

# *Alnus jorullensis* Kunth in H.B.K.

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## BETULACEAE (BIRCH FAMILY)

### *Alnus acuminata*

#### Aliso, cerezo, chaquiro

*Alnus jorullensis* is a tree that grows at a medium rate, reaching approximately 30 m in height and 40 cm d.b.h. The trunk is straight with a smooth bark, and branching starts at 2 m. The crown is oval; foliage is shiny, light green; leaves are 8 cm, alternate, with a serrated edge and a light green backside. *Alnus jorullensis* prospers naturally in soils of volcanic origin and on sandy layers with volcanic ashes. The species requires soils with a constant and very high humidity content and prefers soils with light textures that are acid and humiferous. It prefers deep, well-drained soils that are muddy or muddy-clayey with an alluvial or volcanic origin, although it can grow in poor soils, from gravel or sand to clay. The species grows naturally at average annual temperatures of 7 to 18 °C, and it will endure short frosts. It grows naturally near streams and brooks, along paths with adequate light and humidity (Lamprecht 1990, Venegas 1971). Annual precipitation ranges between 1000 and 2500 mm with 2 to 5 dry months. In Colombia, *A. jorullensis* grows at elevations between 1000 and 3500 m. It is found in vegetal formations of Low Mountainous dry forest (bs-MB), Mountainous wet forest (bh-M), very wet Mountainous forest (bmh-M), and pluvial Mountainous forest (bp-M) (Falla and Cia 1973).

The wood is moderately resistant to bending and compression. It has excellent workability and good finish and is used for furniture, drawers, cabinets, doors, windows, pencils, toothpicks, and matches. Because it has a high volume in relation to a low weight, the wood is used in the wood-shaving board industry. Traditionally, it has been used as firewood and charcoal. It can be used potentially as the core of lath boards, for casting molds, and as round arches for concrete; in light boxes for packing and molded products not exposed to excessive wear and tear; and for tri-ply veneer. If treated it could be used for large stakes, posts, and pilings. It is used in construction for structural elements only subjected to small loads. The bark

is used as a source of tannins for tanning and of yellow and beige dyes. Yellow and green dyes are obtained from the leaves. Finally, the tree is useful in agroforestry (Lamprecht 1990).

The flowers are cream colored. The masculine (7 cm) and feminine (1 cm) flowers are separate but on the same tree. The fruit is small and gray and shaped like a cone or pineapple 1.5 cm in diameter. Each fruit contains several seeds. Viable seeds average 457,599 per kg. Seeds can be stored at 4 °C in hermetic containers for short periods.

Pregermination treatments are not required. However, seeds can be placed in a container of humid sand and the humidity increased to 5 percent while in a refrigerator or cold room for 10 days. Germination in the laboratory occurs between 6 and 29 days. It is slower in the field.

Between 20 and 70,000 plantules are obtained from 1 kg of seeds in nurseries. The recommended substrate is made up of two parts sand and one part soil, which must be disinfected before planting the seeds. Seeds should be sowed deep enough to prevent uncovering when watered, but they should not be too embedded. They must be well protected from wind and changes in temperature, preferably with a plastic protective cover or polyshade. The plantules are lifted when they are 5 cm high (Trujillo 1983, Velez 1971).

Propagation may be done by seeding or by stem cutting. The seeds must be planted in seedbeds at 5 mm deep and 2 cm apart from each other, in rows 10 cm apart. They are then covered with a very thin layer of straw and watered twice a day. The plantule is transplanted when it reaches 20 cm. The substrate must be mycorrhizal, through inoculation of the fungus *Actinomyces alhil*. The recommended substrate is very fine organic soil or moss to cover the seed; as a substrate, soil and sand are used in a 1:1 proportion, very well sifted. The density of the sowing is 1,000 to 2,000 plantules per m<sup>2</sup>. Transplantation must be done 1 month after germination has started,



when the first pair of true leaves is completely developed. Shade should be provided for the transplanted material. When vegetative propagation is used, the stem cuttings—cut beveled at both ends and placed in a rather wet medium—produce a high rate of root taking. The species is also easily propagated through root cuttings and through aerial shoots (Venegas 1971).

The planting site must be prepared appropriately (loosened soil) and aggressive underbrush and defoliating ants must be controlled. The plantules should be field planted 6 to 9

months after germination when they are 15 to 40 cm. The site can be planted with pseudostem cuttings, where the stem is cut 10 cm and the roots are pruned 25 cm from the neck of the root, leaving vegetal material more resistant to drought. Planting densities range from 4,400 trees per ha to fewer than 500 trees per ha when associated with pastures. The main factors limiting growth are underbrush, defoliating ants, and fungal attacks at the nursery stage. The most limiting factor for its establishment is low humidity, both in the soil and in the atmosphere.