Acacia cincinnata

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Fabaceae - Mimosoideae

BOTANIC DESCRIPTION
A. cincinnata grows up to 25 m tall and 40 cm diameter in moist parts in the tropics, but on drier sites of its natural range, it is a small tree less than 10 m in height. Bark compact, moderately hard, longitudinally fissured, grey-brown showing red-brown in the fissures. Young shoots covered with silky, golden yellow hairs, spines absent.

Mature phyllodes bright green, oblong lanceolate or falcate, 10-16 cm long and 1.5-3 cm wide with 3 prominent longitudinal veins running into each other on the lower margin near the base. There is a prominent raised gland at the base of the phyllode.

Flowers axillary spikes, 3-4 cm long, almost white to pale yellow and very faintly perfumed.

Pods linear, spirally and tightly coiled and glaucous when immature. Seeds longitudinal in the pod, 3-5 mm long, 2-3 mm wide. The aril is large and open, and a rather fine yellow funicle encircles the seed.

The generic name ‘acacia’ comes from the Greek word ‘akis’, meaning point or barb. The specific name is from the Latin ‘cincinnatus’, meaning ‘with curls’, and refers to the pods, which are spirally coiled. Its nearest relative is probably A. spirobis ssp. solandri. It is also closely related to A. polystachya, A. mangium and possibly A. auriculiformis.

BIOLOGY
Floral buds have been observed as early as 26 months in field trials near Gympie, Queensland. The tree is a hermaphrodite, pollinated by a wide range of insects including Coleoptera, Diptera, Hemiptera, Hymenoptera and Lepidoptera.

Leaves (Butler, G. ANBG Photo No.: q.73)

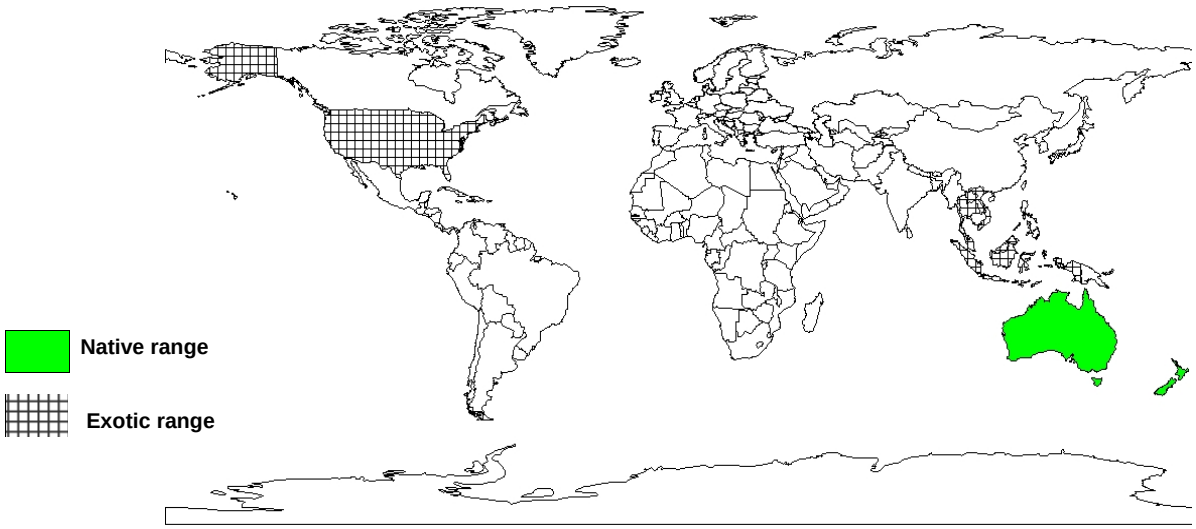
ECOLOGY
A. cincinnata is adapted to the humid tropics and subtropics. The trees grows best on lowlands and foothills but extends to the somewhat hilly tablelands and can withstand seasonal waterlogging. It is intolerant to frost and drought. Throughout much of its range, this acacia grows with fringing rainforest or as a constituent of rainforest regrowth areas. Confined to the east coast of Queensland in 2 main areas, in northern Queensland from Cairns to Mackay and in the south from Fraser Island to Brisbane. There are isolated occurrences on the lower slopes of the moister coastal ranges, such as the Eungella Range, between the main areas of distribution. In northern Queensland on some sites, A. cincinnata is codominant with A. aulacocarpa, A. mangium, A. polystachya and closed forest trees such as Alstonia muellerana. On other sites, it occurs with Acacia crassicarpa, A. flavescens, Eucalyptus intermedia, E. pellita, E. tereticornis and E. torelliana. In the south of its range, A. cincinnata is a component of open forest or tall open forest of eucalypts including Eucalyptus intermedia, E. microcorys, E. pilularis and E. resinifera. It is also recorded as a shrub occurring in the drier parts of swamps dominated by Melaleuca spp.

