



Harvesting and marketing of edible products from local woody species in Zitenga, Burkina Faso

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Based on a market study, this article provides quantitative and qualitative information on how the rural population of one area of dryland Africa uses and trades edible tree and shrub products.

In a lecture on colonial plant production and tropical agronomy, Professor Auguste Chevalier (cited by Bognounou, 1987) referred to Bernardin de St Pierre's philosophical reflection that there is no plant in this world that is not linked to the needs of man and that does not contribute to his table, clothing, roof, enjoyment, remedies or to the needs of his home.

In the Sudano-Sahelian region where limited and variable rainfall makes harvests irregular, the products of local woody plants are of primary social and economic importance for rural populations. The evaluation of national food potential and policies which aim to develop natural plant formations should therefore also take tree and shrub non-wood products into account (leaves, fruits, seeds, etc.).

The Department of Zitenga in Burkina Faso lies between 12 and 13°N and 1 and 2°W. It covers an area of 750 km² and has a total population of approximately 42000 living in 61 villages. The climate is northern Sudanian with an average annual rainfall of 659 mm (1970-1989). The dry season lasts seven months (November - May) and the rainy season five months (June-October), with the peak rainfall in August.

The woody plant cover is generally tree and bush savannah with a preponderance of protected woody species: *Butyrospermum paradoxum* ssp. *parkii* (shea butter tree), *Parkia biglobosa* (African locust), *Adansonia digitata* (baobab), *Tamarindus indica* (tamarind tree) and *Lannea microcarpa*. The local population is mainly engaged in cereal cultivation: *Pennisetum americanum* (pearl millet), *Sorghum bicolor* (sorghum), *Zea mays* (flint maize).

Harvesting and processing edible forest products

Spontaneous edible products from the forest are either gathered from the trees or the ground, usually by women and children. These products, which may be leaves, flowers, fruits, seeds or tubers, are sometimes consumed on the spot (fruits), after cooking (flowers) or after considerable processing and preservation (shea butter, *soumbala*, etc.).

Many plant products are consumed raw or cooked as food "in season", while some are used

mainly to season sauces. Others are dried and stored and can be marketed and/or consumed throughout the year.

Table 1 lists all the species from which non-wood products are derived and consumed in the Department of Zitenga. Much of the gathering takes place in June and July.

Marketing

There is considerable marketing today of edible tree and shrub products in the Department of Zitenga (Table 2). There are two main reasons for this, the lack of other income-generating activities that can help women meet their families' needs, particularly during the dry season; and the relative proximity of the population centre, Ouagadougou (52 km), which encourages trade.

Study methodology

The authors spent seven months (from August 1989 to February 1990) studying the availability of edible forest products on the Zitenga markets and plotting the variations in price per unit of weight to determine their economic importance. The weighing operations were conducted twice a month and included all the edible products sold in *pile* or *yoruba* units. The *yoruba* is a dish with a volume of 2.5 dm³ and an average weight of 360 g. The *pile* is a small stack with numbers varying from ten to 20, depending on size.

A quantitative evaluation was made in the markets every 21 days, a period that was considered sufficient to avoid counting unsold products twice, given that markets were held every three days. The total value of the products sold was also estimated per market day.

TABLE 1. Edible forest products consumed in the Department of Zitenga

Scientific name	Common English name	Local name(Mooré)	Parts used	Harvest period	Preservation in dried form
<i>Acacia macrostachya</i>	-	Zamnega	Seeds	Dec.-Jan.	Yes
<i>Adansonia digitata</i>	Baobab	Toeega	Leaves	May-July	Yes
			Fruits	Jan.-Feb.	Yes
<i>Azelia africana</i>	-	Kankalga	Young leaves	April-May	No
<i>Annona senegalensis</i>	-	Barkudga	Flowers, fruits	July-Aug.	Yes (flowers)
<i>Balanites aegyptiaca</i>	Desert date	Keglga	Young leaves, flowers	April-May	No
<i>Bombax costatum</i>	Red kapok tree	Voaaka	Calyx, flowers	Dec.-Jan.	Yes
<i>Boscia senegalensis</i>	-	Lamboetga	Young leaves, fruits	June-Aug.	No
<i>Butyrospermum paradoxum</i>	Shea tree	Taanga	Fruits, seeds	June-Aug.	Yes (grains)
<i>Diospyros mespiliformis</i>	Ebony	Gaanka	Fruits	Dec.-Feb.	Yes
<i>Lannea microcarpa</i>	-	Sabga	Fruits	June-July	Yes
<i>Leptadenia hastata</i>	-	Lelongo	Leaves, fruits	April-May	No
<i>Parkia biglobosa</i>	African locust	Roaga	Fruits, seeds	May-June	Yes
<i>Piliostigma reticulatum</i>	-	Bagen Gnanga	Young leaves	June-July	Yes

<i>Saba senegalensis</i>	-	Wedga	Fruits	June-Aug.	No
<i>Sclerocarya birrea</i>	-	Noabga	Fruits	June-Aug.	No
<i>Tamarindus indica</i>	Tamarind	Pusga	Leaves	April-July	Yes
			Fruits	Nov.-Dec.	Yes
<i>Vitex doniana</i>	Black plum	Aadga	Young leaves	April-May	No
			Fruits	Nov.-Dec.	No
<i>Ziziphus mauritiana</i>	Jujube	Mugnuga	Fruits	Jan.-Feb.	Yes

Findings

During the seven months spent studying the Zitenga markets, 18 products were inventoried. Some products are sold regularly: *Parkia biglobosa* seeds, either raw or processed as *soumbala* (a type of mustard); *Adansonia digitata* leaves; *Bombax costatum* calyx; shea kernels and butter; honey. Other products are seasonal (Table 2).

