THE SEED GIST

Cultivating Knowledge for Farmer Managed Seed Systems

ISSUE 4 OCTOBER TO DECEMBER 2024

EDITOR'S BRIEF

Advancing Farmer-Managed Seed Systems (FMSS)

We are thrilled to present the 4th edition of the Seed Gist, our quarterly publication that brings to light the diverse issues on farmer-managed seed systems (FMSS). Seed is a crucial factor in the livelihoods of agricultural communities with significant benefits to crop productivity and food security. In this issue, we bring you a diversity of stories aimed at shaping the future of the FMSS amidst the increasing pressures from the multinational corporations, climate change effects, government policies, distribution and quality assurance among others.

Small-scale farmers being the chief custodians by nature play a critical role in biodiversity conservation and ensuring a sustainable food system. They conserve, protect, and innovate on seeds and other genetic materials of agricultural importance to attain a sustainable food system. While the promotion and production several seed systems may increase income and market linkages, food security is largely dependent of diversity which is realized through the FMSS. In this regard, we also share stories on the conservation of genetic resources, the need for multistakeholder collaboration, importance and threats of the FMSS as well as calls and recommendations to an array of stakeholders. This issue highlights the need for stronger collaboration among the actors in the seed sector including farmers, researchers, and conservationists.

We hope that you enjoy reading these stories as much as we enjoyed putting them together, keeping in mind that a sustainable seed system is one where farmers have the right to save, share and plant diverse seeds, free from corporate control for food sovereignty, biodiversity and resilience for future generations. You can be a part of this space by sharing your ideas, innovations and experiences on the FMSS.

SMALL-SCALE FARMERS AT CROSSROADS AS INDIGENOUS SEEDS FACE EXTINCTION

Figure 1: Photo by ESAFF Uganda

Uganda's agricultural sector is the backbone of its economy, contributing approximately 24% to the GDP and employing over 70% of the population (UBOS 2024). However, this vital sector faces a significant threat, the erosion of indigenous seeds, livestock breeds, and other genetic resources. Between 2000 and 2023, Uganda lost nearly 40% of its traditional seed varieties, according to the National Agricultural Research Organization (NARO 2023). The decline of indigenous livestock breeds, such as the Ankole longhorn cattle, has been similarly alarming, as exotic breeds replace them in pursuit of higher productivity. These trends pose profound risks to food security, biodiversity, and the livelihoods of small-scale farmers, who constitute the majority of Uganda's agricultural workforce.

The issue has drawn national attention, with Hon. Nsaba Buturo tabling a Bill in Parliament to protect and promote Uganda's indigenous genetic resources. The Bill aligns with the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA), and a call for the fast-tracking of the completion of the Genetic Resources for Food and Agriculture (GRFA) policy for Uganda, emphasizing the conservation, sustainable use, and equitable sharing of benefits from genetic resources.

"Protecting our indigenous genetic resources is not just an agricultural issue but a national priority for food security and sovereignty," *emphasizes Hon. Nsaba Buturo.*

Indigenous seeds are critical to Uganda's agricultural sustainability. These genetic resources are adapted to local conditions, making them resilient to pests, diseases, and climatic variations. However, the proliferation of hybrid and genetically modified organisms (GMOs) in the region, driven by commercial agriculture and profit maximization by the capitalists and imperialists, is displacing traditional varieties. While modern breeds and seeds promise short-term gains, they demand expensive inputs such as fertilizers, pesticides, and veterinary care, making them less accessible and sustainable for smallholder farmers enslaving farmers to markets by the multinationals.

The loss of indigenous genetic resources has far-reaching implications. Biodiversity is rapidly declining, undermining ecosystem resilience and increasing vulnerability to climate change. Many staples known for their drought tolerance and nutritional value are disappearing, exacerbating food insecurity. Economically, smallholder farmers face rising costs and debt cycles as they become dependent on commercial seed and livestock systems. The cultural erosion of traditional farming knowledge and practices further compounds these challenges, threatening Uganda's heritage and identity.

