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Popular Article

Source of Tannin from black wattle

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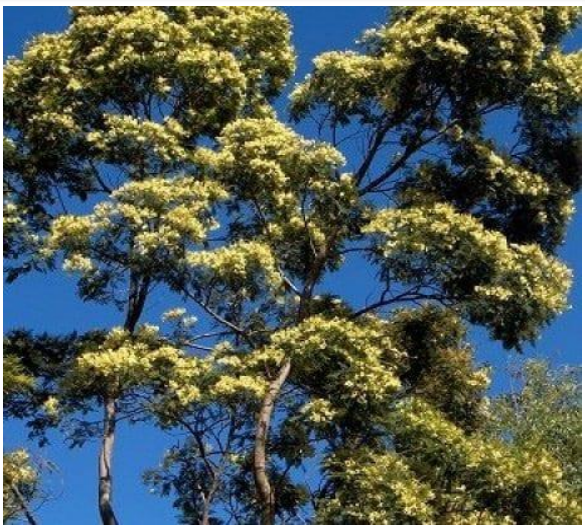

Black wattle

Black wattle (*Acacia mearnsii*) belongs to the Leguminosae family, Mimosoideae subfamily. It is native to Australia and cultivated mainly in South Africa, Brazil and China, at altitudes ranging from 850 m up to the sea level in temperate and subtropical climate, with mean temperature in the coldest month between 0 and 5 °C. It can endure several frosts per year and absolute minimum temperatures of (-11 °C). It has the ability to fix nitrogen through symbiosis with bacteria of the genus Rhizobium

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It is mainly used for tannin extraction (for hide and skin tanning), but other uses include the production of fuel wood for energy and charcoal and the supply of raw material for pulp industries. Today, with the export of wood chips to Japan, its timber became an extra source of profit for producers as well as a major generator of foreign exchange. In Brazil, it is grown in Rio Grande do Sul and the main characters of interest for breeding are wood and tannin production and resistance to the disease gummosis. Black wattle was originally introduced in Brazil in 1930 from seeds collected in South Africa and only in the 1980s Australian provenances and progenies were introduced, made by Embrapa Forestry and tannin-producing companies.

The population, which constitutes the Brazilian land race, does not present good possibilities for breeding due to the existing low genetic variability. In this case, the best approach is to develop breeding programs, using seeds from the best trees in the provenance tests, and also through the acquisition of seeds (at the progeny level) from the provenances Batemans Bay and Cann River Orbost, for tests in frost-free regions and from Cooma and Mount Rix, for regions with possible frost occurrences.

Breeding methods are based on seed production areas and seedling seed orchards. Clonal seed orchards formation has been hampered by the difficulty in producing clones, either by grafting or rooting.

There is still no information on the levels of dominance associated with the main characters of economic importance (tannin and wood production). This fact, associated with non-utilization of operational clonal plantations, has led to the adoption of IRS programs in Brazil, South Africa and China.

Nevertheless, cloning of *Acacia mearnsii* has proved to be viable. The main difficulty lies in rescuing (field cloning) to obtain rejuvenated shoots. Stump sprouting of black wattle is inadequate, and even when sprouting after cutting is possible, oxidation of substances in the bark, probably tannin, ends up killing the sprouted buds. Thus, it has been more appropriate to rescue black wattle selected trees by inducing basal sprouting in standing trees. This can be accomplished by opening clearings, allowing the selected trees to receive light from all sides, or by forcing the trees to incline to an approximate angle of 450 from the ground. In both cases, sprouts are emitted along the trunk, permitting selection of those closest to the ground in order to achieve a higher degree of tissue juvenility.

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Clonal tests implanted by the company Tanac SA, with consultancy provided by UFPR, showed clones with 70 % superiority, compared to commercial seeds. Although preliminary, the results obtained show that cloning tends to be the propagation method to be used to increase tannin and wood productivity, and to solve the gummosis problems in Acacia in Brazil.

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