



## Sustainable preservation of strategic agricultural products

**Sustainable preservation of strategic agricultural products to ensure food sovereignty and increase the income of both men and women farmers: The case of biological conservation of the potato and fonio in central Guinea.**

Due to its prime location, Guinea has significant potential for fruit and vegetable production. The country has assets such as soil fertility, abundant rainfall and a rural population traditionally oriented towards agriculture. Farmers represent 61% of the population and constitute 80% of the poor. They are mainly engaged in the cultivation of potato and fonio, a traditional cereal crop from West Africa. The areas cultivated vary between 2 and 5 hectares for potato and between 1 and 3 hectares for fonio. These crops play an important role in local staple diets.

The potato is now considered a source of substantial income for rural producers in the region. The bulk of marketed production is sold to urban markets across the country.

Fonio is popular for meals during cultural and religious ceremonies, and potato is often eaten to commemorate celebrations (birthdays, baptisms, weddings, reading from the Koran etc.).

These crops are mainly grown on the high plateaus of Fouta Jalon where the climate allows multiple crop

cycles. In this region, producers are moving away from traditional potato and fonio conservation techniques, toward modern technology using chemical inputs. In addition, producers are facing huge losses of harvests due to viral infections.

These practices are a threat to farmers, consumers and the environment. To reduce this risk, EVD (European Volunteers for Development) have been implementing, since 1987, a program of support for small farmers. From 2013 to 2015, the project has entered a new phase with a focus on the sustainable conservation of these strategic agricultural products.

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“Compost and ash instead of mineral fertilizer, as well as planting potato on ridges following the contours, allowed me to better keep my small production for a longer time.”

## THE PROJECT

### Goal

Overall, the project aims to develop improved biological conservation technologies for potato and fonio producers.

Specifically, the project aims to raise awareness and inform and educate potato and fonio producers on sustainable biological conservation technologies for these crops, to minimize post-harvest losses.

### Location and beneficiaries

The project is located in the region of Middle Guinea, specifically in the sub-prefecture of Garambé and Timbi Madina, located about 400 km north of the capital, Conakry.

The project benefits 35 pilot farmers and members of groups affiliated to the "Fédération des Paysans du Fouta Djallon".

### Methodological Approach

The project follows a participatory approach through the implementation of training sessions, activities and follow-up meetings. Exchange visits between farmers in potato and fonio production areas (central plateau and mountain slopes of the Fouta Djallon), workshops or round tables and radio programs on conservation techniques are also organized to improve impact. Advocacy is carried out with policy makers for the promotion of organic production and conservation techniques.



## IMPROVED BIOLOGICAL CONSERVATION TECHNOLOGIES OF POTATO AND FONIO

### The improved biological conservation techniques for potato.

When storing potatoes, the aim is to keep the potato tubers at the highest level of quality for future use: human consumption (fresh market or industrial processing), starch production, or seed production. Challenges to the storage of potatoes include losses due to physiological processes (sweating, breathing, germination) and storage diseases and stored tubers pests.

Other than selecting tubers that are fully ripe and in good condition, the essential conditions to be met when storing potatoes are the following: maintaining darkness, proper ventilation and temperature control (2 - 10 ° C). The storage can be done in bulk but the height of a heap of potatoes should be limited, and containers or crates of appropriate dimensions should be used, to avoid crushing the tubers.

The duration of storage can reach 8 to 12 months if the optimal technical conditions are met. This duration is limited to a few weeks when potatoes are stored at room temperature in people's homes.



### The improved biological conservation techniques for fonio.

Fonio is mature, around 75 days after seeding, when the whole plant has turned yellow and the stalk bends, or when the moisture content of grains is between 20% and 25%.

The harvest process consists of mowing the stalks and binding them in the form of a sheaf of 2 to 3 kg on a tarpaulin sheet. Fonio sheaves are dried for 3-5 days after harvest, and then go through the crushing process. This separates the grains from the panicles. Threshing areas are carefully prepared to avoid contamination (by dust, sand, stones etc.). Traditionally, threshing is done on dirt floors coated with cow dung, mixed with clay. To improve the quality of paddy fonio, the project recommends to cover these threshing areas with mats or plastic sheets, because manual threshing is done using sticks or by treading with feet.

The next step is to winnow and dry the grains to approximately 10-14% moisture, and then fonio is stored in jute bags, traditional baskets or silos.

The room where the stock of fonio is stored must be dry and well ventilated.



**Mr. Mody Oury Diallo, producer of fonio in Timbi Madina reported:**

*"Fonio is stored easily and for a long period in baskets, attics or raffia bags kept in dry and ventilated places."*



*A pile of fonio stalks*

## THE OBTAINED RESULTS

We note an acceptable level of adoption by producers of the techniques disseminated. 65% of partner producers have taken ownership of the sustainable conservation technologies for potato and fonio. 85% of them claim to have found a significant reduction in post-harvest losses.

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For producers and local populations to follow these practices, means added value to food sovereignty. Indeed, improving the conservation promoted the availability, in all seasons, of these two products on the local market, although a significant amount is consumed by households of small producers.

It also allows for profitable production: 1kg of potatoes is sold locally for between 3,500 and 8,000 Guinean Francs (FG) and 1kg of fonio is sold for between 6,000 and 10,000FG.

At the national level, farmers' advocacy toward policy-makers yielded the expected results. Indeed, the state now looks more closely at importers of agricultural inputs including conventional pesticides and seeds. The Ministry of Agriculture encourages more agroecological production and sustainable conservation techniques for potato and fonio without the use of chemicals (phytosanitary products). The technical services are more invested in sectors that can boost economic growth (tubers and fonio).

## CHALLENGES AND OPPORTUNITIES

Today, small farmers from Timbi Madina are engaged in the search for alternative, better and cheaper conservation techniques, while moving away from the use of synthetic inputs.

The penetration of the project will address a number of challenges, including limiting the proliferation of conventional chemical inputs. Moreover, the interest of the state in sustainable conservation techniques can provide the opportunity to enhance the capacity of farmers in this area, which will certainly have a significant, positive impact on their standard of living.



### CONTACT

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