

Radiata pine 'The remarkable pine'

Forests NSW Planted Forests Operations

Radiata pine (*Pinus radiata*) was originally named *Pinus insignis* or 'remarkable pine' – an apt name for a tree which has had such a dramatic impact on the world timber scene. It is a tree which is suited to a considerable range of growing conditions, is easily raised and planted, and provides larger yields of usable timber in a shorter time than many native species.

The timber is particularly useful: it can be readily sawn, peeled, or converted to pulp, has good nail-holding power, works well, can be easily stained, and when treated with preservatives, is suitable for long-life applications in the ground.

Radiata pine is a softwood tree, which means the wood does not have pores and has long fibres (tracheids) compared to hardwoods.

However, the name softwood is confusing because radiata pine is harder (denser) than many hardwoods such as balsa and poplars.

Radiata pine is a native of North America, growing naturally in three localities on a narrow stretch of coast in Southern California and two small islands off the coast of Mexico.

However, the species is now one of the most widely grown exotic timber species in the world, covering 3.7 million hectares (ha) with large areas of plantation in New Zealand (1.2 million ha), Chile (1.3 million ha), Australia (740,000 ha) and Spain (260,000 ha).

In its native habitat around Monterey in California, the tree is seldom taller than 35 metres, nor reaches an age beyond 75 years, and many trees are misshapen or affected by disease. Many other regions of the world, including parts of NSW, have proven more favourable to its growth and form than its natural habitat. Some of the early plantation trees in NSW

have reached heights of more than 50 metres in 70 years. However, a typical radiata pine tree in NSW is around 35 metres tall and half a metre across at chest height when harvested at about age 35.

There are around 251,000 ha of radiata pine plantations in NSW. Of these plantations, 64,000 ha (25 per cent) are private plantations and 187,000 ha (75 per cent) are State-owned plantations.

History

The species was introduced to Australia in the early 1850s, possibly via gold miners coming from the Californian gold rushes to the Australian goldfields. The tree was grown in the Sydney Botanic Gardens as early as 1857.

The first 'commercial' radiata pine plantation in NSW was planted at Tuncurry on the mid-north coast in 1914. Although this site proved unsuitable, planting expanded on more suitable sites throughout the State after the establishment of the Forestry Commission in 1916.

Annual plantings accelerated in the mid-1960s with the assistance of the Commonwealth-financed, 'Softwoods forestry agreement loans'. During the 11 years that these agreements were in operation, the Forestry Commission of NSW planted a total area of 76,000 ha. Plantings on new ground (first rotation) continues today at the rate of around 1000 ha per year and 5000 ha per year of second rotation crops (second crops on the same ground as the first).

The tree

When grown as a plantation tree, radiata pine is usually a tall, straight tree with small branches, except on the edge of the plantation where the accessibility to light and space allows the trees to grow large branches. Genetic improvements have contributed to the improvement in growth rates and

form (straightness and uniformity) of plantation grown radiata pine.

There are a small number of pests and diseases which may attack pine plantations. Fortunately, these are controllable with proper site selection and good management of such factors as fertility and harvesting schedules. In some cases, spraying with chemicals is a necessary control measure.

The tree has a wide tolerance to site and rainfall but the species performs poorly in heavy clay soils. Suitable soils should have a depth of at least 50 cm with well-drained subsoil and weathered rock, which is penetrable by water and root systems.

While radiata pine is frost and cold hardy it can be seriously damaged by heavy snowfalls, so it is generally planted below 1,000 metres in the Southern Slopes, and below 1,200 metres in the Central Tablelands.

Plantation radiata pine will grow reasonably well in areas with an average annual rainfall as low as 600 mm (24 inches), but for best commercial development a mean annual rainfall of at least 700 mm (28 inches) is recommended.

Further Reading

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Below: *Pinus Radiata*



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