

Wine grapes information kit

Reprint – information current in 1997



REPRINT INFORMATION – PLEASE READ!

For updated information please call 13 25 23 or visit the website www.deedi.qld.gov.au

This publication has been reprinted as a digital book without any changes to the content published in 1997. We advise readers to take particular note of the areas most likely to be out-of-date and so requiring further research:

- Chemical recommendations—check with an agronomist or Infopest www.infopest.qld.gov.au
- Financial information—costs and returns listed in this publication are out of date. Please contact an adviser or industry body to assist with identifying more current figures.
- Varieties—new varieties are likely to be available and some older varieties may no longer be recommended. Check with an agronomist, call the Business Information Centre on 13 25 23, visit our website www.deedi.qld.gov.au or contact the industry body.
- Contacts—many of the contact details may have changed and there could be several new contacts available. The industry organisation may be able to assist you to find the information or services you require.
- Organisation names—most government agencies referred to in this publication have had name changes. Contact the Business Information Centre on 13 25 23 or the industry organisation to find out the current name and contact details for these agencies.
- Additional information—many other sources of information are now available for each crop. Contact an agronomist, Business Information Centre on 13 25 23 or the industry organisation for other suggested reading.

Even with these limitations we believe this information kit provides important and valuable information for intending and existing growers.

This publication was last revised in 1997. The information is not current and the accuracy of the information cannot be guaranteed by the State of Queensland.

This information has been made available to assist users to identify issues involved in wine grape production. This information is not to be used or relied upon by users for any purpose which may expose the user or any other person to loss or damage. Users should conduct their own inquiries and rely on their own independent professional advice.

While every care has been taken in preparing this publication, the State of Queensland accepts no responsibility for decisions or actions taken as a result of any data, information, statement or advice, expressed or implied, contained in this publication.



Queensland Government



Problem **SOLVER**

Every crop will have a problem or two. The key to dealing with problems is prompt identification and, where appropriate, prompt treatment. This section helps you with both these decisions. The common problems are shown in a series of pictures grouped according to the main symptom. From the contents, find the symptom that best fits your problem. On that page you will find photos of the causes and the solutions.

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Spots on leaves



1. Phomopsis

Cause. The fungus *Phomopsis viticola*.

Solution. Spray with mancozeb and again seven to 14 days later. Use the shorter interval during wet weather. Do not apply mancozeb within 30 days of harvest. Mark diseased vines so that infected canes can be removed in winter to reduce disease pressure during the next growth season.

Chemical details are in the *Problem solver handy guide*.



2. Black spot

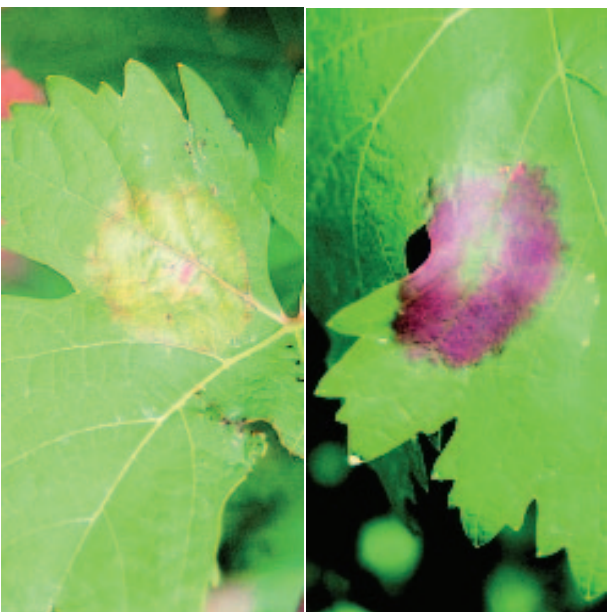
Cause. The fungus *Elsinoe ampelina*.

