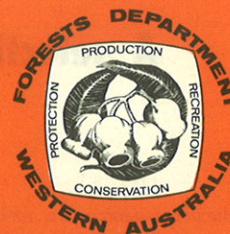




INFORMATION SHEET

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PLANTS RESISTANT TO *PHYTOPHTHORA CINNAMOMI*

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Phytophthora cinnamomi, the fungus which causes dieback, is widely distributed throughout the world, and more than 400 plant species have been listed as being affected. Among these are some of our most popular home garden plants such as azaleas, camellias, peaches, plums, cypress and eucalypts.

Most research to date has been confined to commercial plant species, and hence the known range of ornamental plants resistant to the disease is very restricted.

When a disease becomes as well known as dieback, and when its visible symptoms are similar to those of a wide range of other problems, it is natural that the death of a tree or shrub in the garden be attributed to this disease, not only by the owner but frequently by nurserymen and horticulturists. In some cases, this casual diagnosis may be correct, but in others it may be completely inaccurate.

The wide use of loam in metropolitan gardens as a medium for improving the fertility and moisture-holding capacity of the infertile sand has been practised for many years, and may have spread the disease over a fairly wide area. Nurseries also have contributed by the sale of unsuspected, contaminated stock in the days prior to the practice of sterilisation and hygiene.

Optimum conditions for the spread of *Phytophthora cinnamomi* are extended in home gardens by artificial

watering, and yet infection does not as a rule affect whole gardens, but is confined to an isolated tree or shrub. One of the reasons for this is the vertical drainage pattern of metropolitan sands. The ability of plants under good cultural conditions to produce a strong, vigorous root system which can balance the rate of infection could also be a contributing factor. In these situations of deep sands and good drainage, spread of the disease is confined to the movement of contaminated material and soil into healthy areas.

Low-lying situations and the heavier soils of the Darling Range are more prone to the spread of the fungus, and in *infected areas* in these localities it may be necessary to select species more tolerant to the disease.

The following list has been compiled from a literature search and from assessments of replanted dieback sites. The range and variety is restricted because of the limited amount of research into resistant ornamental species. In areas severely affected, the choice of plants should be restricted to those appearing in this list. In areas not severely affected, the range could be extended by the use of plants which have been noticed growing in similar situations in established gardens. In the deep sands of the metropolitan area, the extensive range of plants which are normally grown can still be used. If a plant is killed by *Phytophthora cinnamomi*, a resistant species from the list can then be selected.

A range of eastern states eucalypts growing on a former dieback area.



