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## Faidherbia albida, an important 'Fertilizer Tree'

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This tree, formerly classified as *Acacia albida* and also known as "Apple Ring Acacia", was mentioned in an agroforestry tree article in EDN 84. The tree exhibits reverse leaf phenology, losing its leaves at the beginning of the rainy season just as farmers want full sun for their crops. While most other species flower before or during the rains, the apple ring acacia flowers and leafs out at the end of the rainy season providing shade for animals, pods for food and blossoms for bees. In Niger [and probably elsewhere] *F. albida* prefers alluvial soil but is also present on deep, light sands or sandy clays due to human activity.

*Faidherbia* recently received much publicity at the World Congress of Agroforestry held in Nairobi, Kenya in August of 2009.

The director of the World Agroforestry Center, Dr. Dennis Garrity, said in his opening remarks, "*Faidherbia* goes dormant at the beginning of the rains and deposits abundant quantities of organic fertilizer [falling leaves and pods] onto the food crops to provide nutrients and increase yields, totally free of charge. These trees are fertilizer factories in the food crop fields." Some of the nutrients attributed to this tree may actually come from manure deposited while livestock are resting in the shade of the tree.

Dr. Garrity also remarked "If scientists were to invent from scratch a tree species that encapsulates the ideal characteristics of an agroforestry tree, compatible and valuable in food crop systems, they would probably come up with something pretty close to *Faidherbia*. Thus, the tree is an icon of what agroforestry can contribute to food production systems on this continent and elsewhere in the tropics."

Although the use of *Faidherbia* as a dispersed tree in cropland was noted first in West Africa, it has been promoted widely in Malawi and surrounding countries. Estimates are that *Faidherbia* is intercropped with maize on half a million farms in Malawi. Promoters in Zambia hope to see 240,000 ha with *F. albida* on small farms by 2011. In Ethiopia *F. albida* is not managed but known and regulated; cutting of these trees is not allowed.

***F. albida*** is also recommended as a good species to combine with conservation tillage (a.k.a. 'Foundations for Farming,' previously called 'Farming God's Way'). The World Agroforestry Center calls this "Conservation Agriculture with Trees (CAWT)". The recommended density for *F. albida* dispersed in cropland is 100 trees per hectare (5 m x 20 m or 10 m x 10 m spacing). These can then be gradually thinned to achieve a rate of 20 mature trees per hectare. For groundnuts, soy and cotton, density of mature trees can be 40 trees per hectare.

Trees should be started from seed in a nursery. Nick the seed for good germination and air prune the seedlings (prevent roots from growing longer by letting them contact air, growing them in open tube on a raised platform). Transplant within six weeks of sowing.

In the field the roots tend to grow shallow and horizontally until they reach the edge of the canopy and then grow downwards. *F. albida* seems to be most effective with grains - maize, sorghum, millets.

ECHO has a limited supply of *F. albida* seeds and will supply a free sample packet (approximately 30 seeds) upon request to network members.

**Web Links:**

World Agroforestry Centre (<http://www.worldagroforestry.org>)

2nd World Congress of Agroforestry  
(<http://www.worldagroforestry.org/WCA2009/>)

African Conservation Tillage Network (<http://www.act-africa.org/>)

Foundations for Farming (formerly called Farming God's Way)  
(<http://www.foundationsforfarming.org/>)



Faidherbia albida at edge of a field in Kenya.  
*Photo:Bob Hargrave*