"We have relied on our indigenous seeds for generations. They are part of our culture and our survival, especially during droughts," *says Margaret Akello, a farmer from Soroti District..*

To safeguard Uganda's indigenous resources, the following actions are recommended:

1. **Government should document and preserve indigenous varieties by supporting community-managed seed banks across the country to ensure farmers have access to diverse seed options.**
2. **Government and private sector recognition of the contributions of farming communities in preserving genetic resources and protect their intellectual property rights.**
3. **Parliament should uphold the President's decision not to sign the Genetic Engineering Regulatory Act (GERA) and support Hon. Nsaba Buturo's private member's Bill to prohibit GMOs in Uganda.**
4. **Provide training and financial incentives to encourage the use of indigenous seeds and breeds among smallholder farmers.**
5. **Government should allocate 1% of the annual national budget to research institutions like NARO to improve the productivity and resilience of indigenous genetic resources.**
6. **Government should fast-track the development and completion of the National Agroecology Strategy (NAS) and the Genetic Resources for Food and Agriculture (GRFA) policy to support agroecological practices leveraging indigenous resources.**

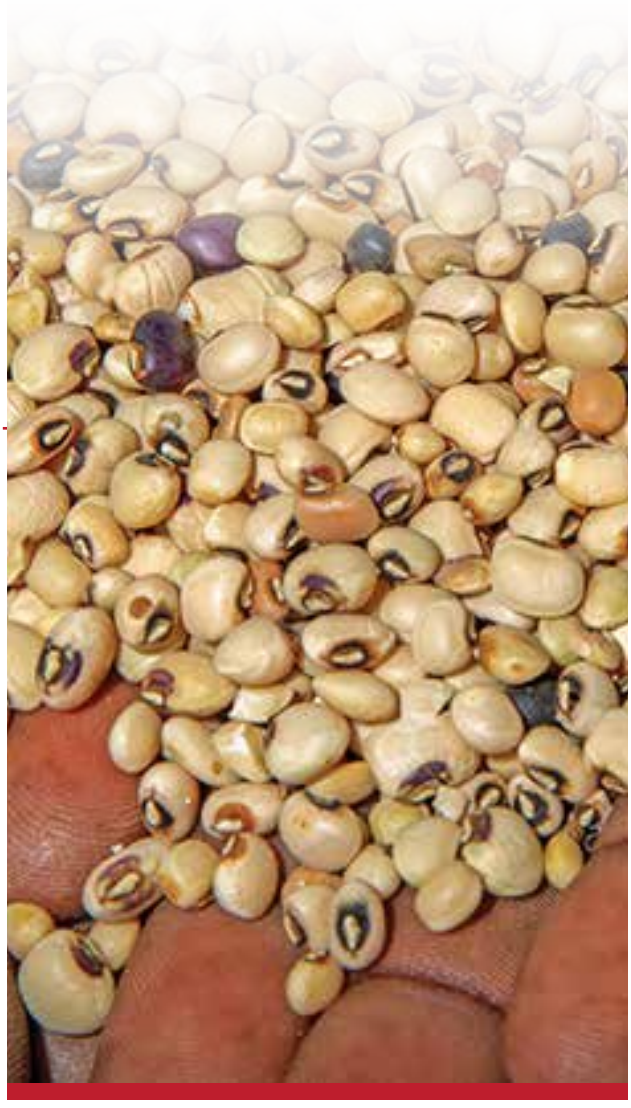
These recommendations are in line with international and regional frameworks such as the Convention on Biological Diversity (CBD) and the African Union's Comprehensive Africa Agriculture Development Programme (CAADP). Nationally, the proposed measures align with Uganda's Vision 2040, which emphasizes sustainable agriculture and biodiversity conservation.

Hon. Nsaba Buturo's Bill represents a critical step toward protecting Uganda's indigenous seeds and livestock breeds.

Enacting its provisions will secure the country's food sovereignty, preserve biodiversity, and empower smallholder farmers. Failure to act will exacerbate food insecurity, economic vulnerability, and cultural loss.

Parliament must rally behind this Bill to ensure a resilient and sustainable agricultural future. Stakeholders, including policymakers among the many, must collaborate to honor and protect Uganda's invaluable genetic resources a heritage crucial for the nation's survival and prosperity.

