



**Food & Nutrition Security
Project Brief**

Zinder Region, Niger

April 2023

**Nutritionally Improved & Climate
Adapted Seeds,
Low-cost Storage Technology &
Access to Local Markets
for Small Scale Producers**

Date:

April 2023

Title:

Improve Food & Nutrition Security

**Country/
Region:**

Niger, Zinder

Sector:

Food Systems

**Intervention
Dates:**

From November 2020 to March 2023

Costs:**Direct:**Improved seed
2021 - USD 21,175
2022 - USD 21,106Storage bags
USD 7,800Access to markets
USD 13,537**Statistics:****Malnutrition:**49.5% of women of reproductive age are anaemic.
47.% of children <5 years are stunted
(Global Nutrition Report, 2021)

Millet, source: GOAL, 2021

Nutritionally Improved Millet - a win, win, win

Naturally biofortified with Iron and Zinc to increase the nutritional value of what people already eat. Short maturing to reduce climate related risks. Higher yields for better return for farmers on their production investment - all contributing to increased food & nutrition security.

Groundnuts & cow peas are good sources of plant protein, adapted to be short maturing to reduce climate-related risks and increase production.



Groundnuts, source: GOAL, 2021



Cowpeas, source: GOAL 2021

The Purdue Improved Crop Storage (PICS) bags

technology is helping to improve food security and increase income of millions of smallholder farmers in Africa and beyond. The PICS bags are a simple and cost-effective way of storing grain and seed without using chemicals to control insect pests. The PICS bag has three layers, two liners fitted inside a woven sack. When each layer is tied and closed separately, it creates a hermetic environment for storing harvested grain. This oxygen-deprived environment proves fatal for postharvest insects. PICS enables farmers to store a variety of legume and cereal crops for more than one year after harvest.



PICS bag, source: Purdue University

Key Findings**Good demand for nutritionally improved & climate adapted Millet, Groundnut & Cowpea seeds.**

Between April and August 2021 & 2022, **37.5 tons** (37,566 Kgs) of nutritionally improved and climate adapted seed was sold to farmers through a private sector partner with a 50% sale price in 2021 and a 40% off sale price in 2022. A total of 24.7 tons of improved millet was sold, 8.9 tons of cowpeas and 3.7 tons of improved groundnuts. *

There is a substantial increase in production of improved seed when compared to local varieties.

Improved seed	% Increase in production 2021**	% Increase in production 2022**
Millet	183.3%	216%
Groundnuts	187.5%	137%
Cowpeas	242.8%	257%

Production from improved seed is still significantly below ideal production levels, due to multiple factors including inter-cropping, a good risk mitigation practice.

There is good evidence that production is being used for household food consumption.

In 2021, 87% of the farmers interviewed kept between 75% and more of the crops produced for household consumption, in 2022, 73% kept more than 75% of their production for household consumption. **

High demand for low-cost storage technology to reduce food waste.

In 2021, with a small investment (\$7,800) to trigger demand, 27,000 low-cost storage (PICS) bags were sold by a private sector partner. Following the intervention that demonstrated demand at scale, the private sector partner reduced the price of PICS bags by 10% for all customers. To date, (March 2023), **50,150 PICS bags have been sold** to small scale farmers to reduce food waste *

Increased access to market for small scale farmers

In late 2022, GOAL invested \$13,537 with a buyer to aggregate and buy millet, groundnuts & cowpeas from farmers in Zinder. Through his network of 6 aggregators, **306 tons of crops were purchased**. Two of the six aggregators are women, demonstrating that even in this traditional society, women can hold key positions as market actors.

*Private sector partners records, GOAL weekly validation of sales with retailers

** Production assessment GOAL Jan 2022 & Jan 2023



Seed retailer, Zinder, source: GOAL 2021

Brief background With support from UNITLIFE & Irish Aid, GOAL is implementing an integrated programme to improve food & nutrition security in Zinder Region in Niger, using Social & Behavioural Change methodologies and a [Market Systems Development](#) (MSD) approach.

To improve production and availability of nutrition dense and climate adapted crops, GOAL partners with local private sector actors to strengthen the linkages between input suppliers and farmers in Zinder for timely access to nutritionally improved and climate adapted millet, groundnuts and cowpea seed. GOAL also partners with private sector actors to increase access to good quality low-cost food storage equipment (PICS bags), to reduce food waste, and to increase farmers access to markets through aggregation and off-taking of millet, cow peas and groundnuts. This project brief summarises the findings from the monitoring of sales 2021 and 2022 and the findings of annual production assessments for the same years.

