fungicide sprays are required. Take 1 contact (like Mancozeb 75% WP @ 2 l, copper fungicides 2 -2.5g/l etc) and 1 systemic fungicide (like Carbendazim @ 1g/l, Difenconazole 25% EC @ 0.5-1.0 /l) in alternation at 7 days interval. Alternatively sprays with combi-products like Mancozeb 63% + Carbendazim 12% WP @ 2g/l; Hexaconazole 4% + Zineb 68% WP @ 2.5g/l, Tricyclazole 18% + Mancozeb 62% WP @ 2.5g/l, Metalaxyl 8% + #Mancozeb 64% WP @ 2.5g/l etc can be taken at 7-10 days interval.
  13. In nematode infested orchards apply Fluensulfone (® Nimitz) 2% GR @ 40g/plant in a pit of 5-10 cm below each dripper. Divide 40g/plant according to number of drippers. If 2 drippers apply @ 20 g/ dripper /4 drippers then @ 10g/ dripper or mix the 40g in 4-5 litre of water and drench in a circular fashion around the plant at the time of first irrigation.
  14. In stem borer infested orchard, drenching with Chlorpyrifos 20 EC (3ml/l) in a circular fashion (along with fungicide) with 5-10 liter solution per tree and it should be repeated 7-10 days after the first treatment based on prevalence of the pest/damage symptoms.
  15. Inject dichlorvos 76 EC @ 10ml/liter with the help of squeeze bottle into stem borer damaged holes till the bored tunnel is filled then close the hole with the wet mud/soil. After treatment remove the chewed woody material, observe the after 24 hours of treatment if fresh chewed wood material is observed, repeat the treatment.

### **(B) Advisory only for Orchards in Flowering/fruit bearing**

1. Spray 1-Naphthyl acetic acid 4.5% SL OR 2,4-D Ethyl Ester 4.5 % GR @ 45 ml/200 l water for controlling excessive pre-mature fall of flowering/buds/young developing fruits.
2. In bearing orchards apply nitrogenous fertilizer immediately after receding of flood water @ 700-750 g/tree through nitrate containing fertilizer viz. potassium nitrate (N 13%) in calcareous soil, calcium nitrate (N 12%) in alkaline soil followed by mixing with the soil.
3. Take 1-2 sprays with neem oil 3ml/l or Spinosad @ 0.3ml/l/ Spinetoram 11.7 EC @ 0.75 ml/l at vegetative or fruit setting stage take the sprays with Cyantraniliprole 10.26 OD 0.3-0.5 ml/l/ Thiamethoxam 25WG @ 0.3g/l or Acetamiprid 20SP @ 0.3g/l or Thiocloprid 21.7 SC @ 0.3ml/l. Repeat at 7-10 days interval based on pest population.
4. For fungal and insect problems sprays may be taken at 7-10 days interval as per IDIPM schedule (<http://nrcpomegranate.icar.gov.in/files/Advisory/12.pdf>) / Adhoc list of agrochemicals (<http://nrcpomegranate.icar.gov.in/files/Advisory/30.pdf>) on website nrcpomegranate.icar.gov.in.

5. If mealybugs' infestation is observed, spray Thiamethoxam 12.6% +Lambda cyhalothrin 9.5 % ZC(@Alike) 0.75-1.0 ml/l water or Acetamiprid 20SP@ 0.3g/l with fish oil rosin soap 0.5 ml.
6. If the crop is at fruiting stage, bag the fruits with Poly propylene non-woven (PPNW) or white butter paper bags to prevent the damage from fruit sucking moths and fruit borer. If bacterial blight and mealybug incidences are noticed, take the proper sprays to control them before bagging.

### **(C) Recommendation for New Plantation in future**

Plantation should be done in raised bedding system (Fig.1) of plantation (2 ft width  $\times$  1 ft. deep trenches below the soil surface, above ground 6.5 ft wide bed 1.5 ft high at the middle and sloping down towards both ends, separated by parallel dead furrows oriented in the direction of land slope). This leads to appropriate aeration in active root zone, avoiding water logging and increased nutrient uptake. These conditions facilitate reduction in soil borne diseases and increase physical attributes significantly. All these favorable outputs culminated into significantly higher yield.

<https://krishi.icar.gov.in/jspui/bitstream/123456789/17131/1/Marathe%20R.A%20249-251.pdf>

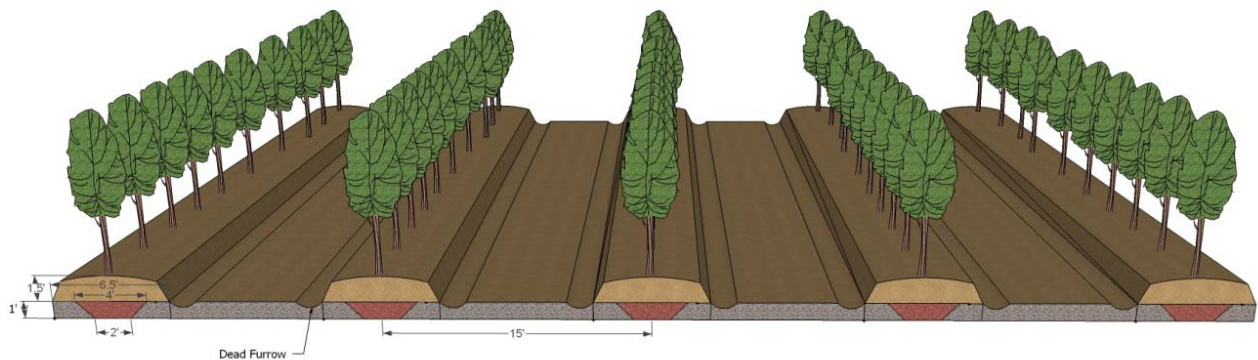


Fig.1: Bedding System for pomegranate