



Roasted Bambara groundnut (*Vigna subterranea* L. verdc): An emerging income source for women in Mali

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Rationale

Women are often the primary actors involved in cultivation and marketing of traditional crops, which are valued for family nutrition. These crops generally have poor yields, difficult processing, poorly developed markets and other constraints that challenge their marketability. However, while presenting barriers, the neglected and small-scale status of traditional crops can also offer a space of opportunity for women to generate profitable small enterprises that are complementary to men's activities. In this study a gendered value chain analysis was performed for Bambara groundnut in Mali to understand the current levels of involvement of men and women in cultivation and marketing and to identify interventions to strengthen women's income earning opportunity from this crop.

Key messages

1. In alignment with traditional roles and different land access, men were more involved in cultivation and sale of raw grains and women were more integrated in processing and sale of roasted grains
2. Traders of Bambara groundnut in the markets were predominantly individual women from nearby villages specialized on the one product which provided approximately 75% of their personal income
3. Poor quality of transformed products due to women's lack of knowledge of appropriate processing and storage techniques and lack of processing equipment were found to be major constraints which can be addressed with training, building collective marketing, and providing access to processing equipment

Research Methodology

A combination of qualitative and quantitative methods were used in 8 villages and 9 rural and urban markets, including focus group discussions household survey (N=414, male and female heads interviewed), and individual interviews with producers (N=31, 29% women) and traders (N=26, 100% women). Producers were invited to mixed-gender focus groups in each community. Households were randomly selected for the household survey, while individual producers were selected through a snowball sampling approach aiming to interview both male and female producers of Bambara groundnut. The market survey took place during the scarcity period (June 2017). Traders were randomly selected in markets with more than 10 vendors, but in markets with less than 5 vendors, all were interviewed (Figure 1). An econometric approach was used to analyze quantities traded sold and the selling price obtained per kg. Ordinary Least Squares (OLS) regression was used to analyze the factors that influenced quantities sold and the selling price obtained per kg of roasted Bambara groundnut.

