Agricultural production practices, challenges and opportunities of small-scale farmers in Burkina Faso and Senegal

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1. Introduction

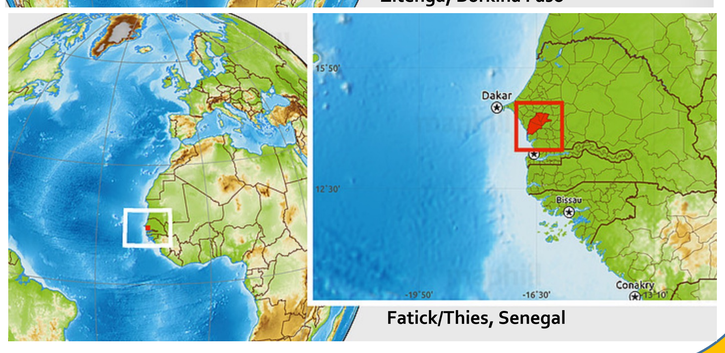
Objectives

A first activity of the NUTRiGREEN project was to conduct a household survey (HHS) in the project regions, in order to:

- understand the current farming practices and decision process
- discover what plants are produced
- establish the perceived value of traditional plants
- determine how small-scale farmers perceive and adopt to climate change

Two HHSs were organized in the project regions - Zitenga in Burkina Faso, and Thies/Fatick in Senegal, interviewing head of households.

Research areas



2. Methods and sample details

Methods

The sample groups for the HHS were chosen through convenience sampling.

Burkina Faso: 210 interviews from 25. – 29. of April 2022. The interviews were carried out in the local language Mooré, by seven students from the Université Joseph Ki-Zerbo Ouagadougou (UJKZ).

Senegal: 204 interviews were conducted between 18. February and 02. March 2022 in the villages of Nobandane and Diorfoir. The interviews were carried out in the predominant local language Serer, by ten students from Cheikh Anta Diop University Dakar (UCAD).

Data was collected using tablets and the Tobo Toolbox is an open-source humanitarian technology company based out of the Harvard Humanitarian Initiative.

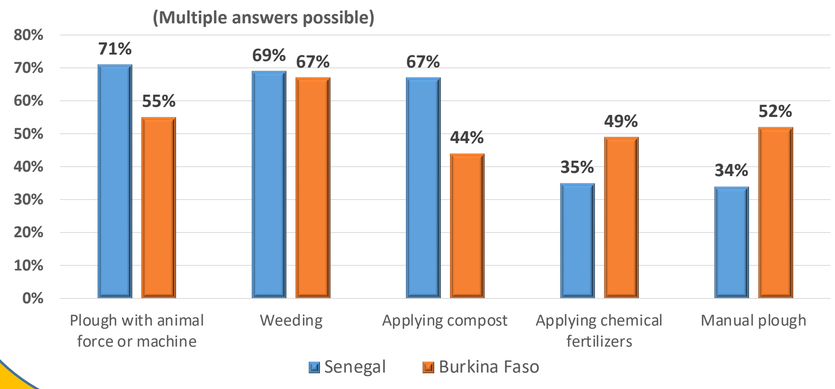
	Burkina Faso	Senegal
Male / female ratio	♂ = 175 ♀ = 35	♂ = 95 ♀ = 109
Average age	51,6 years	49,6 years
Literacy rate	36%	38%
Full-time farmers	53%	37%
Average plot size	3,4ha	3,6ha
Member of farmer's association / cooperative	18%	26%
Less than 25.000 CFA (38 €) monthly income	67%	43%

3. Results - Current practices

3.1 Key decision factors on what to produce

I plan the next crops ... - *Multiple answers possible* -	Burkina Faso	Senegal
..according to my crop rotation plan	40%	59%
...according to the seeds I possess	32%	55%
...like the year before, as I always plant the same things	42%	43%
...according to the season	23%	37%
...according to my production plan	13%	11%
...according to the available water & the expected weather (i.e. drought)	2%	8%
...according to the decision of the cooperative	1%	3%
...according to the demand on the market	2%	2%
...according to the recommendations from the extension officer	1%	1%