Solution. If detected before flowering, apply two to three sprays of ziram at seven to 14 day intervals. Use the shorter interval if weather is cool and wet. Do not use ziram after 80% capfall.

If detected at or after flowering, apply mancozeb every 14 days up to 30 days before harvest.

Remove affected shoots to reduce disease pressure. Mark diseased vines so that infected canes can be removed in winter to reduce disease pressure during the next growth season.

Chemical details are in the *Problem solver handy guide*.



3. Downy mildew

Left: typical oil spot. Right: oil spots may be reddish on red varieties.

Cause. The fungus *Plasmopara viticola*.

Solution. Apply one spray of Ridomil Plus and reapply 14 to 21 days later if nights are warm and humid. Do not use within 30 days of harvest.

If detected within 30 days of harvest, phosphorous acid can be used up to five days before harvest.

Chemical details are in the *Problem solver handy guide*.

Chewed leaves



4. Caterpillar damage

Caterpillars of grapevine moth pictured.

Cause. Chewing by caterpillars of grapevine, hawk or lightbrown apple moth. Grasshoppers cause similar damage.

Solution. Each week from spring onwards, check 20 vines across the vineyard for caterpillars. Identify type of caterpillar causing damage in young vines. For grapevine moth or hawk moth, spray only when caterpillar numbers exceed one caterpillar per two vines. In mature vines, spray when numbers exceed five caterpillars per vine. For lightbrown apple moth, spray when numbers exceed one caterpillar per vine.

Select appropriate chemicals from the *Problem solver handy guide*.

Greyish white powder on leaves



5. Powdery mildew

Cause. The fungus *Uncinula necator*.

Solution. Apply two sprays of either fenarimol or triadimenol seven days apart. Do not spray within 35 days of harvest. Immediate control is needed to prevent spread to bunches.

Chemical details are in the *Problem solver handy guide*.



6. Downy mildew

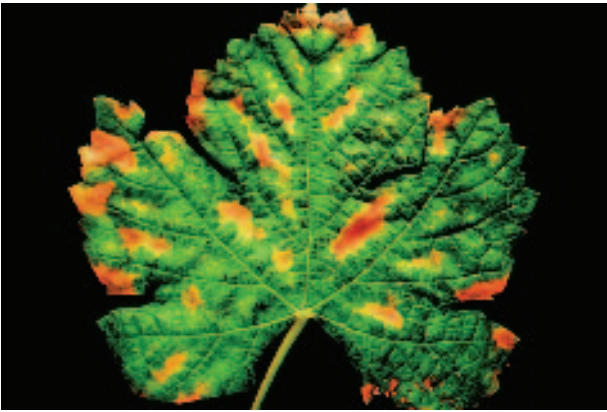
Cause. The fungus *Plasmopara viticola*.

Solution. Apply one spray of Ridomil Plus and reapply 14 to 21 days later if nights are warm and humid. Do not use within 30 days of harvest.

If detected within 30 days of harvest, phosphorous acid can be used up to five days before harvest.

Chemical details are in the *Problem solver handy guide*.

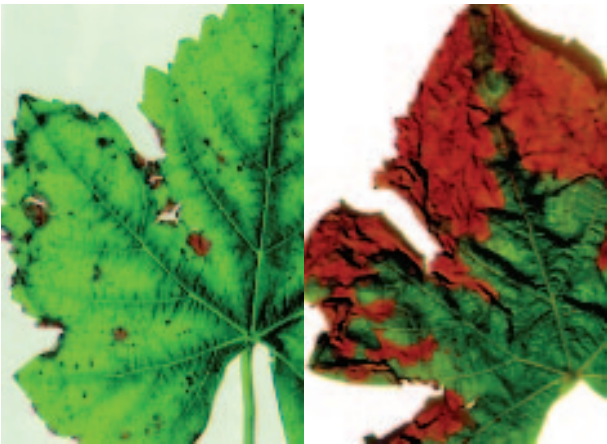
Discoloured leaves



7. Magnesium deficiency

Cause. Deficiency of magnesium in the vine.

