

Management of *néré* (*Parkia biglobosa*) in farmers' fields in Burkina Faso (West Africa)

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Background

Parkia biglobosa (Fabaceae-Mimosoideae) is one of the most important and widespread trees in agroforestry systems from Senegal to Uganda. The National Tree Seed Center (CNSF) of Burkina Faso has developed a breeding and improvement program for this multipurpose tree. To better conserve and promote the best reproductive materials for domestication, it is important to understand how farmers perceive and manage the species in their fields. Farmers appear to have an active role in shaping tree species diversity and richness, affecting also the overall spatial distribution, density, and structure of tree populations. We examined some choices made by farmers with regard to species and individuals to be maintained, and practices used to conserve trees.

Methods

A survey was conducted in Neboun and Cassou, two villages in southern Burkina Faso, to describe farmers' practices for encouraging regeneration of tree species in their fields, with a special emphasis on *Parkia biglobosa*. The survey targeted 150 people categorized by gender, ethnic group and status of residence.

a) Ethnicity		Total	b) Gender		Total	c) Status of residence		Total
Mossi	66		F	78	Native		77	
Nouni	76		M	72	Migrant		73	
Peulh	6		Total	150	Total		150	
Wala	2							
Total	150							

d) Location		Total	e) Status		Total				
Native	52	25	77	Native	2	73	0	2	77
Migrant	37	36	73	Migrant	64	3	6	0	73
Total	89	61	150	Total	66	76	6	2	150

f) Gender		Total	g) Status		Total		
Native	41	36	77	Agropastoralist	0	4	4
Migrant	37	36	73	Farmers	77	69	146
Total	78	72	150	Pastoralist	0	1	1
				Total	77	74	147



Woman carrying pods of *Parkia biglobosa*, a valuable product
 Photo by Guibien Cléophas ZERBO

Trees spared when land is cleared for agriculture

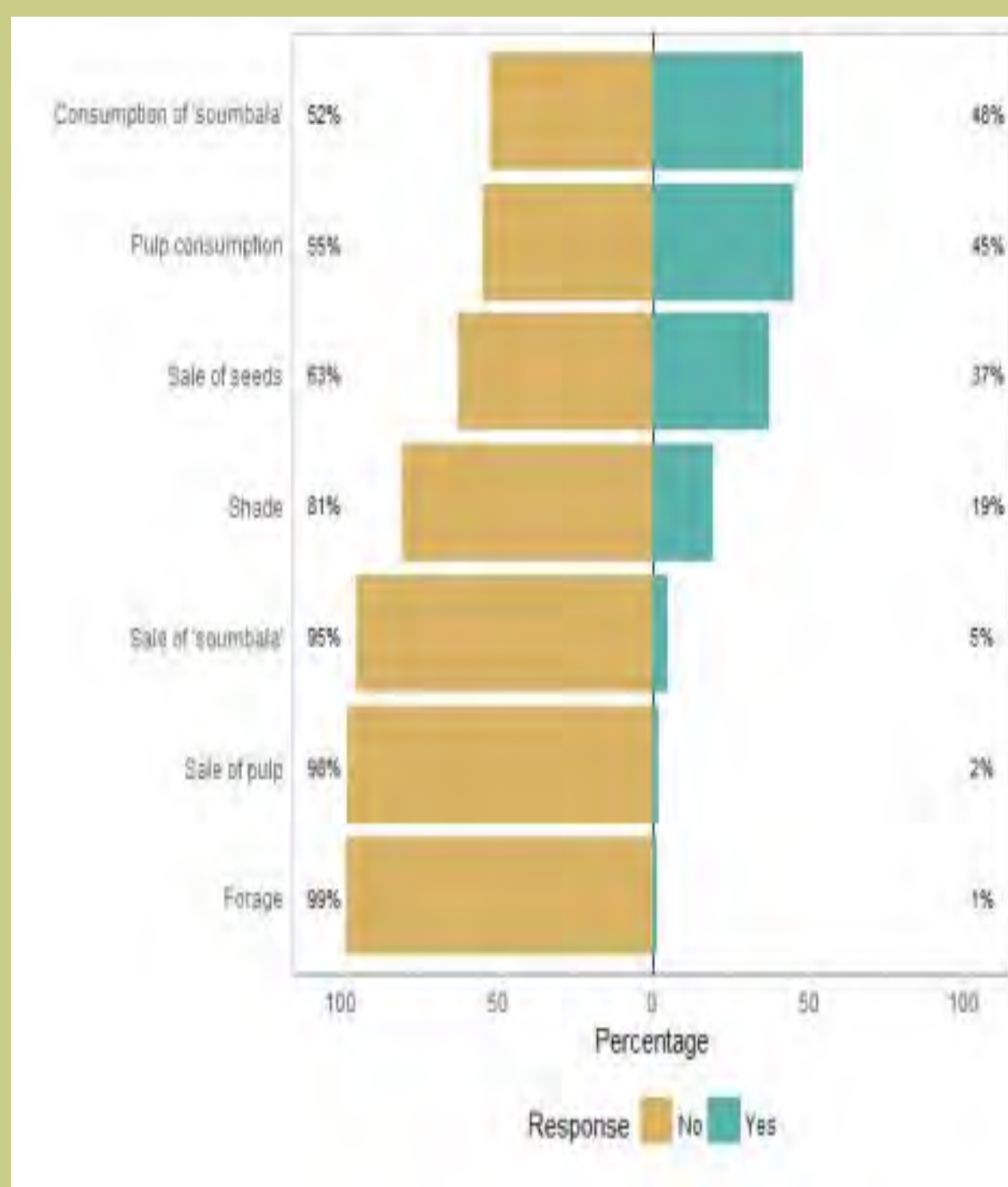
Tree species	Farmers (%)
<i>Vitellaria paradoxa</i>	100
<i>Parkia biglobosa</i>	99
<i>Bombax costatum</i>	25
<i>Tamarindus indica</i>	25
<i>Azelia africana</i>	12
<i>Lannea microcarpa</i>	
<i>Detarium microcarpum</i>	10
<i>Adansonia digitata</i>	6