3.2 Preparation of soils before planting

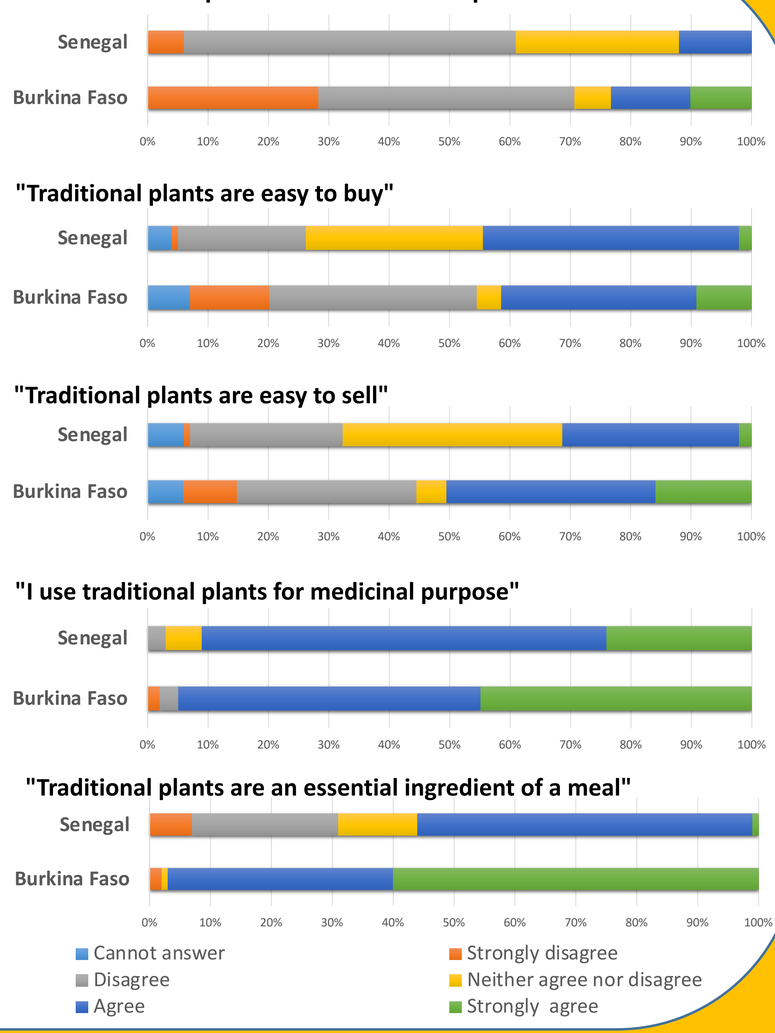


3.3 Production of crops

	Burkina Faso	Senega l
Cereals		
Millet	94%	91%
Sorghum	84%	55%
Maize	83%	25%
Rice	9%	13%
Fonio		1%
Rooters and tubers		
Potatoes	7%	17%
Manioc		16%
Sweet Potatoes	1%	11%
Yam		5%
Taro	1%	
Vegetables		
Tomates	50%	40%
Onions	30%	33%
Okra	24%	27%
Cabbage	16%	22%
Black eggplant	22%	21%
Local eggplant	5%	17%
Spinach	8%	8%
Peppers	7%	7%
Cucumber	24%	6%
Green beans	4%	
Cowpeas	92%	58%