Solution. First confirm your diagnosis with tissue analysis. Apply up to three Hydromag or Magtrac foliar sprays at 14 day intervals. Foliar sprays after berry colouring are unlikely to be effective in reversing yield or quality loss. In the long term, do a soil analysis in early winter and apply dolomite, granomag or magnesium sulphate to the soil, as recommended by the soil analysis results.



8. Potassium deficiency

Left: early symptoms. Right: advanced symptoms.

Cause. Deficiency of potassium in the vine.

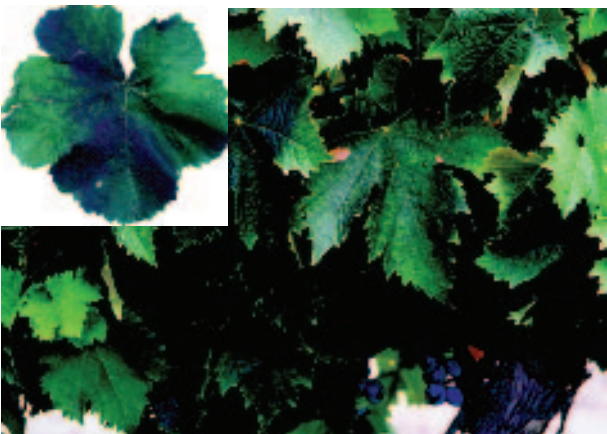
Solution. First confirm your diagnosis with tissue analysis. Apply two foliar sprays 21 days apart of either potassium nitrate or K spray.



9. Zinc deficiency

Cause. Deficiency of zinc in the vine.

Solution. First confirm your diagnosis with tissue analysis. Apply up to three sprays of Zinctrac or Zincsol foliar sprays at 10 day intervals.



10. Rust mite

Inset: close-up of affected leaf.

Cause. Feeding of rust mite *Calepitrimerus vitis*.

Solution. First check that live mites are still present and damage levels are sufficient to warrant spraying. Use a pest consultant if you are unsure about this.

Where required, apply one spray of dispersible sulphur. Do not use within 30 days of harvest.

Chemical details are in the *Problem solver handy guide*.

Discoloured leaves



11. Leafroll disease

Cause. Grapevine leafroll virus.

Solution. There is no cure for infected vines. Remove infected vines from the vineyard. In future, obtain vines from accredited sources.



12. Salt burn

Cause. Soil or water salinity.

Solution. First confirm your diagnosis with tissue analysis and a water quality test. Water heavily to leach salt out of the root zone. Seek alternative sources of better quality water.



13. Yellowing

Upper: *Armillaria* root rot. Lower: grapevine yellows.

NOTE: Similar yellowing can also be caused by waterlogging, dry soil conditions, nematode damage, borer damage, nitrogen deficiency and very heavy crop set.

***Armillaria* root rot**

See also page 13 for a picture of the characteristic white fungal growth under the bark at the base of the vine.

Cause. The fungus *Armillaria luteobubalina*.

Solution. There is no cure for infected vines. Remove infected vines with as many roots as possible. Either fumigate the site with methyl bromide before replanting, or avoid replanting for at least two years.

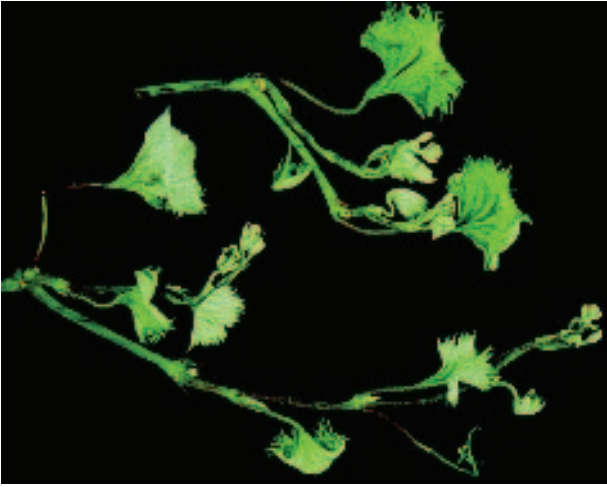
Grapevine yellows

Cause. A grapevine phytoplasma (a microscopic disease organism).