8 trees most planted by farmers, and their uses

Tree species	a	b	c	d	e	f	g	h	Most frequent combinations (% respondents)
<i>Mangifera indica</i>	2	53	91	3	1	0	0	0	b,c (52)
<i>Anacardium occidentale</i>	0	84	86	0	1	0	0	0	b,c (66)
<i>Parkia biglobosa</i>	43	75	80	0	1	2	0	1	a,b,c (41)
<i>Moringa oleifera</i>	2	27	33	0	0	0	0	0	b,c (27)
<i>Adansonia digitata</i>	0	11	13	0	0	0	0	1	b,c (11)
<i>Eucalyptus camaldulensis</i>	2	12	0	0	0	0	7	1	b,g (5)
<i>Jatropha curcas</i>	0	14	0	0	0	0	8	1	b,h (8)
<i>Carica papaya</i>	1	1	8	0	0	0	0	0	c (6)

a = Medicinal use, b = Commercial use, c = human consumption, d = shade, e = conservation, ecological function, f = forage, animal consumption, g = wood, h = ornamental, hedgerow, windbreak, biodiversity.

Perception of benefits from planting *Parkia biglobosa*



Soubala is a sauce from fermented seeds of *P. biglobosa*

Responses varied by gender, ethnicity and status of residence

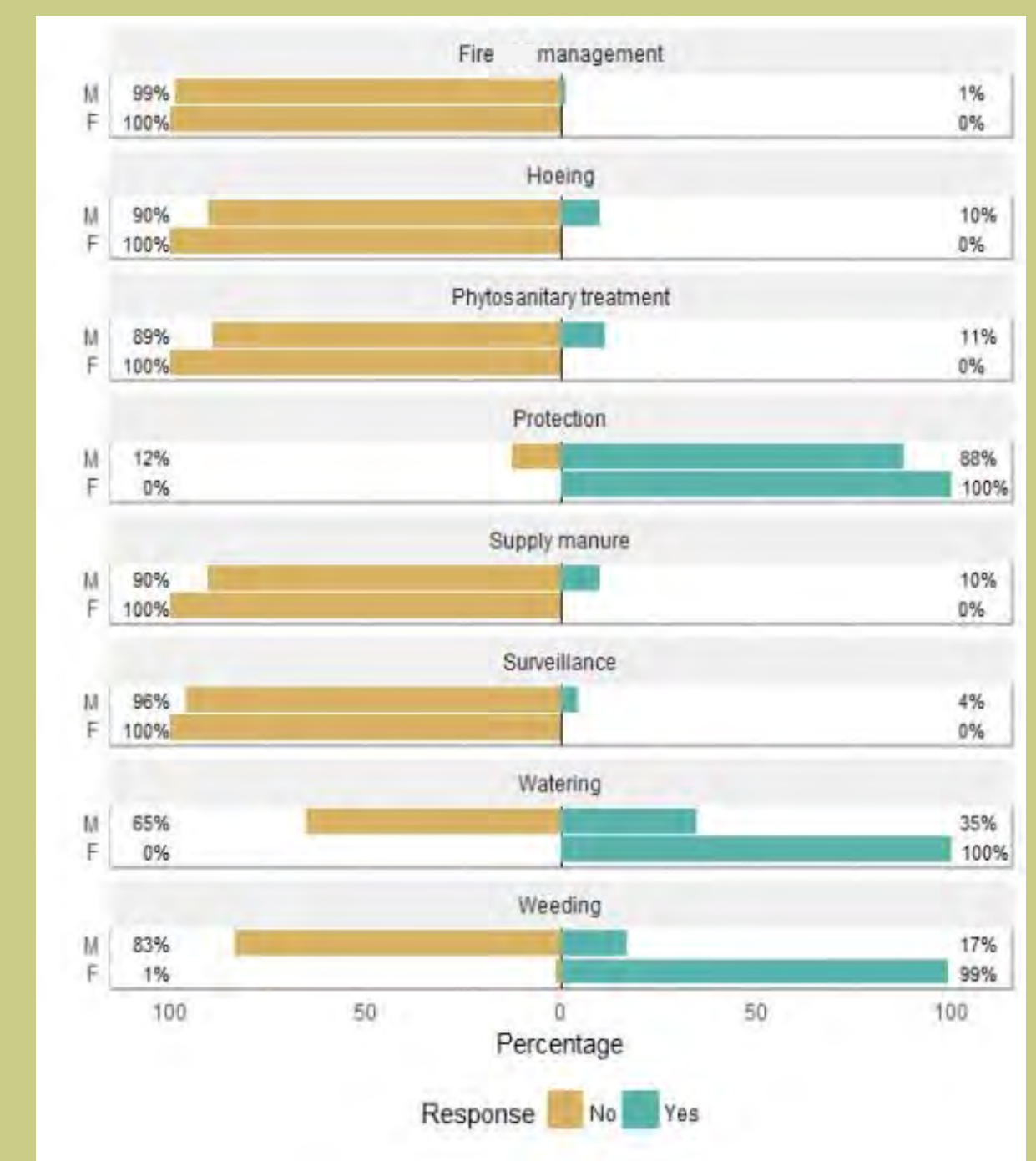
Migrants were significantly less likely to plant trees in their fields than autochthonous people, probably due to different access rights to the land and the trees. The choice of species planted was also influenced by status of residence.

The perception of benefits differed by gender. Female respondents named products for human consumption, income generation and medicinal use; male farmers indicated a greater number of benefits.

Women are involved in tending trees spared/planted in farmers' fields, mainly by protecting seedlings with mechanical barriers, watering and weeding; men are involved less in these tasks, but carry out a wider range of activities to favour establishment of trees on farms.

Male respondents are more likely than females to think that trees on farm have negative effects (primarily through competition with crops).

