

A. Niang, E. Styger, A. Gahamanyi and J. Ugeziwe

Mimosa scabrella: a tree for high places

M*mimosa scabrella* is a multipurpose tree indigenous to southeast Brazil. In 1990 it was introduced, along with 64 other species with 24 provenances, to the Gakuta Research Station in western Rwanda.

The purpose was to identify species that could best be adapted to the difficult conditions of the rugged Zaire–Nile Crest, and ultimately to diversify the range of multipurpose trees in the area. The mountainous ridge has an altitude of 2500 m and very acidic soils, high in aluminium. It is usually windy and temperatures are relatively low, with sunshine less than 60% of daylight hours.

Fast-growing, easily managed

At Gakuta, mimosa trees grew faster than all others tested. After two years mimosa trees were, on average, almost twice as tall (516 cm) as *Acacia melanoxylon* (282 cm), a species that is well adapted to the region and commonly used in reforestation projects. Vertical growth of mimosa was about three times more rapid than that of *Grevillea robusta*, a species that is well established and widespread in Rwanda.

Sesbania spp., *Leucaena diversifolia* and *Calliandra calothyrsus* did not do well in the ecological conditions at the Gakuta station.

Management trials showed that mimosa coppices extremely well.

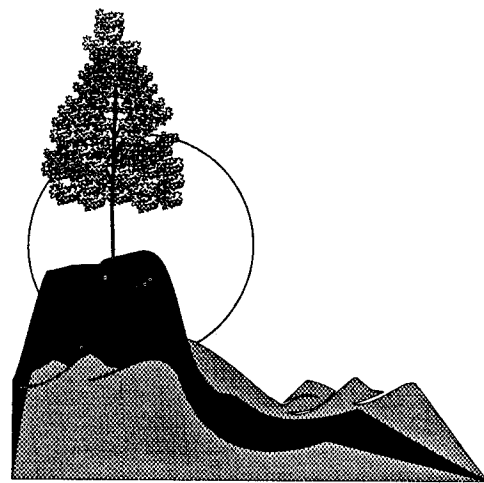
A. Niang is head of the ISAR/ICRAF Project, P.O. Box 617, Butare, Rwanda. E. Styger is an agronomist working with ISAR/ICRAF. A. Gahamanyi is head of the national agroforestry programme in Rwanda. J. Ugeziwe is a researcher with the ISAR/ICRAF project.

The leafy biomass produced by mimosa increases with the height of the cut, up to 75 cm. The amounts of fresh leaf material produced per metre were 13.8 kg, 17.8 kg and 20.3 kg respectively for cuts made at 25 cm, 50 cm and 75 cm, over a period of two years after six cuttings. The first cutting was done 9 months after planting.

At Rwerere, another highland station in Rwanda where researchers from ICRAF and the Institut des Sciences Agronomiques du Rwanda (ISAR) are working and where soil conditions are decidedly more favourable than at Gakuta, mimosa trees produced 1.25 times more leafy biomass per metre (10.2 kg m⁻¹) than did *L. diversifolia* and *C. calothyrsus* (8.3 kg m⁻¹).

Goats like the fodder

In a trial to determine which species provided the best fodder, newly weaned male goats half a year old, with an average weight of 10.4 kg, were fed diets consisting of the grass *Setaria splendida*, mixed with leaves from each of the following species: *Hagenia abyssinica*, *Alnus acuminata*, *Chamaecytisus palmensis*, *Acacia melanoxylon*, *Acacia meamsii*, *Acacia koa*, *Acacia koaia* and *M. scabrella*. Overall the goats preferred the grass mixed with *A. koaia*, but the mixture of the grass and mimosa leaves came a close second (refused in 50% of cases compared with 40% for *A. koaia*). Indeed, the goats ate the mimosa–grass mixture as readily as they did the pure grass. Ingestion of dry matter actually increased by 80% when goats were given the mixture rather than just grass (392 g as opposed to 706 g per animal per day).



Mimosa is rich in protein, with a content of 24.5% that is comparable to other species popularly used in development projects in Rwanda—*sesbania*, *leucaena* and *calliandra*.

When young male goats were fed a diet of *S. splendida* enriched with 45 and 66% mimosa leaves for five weeks, their weight gains were 51–63% greater than when they were fed pure *S. splendida*.

Farmers like the tree

Researchers from the ISAR/ICRAF project distributed mimosa seedlings to more than 100 farmers as part of its on-farm research and its collaborative work with development projects in the area. The positive results obtained on the research station were duplicated on the farms; farmers favourably compared the usefulness and the morphology of the mimosa trees with those of *leucaena* and *sesbania*.

Three years after mimosa was introduced at the Gakuta Research Station, it still showed no signs of flowering. However, where it had been planted elsewhere at lower altitudes—about 1700 m—the tree began to fruit after a year and a half.

Looking ahead

M. scabrella shows great promise as a multipurpose agroforestry tree in the rugged highlands of Rwanda. Its rapid growth and high production of biomass make it excellent for fodder; goats thrive on diets that contain mimosa leaves. Studies are under way to assess the range of its uses on farms, the qualities and uses of its wood and its interaction with crops. 