

WORLD AGROFORESTRY IN PRACTICE

SAHELIAN PARCS OF FAIDHERBIA ALBIDA

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LOCATION Africa, Senegal-Mali-Niger-Chad-Sudan-Cameroon

ORGANISATION CIRAD

TYPE OF PRACTICES Sylvopastoralism

PRODUCTION Cattle, fodder, wood

1 GENERAL CONTEXT

In Sahel, perennial agroforestry associations between well-spaced trees and crops are called “tree parcs”. One of the most well-known is the *Faidherbia albida* parc. These leguminous trees that provide wood and aerial fodder have the particularity of losing their leaves during rainy season, preventing shadow on the crops, and also of having a very deep root system that does not compete with the crops. Being a leguminous it also enriches the soil in nitrogen.



*At the beginning of the rainy season, in a plot of 10 years-old *Faidherbia*, women are weeding the sorghum intercropped. The trees are losing their leaves and won't shade the crops.*

Traditional agroforestry associations with multiple uses



2 ENVIRONMENTAL CHARACTERISTICS

Faidherbia parcs need deep alluvial soils, with groundwater that is accessible to the roots of the trees (5 to 50m). Climate is of Sahelian type: long dry season with cool short days, short rainy season with long hot days. These parcs are present in valleys of the South of the Sahara Desert and in the valley of the Rift, East Africa.

3 DESCRIPTION AND INTEREST

The various tree essences present in this system have either a deep root system that can reach groundwater, either superficial to absorb rain water. In the last case, trees lose their foliage during dry season.

Pillar of the system, the *Faidherbia* tree lose its leaves during dry season, allowing association with crops. Probably it is an endemic species which dispersion has been facilitated by the transhumant herds (seeds travelling in the digestive systems of ruminants), and that has been managed by agro-pastors for millenaries. More than 50 other species can be found in these parcs with multiple uses.

Tree management need a good relationship between the users, with the help of local authorities or administrative structures for the governance. In case of conflict or corruption, trees are in the best case preserved but not replanted, in the worst case uprooted.

4 TREE SPECIES

Faidherbia albida is a leguminous tree that can reach up to 40m height and more than 1m trunk diameter. Its root system is deep (more than 50m) allowing its growth only in deep soils where it can draw water and nutrients.

Its foliage and pods are an excellent fodder that complement the weak nutrition of the animals, mostly composed of dry hay during dry season. When the leaves are pruned for fodder, wood is used for fuel and barriers. Leaves and manure enrich the soil in organic matter and nutrients, especially nitrogen.



Old *Faidherbia* tree pruned to give fodder to the zebus

5 PRODUCTS AND USES

Faidherbia parcs are very appreciated for the services they provide and their direct and indirect products. Among services there are improving of soil fertility, diminution of extreme temperatures, mitigation of wind and dust damages, shade for men and animals during dry season... Its direct products are fodder, fuel-wood and thorny branches for hedges and barriers.

The Doum or Rônier palm trees provide fruits, a very resistant wood and fibrous leaves used for mats and ropes. The parc provides also honey and small game. In the valley of Dallol Dosso, Niger, these parcs have become the last shelter of giraffes.



In a *Faidherbia* parc (trees on the background) we can see sorghum ready for harvest.

6 LANDSCAPE MANAGEMENT

The consecutive energy and raw material crises have remembered the importance of the synergies agriculture-animals, and of the reduction of the use of chemical inputs. Projects of renovation of *Faidherbia* parcs with Assisted Natural Regeneration (ANR) are initiated in Northern Cameroon. This method consists of selecting young plants with potential that grew spontaneously from seeds in the fields, identifying them with a piece of cloth or paint and to protect them.

During the following years they will these trees will be pruned and selected to obtain a mature tree parc with around 60 trees per hectare. Old trees will be ready to be pruned after 5 or 10 years for wood or fodder. Dead trees will be harvested and replaced.

WORDS FROM THE FIELD

« Before, I needed to walk 20km per day during dry season to collect wood in the forest, and I needed to carry 20kg of it on my head. Now it is the forest that is over my head! »

says a Tupuri woman from Cameroon after the programs of restoration of agroforestry parcs auto financed by associations of the villages.



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