Strengthening Cowpea Seed Systems to Increase the Productivity of Smallholder Farmers in West Africa

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Introduction

Cowpea is a significant food legume crop widely grown in sub-Saharan Africa (SSA). Nigeria is the largest producer and accounts for > 39% of the global cowpea production. Because of the high protein content (> 24%), cowpea is regarded as a strategic crop in addressing protein malnutrition in children in poor rural settlements. In addition to nutritional security, cowpea haulm is a nutritious fodder source for livestock feed and income generation for many farming communities. It is also an essential component of traditional cropping systems because it fixes atmospheric nitrogen and improves soil fertility. Despite the importance of the crop in the region, cowpea productivity in smallholder farmers' fields is very low due to a wide array of biotic and abiotic constraints, most importantly, the use of unimproved varieties due to lack of access to improved seeds and poor agronomic practices during crop production.

The accelerated varietal improvement and seed delivery of legumes and cereals (AVISA) project aim to address these constraints by establishing a robust seed system that increases the quantity and quality of seeds for smallholder farmers and ensures sustained availability of EGS.

Methodology

To improve smallholder farmers' access to high-quality seed, a multi-stakeholder approach that recognizes the complementary roles of different seed value chain actors for seed delivery partnerships was adopted. A public-private partnerships model was used to improve the demand and supply of EGS. Strengthened seed companies' technical and business capacity to produce different seed classes to ensure sustained supply and demand for quality seed. Use technology demonstrations to create awareness of improved varieties' superiority and availability, and build a strong market linkage with seed off-takers.

Results

1. Technologies were demonstrated based on target agro-ecological zone to create awareness of the superiority of the improved cowpea varieties and their availability to farmers.

Table 1. Variety deployment was driven by agro-ecological and market segments

Agro-ecological segment (Farmers preferred traits)	Market segment (Consumer preferred traits)
Drought prone areas (drought tolerant/early maturity	Seed colour
Striga prone area (Striga-resistant varieties)	Seed size
High rainfall area (medium/late maturity)	Cooking time
Pests and diseases prone area (tolerant varieties)	Swelling grain flour
Farming intensification (varieties adopted for intercropping)	Taste
Crop-livestock areas (high fodder varieties)	