Males, females and tree management in farmers' fields



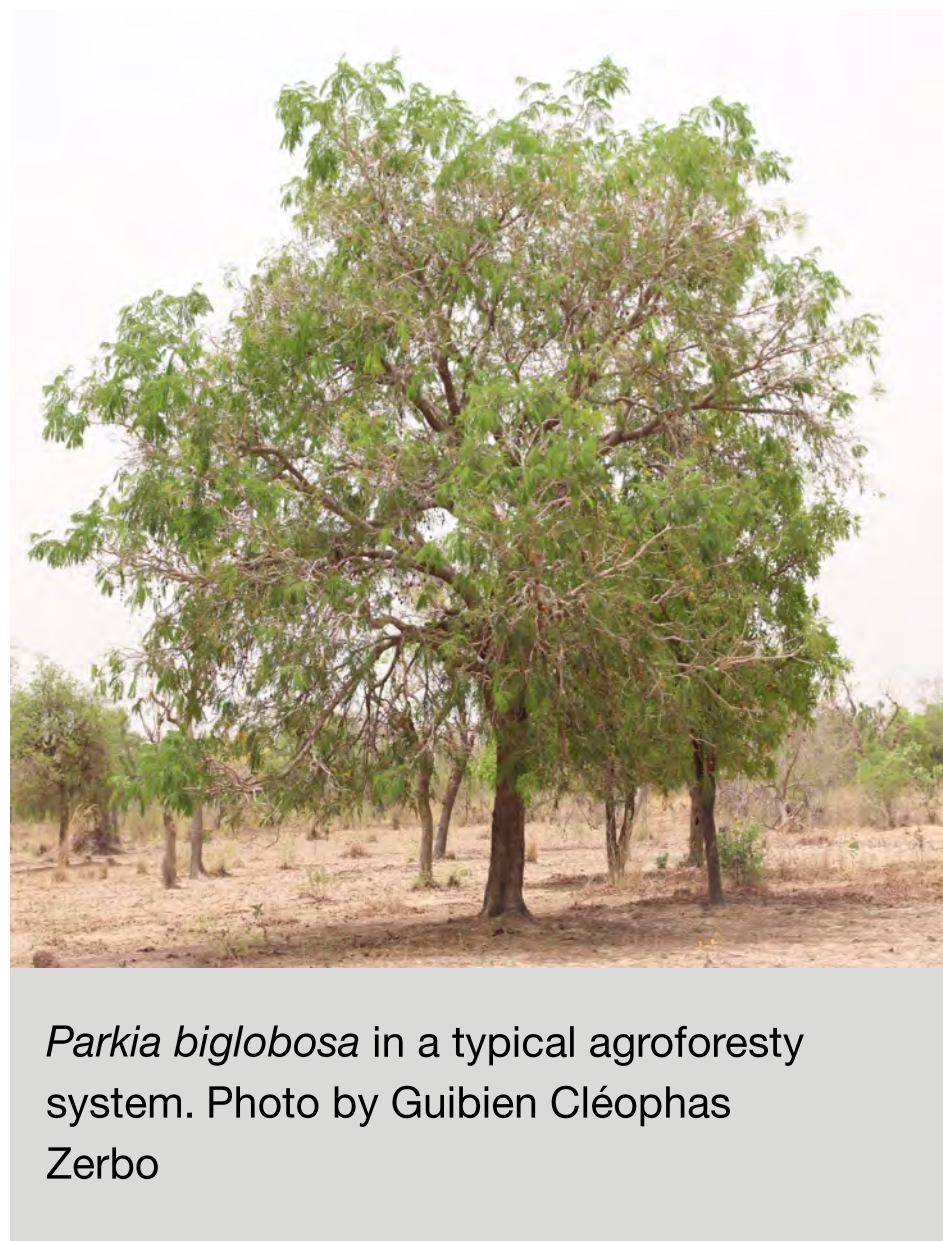
Conclusions

Parkia biglobosa is highly appreciated by farmers. It is retained in farmers' fields when they are cleared for agriculture, mainly because this is required by legislation to favour its conservation; but *P. biglobosa* is also actively planted. It is the indigenous species most desired and planted by farmers. Seeds (in the form of the fermented sauce 'soubala') and pulp consumption are the primary reasons the species is valued. Farmers have well defined criteria to identify 'plus' trees from which to obtain reproductive material. Status of residence and gender are key variables that affect the management of *P. biglobosa*. Farmers' perceptions should be considered together with morphological and molecular variables while designing a strategy to conserve the genetic resources of this species.

How do farmers choose a plus tree of *P. biglobosa*?

Traits	Farmers (%)
High fruit production	90
Pulp taste	81
Large seed size	79
Health status	65
Early fruit production	45

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Parkia biglobosa in a typical agroforestry system. Photo by Guibien Cléophas Zerbo