Bagaga Ronald
Ag. Programs Manager,
ESAFF Uganda



CONSERVING LANDRACE CROP VARIETIES FOR RESILIENCE REQUIRES COLLABORATIVE EFFORTS

Figure 2: Photo by ESAFF Uganda

Landraces and indigenous varieties comprise valuable sources of crop species diversity. These varieties have shown significant resilience to various abiotic and biotic stresses and it is the reason why small-scale farmers have continued using them for generations to obtain food and livelihoods. Landraces play a key role in plant breeding as they form the foundation of the breeding programs by providing quality traits that are resilient to the conditions the breeding programs target especially the abiotic and biotic stresses. The farmer varieties are categorized into Primary landraces which are crops that have developed their unique characteristics through repeated in situ grower selection and that have never been subjected to formal plant breeding and Secondary landraces which are crops that have been developed in the formal plant breeding sector but are now maintained through repeated in situ grower selection and seed saving, which is likely to be genetically distinct from the original bred material.

The special crops and varieties form the backbone of the informal seed system which contributes about 85% of seed planted by small-scale farmers and they are accessed through farm-saved seed, local markets, and social networks. However, there have always been questions about the quality of seeds used by the farmers given their sources and the production process hence doubting the effectiveness of the farmer-managed systems where farmer varieties form the major pool. To modernize agriculture, the government realizes the need to significantly increase the number of quality seeds available to farmers, and initiatives have been put in place including supporting the breeding programs, promoting the production and distribution of quality declared seeds, and participatory plant breeding where the farmers are working together with the researchers and breeders to develop varieties that are satisfying the needs of the farmers. participatory crop improvement has developed over the past decade as an alternative and complementary breeding approach to formal crop improvement.

To attain reliable results from farmers improvements of landrace (farmer varieties) there has to be a close relationship and work during the crop or variety enhancement process to ensure that the right procedures are implemented for the quality of the seeds produced at the end of the breeding process.

Small-scale farmers and breeding are both playing a great role in conserving the landrace varieties given their role in food security, plant breeding, and resilience to the challenging conditions in the world today. Small-scale farmers have practiced on-farm conservation of the landrace varieties through continued cultivation and management of a diverse set of crop populations in the agroecosystem where the crop evolved or in secondary centers of diversity. Breeders and researchers have played a big role in collecting the varieties from the different communities and preserving them through both in-situ and ex-situ conservation. Breeders and researchers provide a safeguard for small-scale farmers who can easily run to the breeders to retrieve their varieties in case of loss from the communities. This coexistence is important as it ensures sustainable management and preservation of the precious farmer varieties.

Landrace on-farm conservation is the active management of landrace diversity within the traditional agricultural systems where they have developed their unique characteristics. It implies that conservationists (national breeders, national gene banks) work closely together with farmers to manage and monitor their landrace populations aiming at the long-term preservation of the dynamics of the agricultural systems while maintaining genetic richness and evenness of the included diversity in a way maintaining a robust germplasm base for the future.

Despite the vital role these unique resources are playing for food security and resilience, they are becoming more threatened by genetic erosion, limited policy support, and the dominance of the formal seed sector which is dominated by modern hybrid seeds and influence of the multinational companies.

To attain reliable and sustainable conservation of farmer varieties there should be systematic, coordinated, and integrated into situ and ex-situ conservation of landrace diversity by the collaborative efforts among the different stakeholders in seed and agricultural sectors including the farmers, breeders, researchers, and national agricultural research centers, national gene banks, policymakers and other development partners through;

1. Engaging in Joint identification of the diverse landrace crop varieties
2. Ensuring Joint development of a database for all the landrace crop varieties in existence in the various communities and their uses in the broad perspective
3. Conducting Characterization and cleaning of landrace crop varieties to define key and unique descriptors for each identity.
4. Need for continued cyclic research and development (research-farmer-private sector among other stakeholder involvement)
5. Promoting Practical field evaluations of promising landrace using the most reliable and sustainable methodologies
6. Alignment of initiatives aimed at conserving landrace crop varieties with the national development plans of the country especially where agriculture is the main subject matter
7. Encourage the Adoption of both national and international standards/protocols for management of the landrace crops
8. Support the establishment of policy to foster the development and use of landraces
9. Establish sustainable Linkage between community seed banks, research, and the national repository for effective management of diverse landraces
10. Integration and updating production and management packages for various landrace crops with a focus on the current changes in the climatic variables/patterns to better understand what has changed over time.