Solution. There is no cure for infected vines. If the disease has not spread throughout the entire vine, remove infected cordons and train adjacent healthy shoots to replace them. If the whole vine is infected, remove it.

See page 12 for details of how to prevent the disease from occurring.

Distorted leaves



14. Glyphosate or 2,4-D damage

Cause. Spray drift of herbicide on to green parts of the vine.

Solution. Vines may grow out of the problem if they are kept growing vigorously. Do not use 2,4-D within 10 km of vines.



15. Bud mite

Cause. Feeding of bud mite *Colomerus vitis*.

Solution. First confirm that bud mite is the cause and sprays are needed. Use a pest consultant if you are unsure about this.

If detected before flowering, apply one spray of carbaryl. Use no later than 80% capfall.

If detected after flowering has started, apply dispersible sulphur. Do not use within 30 days of harvest.

If bud mite was a problem during the previous season, apply one spray at budburst.

Chemical details are in the *Problem solver handy guide*.



16. Blister mite

Cause. Feeding of blister mite *Colomerus vitis*.

Solution. First check that live mites are still present and damage levels are sufficient to warrant spraying. Use a pest consultant if you are unsure about this.

If detected before flowering, apply one spray of carbaryl. Use no later than 80% capfall.

If detected after flowering has started, apply dispersible sulphur. Do not use within 30 days of harvest.

Chemical details are in the *Problem solver handy guide*.

Distorted leaves



17. Frost damage

Cause. Frost during growing season.

Solution. There is no cure for damaged tissues. Consider installing overhead irrigation or oil heaters to provide protection.



18. Black spot

Cause. The fungus *Elsinoe ampelina*.

Solution. If detected before flowering, apply two to three sprays of ziram at seven to 14 day intervals. Use the shorter interval if weather is cool and wet. Do not use ziram after 80% capfall.

If detected at or after flowering, apply mancozeb every 14 days up to 30 days before harvest.

Remove affected shoots to reduce disease pressure. Mark diseased vines so that infected canes can be removed in winter to reduce disease pressure during the next growth season.

Chemical details are in the *Problem solver handy guide*.

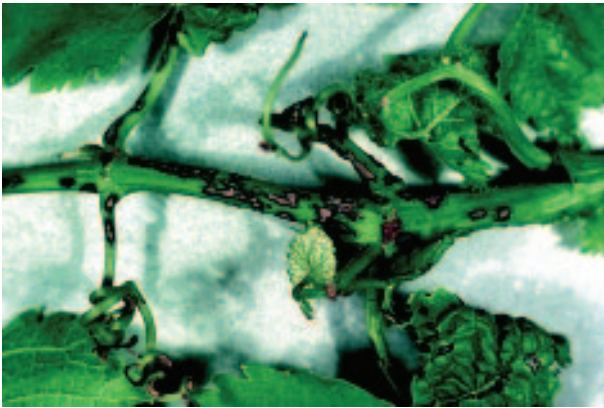


19. Leafroll disease

Cause. Grapevine leafroll virus.

Solution. There is no cure for infested vines. Remove infected vines from the vineyard. In future, obtain vines from accredited sources.

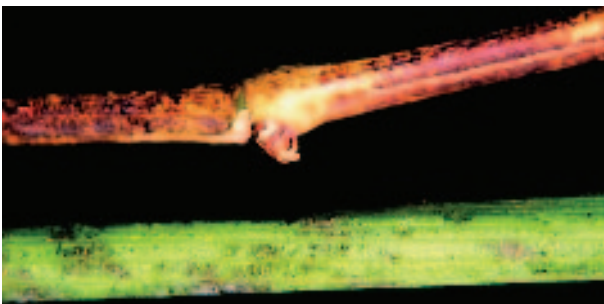
Spots or cracks on canes or spurs



20. Black spot

Cause. The fungus *Elsinoe ampelina*.

