

Package of Practices for Diseases and Insect Pests of Pomegranate

| DISEASES | | | | | | |
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| DISEASES | What is to be done ? | When is to be done ? | Why is to be done? | How is to be done? | What not to do ? | Why not to do ? |
| <p>Bacterial leaf and nodal blight.</p> <p><i>(Xanthomonas axonopodis pv punicae)</i></p> | <p>Select disease free planting material</p> <p>Spray Bordeaux mixture (1.0%)</p> <p>Spray with Streptocycline (0.025%) in combination with Copper oxychloride (0.25%) or Carbendazim (0.15%) at 15 days interval for 5-6 times starting from leaf initiation stage.</p> <p>If possible, cut ends should be pasted with Bordeaux (10%) paste.</p> <p>Follow orchard sanitation measures strictly. Fallen twigs, leaves and Fruits should be destroyed outside the orchard premises.</p> <p>Copper formulations + Streptocycline or Carbendazim + Streptocycline 0.05% and other bactericides if disease pressure is high and weather conditions are favourable .</p> | <p>During dormancy.</p> <p>During rainy season and post-rainy season</p> <p>After every pruning.</p> | <p>To avoid the disease appearance , otherwise fruits will crack and plants will die.</p> | <p>Spraying</p> <p>Pasting</p> | <p>Old spray solutions should be avoided.</p> <p>-</p> | <p>Old solutions are not effective.</p> <p>Disease gets suppressed</p> <p>-</p> |
| <p>Anthracnose & Leaf spot and fruit spot</p> <p><i>Colletotrichum sp., Alternaria sp, Cercospora sp</i></p> | <p>Spray the crop with Carbendazim (0.15%) or mancozeb (0.25%) or copper oxychloride (0.25%) before plucking fruits.</p> | <p>At flower initiation during May to December</p> | <p>Otherwise all leaves will fall down, die-back will start, fruits will get infected.</p> | <p>Spraying</p> | <p>Do not leave diseased plants unsprayed</p> | <p>Such unsprayed plants will become reservoir of inoculum in the orchard.</p> |

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| Fruit rot (<i>Colletotrichum</i> sp., <i>Aspergillus</i> spp.) | Spray the crop with carbendazim (0.15%) or mancozeb (0.25%) or copper oxychloride (0.25%) before plucking fruits. | After flower initiation | Fruit rot would spoil packed consignments. | Spraying | Avoid Fruit injury during harvest. | To avoid entry of these pathogens. |
| Wilt complex (Complex of fungal infections <i>Ceratocystis fimbriata</i> , <i>Fusarium oxysporum</i>) | Follow spacing of 4.5x3.0 m in the orchard in sandy loam soil with proper drainage . Soil drenching with carbendazim (0.2%) or propiconazole (0.15%) or tridemorph (0.15%) + Chlorpyrifos (0.25%). | While planting the orchard On observing wilt infected plants. | Plant parts and roots of adjacent trees do not touch each other. To prevent further spread of the disease. | Consult experts for site selection while planting pomegranate orchards Prepare a trench around the basin of trees and drench the solution. | Avoid high density planting. Treat apparently healthy trees around the infected trees . Treat all the wilt symptom showing trees. | Plant parts and roots of adjacent trees could touch each other and spread the inoculum in the orchards. |
| DISORDERS | | | | | | |
| Internal break down of arils. | Harvest fruits at right time and avoid excess irrigation.. | Harvest as soon as the crop matures. | To manage the disorder. | Monitoring of fruit maturity. | Avoid fruit injury at harvest. | Improper irrigation may lead to cracking. |
| Sun Scald | Work on the canopy so as to make a good cnopy | Appropriate pruning | To avoid strong light intensity | Proper pruning and applying recommended doses of nutrients | Avoid heavy pruning | Exposing fruits to direct sunshine |
| Pests | | | | | | |
| <i>Rhipiphorothrips cruentatus</i> Hood and <i>Scirtothrips dorsalis</i> Hood (Thripidae): Thysanoptera) | Removed pruned material from main field and burn, Rake the soil periodically, Keeping the basins clean also reduces damage due to thrips , Spraying Dimethoate 0.06% prior to flowering is important. If serious , a spray of methyl oxy-demeton 0.05% should be repeated after fruit set. The subsequent sprays for borer will limit thrips build up. In case of species other than R. cruentatus, Acephate 0.075% | Thrips would emerge after pruning when tender leaves are ready as ovipositional sites. So, it is crucial to flowering . Pruned material should be removed immediately from manifold , Spraying of specified chemicals should be carried out at preflowering and post berry formation. | Thrips rasp tender fruits; causing scab on them and thereby, reducing market and export value. Thrips infestation is often seen on leaves and also on young fruits causing characteristic scab on fruits. When severe on leaves, it causes leaf tip curl and drying and shedding of flowers. The yield is drastically reduced. | Spraying should be carried out preferably during evening hours. The specified insecticides should be mixed always with adjuvant/sticker (eg. Teepol @ 1 ml/lit) to have enhanced efficacy. | Never mix insecticides and fungicides during spraying. | It will reduce the efficacy of both insecticides and fungicides. |