Paul Osia
Research Assistant - Agronomy
National Groundnuts Projects
NaSARRI, Uganda

GENETIC RESOURCES FOR FOOD AND AGRICULTURE: PRESERVING GENETIC RESOURCES FOR SUSTAINABLE DEVELOPMENT IN UGANDA

Figure 3: Photo by ESAFF Uganda

Globally there is a universal call for the establishment of sustainable food systems that are maintaining biodiversity, and ensuring the resilience of agrifood systems in the face of climate change and other environmental challenges. This can only be achieved through efficient management and the use of diverse genetic resources for food and agriculture. For Uganda a country where a majority of its population above 70% derive their livelihoods in agriculture which also contributes 24% to the GDP of the economy recognizing and appreciating the role and contribution of diverse genetic resources for food and agriculture is paramount. The World Bank report also points out that the pearl of Africa is well known for its rich genetic diversity hosting about 38,700 species including roughly 5,950 species of animals and 32,800 species of plants held in a range of habitats.

However, despite their contribution and the potential, the rate at which genetic resources for food and agriculture are being destroyed is alarming and this is characterized by the destruction of habitats and irresponsible exploitation the genetic resources. This is impacting the country's economic development, health, food and nutrition security, and ecosystem resilience.

Genetic resources for food and agriculture are at the heart of achieving food, nutrition, and sustainable development for any country. For Uganda whose population heavily depends on genetic resources for food and agriculture conserving and ensuring sustainable use of Genetic resources is crucial for the development of the food and agriculture sector as they play a key role in promoting genetic resources for food and agriculture which provide raw materials for the development of varieties and breeds that are adapted to the changing global environmental conditions, provides other species that may be resilient to the current conditions and offer a wide spectrum of resources to depend on even during tough times characterized by the prevalence of pests, parasites, diseases, and other disasters.

The existence of Diverse Genetic resources for food and agriculture stocks is crucial for improving the nutritional profiles of food crops, by offering a diversity of nutrients and essential compounds required for healthy bodies thus enhancing human health and productive populations. Conservation of genetic resources supports agro-biodiversity, which is important in ensuring the building of resilience of agricultural ecosystems by promoting a diverse genetic base critical for resilience to environmental shocks and stresses, such as climate change and ecological degradation.

Additionally, sustainable management of genetic resources fosters cultural identity and economic development of the local communities where these resources are found. The preservation of these genetic resources helps to promote agricultural heritage and supports local economies through the promotion of indigenous foods, tourism, and other rural development initiatives.

The conservation of genetic resources for food and agriculture is a critical component in ensuring global food security and biodiversity. To address challenges in agriculture such as climate change effects, population growth, and environmental degradation, countries are adopting various interventions to safeguard the genetic diversity of crops, livestock, and microorganisms that are essential for food and agriculture such as establishment of gene banks, promotion and establishment of community seed banks, development of policy frameworks that promote sustainable use and exploitation of the genetic resources for food and agriculture, collaboration and partnerships and public awareness and community involvement.

To attain Sustainable National Development, the conservation of Genetic Resources for Food and Agriculture must be a priority and requires supporting regulatory frameworks and policies that support the sustainable use of these genetic resources, resilient to changes in the environment and global shifts.

Given the multifaceted challenges facing genetic resources for food and agriculture in Uganda, there is a need for the government, and other stakeholders to invest in the formulation of a policy on genetic resources for food and agriculture that is inclusive and sustainable for all stakeholders to ensure effective management of these very important resources through:

1. Recognition of Farmers' Rights:

The policy should have clear provisions that recognize and safeguard farmers' rights to access, use, and exchange genetic resources including seeds among others and they need to be in line with international treaties.

2. Benefit-Sharing Mechanisms:

There should be a well-established formula for benefit sharing that ensures fair compensation to farmers who contribute to the conservation of genetic resources including financial incentives and other benefits that shall be entitled to the affected farmers.

3. Education and Capacity Building:

More resources should be invested in capacity building for the farmers who are at the forefront management and conservation of the genetic resources for food and agriculture in order for them to ensure sustainable use, conservation techniques, and the importance of biodiversity.