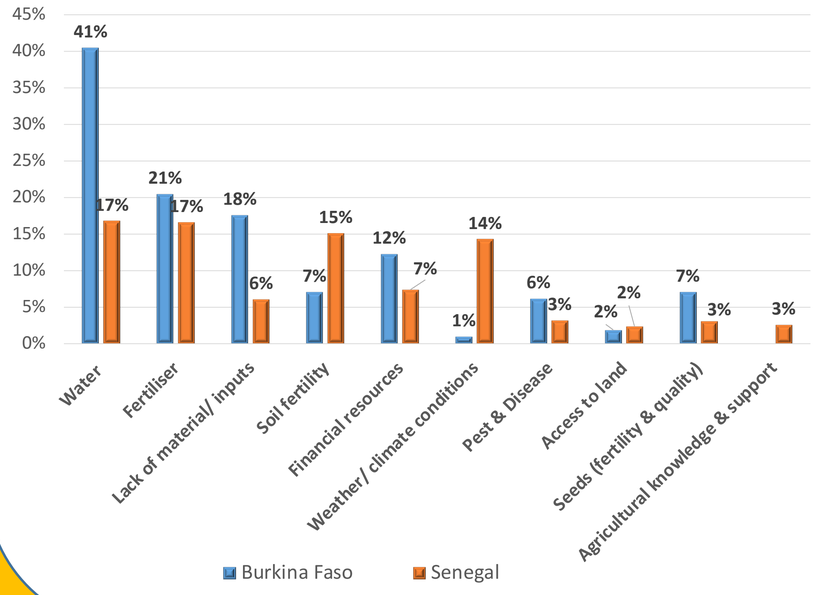
	Burkina Faso	Senegal
Cash crops		
Peanuts	87%	86%
Sesame	44%	1%
Cashew		1%
Fruits		
Hibiscus	15%	49%
Mango	6%	37%
Watermelon	-	24%
Lemon	1%	21%
Jujube	-	19%
Papaya	-	16%
Guava	1%	6%
Tamarin	1%	5%
Trees		
Baobab	7%	27%
Moringa	5%	27%
Shea	10%	
Seagrape	7%	
Cassia	2%	2%
Jackalberry		3%
Sweet detar		1%
Desert date		1%
African locust bean	1%	

3.4 "Traditional plants are food for the poor"



4. Results - Challenges & potentials

4.1 Main agricultural challenges (open question)



4.2 How do you adapt your farming to climate change? Potential

- Multiply answers possible -	Burkina Faso	Senegal
I use better seeds (e.g. drought-resistant seeds)	59%	30%
I build stone dams	50%	was not asked
I rotate crops	42%	61%
I use more chemical fertilizers	33%	35%
I use more compost and manure to increase organic matter	32%	20%
I practice agroforestry and tree planting	9%	25%
I use more pesticides/insecticides	4%	7%
I practice minimum tillage	4%	29%
I do off-farm work	3%	5%
I use more herbicides	3%	3%
I keep more livestock	2%	4%
I installed sprinkler irrigation	1%	1%
I use cover crops	1%	5%
I use climate services (weather forecasting)	1%	6%
I use windbreaks	1%	22%
I use more water (by hand)	1%	1%
I conduct furrow farming	0,5%	1%

5. Conclusions

The survey results indicated that:

- farmers' cropping choices (in Senegal, especially) seem to be influenced by their customary norms and habits, like their crop rotation plans or the persistent cultivation of the same crops as well as restrictions (seeds availability)
- in both countries, farmers engage in various soil preparation activities. However, in Senegal, a greater proportion of farmers opt for natural fertilizers over chemical fertilizers compared to Burkina Faso
- millet is the key staple produced in both countries. Farmers interviewed in Senegal produced more fruits, roots and tubers and had a significant higher ownership of moringa and baobab plants, yet more farmers in Burkina Faso cultivated sorghum, maize, cowpeas and sesame
- traditional plants have a positive reputation (they are not seen as food for the economically disadvantaged), are integral to the local culinary traditions and serve medicinal purposes (the latter two, especially in Burkina Faso). However, the process of buying and selling them seems to be less straightforward
- water issues were the most unprompted stated challenge in Senegal, which includes 'lack of water/rain', 'insufficient rain', 'irregular and low rain', and 'drought', while no one challenge stood out in Burkina Faso
- farmers employ a variety of methods to adapt to the shifting climate. Almost all of them align with agroecological principles, including the construction of stone dams, crop rotation, minimal tillage, agroforestry, and the planting of trees or the implementation of windbreaks

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NUTRiGREEN
Promoting Green Nutrition for the Sahel region

NUTRiGREEN is an international project with partners in Burkina Faso, Germany, Senegal and Sweden. The project investigates the value chains of traditional African plants in order to strengthen their impact in the local and regional agri-food system. Together with farmers, consumers and other value chain stakeholders, we research their current status and future potentials from farm to folk.

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