2. Restoration of degraded farmlands through promoting high-yielding climate-smart farmers-preferred cowpea varieties.

Striga-susceptible farmers' variety

Striga-resistant improved variety

3. Technology demonstration: Access and use of improved varieties increased productivity in farmers' fields.

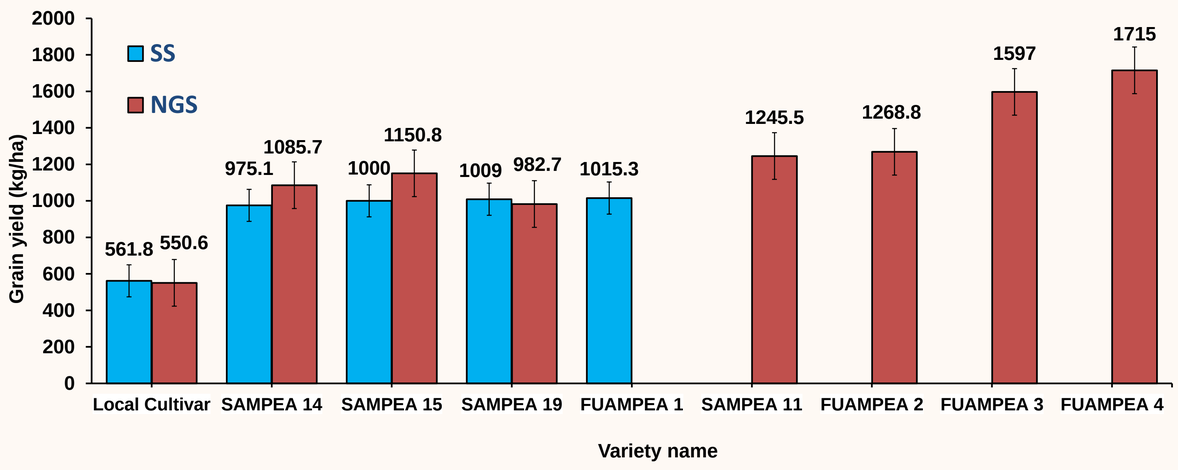
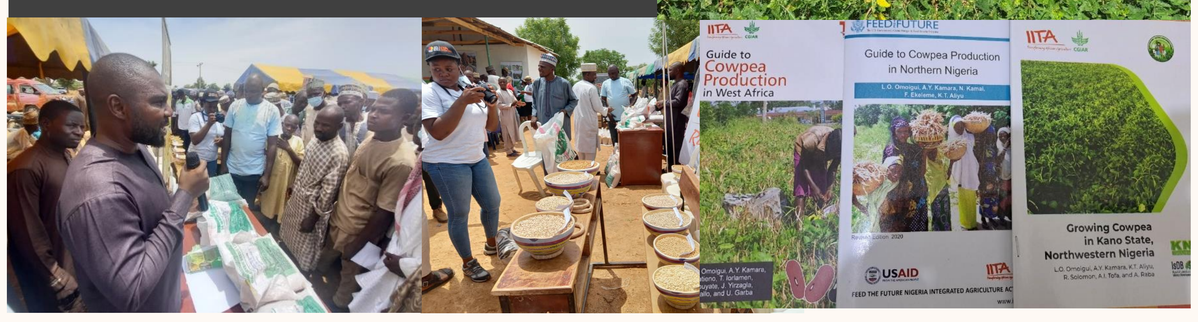


Fig. 1: Grain yield comparison of improved varieties and farmers' local cultivars in Sudan and Northern Guinea savannas (SS and NGS) from 2019 to 2022

Client-oriented channels leveraged to create awareness and generate demand for good quality seed

Social media on smartphone

- 28 Radio and TV programs aired, WhatsApp, YouTube, Facebook, and promotional manuals
- 33 field days, 10 Seed fairs were held in project sites
- A total of 415,709 farmers and other stakeholders reached with improved technology (30% women)



4. Different partners were engaged in seed production to ensure smallholder farmers have access to improved quality seed and sustainability of EGS (breeder and foundation).

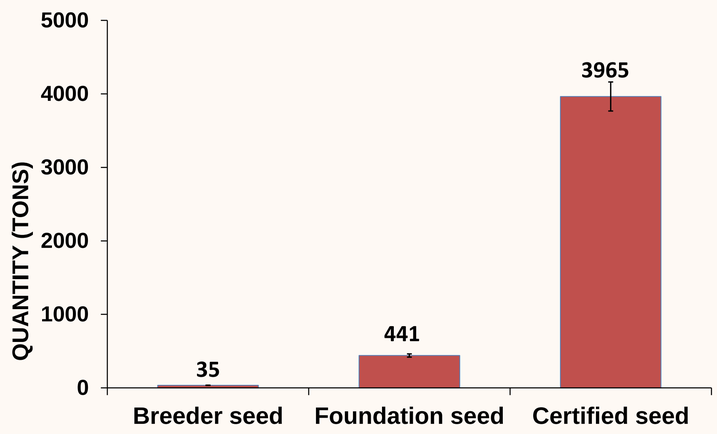


Fig. 2: Quantity of seed produced in four years

Conclusion

A strong partnership along the seed value chain drives effective seed delivery. Smallholder farmers' access to and use of quality seeds of superior varieties is a key driving force for increasing cowpea production and productivity in the region. A strong grain market linkage with farmers will cause a pull demand for quality seed.

Acknowledgment

The project is funded by Bill & Melinda Gates foundation through the International Maize and Wheat Improvement Center (CIMMYT).