4. Research and Innovation:

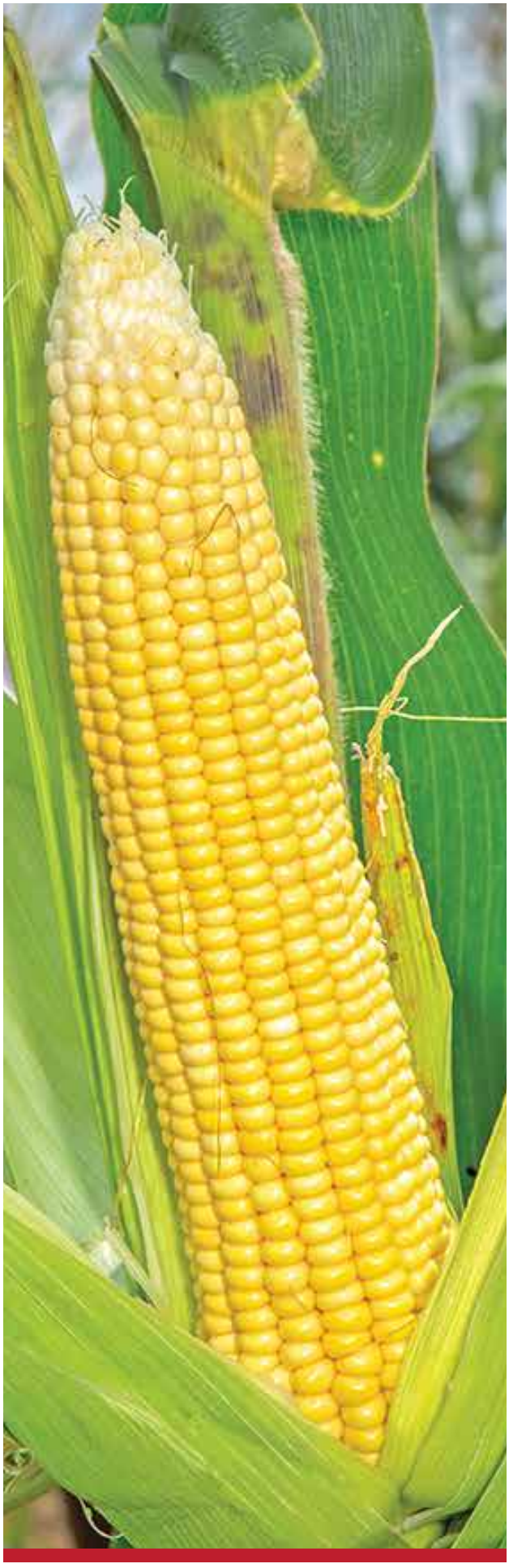
The policy should have provisions that promote investment in research aimed at the sustainable utilization of local genetic resources.

5. Monitoring and Evaluation Systems:

Establish mechanisms to monitor, evaluate, and track the trends in the use, management, introduction, extinction, and risks of the available genetic resources.

Conservation of genetic resources for food and agriculture is imperative for sustainable development and attaining sustainable food and nutrition security and it is the responsibility of all stakeholders including government, citizens, and civil society organizations and NGOs. Through supporting the establishment of gene banks, community seed banks, supportive policies, international collaboration, and community engagement. Protecting genetic resources for food and agriculture requires comprehensive interventions to achieve sustainable use of genetic diversity and sustainable development.

Julius Engwedu
Field Assistant Extension
ESAFF Uganda



FARMER-MANAGED SEED SYSTEM VERSUS COMMERCIAL SEED SYSTEM: THE FUTURE OF FARMER VARIETIES IN UGANDA.

