

### **Improved permanent forages for dry season grazing in northern Australia 3. browse shrubs and fodder trees**

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In many environments browse shrubs, fodder trees and trees which fix atmospheric nitrogen are often more important in pasture systems than the low growing herbaceous species of grasses and legumes. Trees and shrubs have an advantage in that they can exploit moisture and nutrients from soil depths unavailable to herbaceous species and offer green forage in the dry season. Mulga (*Acacia aneura*) is a classic example of the importance of native fodder trees for pastoral industries in the dry zone of Australia (1). The concept of establishing and using browse shrubs and fodder trees in permanent pastures for dry season grazing in northern Australia is considered in this paper.

#### **Benefits of shrubs and trees.**

In a multi-tiered permanent forage system the soil depth and aerial environments are exploited by the trees but the shadier environments underneath benefit the adapted herbaceous species such as *Fanicum maximum* and *Macrotiloma axillare* and the grazing animal (2). Shrubs and trees which fix nitrogen recycle this element and other nutrients to the benefit of the ecosystem and the grazing animal. The tree canopy, out of the reach of the grazing animal, helps the plant survive drought, frost and fire. In the dry season the green, nutritious forage from tree seedlings and lower branches is particularly important when the quality of the native grasses is at sub maintenance level for beef cattle.

#### **Suitable species.**

The high quality of leucaena (*Leucaena leucocephala*) forage and its beef production benefits are well recognised. At the end of 1986 an estimated 15 000 ha of leucaena had been planted in forage systems in northern Australia (2). A range of suitable trees can be selected for different soils, rainfall zones and for multipurposes. Apart from leucaena and pigeon pea (*Cajanus cajan*), other trees and shrubs which establish readily include mulberry (*Morus alba*), *Albizia lebbek*, raintree (*Samanea saman*) and *Gliricidia sepium*. Overseas work with *Sesbania sesban*, *S. grandiflora* suggests these could also be suitable in Australia.

The performance of leucaena has stimulated interest in other nitrogen fixing fodder trees. Pest and disease free, high quality fodder trees which are relatively quick growing and frost resistant are preferred. On individual properties it would be desirable to include several genera, species and accessions to complement one another and to reduce the threat of pests and diseases.

Many Australian native fodder trees have been valuable in the dry season (1). In the last seven years leucaena, on the better soils, has boosted forage quality and beef production and this has extended into the dry season. The numerous edible, nitrogen-fixing trees and other quick growing fodder trees deserve more attention in forage systems for northern Australia.

1. Everest, S.L. (1969). Use of Fodder Trees and Shrubs. (QDPI: Brisbane).

2. Wildin, J.H. (1986). Proc. Alley Farming Workshop, Ibadan, Nigeria (in press).