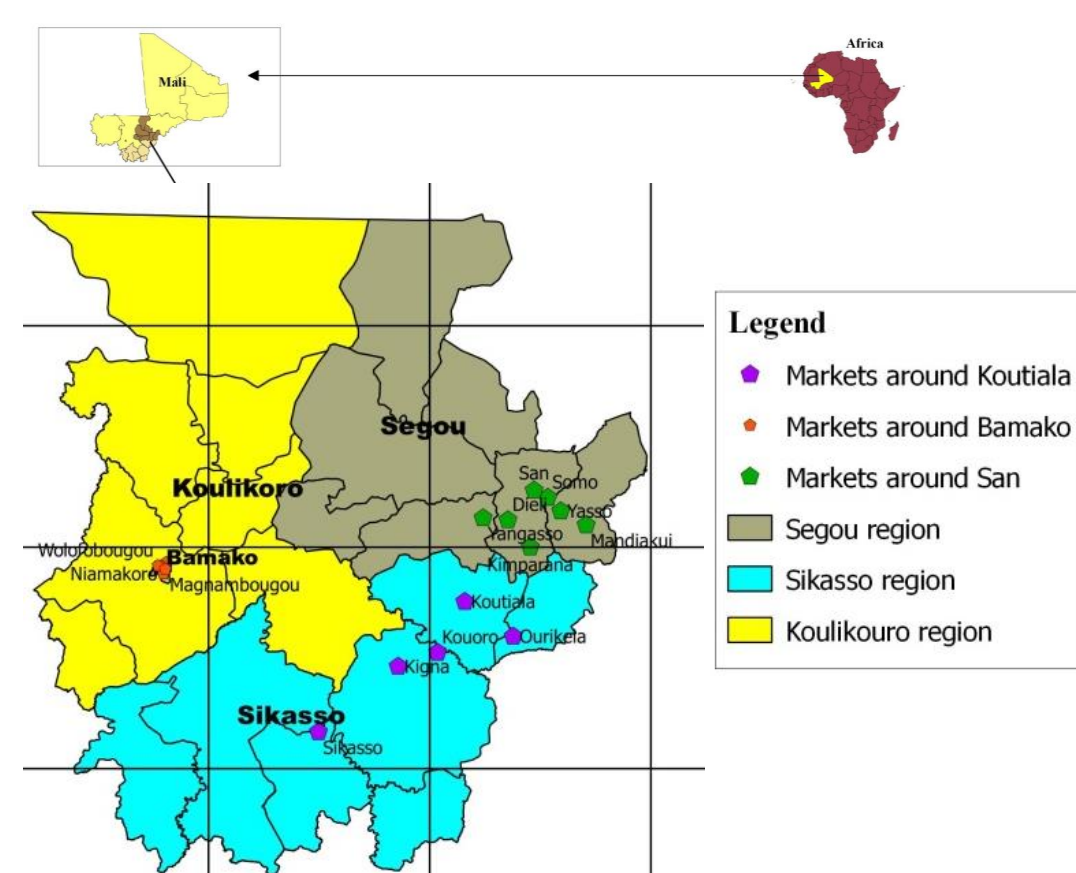


Figure 1. Markets around Séno and Sikasso regions included in the study

Key findings

Gendered production

Bambara groundnut is managed primarily by women in two communities, primarily by men in two communities, and by both genders in four communities (Fig 2). Both genders are engaged in all phases of crop production for Bambara groundnut, but women are more prominent in seed sowing, weeding and harvesting, while men are more engaged in soil preparation and pest management (Figure 3). Most men and women producers of Bambara groundnut had access to family and association plots. More men had access to private plots than women (86% of men vs. 33% of women) (Figure 4).