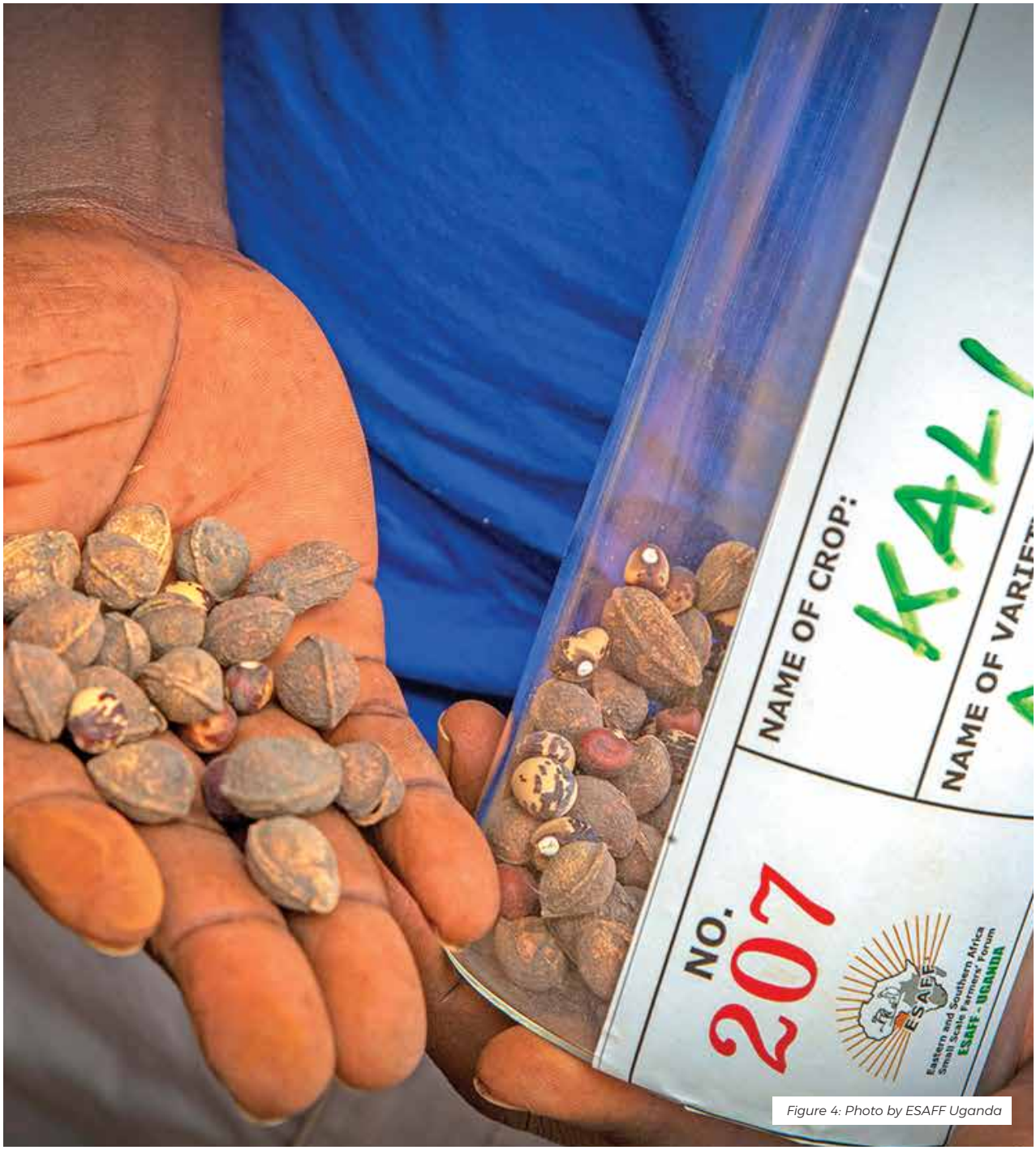


Figure 4: Photo by ESAFF Uganda

In 2018, Uganda's National Seed policy was passed by the Government. It was, reportedly, developed to facilitate a profitable, competitive, and sustainable seed sub-sector; where the country's farmers, smallholders especially, would have access to ***"affordable high-quality seed"*** that would apparently ***"enhance agricultural productivity"*** and ***"increase food and nutrition security."***

The narrative in this policy fits within a well-calculated global trend that has consistently painted corporate seeds (the formal seed sector) as more efficient, productive, and predictable, while, branding Farmer Managed Seed Systems (FMSS) as informal, backward, disease-ridden, and less productive to the extent that they cannot effectively feed Africa. Uganda is no exception to this narrative!

However, this well-orchestrated plan is only aimed at paving the way for a market-oriented seed production system at the expense of farmers' varieties. This direction that Uganda, as many other countries, are choosing to take

is, sadly, not new. Most African countries are embracing outfits like the Alliance for a Green Revolution in Africa (AGRA) which interferes with laws and policies around their seed and agricultural sectors.

AGRA, a Gates-funded foundation, is heavily investing in influencing African government policies by placing external consultants within African government offices who are tasked with leading or supporting policy development initiatives. Currently, Uganda's policy environment is heavily leaning towards AGRA-initiated ideologies which majorly promote a commercial agricultural model that promotes monocultures, opening the doors to genetically modified crops, the formal seed sector, biotechnology and chemicals.