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| | should be sprayed. The number of sprays depend on the severity. A follow up spray of multineem (0.05%) is useful. | | | | | |
| Pomegranate butterfly, <i>Deudirix isocrates</i> (Fab.) | Remove and destroy all the affected fruits (fruits with exit holes), Spray Decamethrin @ 0.0028% at the time when more than 50% of fruits have set. Repeat after two weeks with Carbaryl @ 0.2% or Fenvalerate @ 0.005% in non-rainy season Quinalphos @ 0.06% is also effective. The number of sprays depends on severity of infestation, Remove flowering weeds especially of compositae family. | Removal and destruction of all affected fruits as when spotted , Spraying should be carried out when > 50% of fruits have set, Spraying of specified chemicals for rainy non-rainy seasons should be followed , Removal of flowering weeds should be carried out on regular basis. | It has been found boring into fruits of pomegranate besides guava, anona, apple, ber, citrus, litchi, loquat,sapota etc. Pomegranate is the most preferred host in which it may destroy upto 50% fruits. The female lays eggs singly on calyx of flowers or small fruits. On hatching , the caterpillars bore inside the developing fruits and are usually found feeding on pulp and seeds just below the rind . Subsequently bacteria and fungi causing the fruits to rot also attack the infested fruits.The conspicuous symptoms of damage are offensive smell and excreta of caterpillars coming out of the entry holes, with excreta found stuck around the holes. The affected fruits ultimately fall down. | Spraying should be carried out preferably during evening hours. The specified insecticides should be mixed always with an adjuvant /sticker (eg. Teepol @ 1ml/lit) to have enhanced efficiency. | Never mix insecticides and fungicides during spraying. | It will reduce the efficacy of both insecticides and fungicides. |
| Shot hole borer (<i>Xyleborus</i> sp. Scolytidae: Coleoptera) | Early diagnosis with symptoms is a must. Hence, regular visit to orchards by growers is suggested. Signs of lateral branch yellowing to quick drying of full tree ,should be immediately brought to notice of specialists and treatments be undertaken as recommended. | Immediately, when the wing symptoms were observed in orchard the management practices should begin. The early stages of infestation in an orchard begins as a mild yellowing of a lateral branch on one or more trees, generally in a contiguous patch. Within a week the | This is becoming a major pest now a days on pomegranate in many parts of Karnataka. The adult beetles bore holes on the roots and later on lower parts of main trunk. These holes cut through xylem and phloem , resulting in the death of the tree. From an infested tree adults migrate , within a month, to the | Drench soil around main trunk with a mixture of Chlorpyrifos 2.5 ml + Tridemorph 1 ml/lit. Use 2-3 litres of mixture /tree. After three weeks repeat with Monocrotophos 1.5 ml + Carbendazim 1g/litre, If pest is a severe, repeat the above drenching after a month. If infestation is low, drench with Azadirachtin | Infested cut trees should not be left in the field. | It will serve as source of inoculum. |

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| | | whole tree yellows followed by drying of branches. Some infested trees have shown heavy bearing but reduced size and immature ripening. On careful examination, the main trunk just a foot above the soil shows small pinholes, which may or may not be seen with ---der coming out of it. However, if the infestation is ---- to shot hole borer, subterranean (below soil) holes in the root region are a symptom, if the pest is endemic in that area , care should be taken during new infestations and as well as during replanting as per guidelines. | nearest healthy trees and further infest. Thus, infestation spreads. The infested patch of trees if kept untrated, becomes a major source of inoculum. The rate of spread of infestation at this time will be rapid, and a whole orchard can show symptoms in a matter of 3-6 months. From one orchard , the infestation can spread to neighboring orchards. | (0.15%) 3 ml/litre around main trunk 2-3 litres of mixtures /tree with either of the above fungicides. Avoid water logging and keep soil raked and aerated , Infested trees should be uprooted and burnt , especially the root zone , Pits of uprooted trees should be treated with Chlopyriphos 2.5ml /litres, by thoroughly drenching . Drench soil with Chlorpyriphos 0.05% around all un-treated trees prophylactically once in six months , followed by a spray on trees with Quinaliphos 0.06%, Followed by Azadirachtin 1500ppm 3 ml/litre. Avoid leaving infested trees in field after uprooting. | | |
| Poimegranate aphid, <i>Aphis punicae</i> Passerini | Spray dimethoate 0.06% | As new shoots emerge. | These are small green plant bugs on young leaves and flowers . Their sap sucking leads to shriveling of shoots. If serious , honey – dew accumulates on leaves and sooty mold develops affecting photosynthesis. | Spraying should be carried out preferably during evening hours. The specified insecticides should be mixed always with an adjuvant/sticker (eg. Teepol @ 1 ml/litre) to have enhanced efficacy. | Never mix insecticides and fungicides during spraying. If predators like syrphids and coccinellids are found delay spraying and in some cases, natural enemies can sufficiently suppresses the aphids. and coccinel | It will reduce the efficacy of both insecticides and fungicides , The insecticidal sprays kills natural enemies present. |
| Mealy bugs (<i>Ferrisia virgata</i> , <i>Planococcus citri</i>) | Remove affected twigs and small branches. Spray monocrotophos (0.1%) or chlorpyriphos (0.02%) or dichlorovos (0.05%). | Whenever infestation is noticed | To destroy the colonies | Spreaying | Provide light irrigation | Heavy irrigation enhances their build up. |
| Leaf eating caterpillar <i>Achea janata</i>) | Spray monocrotophos(0.1%), or chlorpyriphos (0.02%) or dichlorovos (0.05%) | Whenever infestation is noticed | To suppress leaf feeding | Spraying | Avoid leaving live caterpillars that may pupate and develop a generation. | To prevent build up. |