Gendered crop management

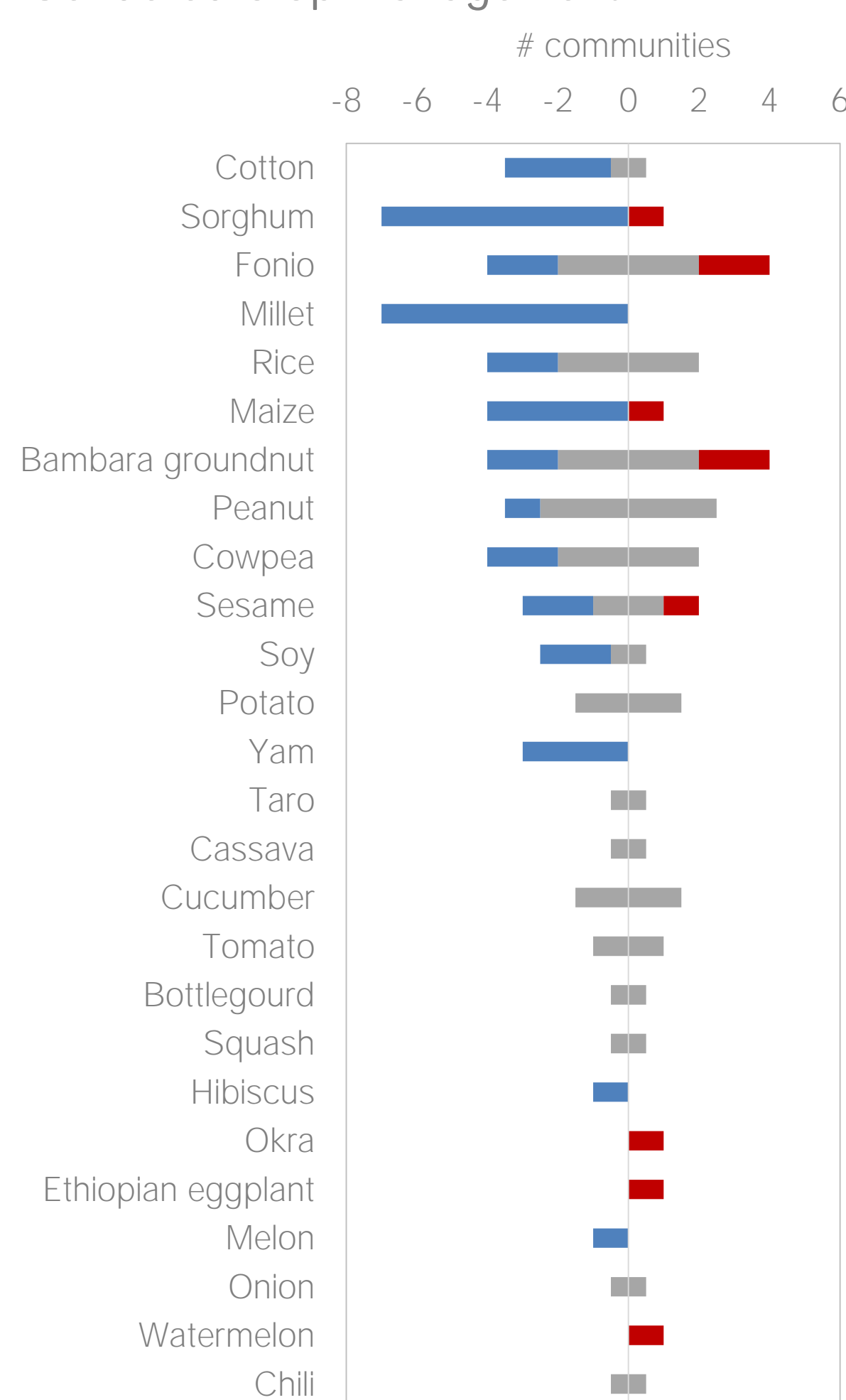


Figure 2. Number of communities reporting gendered management of different crops (N=8 communities). Red = managed primarily by women, blue = managed primarily by men, grey = managed by both men and women. Negative values reflect more male-oriented management while positive values reflect stronger female management.