The result of this are frameworks and laws that promote Quality Declared Seed (QDS) – a Ugandan government approved standard for uniformity in seed. QDS comes with an uptake of ***"improved"*** seeds, heavy promotion of external inputs like the use of chemical fertilizers and the promotion of monocultures. This is not only detrimental to the environment but also keeps farmers in constant debt and perpetual cycles of poverty.

As one Ethiopian farmer observed that farmers in his country were, "...becoming dependent on government [industrial] seed supply. They are losing their seed diversities and they are vulnerable to different environmental hazards, due to weak ability of ***"improved"*** seeds to cope with the changing environment.

FMSS is used in reference to farmers' seed varieties which are managed, sorted, selected, multiplied, stored and exchanged by farmers within their own context using their own intergenerational knowledge, experience and agroecological farming principles and skills.

Seeds are important genetic resources that are needed to address issues around genetic diversity and sustain agriculture. They should therefore be handled according to the norms, practices, cultural values and respect that they so deserve; values that a profit driven initiative can never afford them.

Uganda's smallholder farmers, most of whom are women, possess the exclusive knowledge around their seeds and the contribution they play on the country's agricultural sector. They must therefore be recognized and supported as the sole custodians of the country's diverse seed systems. *Joyce Nazziwa, a smallholder farmer from Magongolo village in Mityana district aptly states that,* ***"crops are not just food; they are part of who we are. During traditional ceremonies, we must have millet and sweet potatoes. They represent our connection to the land."***

Given the importance and the role played by farmer varieties and the generally the farmer managed seed system in building resilient food systems among the small-scale farmers in Uganda and Africa in general, there is a need for various stakeholders to support in advocating for frameworks and policies that support and protect the farmer manged seed systems including.

1. Supporting Research.

The government and other development partners should allocate resources to support research which focuses on breeding programmes that help in enhancement of the farmer varieties by improving some of the traits and varietal cleaning.

2. Preservation of Farmer Varieties:

The governments and other stakeholders should make it a priority to preserve the endangered farmers varieties through in situ and ex situ conservation.

3. Recognition of Farmer Managed Seed System:

Through enacting policies which give exclusive rights to farmers especially on registration of their varieties, benefit sharing, multiplying and selling them without any restrictions.

Collaborations:

Innovations should be fostered to promote collective efforts among the different actors in the seed sector to ensure that farmer managed seed systems attain the recognition it deserves given its significant contribution to food sovereignty in Uganda and other developing countries especially in Africa.

Farmers' seeds are known to meet up to 80 percent of all food needs. They are reliable, affordable and available. Therefore, a deliberate promotion and nod to the commercial seed sector undermines the very essence of Uganda food sovereignty and FMSS. It places uniformity over quality and prioritizes profit over diversity, sustainability, age old systems, indigenous knowledge and practices that are deeply rooted in pride and culture!

Eastern and Southern Africa Small Scale Farmers' Forum
ESAFF - UGANDA

FARMER MANAGED SEED SYSTEM (FMSS) PRESERVING CULTURE AND ENSURING SMALL-SCALE FARMERS' RESILIENCE

Figure 5: Photo by ESAFF Uganda

Small-scale farmers in farming communities are the custodians of seeds and they ensure seed security for all stakeholders to access quality seeds for planting next season. In most farming systems worldwide, the most significant source of seed is the Farmers Managed Seed Systems for crop development and delivery. Despite efforts by corporate seed programs to replace farmers' seed systems, most agricultural land worldwide is still sown using seed that is produced informally by farmers. It is therefore important to note that food security, biodiversity, and agricultural sustainability all depend on Farmer Managed Seed Systems.

FMSS accounts for 60% to 90% of seed supply in sub-Saharan Africa and Asia. Farmers use FMSS to choose, save, exchange, and multiply seeds that are suited to their agro-ecological and cultural requirements, as opposed to formal seed systems that depend on commercial seed firms. According to a study conducted by GRAIN, FMSS provides about 85% of the seeds planted in Uganda, underlining their critical role in national food security and agricultural biodiversity. These systems are essential to the preservation of genetic diversity and provide more than 80% of the seeds used in small-scale farming in many developing nations.

