

- Synthetic fertilizers containing nitrogen, phosphorus, and potassium are not used or readily available in many semi arid areas and therefore some Farmers have come to rely on *Faidherbia albida* as a technique in conservation agriculture (<http://www.new-ag.info/en/developments/devItem.php?a=1036>).
- *Faidherbia albida* is a leguminous tree, meaning it has the capability to fix atmospheric nitrogen. Nitrogen is a necessary component in proteins, and therefore legumes and leguminous trees are an important source of protein for ruminants in general.
- The grasses alone cannot provide enough protein to keep livestock healthy (Bonkoungou, E. G, 1992). The foliage of *Faidherbia albida* is used for fodder, and the seed pods are a palatable supplement to the animals' diets. The pods can be used for dairy cows and goats. Goats especially enjoy *Faidherbia albida* and have been found to prefer it over other forage species (Heuze, Vet al., 2013)
- The shade provided by *Faidherbia albida* controls the soil surface temperature and allows the farmer to grow a wider range of crops, as the farmer is no longer limited to only the most heat tolerant of species
- A final additional benefit of foliage in the dry season is that animals will tend to congregate in the shade of the tree where they can eat fallen seed pods and grasses. The animals' excrement in turn fertilizes the *Faidherbia albida* tree and any crops planted beneath its limbs, completing a complex nutrient cycle involving the soil, *Faidherbia albida*, crops, animals, and people.
- The extract is used to treat ocular infections in farm animals



Goats browsing a young *Faidherbia*

Recommendations for promotion and conservation of *Faidherbia albida*

- More collaborative research and promotion needs to be done on *F.albida* to encourage planting or natural regeneration by government, NGOs or projects, Participatory extension approaches with farm communities to identify & understand farmer challenges and needs.
- There is need to carry out more assessments of crop yields and soils under and away from tree canopies in different ecological zones and studies of root system and value of pods as a dry season feed supplement.
- Increasing knowledge through training of extension staff, educational awareness about *Faidherbia albida* through the media (radio TV, newspapers) to promote planting and natural regeneration.
- There is need to increase awareness across all sectors and donors to support the integration of *Faidherbia albida* with farming, production and distribution of extension and training materials for use by practitioners and farmers, development of simple measures for farmers / villagers to produce and plant healthy seedlings , promotion of natural regeneration with communities using different media, collaboration with Government Agencies, NGOs, Projects, International Centers and Integration with Conservation Agriculture to increase survival rates and growth for increased effectiveness and impact.

For more Information



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FAIDHERBIA ALBIDA

(Apple-Ring Acacia, Ana Tree,
African Winter Thorn, Adurukoit In Akarimojong)



A mature and foliated *Faidherbia albida* tree

Faidherbia albida is a unique tree species native to Africa, the Middle East, and India and it is a member of the family Fabaceae, subfamily Mimosoideae, and tribe Acaciaea. It is a thorny tree that produces yellow flowers and orange to brown colored seed pods, which fall about three months after the flowers bloom.

The pod often curls and thus the tree is commonly known as the Apple-Ring Acacia. It is also known as African Winter Thorn and “Adurukoit” in Akarimojong. In Karamoja it is one of the Acacias found growing into a big tree 6 – 15m tall and up to 1.5 m diameter. It is also one of the culturally treasured trees along with *Acacia tortilis* (Eiyelel) and *Tamarindus indica* (Apeduru). What distinguishes *Faidherbia albida* from the other Acaciaeae genera is its interesting phenology, or timing of natural events. *Faidherbia albida*'s phenology is the reverse of other trees. It is deciduous in the rainy season and foliated in the dry, meaning it has leaves throughout the dry season and sheds them in the rainy season. *Faidherbia albida* has a number of the benefits that are expected from other genera of trees; however, because of its phenology, *Faidherbia albida* has an additional value for the people who grow and use the plant. In semi-arid and arid areas of Africa, particularly in the Sahel, *Faidherbia albida* is a well-known tool for improving soil quality and is an important source of food for livestock.

***Faidherbia albida* in the Rainy Season and Dry season**

In semi arid and arid regions, trees with a traditional phenology will shed their leaves in the dry season. However, *Faidherbia albida* sheds its leaves in the rainy season. During the dry season *Faidherbia albida* is fully foliated. It provides shade for people, livestock, plants, and the soil. The shade helps soil retain moisture, a precious resource during the dry season. In fact, soil water retention can increase by 40% under the foliage of *Faidherbia albida* than in an open field (Fewless, Gary, 2013)

Propagation of *Faidherbia albida*

Faidherbia albida is propagated from seeds which develop from a creamy white spike flower at the beginning of the dry season fruiting into an unusual curled and twisted bright orange to reddish brown thick pod.

Mature pods fall off from the tree and can be collected, dried and crashed to extract the seeds from the pods



***Mature Faidherbia albida* pod before full maturity still attached on the tree.**



***Mature Faidherbia albida* pod on ground**

Extracted seeds germinate easily given sufficient moisture within 5 -7 days and transplanting into pots done within 2 – 3 weeks after germination. Given good management (watering, weeding and well mixed soils), the tree grows fast and is ready for planting out between 3 – 4 months after transplanting into pots.



4 months *F.albida* seedlings ready for planting out in the field

Importance of *Faidherbia albida*

- Soil samples taken in areas with *Faidherbia albida* and compared to soil samples from areas without the tree have a higher nutrient composition with more vital plant macronutrients: nitrogen, phosphorus, and potassium.
- The soils influenced by *Faidherbia albida* also appear to have increased water-holding and cation-exchange capacity, a measure of how well soil particles can retain positively charged ions (calcium, magnesium, potassium, sodium, aluminum, etc.) (Williams, J. H 1992, Cornell University, 2007).
- The moisture created by the leaves which are shed during the dry season encourages microbial growth and supports the decomposition of the leaves. The decomposed leaf matter becomes incorporated into the soil in the form of soil organic matter. In this way, *Faidherbia albida* improves nutrient cycling in drier climates (Dangasuk et al. 1999).