Production activities

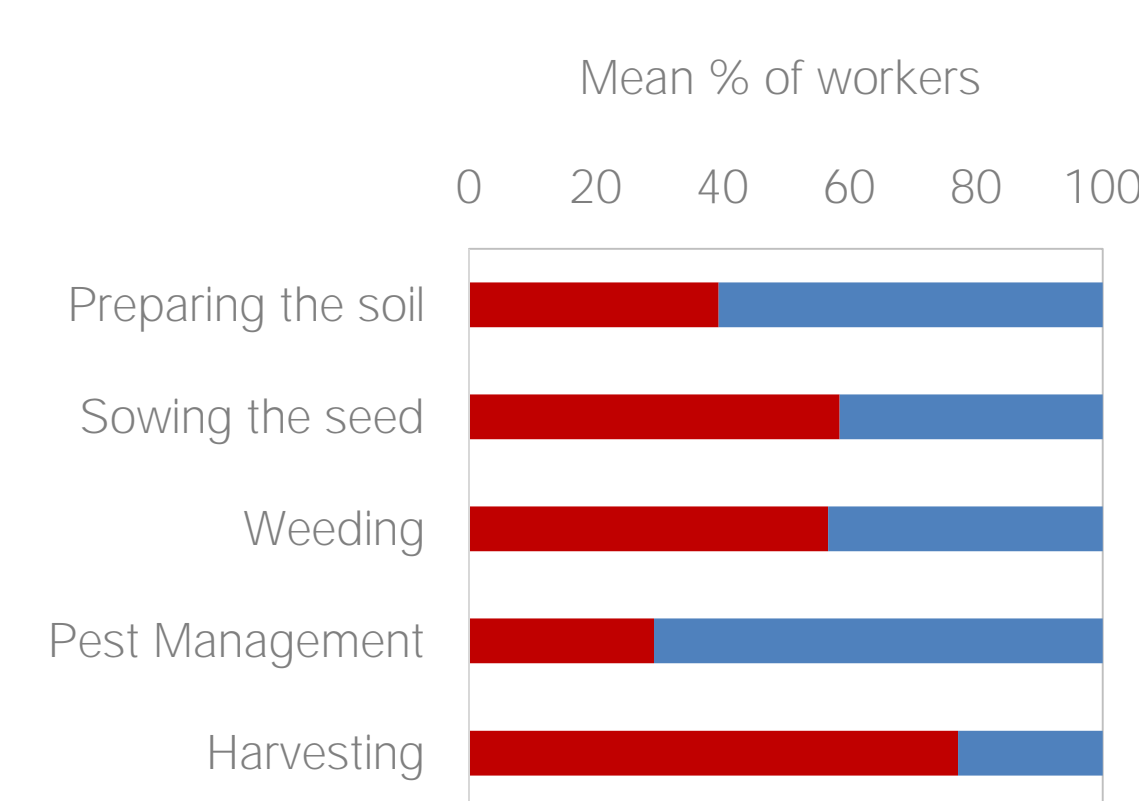


Figure 3. Mean percent of household members that were men (blue) and women (red) engaged in the work for different stages of Bambara groundnut production (N=414).

Access to production spaces



Figure 4. Percent of men (blue) and women (red) Bambara groundnut producers with access to different production spaces (N=31). Family plots are coordinated by the family head. Private or personal plots are areas where an individual can choose what to grow and how to use the production. Association plots belong to a group and are coordinated by a group leader.

Bambara groundnut

Bambara groundnut is a crop originating from Africa that it is eaten in almost all regions of Mali. It is the third most important grain legume in Mali. It makes a complete food as it contains sufficient quantities of protein, carbohydrate and fat (Goli, 1997). Its gross energy exceeds that of other common pulses such as cowpea, lentils and pigeon pea (FAO, 1982). Bambara groundnut is beneficial to the farming system because of its potential to fix nitrogen in the soil. Bambara nut is tolerant to drought, poor soils and extreme heat, hence making it a suitable crop for low-input production systems (Karikari, 1996). Bambara groundnut's importance as a food source for both humans and animals is undoubted, giving it a great potential to address the protein-energy malnutrition problem in developing African countries (Bamgbose et al., 2006).



Left: Women sell roasted Bambara groundnut in the market (Credit: Charlie Mbosso/Bioversity International). Right: Bambara groundnut grains (Credit: Stefano Padulosi/Bioversity International)

Gendered marketing

Producers estimated they used a mean 50% of their Bambara groundnut harvest for household consumption, 30% for sale, 10% for gifts and 10% for seed (N=31). More men were selling their Bambara groundnut production (48% of men vs 33% of women) and they tended to sell a higher percent of their harvest (Figure 5). Men producers were more involved in selling raw grains of Bambara groundnut (37% of men vs. 12% of women), while women were more involved in sale of roasted grains (22% of women vs. 0% of men). Mean annual income from Bambara groundnut reported for men was 28,107 FCFA as compared to 18,000 FCFA for women. Focus groups reported that the income from transformed products tends to go to women who can decide how to use the money, while income from raw grains tends to go to men.

