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Rest period management in pomegranate

❖ General Horticultural practices

- After harvest of last bahar fruits, medium to deep pruning with removal of criss-cross, diseased, broken and overcrowded branches should be done as early as possible.
- Basal dose application of nutrition is recommended after fruit harvesting. Soil test should be taken before application of chemical fertilizers.
- Proper weeding in the orchard and bunds should be done. Use tractor mounted rotavator machines in between the beds; use of grass cutter on the beds and removal of water shoots / new sprouts near the stem by hand. (Note: **It's not recommended to use the rotavator in the orchards (in the patch / lines) having wilt disease problem).**
- Farmers willing to use weedicides / herbicides need to take proper care while application. i.e. use of hood or proper cover so that chemical should not go on the leaves or in the root zone of pomegranate.
- Keep the orchard clean by collecting fallen fruits and dump outside the field away from the orchard; cover it will soil.

❖ Nutrient management (Fertilizer to be applied immediately after harvest of crop)

- Apply 20-25 kg well decomposed FYM **or** 13-15 kg FYM + 2kg vermicompost + 2 kg neem-cake per plant **or** 7.5 kg well decomposed poultry manures + 2 kg neem-cake per plant.
- Chemical fertilizers should be applied as per the soil testing report. The general N:P:K recommendations for 4 year or older orchards is 625 gram of Nitrogen; 250 grams of Phosphorus and 250 grams of potassium (K) per plant per year.
- **FYM Enrichment:** Apply the bio-formulation of *Aspergillus niger* (AN 27), *Trichoderma viride* each @ 1 kg per acre and *Penicillium pinophilum* @ 3 kg per acre after incubating each bio-formulation separately in 1-1.5 feet high bed with well decomposed FYM for 12-15 days maintaining 60-70% moisture content in the mixture and alternate day stirring under shade. In about 15 days, these beneficial bacteria / fungi grow in very large number in the compost.
- Before application to the plant, mix Arbuscular Mycorrhizal Fungi, AMF (*Glomus intraradices* syn. *Rhizophagus irregularis*) in the enriched FYM @ 10-20 g per plant. Give light irrigation immediately after manure application.
- The useful bio-agents (bacterial / fungal (except mycorhiza)) can also be applied after multiplication in the slurry culture.

❖ General chemical spray schedule:

Name of the chemical and dosage	Spray interval
Spray of 1% Bordeaux mixture	Immediately after pruning
Apply Bordeaux paste (10%) OR red soil paste on stems	Immediately after pruning / beginning of rest period
Apply Bordeaux paste (10%) on pruned ends	Immediately after pruning
Spinetoram 12% SC @ 1.0 ml/L + Neem oil 1% (10000 ppm) @ 3.0 ml/L + Spreader sticker @ 0.5 ml/L	10 days after pruning
Copper hydroxide 53.8% WP @ 2.5 g/L OR Copper oxychloride 50 % WP @ 2.5 g/L + Spreader sticker @ 0.5 ml/L	15 days after of pruning
Bordeaux mixture (1%)	30 days after pruning
Copper sulphate 47.15 % + Mancozeb 30 % WDG @ 3g per litre + Spreader sticker @ 0.5 ml/L	45 days after pruning
Spinetoram 12 % SC @ 1.0ml/l + Neem oil 1% (10000 ppm) @ 3.0 ml + Spreader sticker @ 0.5 ml/L	50 days after pruning
Copper hydroxide 53.8% WP @ 2.5g/l OR Copper oxychloride 50 % WP @ 2.5 g/l + Spreader sticker @ 0.5 ml/L	60 days after pruning
Bordeaux mixture (1%),	75 days after pruning
Copper sulphate 47.15 % + Mancozeb 30 % WDG @ 3g per litre + Spreader sticker @ 0.5 ml/L	90 days after pruning

❖ Nematode management (During rest period):

- As a preventive measure, use of promising bio-formulations twice a year such as *Paecilomyces lilacinus, Pochonia chlymydosporia, Aspergillus niger, Trichoderma viride* OR *T. harzianum, Pseudomonas fluorescens*, @ 1 kg/acre after multiplying in the well decomposed FYM.
- The same useful bio-agents (bacterial / fungal) mentioned above can also be applied after multiplication in the slurry culture twice a month to increase plants uptake, immunity and preventing nematode and wilt infection.
- Check the plant roots for nematode infestation, at the time of making pits / trench for fertilizer application. If only few plants were found to have nematode infestation, the below mentioned chemical nematicides can be applied to 6 plants around the infested plant (3 plants of each side).
- If nematode infection is high (heavy galling on white roots near dripper), use any of the below mentioned nematicides. **Fluensulfone 2 % GR**, the granular nematicides can be used by Making a small pit (5-10 cm) under the dripper and apply the granular chemical @ 10 gm per dripper (Maximum dose should not exceed 40 gram/plant); cover it with the soil and start watering OR liquid nematicides **Fluopyrum 34.48% SC** @ 2 ml/plant. Plants should be sufficiently watered day before drenching. Mix 2 ml of the nematicide in two litre of water and pour 500 ml per dripper (4 drippers/plant) or 1000 ml per dripper (2 drippers/plant). Do not water the plants for 2-3 days after nematicides application.

❖ Wilt management (During rest period):

1. **Disinfection of area (pits) wilted plants**
   - Soil solarization with LLDPE sheet or 35-41% formaldehyde solution should be used to disinfect such pits after removing the diseased (wilt affected) plants. For this 2 X 2

feet pit should be made at the place where wilted plant has been removed. 500 ml of formaldehyde solution (37-41% formalin) is required for 10 liter of water per pit. The solution should be made at the site of pit and poured immediately. Before starting the treatment, one should cover whole body, use mask, gloves and eye protection as formalin is poisonous to humans.

