



IDRC FEATURE

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INCREASING THE PRODUCTION OF GUM ARABIC

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Gum arabic, the exudation of a tree of the *acacia* species, has been an important source of income for the semi-nomadic people of the Sahel since the 17th Century. Once-flourishing, the trade in gum collected during migrations played an important role in the relationship between the arab and berber peoples in the north and the pastoral, black and moorish peoples of the south. For many countries, gum arabic was a major source of currency.

Acacias grew wild for the most part and little systematic research had been undertaken either on the culture of the trees or on the improvement of the quality of their product, a versatile substance used by the food, pharmaceutical, cosmetic and chemical industries. A few plantations had been established but most were decimated by the Sahelian drought of the early 1970s and the ensuing ravages of hungry cattle.

In Senegal, production dropped from 11,000 tons in 1970-71 to some 230 tons in 1972-73. The situation was much the same in other gum-producing countries bordering on the Sahara: production fell short of demand, prices rose to extraordinary heights and users began to look for substitutes.

Today efforts are being made to solve the situation and the first results are promising. At a research station in the pastoral region of northern Senegal, near the M'Bidi well, more than 20,000 acacias have been planted over the last two years and the only problems encountered have been the damages caused by rodents. The drought having subsided, it is still too early to judge the plants' resistance but two dry seasons have been passed successfully.

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The program carried out by the Department of Water and Forestry of Senegal's Ministry of Rural Development, is expanding as planned. As the first seedlings grow, researchers are selecting varieties from neighbouring countries in the hope of increasing productivity -- some trees in the Sudan can produce up to 10 kilos of gum annually -- and are attempting to propagate the trees through cuttings and grafting. It is hoped eventually to establish a research centre that would welcome trainees from other countries interested in the project.

The first step was the establishment of sound management procedures for the plantation. Researchers at M'Bidi determined that the best time to plant the acacia seeds was the latter half of April. This provides sufficient time for the seedlings to reach optimal height before being transplanted to the fields, an operation that must generally be carried out in August, following the first rains which loosen the soil and provide the seedlings with sufficient water. (Watering will be required only if the first rains are followed by a few dry days.)

Weeding is essential during the first two years and a close watch must be kept to protect the young plants from predators, in particular from rats, grasshoppers and cattle. From then on, the trees -- planted at a distance of five metres from each other -- should be able to survive under the harsh climate of this semi-arid zone that stretches from Ethiopia on the east to Mauritania and Senegal to the west.

The two most productive acacia varieties are the *Acacia senegal* and the *Acacia laeta*: however, no valid comparisons can be made between varieties until different trees have been cultivated for four or five years in the same environment.

The Senegalese authorities last year launched a second joint project near the M'Bidi forage: the reforestation of a region where the natural vegetation had been destroyed, not only by drought but also by the trampling of herds around the water holes. In this project another variety is dominant, the *Acacia tortillis*, which does not yield gum but whose leaves can be used as animal fodder. Several experimental plantations have been started in order to select the tree species best adapted to the region.

The two projects are being supported by the International Development Research Centre, a Canadian organization created in 1970 to support scientific and technical research adapted to the specific needs of developing countries.

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Distribution of Gum Arabic