Use of Bambara groundnut

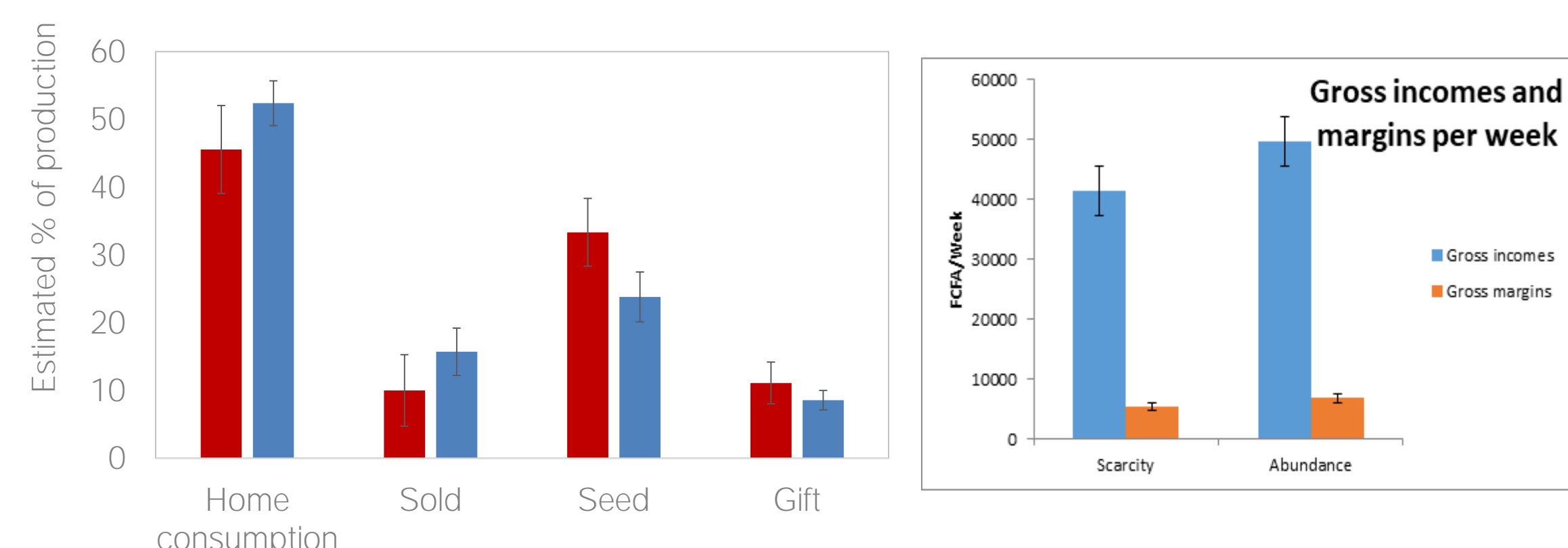


Figure 5. Mean estimated percent of Bambara groundnut production designated to different uses by women and men producers with standard error of the mean (N=31).

