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Gardennote

Problems with fruit trees and vines: don't neglect – protect

By Simon Merewether, Invasive Species, Bunbury; Glen Coupar, Invasive Species, Forrestfield; Mark Sivyer, Horticulture and Harald Hoffmann, Biosecurity Communications, South Perth

There are occasions when fruit trees and vines do not get the tender loving care they deserve. This may be due to a change of ownership, water restrictions or a person's work commitments, poor health or basic loss of interest.

The owners of neglected fruit trees and vines are often unaware that poor maintenance causes plant stress which allows the build-up of pests and diseases. These can affect nearby healthy trees in backyards and more importantly in commercial orchards. Also, exotic pests and diseases (currently not in Western Australia) may go undetected for some time and could develop into a major threat to the industry. Neglect can be destructive and lead to expensive control programs.

This Gardennote covers:

- legislative responsibilities of fruit and vine growers
- maintenance needed to avoid a pest and disease build-up
- guidelines to remove unwanted fruit trees and vines
- pests and diseases commonly found in neglected fruit trees and grape vines.

Legislative requirements

Whether you own one fruit tree or vine—or an entire orchard or vineyard—you are responsible for its care and management.

Pests and diseases don't respect boundaries and easily cross to neighbouring properties. This means that one neglected orchard can cause problems for all growers in a district.

Under legislation established to protect our agricultural industries, officers of the Department of Agriculture and Food, Western Australia (DAFWA) can inspect orchards and vineyards. Owners can be directed to rectify any pest and disease management issues identified in poorly maintained and diseased orchards. The ultimate remedial action that can be ordered is the removal of plants.

But why let it come to that, when appropriate orchard and vineyard management can prevent the build-up of pests and diseases.

Neglected fruit trees are a breeding ground for insect pests as well as fungal and bacterial diseases which affect other fruit growers.

Maintenance of vines and fruit trees

Maintenance includes pesticide spraying, pruning and thinning of fruit. This is essential for good hygiene. If a fruit tree can't be managed at optimum level, you should reduce the canopy and apply two copper sprays (late dormancy and leaf fall) and one oil spray (late dormancy) per year to protect against diseases and sap-sucking insects (stone fruit will need a more intense management program to control leaf curl, brown rot and Mediterranean fruit fly infestations, if you cannot meet these requirements, remove the trees). Reduce water and fertiliser applications and minimise fruit bearing (by hard pruning and fruit stripping) to prevent fruit fly breeding. Harvest your fruit, collect all windfalls and dispose of them in a sealed plastic bag. Regularly inspect your trees; early detection will reduce the cost of controlling pests and diseases. Depending on the nature of the pest or disease, effective chemical sprays are available to eradicate or manage the problem.

If a larger area of grapevines needs to be 'mothballed', the spray program would be quite intensive and probably uneconomical. A neglected vineyard is a breeding ground for Mediterranean fruit fly and downy mildew because leaves and fruit would be produced no matter how it is managed. If a vineyard cannot be managed intensely, pull it out.

To ‘mothball’ a small number of backyard grapevines, regularly remove all foliage. They will always re-sprout.

The Pest and Disease Information Service of DAFWA can advise you on these control methods and appropriate literature to guide you.

Removing unwanted fruit trees

Removing the roots of an unwanted tree or vine will avoid suckering. If that can’t be done for some reason, you can kill the tree with a registered herbicide applied to the stump. It is critical that the herbicide is applied to the stump ***immediately*** following the cut. If that cannot be done for practical reasons, notch the live trees near ground level with an axe and apply a registered herbicide such as a 50:50 mix of glyphosate and water immediately into the notch.

Thorough checking of the area needs to be carried out for at least two years following the removal operation to monitor possible regrowth. Control of regrowth may need to be carried out with a registered herbicide.

If fruit trees are not killed completely, they may regrow from the rootstock.

Pests and diseases: a ready reference

This section provides a brief description of some of the most serious pests and diseases that threaten our orchards and vineyards and those that cause problems each year and need to be managed.