Solution. If detected before flowering, apply two to three sprays of ziram at seven to 14 day intervals. Use the shorter interval if weather is cool and wet. Do not use ziram after 80% capfall. If detected at or after flowering, apply mancozeb every 14 days up to 30 days before harvest. Remove affected shoots to reduce disease pressure. Mark diseased vines so that infected canes can be removed in winter to reduce disease pressure during the next growth season. Chemical details are in the *Problem solver handy guide*.

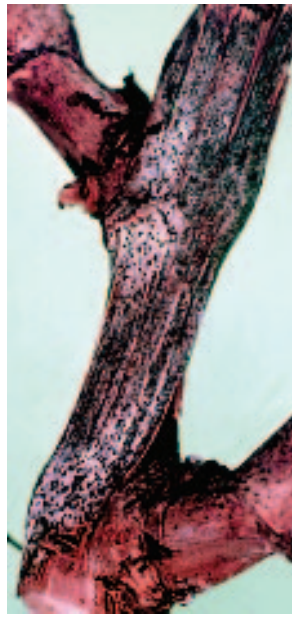


21. Powdery mildew

Cause. The fungus *Uncinula necator*.

Solution. Apply two sprays of either fenarimol or triadimenol 14 days apart. Immediate control is needed to prevent spread to bunches. Do not spray within 35 days of harvest.

Chemical details are in the *Problem solver handy guide*.



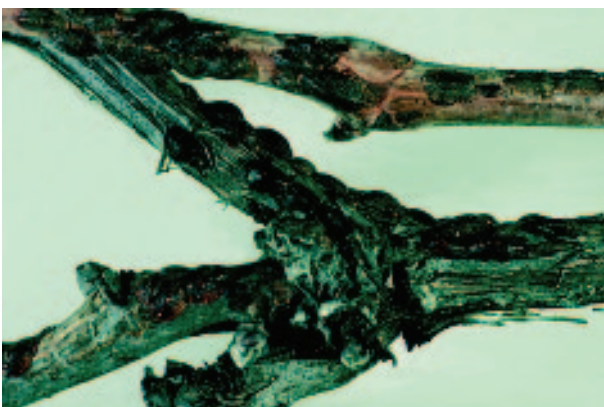
22. Phomopsis

Left: early symptoms. Right: a dead cane showing the bleached appearance and the small black fruiting bodies of the fungus.

Cause. The fungus *Phomopsis viticola*.

Solution. Spray with mancozeb and again seven to 14 days later. Use the shorter interval during wet weather. Do not apply mancozeb within 30 days of harvest. Mark diseased vines so that infected canes can be removed in winter to reduce disease pressure during the next growth season.

Chemical details are in the *Problem solver handy guide*.



23. Scale

Cause. Presence of grapevine scale *Parthenolecanium persica*.

Solution. Spray with an appropriate chemical from the *Problem solver handy guide*.

Use oil sprays in winter for minimal disruption of the beneficial natural predators of scale.

Grey or white downy growth on flowers

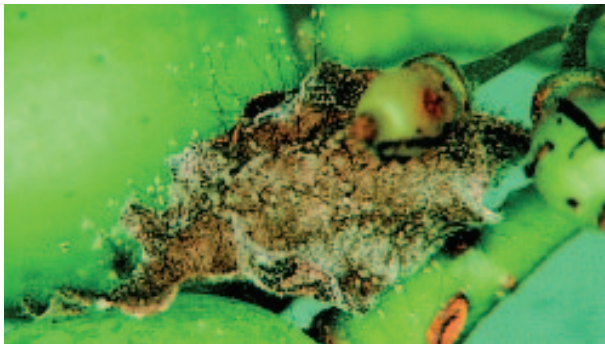


24. Downy mildew

Cause. The fungus *Plasmopara viticola*.

