



Fit-for-purpose equipment can improve both productivity and safety on site. Images: Vermeer Equipment of WA & NT

Looking after roots

While canopy health is often the most visible indicator of a tree's condition, Pia Finnigan of The Arboricultural Association of Western Australia – Arbwest – highlights how the real story begins underground.

From the scorching heat of Perth summers to wet winter storms, trees are essential assets in the Western Australian urban and regional landscapes. They provide shade, reduce heat, support biodiversity and enhance liveability – but their long-term health depends on what lies below ground.

Roots matter

Root damage can cause trees to decline and fail. In areas near construction work, roots are commonly impacted by trenching, excavation and paving.

When roots are severed, crushed or compacted, the consequences can include:

- Reduced nutrient and water uptake;
- canopy thinning and branches dying;
- increased susceptibility to drought; and
- structural instability.

In sandy WA soils, root anchorage is important. Mature eucalyptus trees and other large species rely on root systems for stability. Root damage can compromise both the tree's biological health and its structural integrity.

Often, symptoms are subtle to begin with – minor canopy decline, leaf discolouration or reduced vigour – before progressing to more serious issues such as soil heave at the base or fungal bodies indicating decay.

Safer excavation

Where excavation near trees is unavoidable, traditional mechanical digging methods can pose risks.

Vermeer Equipment of WA & NT Sales Manager Sam Hayes explained: "Vacuum excavation operates through two key

components that work together to provide a safe, non-destructive digging method. Part one is the water system, where water pressure can be adjusted to suit the application. The controlled water stream is used to break up and loosen the soil. Part two is the high-velocity vacuum system, which extracts the loosened material and deposits it into a sealed spoil tank for easy removal.

"For arborists, this method is particularly valuable when excavation is required around or beneath tree roots. Because the process relies on water and suction rather than mechanical digging, it reduces the risk of damaging the root system or compromising the health and stability of the tree. Vacuum excavation provides a precise, low-impact solution that helps protect mature trees during critical underground work.

"In WA's increasingly dense urban environments, where retaining established canopy is a priority, this non-destructive approach is becoming an important tool for arborists, contractors and local governments alike."

The right equipment

Looking after roots is only part of the picture. Safe and efficient above-ground management is equally important, particularly when transitioning from bushfire season into winter storm preparation.

Sam highlighted that having fit-for-purpose equipment can improve both productivity and safety on site.

"A wood chipper is an essential asset for arborists, and Vermeer Equipment of WA and NT is proud to support the industry with a broad range of machines

tailored to real-world needs," he said. "We recognise that one size does not fit all – whether a client requires hydraulic features such as landing legs, chutes, deflectors and a remote control, or prefers the simplicity of manual configurations, we can supply a machine that matches their needs and workflow. With advanced safety and productivity features – including smart feed, winch interlock systems and vertical feed rollers – feeding material into the chipper has never been easier or safer."

In WA conditions where large removals of storm-damaged trees and high-volume green waste are common, efficient processing equipment reduces manual handling and the risk of injury.

Understanding the critical root zone

When assessing potential root damage, arborists consider the critical root zone – the area around the trunk where the most important structural and absorbing roots are located. If roots within this zone are severed or decayed, the risk of tree damage increases. A tree may remain biologically alive – still producing leaves and appearing healthy – yet be structurally compromised below ground.

As a general guide, trees can sometimes tolerate up to 40 per cent root loss before severe decline occurs. However, structural stability may be compromised before visible canopy symptoms appear.

This is particularly relevant in WA, where:

- Sandy soils offer less resistance to root movement;
- prolonged summer drought stresses

trees already coping with reduced root mass; and

- winter storms can expose weaknesses created months or years earlier.

What to do?

Root problems are often subtle and easily overlooked by the untrained eye. Warning signs may include:

- A thinning canopy, particularly at the top;
- the tree leaning or soil lifting at the base;
- dead or broken surface roots; and
- fungal growth around the trunk.

If you suspect root damage, engage a qualified arborist. Professional assessment may include root investigation, soil testing, structural analysis and risk evaluation.

As Sam Hayes explained, the goal is not simply to remove trees at the first sign of trouble, but to manage and protect them wherever possible.

"Protecting root systems during excavation is one of the most effective ways to preserve mature trees," Sam said. "Once significant root damage has occurred, options become limited. Using the right method from the start makes all the difference."

Protecting WA's urban forest

In WA, retaining mature canopy is important for trees to survive. Whether it's through non-destructive excavation methods, careful construction planning, or using fit-for-purpose equipment, proactive management below ground supports safer, longer-lived trees above ground.

When the roots are right, everything else has a stronger foundation. AA

To find a qualified arborist in WA, visit arbwest.com.au/statewide.



Vacuum excavation with units like Vermeer's VX30-250 provides a safe, non-destructive digging method.



Vermeer Equipment of WA & NT Sales Manager Sam Hayes.