Insect pests

Mediterranean fruit fly or Medfly (*Ceratitis capitata*)

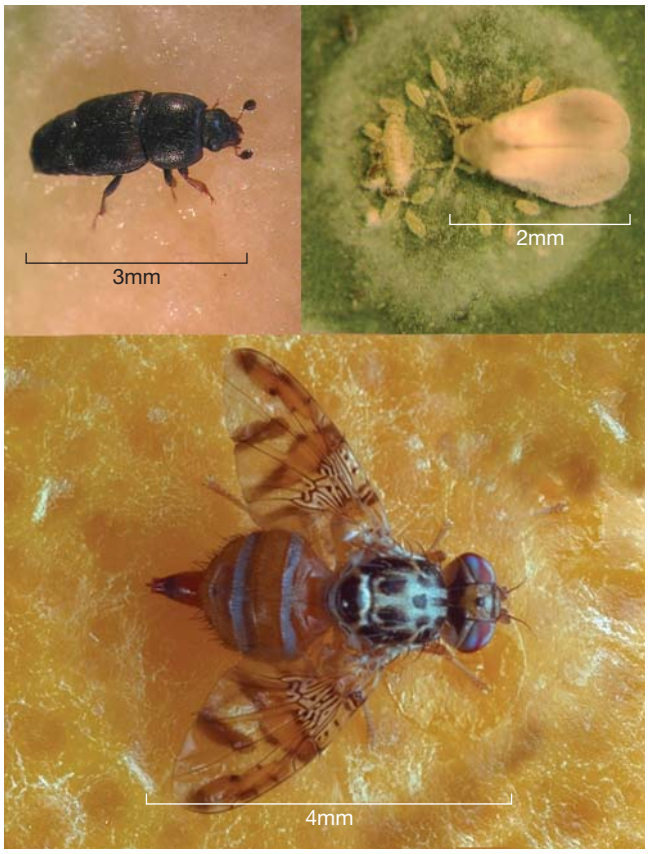
First detected in Western Australia in 1895, the Medfly is found from Broome to Bunbury. This is the most serious fruit pest in Western Australia, attacking many fruits and vegetables including stone fruit, pome fruit (apples, pears, nashi and quince), citrus, guavas, figs and loquats. Unless all fruit are removed, good orchard hygiene, twice weekly foliage baiting and cover spraying are all essential control methods. If you do not have time to carry out the above control measures, remove the trees.

Driedfruit beetles *(Carpophilus spp)*

These beetles attack stone fruit, persimmons, citrus, apples and figs, and particularly damaged and rotting fruit. Good hygiene (for example, removal of fallen fruit) and pre-harvest spraying are essential. Driedfruit beetles can spread the devastating disease brown rot.

Citrus whitefly (*Orchamoplatus citri*)

First detected in Western Australia in 1950, the citrus whitefly attacks all forms of citrus. The fly secretes honey dew, on which sooty mould grows, discolouring the fruit. Routine white oil sprays are most effective in spring.



Clockwise from top left: Driedfruit beetle, citrus whitefly adult with crawler and eggs and Mediterranean fruit fly

Weevils

Numerous types of weevils affect fruit trees. Weevils are mainly nocturnal and can live for several months. The main pest species in south-western Australia are apple weevil, whitefringed weevil, Fuller’s rose weevil and garden weevil. Adults attack leaves and bark and the larvae live in the soil and attack roots. Weevil attacks can be slowed down with fluffy dacron bands placed around tree trunks. Registered insecticides are available for weevil control.

Clockwise from top left: Apple weevil, whitefringed weevil, garden weevil and Fuller’s rose weevil

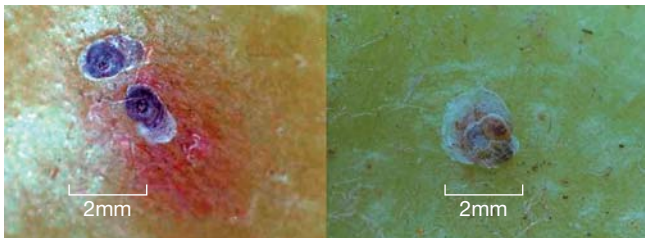
Red scale (*Aonidiella aurantii*)

Red scales are sap-sucking insects, which attack leaves, fruit and branches in many fruit trees. Heavy infestations can kill trees and downgrade fruit.

Red scales are naturally controlled by parasitic wasps and ladybirds. White oil sprays will control bad infestations.

San Jose scale (*Diaspidiotus perniciosus* (*Comstock*))

San Jose scale attacks the bark and fruit of apple, pear, peach, plum, nectarine and cherry trees. Heavy infestations can cause limb dieback and the death of trees. Strong pesticides are required to control this devastating insect. The optimum time to spray varies with different fruits.



San Jose scale *Red scale*

Diseases

Leaf curl (*Taphrina deformans)*

Leaf curl affects stone fruit from July to December. Leaves become thickened, blistered and distorted with pink tinges. Six or seven fungicide sprays will need to be applied to peach and nectarine trees per season to control this disease. It is therefore difficult to effectively 'mothball' peach and nectarine trees.