A selection of species resistant to *Phytophthora cinnamomi*

SHRUBS

- Aucuba japonica* var. *variegata* (2 m). Evergreen attractive shrub with variegated foliage requires a semi-shaded position.
- Berberis thunbergii* var. *atropurpurea* (2 m). Thorny, hardy deciduous shrub grown mainly for the attractive purple foliage which changes to deep crimson scarlet in autumn.
- Buddleia davidii* (4 m). Tall, upright semi-deciduous shrub producing long spikes of blooms during the summer and autumn. Available in a range of colours.
- Coprosma repens* (syn. *Bauerii*) (Mirror plant) (2 m). Attractive hardy, evergreen shrub, available also in variegated foliage forms. Suitable for seaside or inland planting.
- Cordyline australis* (Cabbage tree) (3 m). Hardy, evergreen plant with attractive strap-like foliage radiating from a central cluster. Used extensively as pot plants or for feature gardens. Suitable for seaside or inland planting. Will withstand dry conditions.
- Cytisus scoparius* var. *andreamus smithii* (Broom bush) (2 m). Hardy, evergreen small-leaved shrub with bronzy yellow and crimson pea-shaped flowers. Other varieties should also be resistant.
- Dodonaea viscosa* var. *purpurea* (Purple-foliaged hop bush) (2 m). Hardy, evergreen purple-foliaged plant with insignificant flowers followed by flat-winged capsules.
- Euonymus japonica* (1-2 m). Hardy, evergreen shrubs. Available in variegated forms.
- Forsythia intermedia* (3 m). Deciduous shrub covering its stems with bright yellow, narrow-petalled flowers in spring.
- Hebe speciosa* syn. *Veronica imperialis* (1 m). Hardy, evergreen shrub with racemes of magenta coloured flowers.
- Hibiscus syriacus* (3 m). Deciduous shrubs with attractive flowers available in a range of colours.
- Hoheria populnea* var. *alba* variegated (variegated N.Z. Lace Bark) (3-4 m). Deciduous shrub with the attractive foliage margined creamy-white. A form with central variegation is also available.
- Hydrangea hortensis* (2-3 m). Deciduous shrubs with large flower heads usually pink but changing to blue in acid soils.
- Juniperus sabina* (1 m). Semi-prostrate vigorous conifer suitable for banks or large rockeries, foliage green.
- Juniperus sabina squamata* var. *meyeri*. Similar to above with bluish-green foliage.
- Lonicera nitida* (Honeysuckle) (2 m). Evergreen shrub with small creamy-white flowers.
- Magnolia liliflora* var. *nigra* syn. with *Magnolia soulangeana* var. *nigra* (2-3 m). Attractive deciduous shrub with the flowers a dark purple on the outside and pale purple within. Require a semi-shaded position and an acid soil.
- Nerium* (Oleander) (6 m). Hardy, evergreen shrubs available in a range of colours.
- Phormium tenax* (N.Z. flax) (2-3 m). Evergreen, hardy plant with stemless leaves arising from the base. Available in green, purple or variegated forms. Adaptable to most situations.
- Photinia glabra* var. *rubens* (2-3 m). Hardy, compact, evergreen shrub, the new growth being a burnished coppery red.
- Pittosporum eugenioides* (3-5 m). Hardy, evergreen shrub or small tree with pale green foliage. The variegated form makes an attractive contrasting plant in the garden.