The number of persons selling edible forest products (91 percent of whom were women) is one indication of their economic importance. From 31 to 110 persons sell baobab leaves, *Bombax costatum* calyx, shea kernels and butter, African locust seeds and tamarind fruit and leaves each market day. The other products are sold by three to 30 persons each market day. The average sales price per kilogram of the most common products exceeds CFAF 200 (*soumbala*, shea butter, *Bombax costatum* calyx, honey, etc.). This compares with prices for staple cereals of CFAF 58 to 103 for pearl millet and CFAF 50 to 82 for sorghum.

Sales trends on the Zitenga markets

Many women are busy in the fields during September and October, so the quantity of forest products marketed is constant and relatively low during this period. The average was 1331 kg/day at an average value of CFAF 205000 (US\$ 730).

Market activities accelerated rapidly in November and December once the held work had been completed. A large number of products appeared on the market and an average of 2557 kg were sold each market day at a total value of CFAF 232000. The leading product was *soumbala*, with 1638 kg at a value of CFAF 54000. Tamarind fruit sales amounted to 163 kg for CFAF 35000.

There was a market downturn in December-January, no doubt because of the festivities (Christmas, New Year), but it picked up again toward the end of January. *Soumbala* was still a key product, with a supply of 471 kg at a value of CFAF 188000, but new seasonal products were available, including: tamarind fruits; *Bombax costatum* calyx; *Ziziphus mauritiana* fruits; *Balanites aegyptiaca* fruits and seeds; *Acacia macrostachya* seeds, etc.

TABLE 2. Edible forest products sold on the Zitenga markets

Scientific name	Product	State of product		Local unit of sale (CFAF)	Average price/kg (CFAF)	Number of sellers	Season
		Fresh	Dried				
<i>Acacia macrostachya</i>	Seeds	•	•	200-250/dish	98	5	Dec.-Feb.
<i>Adansonia digitata</i>	Leaves	•	•	25/pile	33	2	Aug-Sept.
	Leaves		•	75-100/dish	217	6	Oct.-Feb.
<i>Balanites aegyptiaca</i>	Fruit		•	150-250/dish	113	8	Dec.-

							Oct.
	Seeds		•	150-250/dish	113	27	Jan.- Feb.
<i>Bombax costatum</i>	Calyx	•		25/pile	578	20	Dec.- Feb.
	Calyx		•	125-250/dish	625	20	Aug.- Feb.
<i>Butyrospermum paradoxum</i>	Kernels		•	75-100/dish	35	26	Aug.- Feb.
	Butter	•		200-500/bowl	298	20	Aug.- Feb.
<i>Diospyros mespiliformis</i>	Fruit	•		5/pile	40	10	Dec.- Feb.
<i>Parkia biglobosa</i>	Seeds		•	350-450/dish	164	6	Aug.- Feb.
<i>Piliostigma reticulatum</i>	Pounded	•		25/pile	293	-	Aug.
	leaves						
<i>Tamarindus indica</i>	Fruit		•	25/pile	50	-	Oct.- Feb.
	Pounded			25/dish	57	20	Aug.- Sept.
	leaves						
<i>Vitex doniana</i>	Fruit	•		5/dish	37	3	Dec.- Jan.
<i>Ziziphus mauritiana</i>	Fruit		•	5/pile	83	8	Dec.- Jan.
-	Traditional honey	Liquid		1 litre bottle	1500	1	Aug.- Feb.

Finally, there was a drop in quantities marketed in February and early March, because of stock depletion and the traditional mourning period. There was little market activity during this period.

Conclusion

Spontaneous tree and shrub products play a fundamental role in the diet of Zitenga's rural population. The products in the greatest demand in the department were: *Bombax costatum* calyx; *Parkia biglobosa* seeds as *soumbala*; *Butyrospermum paradoxum* spp. *parkii* kernels for the production of butter; *Tamarindus indica* fruits; and *Adansonia digitata* leaves.

In relation to cropped products (*Sorghum bicolor* and *Pennisetum americanum* cereals) the protein and carbohydrate contents of edible forest products are certainly low. However, these products are rich in vitamins and they are undoubtedly valuable as supplements to the millet-based diet of the rural populations.

Edible forest products are also economically significant. The prices of ten common products average CFAF 200 per kilogram and the total value of edible forest products sold on an average market day in Zitenga amounts to CFAF 232000. Although individual income potential varies by product, season and the number of vendors, it is usually much higher than the CFAF 1 045 minimum daily wage rate. For example, in November the six *soumbala* sellers each took in an average of CFAF 9000 per market day. During the same period, the 20 sellers of tamarinds took in an average of CFAF 1750 per market day.

There is increasing concern in the drought-afflicted Sudano-Sahelian countries that the shortage of fuelwood will lead to greater wood harvesting. This would inevitably affect supplies of non-wood products, both those that are eaten and those used for other purposes. Yet, programmes for the management of natural woody plant formations rarely take non-wood products into account.

[Balanites aegyptiaca nuts and the oil extraction process. Both the nuts and the processed oil are sold at the Zitenga markets](#)

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This is a shortcoming which needs to be closely examined and remedied by those responsible for programmes in order to develop and manage forest resources. Given their nutritional and economic importance, edible tree and shrub products should be given greater consideration in plans to manage and conserve natural resources for socio economic development.

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