

Disease Profile

Common name	Girdling root syndrome, “J” roots	Host	Various
Pest/disease type	Abiotic disease		
Symptoms	Slow growth rate, small canopy, thinning canopy, poor colour, early leaf drop, soil heaving/cracking, structural instability, reverse taper		
Additional information	<p>Girdling Root Syndrome (GRS) is a common abiotic disease caused by incorrect nursery practises. As trees grow in containers they should be moved to larger container sizes at practical stages in their development to ensure that roots do not start to encircle the container. If this does not occur or if correct management is not applied at the time of re-potting then girdling root syndrome can occur.</p> <p>Trees that are planted into a landscape with GRS can have multiple problems arise:</p> <ul style="list-style-type: none"> • Roots can constrict other roots or the stem reducing uptake of water and solutes and downward movement of carbohydrates • If GRS is severe roots may never venture from the planting hole • If roots start to constrict the stem, the pressure exerted from the roots may prevent the stem from continuing to divide • Trees with GRS have an increased likelihood of failure • It should also be noted that GRS can occur naturally in a forest or open grown tree situation <p>In severe cases the roots may constrict the stem to the point where the trunk can no longer expand. Trunk tissue may swell above and below the girdling root creating a high probability of failure at the point.</p> <p>Compacted glazed planting holes may prevent roots from leaving the planting hole encouraging girdling roots. Roots that are cut close to the trunk may produce new roots at right angles. As these new roots increase in diameter they may begin to girdle the stem.</p> <p>Fast growing species seem to develop GRS more often.</p>		

Control options

Remedies	Inspect trees before accepting stock from a nursery. Ensure the nursery grows trees to a standard such as natspec.
Root pruning	<ul style="list-style-type: none"> • For small potted stock a Stanley knife may be used to make slits from the top of rootball down at 150mm intervals to stop small circling roots. • Larger potted stock or trees already growing in a landscape will need to be inspected by an arborist to assess suitability and location of cut



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References:

Costello, Edward, Matheny, and Henry, 2003, Abiotic disorders of landscape plants, a diagnostic guide.