Downy mildew of grapes (*Plasmopara viticola*)

This disease was detected for the first time in the Swan Valley in 1998. It has subsequently spread to all grape-growing areas in the south-west. This disease will affect leaves, stems and fruit and can spread throughout an entire vineyard in a short period. The ideal conditions for disease development are 10:10:24 (10 mm rainfall when the minimum temperature is above 10˚C for a 24-hour period).

Clockwise from top left: Leaf curl, different stages of downy mildew in grape bunches, downy mildew on grape leaves, powdery mildew on apples

The disease can survive in the soil for a long period and can be spread from property to property in soil. The disease is also spread by wind from infected properties. Fungicide sprays should be used in the early season at two-weekly intervals. Additional sprays may be needed between flowering and colour change for table grapes. (See DAFWA's Bulletin 4708 for more information).

Powdery mildew of apples *(Podosphaera leucotricha)*

Primary mildew infection results from the growth of infected over-wintered leaf or fruit buds. These buds may be killed or they may grow abnormally; leaves become narrow, brittle, curled and covered with a white powdery layer, while flowers may be stunted and fail to develop. Secondary mildew infections may appear as a powdery mottling on either side of the leaves.

Early fruit infection causes a web-like russet on the skin that may be difficult to distinguish from early spray damage. Less commonly, fruit may be distorted and partly covered with a white powdery coating of spores.

Brown rot of stone fruit (*Monilinia fructicola, M. laxa*)

This fungal disease was first detected in Western Australia in 1997. The disease attacks all stone fruit and ornamental Prunus. Successful brown rot control depends on two main factors: orchard hygiene and a good chemical spray program. Remove the source of the disease (rotted fruit or 'mummies' and blighted twigs) from the previous season and follow by a spray program that protects all blossoms. (See DAFWA's Factsheet 181 for more information on this disease.)

Brown rot on peach

Exotic pests and diseases

The following pests and diseases are not known to be in Western Australia. They could all hide in neglected orchards. Report any sightings to the number below.

Codling moth (*Cydia pomonella*) and oriental fruit moth (*Grapholita molesta*)

Outbreaks have occurred in recent years. Codling moth, which affects pome fruit, is not established in Western Australia and infestations are subject to eradication. Evidence of attack is larvae inside the fruit and frass (droppings) on the surface. Prevention involves frequent spraying during the growing season.

Oriental fruit moth larva *Codling moth larva*

Queensland fruit fly or Qfly (*Bactrocera tryoni*)

Outbreaks have occurred in recent years. Qfly attacks many varieties of fruit and vegetables. The Department of Agriculture and Food operates a Qfly surveillance network of baited traps and eradicates infestations as they develop.

Queensland fruit fly

Apple scab (*Venturia inaequalis*)

This serious fungal disease occurs in every commercial apple-growing region of the world except Western Australia. The disease has been successfully eradicated from Western Australia several times. Apple scab attacks both leaves and fruit. Yield losses can be high and infected fruit is unmarketable. All major apple varieties grown in Western Australia are very susceptible to this disease.

Early apple scab leaf and fruit infection

Brown rot of apples (*Monilinia fructigena*)

Brown rot of apples is currently not in Australia. It shows as a rapidly spreading firm brown decay on ripening or mature fruit. Diseased fruits tend to remain attached to the tree and decaying tissue causes shoot dieback. Cankers may develop on shoots and small branches. Tufts of grey mycelium (the vegetative part of the fungi) may be produced on the surface of active lesions.

Fire blight of pome fruit (*Erwinia amylovora*)

This bacterial disease affects many plants including apple, pear, loquat, quince and cotoneaster. The symptoms include brown wilting of blossoms, shoots and leaves, with a scorched appearance; discoloured sunken areas or cankers on branches, limbs and trunks; the presence of a bacterial ooze in warm, humid weather; and red brown discolouration of the sapwood. Control of the disease is difficult and eradication is unlikely. If you see symptoms that look like fire blight, contact the Department of Agriculture and Food immediately.

Brown rot on apples *Fire blight*

Note: Fruit trees falling into neglected orchard status can be removed at the owner's expense.

When sending or delivering samples, the following information is required: Collector's name, location (where the specimen was found), full address, description of the damage, and date collected.

Department of Agriculture and Food
Pest and Disease Information Service
3 Baron-Hay Court
South Perth WA 6151
Phone 1800 084 881
Email: info@agric.wa.gov.au

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