

Faidherbia albida

Faidherbia albida is native to Africa and highly regarded by herdsman and farmers in arid and semiarid regions from Senegal to the Sudan and south to the savannahs of Kenya, Tanzania and Zimbabwe (Wickens 1969). It is a thorny species and one of the largest forage trees, reaching a height at maturity of over 30 m with a canopy spread of up to 45 m. It is commonly found on flood plains and banks of large rivers on alluvial soil but it will grow on a wide range of soils including sand dunes and shallow rocky soils. Mature trees tolerate mild frosts and temperatures up to 44°C. Flowers are arranged in spikes 7.5-10 cm long. Pods are indehiscent and it is suggested (Lamprey 1967) that passage through an animal is necessary to stimulate germination.

Early growth rate is slow as the taproot establishes rapidly at the expense of top growth. On better sites, trees can reach 1.5 m in height in the first year. Although the tree is thorny, seedlings should be protected from grazing which can cause distortion of form.

Faidherbia albida is extremely important both for providing fodder to livestock and for enhancing soil fertility for crops. It retains its leaves through the dry season and sheds them just as the rainy season commences so that forage is available throughout the dry season when many other trees are leafless. This also means that it provides shade in the hottest time of the year. At the end of the dry season (the most crucial period of shortage of animal feed), protein-rich pods mature and fall from the tree in large quantities.

The leaf fall, root nodulation and continuous presence of livestock near the trees greatly enrich the soil by cycling the nutrients nitrogen, phosphorus and exchangeable calcium. This makes it an excellent agroforestry species as crops can be grown among scattered trees without shading during the wet season. Charreau and Vidal (1965) found that millet yields were 2.5 times greater and protein content of the grain 3- to 4-fold higher near the tree. Sorghum has been grown continuously for at least 30 years with *F. albida* without yield decline (Hocking 1987). However, a study by Vandenbeldt and Geiger (1991) indicated that improved soil fertility might precede the tree. They suggested that trees which survived and grew well had established on microsites of higher fertility.

Forage value

The nutritional value of leaf is reported not to deteriorate on drying so that it is often fed dry in many parts of Africa (Hocking 1987). Boudet (1970) reported a crude protein content of 17.8% in dried *F. albida* leaf. Trees can produce an average of 135 kg pods/tree/year and a stand of 12 trees in the Sudan produced 200 kg crude protein from the pods alone (Wickens 1969).

In Niger, dry savannahs support about 10 cattle/km² but this stocking rate can be doubled where *F. albida* trees are present (NAS 1979). An initial planting density of 10 x 10 m with thinning to wider spacings as the canopies closed was suggested. Typical densities in the Sahel, where the tree is most widely used, range from 10 to 50 trees/ha.

Although the tree is widely used throughout Africa, more research is required on the effects of protracted feeding of livestock with pods and leaf, techniques for better cultivation and propagation, and techniques for stimulating or increasing forage production.