Solution. Apply one spray of Ridomil Plus and reapply 14 to 21 days later if nights are warm and humid. Do not use within 30 days of harvest.

Chemical details are in the *Problem solver handy guide*.



25. Botrytis

Cause. The fungus *Botrytis cinerea*.

Solution. Spray with a preferred fungicide from the *Problem solver handy guide*.

Grey or white downy growth on fruit



26. Powdery mildew

Left: overall symptom. Right: close-up of mildew on berries.

Cause. The fungus *Uncinula necator*.

Solution. Apply two sprays of either fenarimol or triadimenol seven days apart. Immediate control is needed to prevent further spread. Do not spray within 35 days of harvest.

Chemical details are in the *Problem solver handy guide*.



27. Botrytis

Cause. The fungus *Botrytis cinerea*.

Solution. Where Botrytis is found on bunches, apply Rovral at 14 day intervals up to seven days before harvest. If more than 10% of bunches are infected, remove infected bunches to reduce disease load. Increase air circulation through the canopy by pruning, shoot positioning and leaf removal around bunches.

In wet conditions, spray at 10-day intervals with Rovral or Sumislex. Do not use either chemical within seven days of harvest. Chemical details are in the *Problem solver handy guide*.

Spots on berries



28. Black spot

Cause. The fungus *Elsinoe ampelina*.

Solution. Apply mancozeb every 14 days up to 30 days before harvest. Remove affected bunches to reduce disease pressure.

Chemical details are in the *Problem solver handy guide*.

Discoloured or rotting berries



29. Botrytis or bunch rots

Upper: Botrytis. Lower: bitter rot - one of the common bunch rots.

Cause. Primary infections of the fungus *Botrytis cinerea* or secondary infections of fungi such as *Greeneria uvicola* (bitter rot), *Aspergillus* spp. and *Rhizopus* spp. Botrytis can infect sound, undamaged berries under warm moist conditions. Bunch rots develop after initial damage from Botrytis, downy mildew, hail, fruit fly or birds.

Solution. Apply Rovral at 14 day intervals up to seven days before harvest. If more than 10% of bunches are infected, remove infected bunches to reduce disease load. Increase air circulation through the canopy by pruning, shoot positioning and leaf removal around bunches. Check for other possible primary causes such as hail damage, fruit fly stings or bird peck.

Chemical details are in the *Problem solver handy guide*.



30. Downy mildew

Cause. The fungus *Plasmopara viticola*.

Solution. Apply phosphorous acid every seven days. Do not use within five days of harvest.

Chemical details are in the *Problem solver handy guide*.



Discoloured or rotting berries



31. Powdery mildew

Cause. The fungus *Uncinula necator*.

Solution. Apply two sprays of either fenarimol or triadimenol 14 days apart. Do not use within 35 days of harvest.

Chemical details are in the *Problem solver handy guide*.

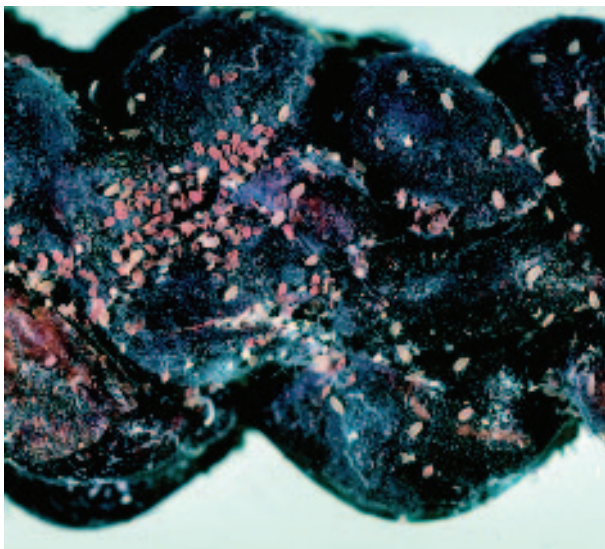


32. Sunburn

Cause. Insufficient shading under prolonged temperatures greater than 35°C or sudden exposure of shaded berries to sunlight.

