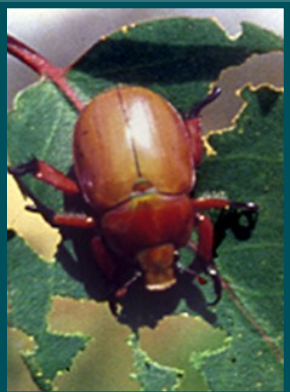


Fact Sheet

Dieback in south-east Australia



Dieback
Photo: Greening Australia



Christmas Beetle
Photo: CSIRO



Epicormic growth
Photo: Greening Australia

What is dieback?

Dieback is a general term describing a widespread long-term decline in tree health. It may be caused by a range of factors but has widely recognisable symptoms.

The first sign of dieback is usually canopy thinning which starts at the branch tips, followed by defoliation, epicormic growth (from the trunk and branches), and dead branches, eventually leading to tree death.

Causes of dieback

Dieback may be caused by a range of interacting factors, making it very difficult to predict or treat. Some suggested causes include agricultural practices (grazing, improved pastures, fertilisation, clearing), altered fire regimes, and climatic effects (warming, extreme events e.g. flood, drought). It is often associated with insect outbreaks, which may take advantage of trees under stress.

Although insect outbreaks are a natural occurrence, under certain conditions they can cause significant damage. As defoliated trees begin to recover, they produce epicormic growth which is very palatable to insects. This creates a feedback effect where trees are defoliated repeatedly over several years until they exhaust their energy reserves and eventually die.

Underlying factors contributing to insect related dieback may include:

- **Tree stress** – disease, weather, physical damage, soil, mistletoe etc.
- **Increased nutrient content of leaves** – fertilisation, build-up of manure, improved pastures
- **Favourable weather conditions** – depends on the type of insect. For example, Christmas Beetles mature in the soil so they benefit from high soil moisture in wetter seasons
- **Isolation** – lack of habitat for natural predators, exposure, greater insect burden on each tree

TREE DIEBACK



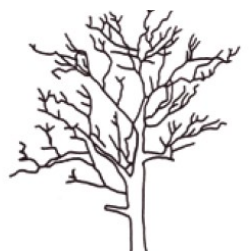
Stage 1:
Canopy thinning



Stage 2:
Defoliation



Stage 3:
Epicormic growth



Stage 4:
Tree death

Image: Upper Murrumbidgee Waterwatch

Dieback - Management and prevention

What can you do?

- **Don't cut down affected trees** – they are very resilient and may still recover.
- **Stem injected pesticides** – Imidacloprid (Bayer SilvaShield for tree injection). Effective for small numbers of trees in the short term (4 years), but very expensive and labour intensive at large scales.
- **Avoid physical damage to trees** – limit ploughing and herbicide application around remnant trees.
- **Fence trees to exclude stock where possible** - to allow regeneration and prevent ringbarking, compaction of soil and build-up of manure.
- **Replant diverse native species** and retain native pastures to attract native insectivorous birds and mammals and beneficial insects. For example, *Bursaria spinosa* is a flowering shrub that is vital habitat for a parasitic wasp that helps to control Christmas beetles.
- **Aim to connect isolated trees** with other remnant vegetation using corridors; or replant large areas around isolated trees.



Insect related dieback near Berridale, NSW – Photo: Tim the Yowie Man

Greening Australia can provide funding and advice for projects that improve ecosystem function and provide benefits for production.

Call 02 62533035 for more information.



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