BIOPHYSICAL LIMITS
Altitude: 0-750 m, Mean annual temperature: 19-29 deg. C, Mean annual rainfall: 750-3500 mm

Soil type: A. cincinnata is highly productive under acid (pH 4-5) and high aluminium soil conditions. The soils are usually red and yellow podzolics, or yellow and red earths derived from sediments, schists, granite and volcanics. It is also found on deep, well-drained siliceous sands, peaty sands, soils associated with seasonal swamps and leached kranozems. The well-drained soils are of low to moderate fertility.

DOCUMENTED SPECIES DISTRIBUTION

Native: Australia, Fiji, New Zealand, Papua New Guinea, Samoa, Solomon Islands, Tonga
Exotic: Indonesia, Laos, Malaysia, Thailand, US, Vietnam



The map above shows countries where the species has been planted. It does neither suggest that the species can be planted in every ecological zone within that country, nor that the species can not be planted in other countries than those depicted. Since some tree species are invasive, you need to follow biosafety procedures that apply to your planting site.

PRODUCTS
Fodder: Young trees resprout well following cutting and have potential for production of animal fodder, if palatability and nutrient levels are satisfactory.

Fuel: A dense wood that burns well when dry.

Fibre: The wood may be a suitable source of kraft pulp with high screened pulp yield (77%), high pulpwood productivity (308 kg/cubic m) and acceptable bleaching characteristics. It has excellent potential as a source for fibre pulp in papermaking industries.

Timber: Wood is dark brown, attractively marked, close-grained, hard, tough, with a basic density of 510-580 kg/cubic m; it is somewhat greasy in nature. It is used for decorative purposes including cabinet work and turnery, and is also suitable for poles and posts. The wood is reportedly resistant to the teredo marine borer and may be useful for some marine purposes.

SERVICES
Erosion control: A. cincinnata has been successfully employed to restore land that has been degraded by slash-and-burn agriculture in Laos; also suitable for reforestation on poor soils.

Shade or shelter: It is suitable as a shade tree for cardamom and cocoa.

Nitrogen fixing: A. cincinnata nodulates and is nitrogen fixing.

Boundary or barrier or support: Trees are suitable as supports for passion fruit and yams.

Intercropping: It has been grown infrequently as an exotic but appears to have excellent potential for agroforestry purposes when planted on suitable sites, for example in southern China.

TREE MANAGEMENT
Saplings may be coppiced at higher cutting heights (about 0.5 m) but show limited regrowth if cut near ground level. Trees are site sensitive, being prone to premature senescence, gummosis and crown thinning if planted off site. The stem form can vary markedly in field trials, from specimens with a straight, tapering bole and small, horizontal branches to a bushy shrub, indicating the importance of species site matching and screening of provenances before embarking on broad-scale plantings. Best performance is achieved on deep, loamy soils and a short dry season. Trees have shown good wind resistance to tropical cyclones and typhoons. Growth rate is moderate in the early years, typically 1.5-2.5 m/year. Height growth and a dbh of 1-2.5 cm/year are recorded in humid parts of Southeast Asia. The most rapid growth has been recorded from an ex-forest site in Sabah, Malaysia, where annual height growth increment was 4.1m/year and dbh increment of 3 cm/year. On favourable sites, the rotation period for sawn timber is expected to be about 25 years.

GERMPLASM MANAGEMENT
A. cincinnata is easily propagated from seed, which has an orthodox storage behaviour. There are about 82,000 viable seeds/kg and germination rate is about 80% .

PESTS AND DISEASES
No serious pests or diseases have been reported.

FURTHER READNG

Cole TG, Yost RS, Kablan R and Olsen T. 1996. Growth potential of twelve Acacia species on acid soils in Hawaii. Forest Ecology and Management. 80(1-3): 175-186.

Doran CJ, Turnbull JW (eds.). 1997. Australian trees and shrubs: species for land rehabilitation and farm planting in the tropics. ACIAR monograph No. 24, 384 p.

Thomson LAJ. 1994. Acacia aulacocarpa, A. cincinnata, A. crassicarpa and A. wetarensis: an annotated bibliography. CSIRO.

Turnbull JW. 1986. Multipurpose Australian trees and shrubs: lesser-known species for fuelwood and agroforestry. ACIAR Monograph No. 1.

SUGGESTED CITATION

Orwa C, Mutua A , Kindt R , Jamnadass R, Simons A. 2009. Agroforestree Database:a tree reference and selection guide version 4.0 (http://www.worldagroforestry.org/af/treedb/)