Innovative solutions for food security: Examining the nutritive gardens systems in Burkina Faso

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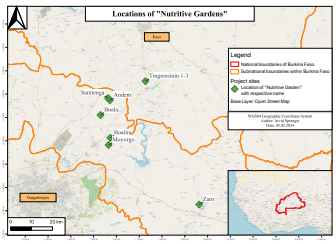
1. Introduction

Background

Similar to many West African nations, Burkina Faso is already experiencing an increase in climate change-related extremes.
One promising adaptation strategy is an innovative cultivation technique called "Jardin Nutritif" (French for "nutritive garden"), which focuses on the intensive farming of moringa and baobab trees. Nutritive gardens are a simple, effective, low-cost and mostly community-managed production system, set-up to improve the nutritional status and food security in rural areas as well as to increase the income of poor households.

Research areas



Source: Arvid Sprenger (2024)

2. Methods and sample details

Objectives

As part of the NUTRiGREEN project, a qualitative research study was conducted in November 2023 in the project's target regions, in order to establish the nutrition and livelihood potential of nutrient gardens in the Plateau Central and Centre North region of Burkina Faso. Thereby, the objectives were to:

- record the different models and characteristics of nutritive gardens,
- establish the organisation and operating methods of the members of such gardens and
- identify both the advantages and obstacles experienced following their establishment.

Methods

In November 2023, seven nutritive gardens were visited, and five focus groups were organized with women's groups to assess the benefits and challenges of nutritive gardens.

Village	Set-up year	Number of participants met for discussions
Boala	2021	27 women
Andem	2020	17 women
Tingressinin	2017	29 women
Moyorgo	2020	3 women
Samtenga	2020	47 women
Boalin	2021	15 women
Zam	2014	2 men

3. Results - Current practices of setting up a nutritive garden

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Step 1:
The area is enclosed, and individual planting plots are marked with wooden boards, each measuring three meters long and one and a half meters wide. A 30-centimeter gap is maintained between each bed to maximize space efficiency.

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Step 2. A soil-fertilizer blend is formulated with the extracted soil to ensure optimal fertility. The precise composition of compost, comprising soil, manure, and sand, is dependent upon the inherent structure and texture of the soil profile.

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Step 3. A thin layer of sand is spread at the base of the bed, situated 15 centimetres below the desired surface level to support root growth. Seeds are evenly distributed across the beds, maintaining a consistent 20-centimetre spacing between each seed. Each bed is designated for a single species only.

Step 4. Moringa seedlings usually germinate in around a week, while baobab seedlings take about two weeks to emerge. While nutrient garden can be set up year-round, their implementation often occurs during the rainy season to ensure water availability.

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Step 5. After the set-up the beds require regular maintenance tasks such as watering, hoeing, weeding, pruning, and pest and disease management.
Incidences of pest and diseases are minimal for both species, making them suitable candidates for cultivation in such a dense production system.

Step 6. The first harvest can be carried out six weeks after sowing. It is important to conduct the harvest under hygienic conditions and before 9 a.m. to prevent excessive sunlight exposure, that can lead to plant dehydration. The leaves should be dried either in the shade or in a specialized dryer to preserve as many nutrients as possible.

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4. Results – Benefits & Challenges

The following benefits were found:

- **Economic benefits:** Nutri-gardens, particularly the baobab component, serve as a vital financial resource for women. The income generated helps cover expenses like clothing, phone credit, and household needs, boosting financial stability.
- **Food security:** Growing moringa and baobab leaves diversifies the diet of members and their families, while the sale of these leaves allows households to buy additional food, strengthening community food security.
- **Health benefits:** Consuming moringa leaves provides essential nutrients, improving health outcomes. Income from leaf sales also helps access healthcare services, enhancing healthcare utilization in the community.
- **Social benefits:** Nutri-gardens offer meaningful work, especially during the dry season, providing employment and engagement. This boosts individual well-being, fosters social cohesion, and promotes a sense of collective purpose among community members.

Three main challenges were mentioned:

1. **Water availability:** Some gardens are far from water sources, requiring women to transport heavy containers. Wells may deteriorate or have fluctuating levels, especially at the end of the dry season. Competition for limited water resources in the village complicates the situation.
2. **Market reliability:** Nutritive gardens face inconsistent, low-paying customers, with women's groups relying on limited word-of-mouth advertising.
3. **Equipment deficiencies:** Inadequate production and processing tools, like insufficient dryers and storage, impede on-site processing. Solar dryers also struggle during low sunlight periods, leading to production losses.

5. Conclusion

Since 2017, numerous NGOs as well as government projects and programmes have established nutrition gardens across West Africa. However, based on the challenges encountered, future initiatives must refine their setup and maintenance processes. To ensure the long-term sustainability of these gardens, implementing bodies should provide ongoing and structural support beyond the initial setup phase. This includes maintaining consistent water supply, assisting with drying, processing, packaging, and establishing reliable market outlets.
To enhance profitability, implementing actors should also help identify and engage with dependable customer bases, such as local educational institutions, street vendors, restaurants, and supermarkets. Additionally, cooperatives should explore value addition opportunities at the production site to improve financial stability and optimize revenue streams. For instance, incorporating fresh moringa leaves into products like juices or jams can both expand the product range and capitalize on the nutritional benefits of moringa.

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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