Summary findings

1. Access & availability of nutritionally improved & climate adapted seed.

Working through a private sector seed wholesaler and their network of 32 retailers, 37.5 tons of nutritionally improved and climate adapted seed (millet, groundnuts & cowpeas), was sold to small scale farmers across Zinder region in 2021/22. A 'smart' subsidy¹ was used to incentivize small scale farmers to try new and improved varieties.

There was a substantial decrease (36 percentage points), in farmers who purchased seed from the local market, this could be a positive change as seed sold in local markets can be of variable quality. At the same time, there has been a substantial increase (34 percentage points), in farmers retaining seed from last season's harvest. If improved seed was used in last season harvest, this will amplify the use/benefits of improved seed.

Most farmers heard about improved seed through the radio, although this dropped from 58% to 43%. Twenty percent of respondents heard about improved seeds through seed retailers in both years. The Ministry of Agriculture is not a key source of information. There is a large percentage who hear about improved seeds through the GOAL project team and while this is good in the short term, it is not a sustainable marketing channel.

See recommendation 1, 3 & 4.

2. Production of improved staple crops

The percentage of farmers growing both improved and local millet was similar across both years (2021/22), with all farmers growing local millet. There was a substantial increase (approx. 58 percentage points), in the number of farmers planting both improved and local cowpeas; and a 19 percentage points increase in the number of farmers growing local groundnuts. Vitamin A Orange Flesh Sweet Potato (OFSP) has been released to the market but there are not yet enough cuttings to supply the market, INRAN is producing OFSP, and it will be commercially available later in 2023. Vitamin A maize has also been released into the market and is currently being multiplied for commercial sale for the 2024 season.

A comparison was made between production of local and improved varieties of millet, cowpeas, and groundnuts. Across both years, a significant increase in production was found for improved varieties, as expected both were well below optimal production levels as many factors contribute to production including weather patterns, soil quality, farmers skills and practice and intercropping. This is an area of significant importance, as increasing efficiencies in production is critical to sustainable food systems, where production is more efficient rather than opening new land and possibly encroaching on critical natural resources and carbon sinks e.g., wetlands and forest.

The greatest increase in production was for cowpeas, in 2022, a 257% increase in production when compared to local cowpea varieties: 243% in 2021. Followed by a 216% increase in production for improved millet when compared to local millet, 183% in 2021. For groundnuts there was a 137% increase in production of improved groundnut when compared to local varieties: 187% in 2021.

Farmers feedback from the production of improved varieties is positive, especially in terms of good crop yields and quality. There was a decrease however in those who said they are more resilient to dry spells; in 2021, 56% in 2022, 19%. When improved millet is planted at the same time as local varieties, it matures much earlier and attracts birds. This coincides with the height of the lean period, providing a new source of nutritious food when food stocks are low or empty. It seems there is a tradeoff between crops damaged by birds and a new source of food when food stocks are very low.

See recommendation 2, 5 & 6.



PICS bags and small-scale farmer, Zinder, source: GOAL 2021

3. Consumption of nutritious food

Most households prioritize food production for household food security. In 2021, 87% of the farmers interviewed kept between 75% or more of the crops produced for household consumption, in 2022, 73% kept 75% or more of the crops produced for household consumption.

4. Reducing food waste.

There is good demand for low-cost storage bags, with 76% (2022) of farmers surveyed purchasing PICS bags to reduce food waste. To date (March 2023), 50,150 PICS bags have been sold to farmers, >35,000 at the full retail price.

See recommendation 7.

5. Increasing access to markets for small scale producers.

GOAL partnered with a private sector partner to invest in off-taking of millet, groundnuts, and cowpeas in Zinder. GOAL invested \$13,537 to buy down some of the costs of transport and storage to off-take 89 tons of millet, groundnut, and cowpeas. Our private sector partner pre-financed six aggregators to off-take (buy) commodities across Goure and Mirriah. Between December 2022 and March 2023, 306 tons of millet, cowpeas and groundnuts were purchased from small scale farmers in Zinder, more than three times more than planned. This information along with a high percentage of crops produced reserved for household food consumption, suggests that farmers are producing beyond subsistence levels, an encouraging finding. Two of the six aggregators / off-takers were women demonstrating that even in this traditional society, women can hold key positions as market actors.

