Leucaena trichandra

(Zucc.) Urban

Fabaceae - Mimosoideae

LOCAL NAMES
Spanish (guaje rojo,guaje flojo,guaje chiquito)

BOTANIC DESCRIPTION
Leucaena trichandra is extremely variable in size and habit varying from a small slender shrub of 2 m height to a medium-sized tree to 20 m height and 50 cm bole diameter. Tree form is also very variable, usually slender with a clear bole up to 3 m height and a light feathery but spreading and irregular crown often modified by lopping. Bark on young branches smooth, rougher on bole, grey-brown to blackish-brown with shallow rusty orange-brown vertical fissures.

There are 11-20 pairs of pinnae, pinnular rachis 4-6 cm long; leaflets 4-7 mm long, 1-2 mm wide, 30-40 pairs per pinna, linear-oblong, acute at tip, and strongly asymmetric at base. Petiole gland one, or rarely a pair of adjacent glands, unstalked, strongly and deeply cup or crater shaped, round, 1.6-3.4 mm long by 1-1.7 mm wide and 1-2 mm tall, with an additional 1-2 glands at the base of terminal and sub-terminal pairs of pinnae and, where many, at the base of all pairs of pinnae.

Flower head 7-10 mm in diameter, 70-130 flowers per head, heads in groups of 3-5 in leaf axils, on actively growing indeterminate shoots; colour variable: stamen filaments white, sometimes tinged pink; anthers very hairy, pale cream-white, pinkish-grey, rose pink or violet, style white, tinged pink or scarlet.

Pods 7-11 cm long, 13-23 mm wide, 2-4 per flower head, narrowly or broadly linear-oblong, flat papery, yellow-green or reddish-green often deep maroon and very glossy unripe, becoming pale yellow or deep reddish-brown when ripe, sometimes lustrous, glabrous or covered in dense velvety hairs, opening along both sides.

Seeds 3-4 mm wide, 5-7 mm long aligned transversely in pods.

The specific name trichandra is derived from the Greek words trich- (hairy) and andrus (male) in reference to the anthers.

BIOLOGY
L. trichandra is out crossing and diploid. The flowering begins in June and lasts up to September, while fruits start appearing in March to May in its native range. Pods mature in 80-160 days.

Leucaena trichandra Foliage. taken at the ICRAF campus (Charles Wambugu - ICRAF)

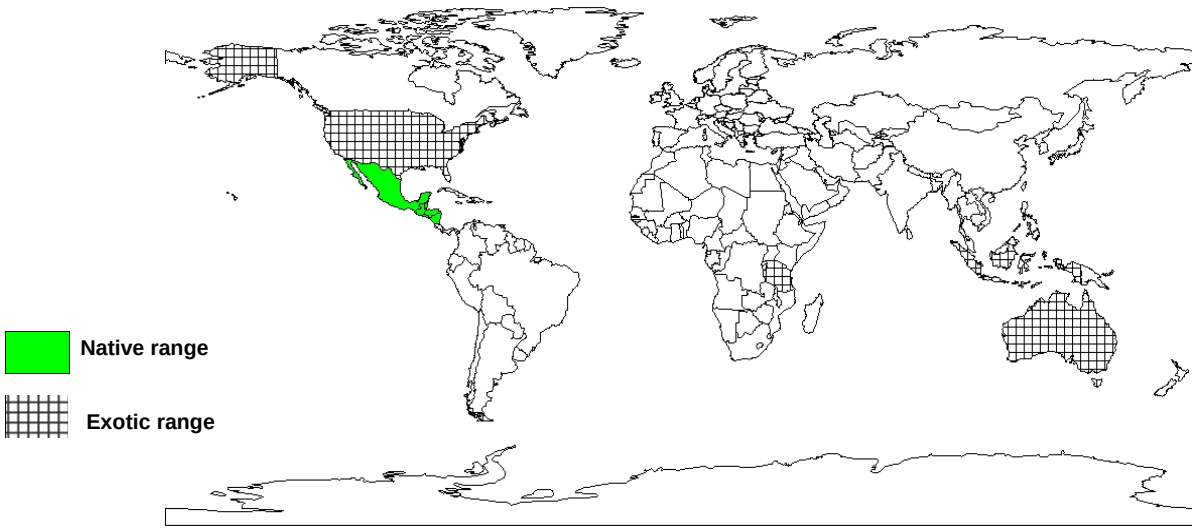
Leucaena planted between trees in-row, provide mulch for avocado trees. Pictured: Ross Gutteridge. (Craig Elevitch)

ECOLOGY
L. trichandra occurs primarily as a small understorey or lower canopy tree or shrub in pine and oak forests at mid elevations. It also extends at lower altitudes into dry deciduous forest, dry mattoral and dry secondary forest. The species does not tolerate frost, but grows in a wide range of soils from shallow calcareous over limestone to shallow infertile more acidic soils. It occurs in mixture with other species of Leucaena including L. esculenta and L. pallida.

BIOPHYSICAL LIMITS
Altitude: 200-2 500 m
Mean annual rainfall: 1 100-2 000 mm
Soil type: The species occurs on a wide range of soils from shallow calcareous over limestone to shallow infertile more acid soils over volcanic ignimbrites and tuffs which give rise to thin, heavily leached, nutrient-poor lithosols.

DOCUMENTED SPECIES DISTRIBUTION

Native: Belize, El Salvador, Guatemala, Honduras, Mexico, Nicaragua
Exotic: Australia, Indonesia, Tanzania, US



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
Food: The unripe pods, seeds and flower buds are eaten in parts of southern Mexico; mature seeds are harvested and occasionally marketed from July to September.

Fodder: As for other traits, fodder quality varies greatly with seed source, for instance condensed tannin content varies from very low to very high across different seed sources.

Fuel: The wood is valued for firewood, which is rated as good quality and easy to split.

Timber: Trees are used as a source of high quality poles and corner posts for house construction. The wood density varies with seed source. Wood from superior seed sources have average mean density of 0.7 and moderately high proportions of durable heartwood that forms rapidly.

SERVICES
Shade or shelter: It is used as a shade tree especially for coffee.

Nitrogen fixing: L. trichandra is nitrogen fixing.

Soil improver: Lopped leaves and twigs can be applied as green manure.

Boundary or barrier or support: The tree is commonly found scattered in fields and fencelines.

Intercropping: The species is incorporated in traditional indigenous agroforestry systems in its native range.

TREE MANAGEMENT
The tree resprouts readily, even from large stumps after cutting and is amenable to regular lopping.

GERMPLASM MANAGEMENT
There are 40 000-70 000 seeds/kg.

PESTS AND DISEASES
Four species of bruchid beetles from the genus Acanthoscelides have been reported to infect the seeds. A. macrophthalmus, A. mankinsii, A. boneii and A. leucaenicola have been identified as pests of this species as well as other Leucaena species. Seeds are also attacked by Stator limbatus.

FURTHER READNG

Bray RA et al. 1997. The World Leucaena Catalogue. Department of Agriculture, The University of Queensland, Brisbane, Australia, 48pp + PC Diskette.

Hughes CE. 1998. Leucaena; a genetic resources handbook. Tropical forestry Papers No. 37. Oxford Forestry Institute, Department of Plant Sciences, University of Oxford and Department for International Development.

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/)