Solution. There is no cure for affected fruit. Check canopy shade to reduce exposure of bunches.

Small brown lumps on fruit



33. Scale

Cause. Presence of grapevine scale *Parthenolecanium persicae*.

Solution. Spray with Lorsban up to 30 days before harvest.

Use oil sprays in winter for minimal disruption of the beneficial natural predators of scale.

Chemical details are in the *Problem solver handy guide*.

Dark fruit stalks



34. Bunch mite

Cause. Feeding of bunch mite *Brevipalpus* spp.

Solution. Apply one spray of dispersible sulphur. Do not use within 30 days of harvest.

Chemical details are in the *Problem solver handy guide*.

Straggly bunches



35. Straggly bunch

Cause. There are several causes of straggly bunches. They include boron or zinc deficiency, varietal characteristics, use of copper fungicide, spray burn at flowering, excessive crop load and cool, wet weather.

Solution. Seek expert advice to identify the cause and appropriate action.

Yellow stunted vines (see also 'Yellowing' on page 5)



36. Grapevine yellows

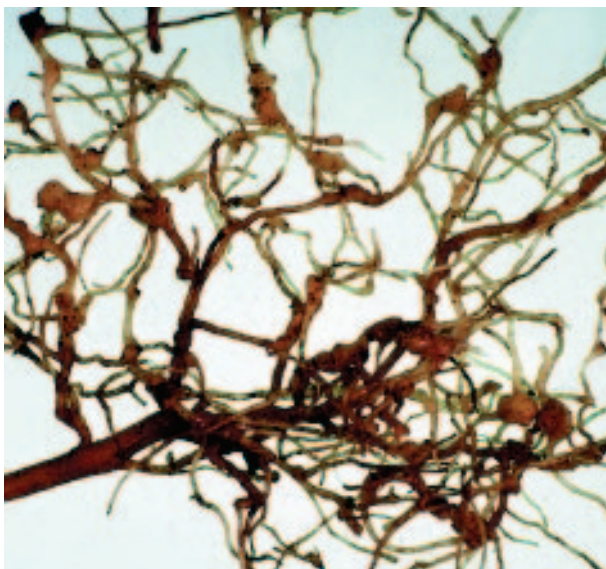
Cause. A grapevine phytoplasma (a microscopic disease organism).

Solution. There is no cure for grapevine yellows. If the disease has not spread throughout the entire vine, remove infected cordons and train adjacent healthy shoots to replace them. If the whole vine is infected, dispose of it.

Control broadleaved weeds within and around vineyard blocks. These are alternative hosts for the disease, which spreads through feeding of leafhoppers.

In future, obtain vines from accredited sources that use hot water treatment of cuttings.

Yellow stunted vines (see also 'Yellowing' on page 5)



37. *Armillaria* root rot

Upper: overall view of infected vine. Lower: close-up of the base of an infected vine showing the white growth of the fungus under the bark.

Cause. The fungus *Armillaria luteobubalina*.

Solution. There is no cure for infected vines. Remove infected vines with as many roots as possible. Either fumigate the site with methyl bromide before replanting, or avoid replanting for at least two years.

38. Nematodes

Photo shows root galls of the root knot nematode.

Cause. Infection of root system by root knot, root lesion, citrus or dagger nematodes.

Solution. Use Nematicur in early spring. Maintain soil organic matter levels at 2 to 3%.

When replanting, use nematode resistant rootstocks. Two to three months before planting, apply 50 to 100 tonnes per hectare of animal manure.

Chemical details are in the *Problem solver handy guide*.