- The pit should be covered with plastic mulch paper from 3 sides with soil topping. After adding the formalin into the water, quickly pour it in the pit and cover it with plastic and soil so that vapor generated from the solution should not escape in the atmosphere. Keep the pit coved for around 10 days'. After 10 days', remove the plastic cover and rake the soil for next 10-15 days, till the smell for formalin is completely gone. The pit can be used for planting new sapling.

2. Soil treatment of wilt affected plot

- Earliest diagnosis of wilt is key factor for the wilt management. Drenching should be taken in the active root areas around the main trunk and 3 plants in all four sides using recommended agrochemicals/biological as mentioned below: only one method can be used for wilt management.

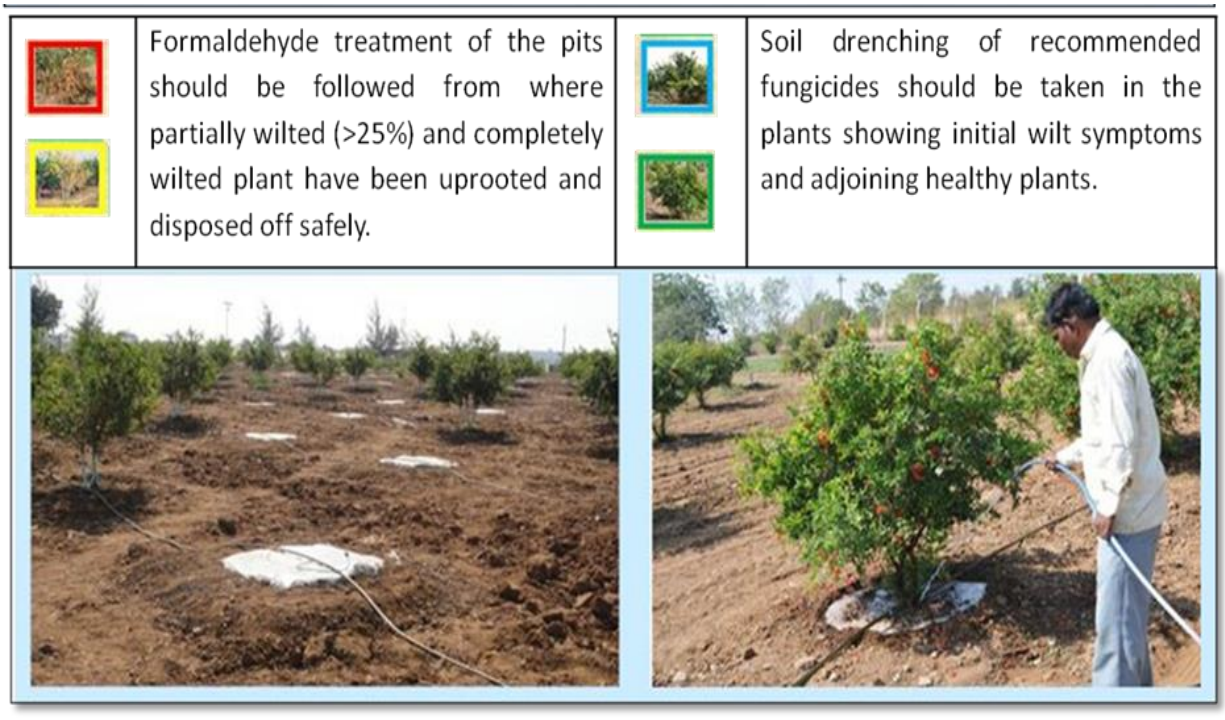
a. 1st drenching with Propiconazole 25% EC @ 2 ml/ L + Chlorpyriphos 20% EC @ 2 ml/L. After 30 days of first application; 2nd drenching with A*spergillus niger* (AN 27; IRG 07) @ 5 gram/plant with 2 Kg FYM/plant followed by 3rd drenching of Mycorrhiza [*Rhizophagus irregularis* Syn. *Glomus irregularis*] @ 25 gram/plant with 2 Kg FYM/plant 30 days after 2nd drenching.

OR

b. Three drenching's at 20 days' interval with propiconazole 25% EC @ 2 ml/L + Chlorpyriphos 20% EC @ 2 ml/l. Use 5-10 L solution/plant for each drenching.

OR

c. 1st and 3rd drenching with fosetyl Al 80% WP @ 6 g/plant while 2nd and 4th drenching with Tebuconazole 25.9% EC @ 3 ml/plant. Use 5-10 L solution/plant for each drenching.



Preparation of Bordeaux mixture (1%)

Chemical	Quantity
Copper Sulphate ($CuSO_4 . 5H_20$)	1kg*
Quick lime/Calcium Oxide (CaO) or Calcium hydroxide $Ca(OH)_2$ [Use fresh stocks]	300-400 g * Depending on purity (additional quantity may be used for adjusting the p^H)
Water	100 L
*For 0.5%, reduce the quantity of Copper Sulphate and lime to half	

Weigh required quantity of lime and copper sulphate and soak separately overnight in water in a plastic bucket

Day 1

Next day strain through sieve and mix simultaneously in third container with continuous stirring

Check and adjust pH around 7

Day 2

Preparation of Bordeaux paste (10%)

Chemical	Quantity
Copper Sulphate ($CuSO_4 . 5H_20$)	1 kg
Quick lime/Calcium Oxide (CaO) or Calcium hydroxide $Ca(OH)_2$ [Use fresh stocks]	1 kg
Water	10 L
soak both Copper sulphate and lime separately in 5 litre water in a plastic bucket overnight and mix together in morning for making 10 litre paste; No pH to be adjusted	

Information compiled by: **Manjunatha N., Somnath S.Pokhare and R. A. Marathe**

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