See recommendation 8.

Increasing food & nutrition security

Nutritionally improved seeds can increase the nutritional value of what people already eat,

Short maturing crops mitigate climate related risks,

Improved seed increases production,

Low-cost storage technology reduces food loss/waste.

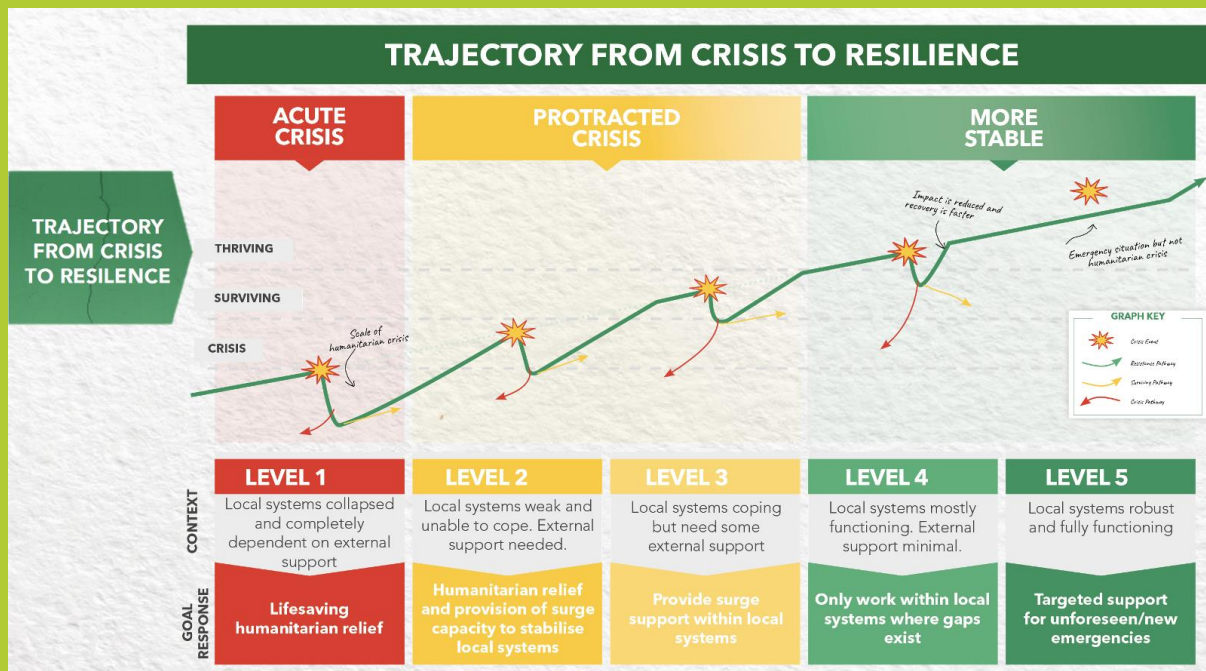
Recommendations

1. Increase the number / reach of wholesaler and their retailers selling improved seed in Zinder and year on year reduce the sale price for millet, groundnuts and cowpeas by 10% until farmers are paying the full retail price.
2. As new nutritionally improved and climate adapted seeds are released into the market (by the researchers), increase the range of improved inputs available to farmers. Add Orange Flesh Sweet Potato (OFSP) to the vegetable selling season late in 2023, add Vitamin A Maize to 2024 programming and follow up to find out when Vitamin A Cassava will be released.
3. In the annual survey in 2024, add a follow up question to those retaining seed to better understand if they are retaining improved seed or local seed or both.
4. Invest in retailers marketing skills to increase their reach into communities to market agricultural inputs.
5. Further research is required to explore how to increase efficiencies in production.
6. Explore low-cost means of repelling birds. Through mass media communications disseminate messaging to encourage farmers to plant improved millet later than local millet varieties and only when rain is well established, this means that both the local and the improved varieties mature at the same time, reducing the risk of damage by birds.
7. No new investment required but continue to monitor the sale of PICS bags, increasing scale of sales amplifies the return on a small investment.
8. No new investment required but continue to monitor the off-taking (buying) of millet, groundnut, and cowpeas in the next seasons along with crops retained for household consumption.



Millet, source: GOAL 2021

GOAL's new strategic intention - from **Crisis to Resilience**, providing life-saving emergency assistance and building resilience by stabilizing and strengthening systems.



References/ Citations:

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