TREES

- Acer negundo* (Box elder) (15 m). Deciduous tree suitable for growing in cool situations.
- Angophora costata* (Smooth-barked apple) (20 m). Attractive evergreen tree resembling the eucalypts in appearance but differing in having opposite leaves and no operculum to the fruit.
- Cupressus arizonica* var. *bonita* (Arizona cypress) (5-9 m). Attractive, hardy pyramidal conifer with glaucous foliage.
- Cupressus torulosa* (Bhutan cypress) (9 m plus, depending on situation). Tall, conical, attractive specimen tree with drooping bluish-green branchlets.
- Eucalyptus accedens* (Powder-bark wandoo) (20 m). Smooth barked tree with a dense spreading crown and a white or sometimes salmon powder covering the bark.
- Eucalyptus astringens* (Brown mallet) (21 m). Upright tree, bronze coloured bark, dark green leaves, umbrella crown.
- Eucalyptus botryoides* (False mahogany) (18 m). Broad leaves, heavy crowned. Bark rough, dark grey.
- Eucalyptus calophylla* (Marri) (27 m). Heavy crowned attractive tree with rough, flaky persistent bark.
- Eucalyptus calophylla* var. *rosea* (Pink-flowered marri) (12 m). Broad leaves, dense crown, pink blossoms.
- Eucalyptus camaldulensis* (River gum) (27 m). Fast growing tree, bark white or grey and smooth. Crown dense, sometimes with a weeping habit.
- Eucalyptus citriodora* (Lemon scented gum) (18 m). Attractive stately tree with smooth white bark. Foliage not dense.
- Eucalyptus cladocalyx* (Sugar gum) (21 m). Large spreading crown and clean, smooth bark. Fast growing.
- Eucalyptus cladocalyx* var. *nana* (Dwarf sugar gum) (9 m). Fast growing, smooth bark, shiny green foliaged crown.
- Eucalyptus falcata* (White mallet) (8 m). Attractive small tree with smooth yellowish-white bark.
- Eucalyptus forrestiana* (Fuchsia mallee) (6 m). Attractive mallee, capsules at flowering time bright red, clustered and pendulous, stamens yellow.
- Eucalyptus gardneri* (Blue mallet) (10 m). Large dense crown, leaves bluish green, bark smooth and grey brown.
- Eucalyptus globulus* (Tasmanian blue gum) (30 m). Fast growing, large pendulous leaves.
- Eucalyptus kruseana* (Book-leaf mallee) (6 m). Unique appearance. Leaves small, round, sessile and bluish. Flowers yellow in spike-like arrangements.
- Eucalyptus laeliae* (Darling Range ghost gum) (18 m). An attractive heavy crowned tree with startling white powdery bark.
- Eucalyptus maculata* (Spotted gum) (30 m). Smooth, mottled bark, attractive crown, fast growing.
- Eucalyptus megacarpa* (Bullich) (24 m). An attractive tree with smooth white to yellowish-white bark. Prefers a swampy situation.
- Eucalyptus melliodora* (Yellow box) (30 m). Moderately dense crown with bluish-green drooping foliage.
- Eucalyptus microcorys* (Tallow wood) (24 m). Fibrous bark, light tan to brown. Rather pyramidal crown.
- Eucalyptus occidentalis* (Flat-topped yate) (18 m). Tall tree, umbrella crown. Bark on trunk rough and dark, on limbs grey and smooth.
- Eucalyptus patens* (Blackbutt) (30 m). Rough furrowed persistent bark with fine bluish-grey foliage.
- Eucalyptus platypus* var. *platypus* (Moort) (6 m). Densely foliaged small tree or mallee with round, shining, dark green foliage.
- Eucalyptus resinifera* (Red mahogany) (30 m). Heavy crowned ornamental shade and shelter tree.
- Eucalyptus robusta* (Swamp mahogany) (15 m). A spreading tree with a heavy crown of dark, glossy leaves.
- Eucalyptus rudis* (Flooded gum) (15 m). Short boled, spreading tree with rough grey persistent bark. Suitable only for very wet areas.
- Eucalyptus saligna* (Sydney blue gum) (30 m). Smooth bluish-white bark and dark green leaves.
- Eucalyptus salmonophloia* (Salmon gum) (24 m). Handsome tree. Bark smooth, salmon coloured. Dense crown with shiny leaves.
- Eucalyptus sideroxylon* (Mugga ironbark) (18 m). A fine shade and shelter tree.
- Eucalyptus spathulata* (Swamp mallet) (8 m). Small tree or mallee with smooth, bronze coloured bark. Leaves very narrow.
- Eucalyptus wandoo* (15 m). Fairly dense spreading crown. Bark smooth and light coloured. Foliage bluish-grey.
- Eucalyptus leucoxylon rosea* (Pink-flowered yellow gum) (9 m). Ornamental tree with attractive red blossoms.
- Liquidambar styraciflua* (Sweet gum) (12 m). Deciduous tree of pyramidal habit and dense maple-like foliage. The autumn tonings of yellow, gold and wine are at their best in cold districts.
- Pinus elliotii* (Slash pine) (20 m). Hardy tree, suitable for ornamental, shade or windbreak purposes.
- Pinus pinaster* (Maritime pine) (20 m). Hardy shelter tree with a dense spreading crown.
- Pinus taeda* (Loblolly pine) (20 m). Hardy shelter tree with a dense crown.
- Populus nigra* var. *italica* (Lombardy poplar) (25 m). Stately columnar deciduous tree. Suitable for open areas only.
- Quercus palustris* (Pin oak) (15 m). Deciduous tree with thin, glossy, green, deeply lobed leaves. Brilliant red autumn foliage in cool climates.
- Salix alba* var. *tristis* (White willow) (23 m). Deciduous tree with bright yellow drooping branches.