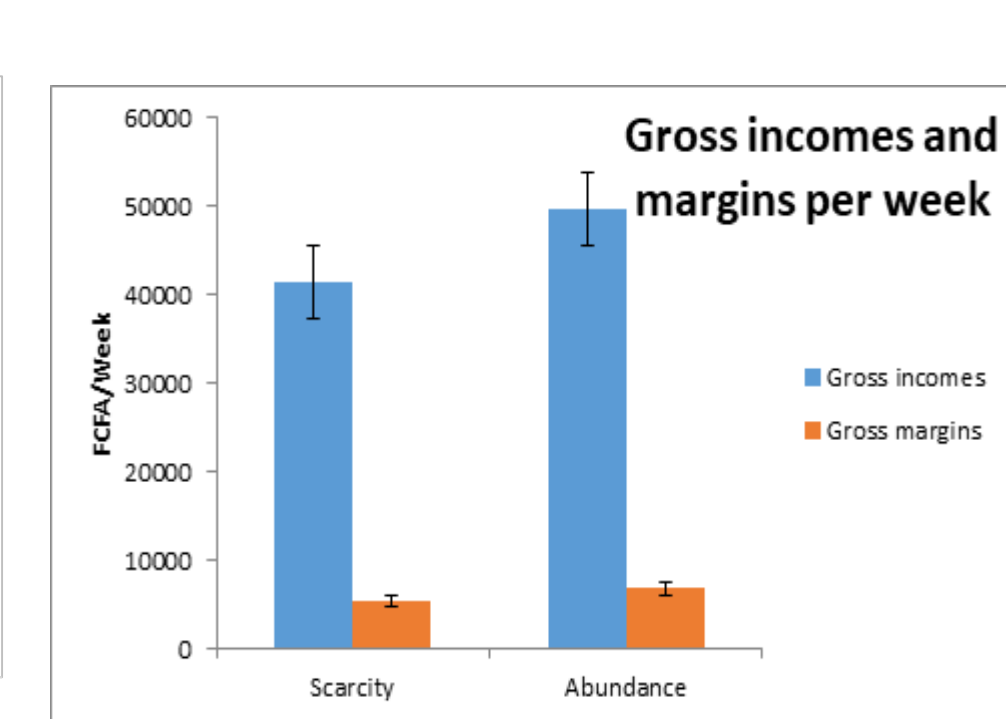


Figure 6. Mean gross incomes and margins of Bambara groundnut traded per week in periods of scarcity and abundance (N=18).

Traders of roasted Bambara groundnut encountered in the markets were predominantly individual women who were specialized in selling the one product. Of the traders interviewed, 77% were selling roasted grains, 20% raw grains, and 3% boiled grains, typically on a small scale. The traders sourced their material from local collectors (61%) or producers (27%) and in more rare cases from their own production (12%). Traders sold a mean volume of 55 to 78 kg of roasted Bambara groundnut per week, with gross margin equal to FCFA 6,786 during abundance and FCFA 5,390 during scarcity (Figure 7). This represented approximately 75% of their personal income (according to 65%). The regression model revealed that quantities of roasted Bambara groundnut vendors sold per week or per season, strongly depended on the market size and good quality product. Matrimonial status negatively affected quantity sold per week during abundance. Selling price both during scarcity and abundance periods strongly depended on the number of years involved in trading the product.

Opportunities and constraints for women

Marketing of roasted Bambara groundnut is a viable alternative for women who are excluded from high-value markets (groundnut, cowpea). Bambara groundnut may provide lower income but it also has lower marketing barriers (market risks and transactions costs). Poor quality of transformed products due to women's lack of knowledge of appropriate processing and storage techniques and lack of processing equipment were found to be major constraints. In addition, marketers' poor sales skills sometimes led to failure to sell the transformed products. Major difficulties in selling roasted Bambara groundnut are low capital of traders (50%), lack of buyers/consumers (38%), slow rhythm in sales during the abundance period (8%) and high buying price of grains (4%). Processing training coupled with good market orientation and links will boost both production and commercialization of Bambara groundnut.

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Acknowledgements

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Table 1. Regression results on factors affecting quantity sold and selling price for Bambara groundnut

Factor	Quantity sold		Selling price	
	Abundance	Last season	Abundance	Scarcity
Market	30.0 (15.0)**	0.7 (0.3)**	8.4 (14.1)	-5.5 (16)
Type of vendor	-39.8 (90.1)	-4.7 (2.9)	177.1 (103.7)	189.8 (122.9)
Statut matrimonial	-202.0 (108.8)	-1.1 (2.8)	118.7 (99.7)	131.1 (117.8)
Years trading	0.8 (12.6)	-0.6 (0.3)**	27.0 (10.5)**	34.0 (12.0)**
Education	-16822 (49.7)	1.9 (1.6)	46.1 (60)	50.7 (70.3)
per_abn_vdzoug		4.4 (4)		-83.3 (70.3)
lieu_acha_vdzoug_abn	14 (15.9)	0.5 (0.4)	11.4 (16)	8.4 (17.9)
lieu_acha_vdzoug_pen	11.9 (14)	0.6 (0.4)	12.7 (14.6)	2.5 (16.7)
fact_qite_vdzoug	-13.9 (18.7)	1.0 (0.5)*	-32.2 (19.5)	-41.7 (21.8)**
part_rev_vte_vdzoug	59 (47.1)	-1.1 (1.3)	-69.5 (45.1)	-58.1 (53.8)
place_vte_vdzoug	-100.7 (75.9)	0.3 (1.6)	39.5 (57.9)	14.9 (67.9)
acht_vdzoug	62 (82.7)	3.5 (2.7)	82.2 (99.7)	71.9 (112)