According to the Food and Agricultural Organization of the United Nations, traditional farming systems have conserved over 75% of the world's agricultural biodiversity. In FMSS, farmers preserve traditional crop varieties, selecting seeds based on local climatic conditions, pest resistance, and yield. In addition, farmers exchange within communities through barter, gifts, or local markets. Inspite of the changing climate and conditions, FMSS adapts to changing environmental conditions, ensuring resilience against climate change and therefore reducing dependency on commercial seeds, which is costly for small-scale farmers in farming communities.

During this year's World Food Day (WFD) 2024 celebration in Serere district under the theme "Right to foods for a better life and a better future," farmers from across Uganda exhibited quality farmer-managed seeds that are resilient and resistant to pests and diseases, and climate change effects. Small-scale farmers exhibited indigenous seeds including maize, finger millet, beans, groundnut, cassava, rice, pearl millet, cowpeas, sesame, sweet potatoes, sorghum, pigeon peas, soya beans, yams, and green grams among others.

The Chief Guest, Vice President of Jessica Epel Alupo noted that there is a need for the protection of local seeds from extinction. According to her, the indigenous seeds are nutritious and healthy for human consumption.

"Small-scale farmers are in a position to adopt resilient practices and technologies to combat the impact of climate change on food production through the use of indigenous seeds that are reliable for farmers in farming communities. FMSS Improves food safety standards and promotes nutrition-sensitive agriculture to combat malnutrition." *She noted.*

H.E Jessica Alupo also noted that women play a crucial role in the management and seed saving in farming communities. Women are the main custodians of seeds in farming communities and they are involved in seed sorting and selection. It is therefore noted that 60% to 80% of seed-saving and selection activities in many rural communities are done by women.

The Minister of Agriculture, Animal Industry and Fisheries, Hon. Frank Tumwebaze while speaking during the World Food Day celebration in Serere district at NaSSARI highlighted the need for quality seeds in Uganda while affirming that farming communities are the producers of quality seeds. According to him, the informal seed sector plays a crucial role in the seed industry and food production in Uganda.

"I want to appreciate small-scale farmers for keeping seeds well and supplying our country with quality seeds. Some seeds are hard to get but if you come to the farming communities, and during celebrations like this, you will get farmers exhibiting quality seeds. Let us protect our farmer-managed seeds as it is our heritage and pride." *Hon. Minister noted.*

However, FMSS faces challenges such as limited government support, inadequate technical assistance, and competition from hybrid seeds promoted by multinational private companies. The system is unregulated, leading to issues such as counterfeit seeds in the market, which affect quality and trust. In addition, there is unpredictable weather patterns disrupt traditional seed cycles in farming communities, and lack policies recognizing or supporting FMSS.

In order to promote Framer Managed Seed System, the government and other stakeholders should do the following;

1. **The governments should recognize FMSS in national seed policies to support and empower small-scale farmers in farming communities.**

2. **There is a need for the establishment and maintenance of Community Seed Banks to promote FMSS. The government and other stakeholders should design training programs to enhance farmers' capacity to save seeds.**

3. **The government should provide financial incentives for farmers to maintain genetic diversity in farming communities. This will support small-scale farmers' seed-saving initiatives like the construction of Community Seed Banks.**

Farmer-managed seed system which is a hub for farmers' varieties and a pivot for resilient food systems in any community. It is the major source of seeds for small-scale farmers and plays a critical role in ensuring food security and resilience in the farming community amidst the many challenges it is subjected to such as limited government support, inadequate technical assistance, and unhealthy competition. Therefore, various stakeholders should come together and work towards recognition and protection of the farmer-managed seed varieties, the farmers' pride and heritage!

Oming David
Programs Assistant
ESAFF Uganda

CONTRIBUTE TO THE SEED GIST

CALL FOR CONTRIBUTIONS: Share Your Seed Stories with the SEED GIST!

Do you have insights or experiences related to Farmer-Managed Seed Systems in Uganda and beyond? The SEED GIST wants to hear from you!

We're inviting contributions from farmers, researchers, and advocates to enrich the SEED GIST. Share your success stories, challenges, innovations, or advocacy efforts. Together, let's amplify the voices of small-scale farmers and promote sustainable seed systems.

Submit your contributions or inquire at ***nkalinaki@esaffuganda.org***

Sow the seeds of change with the SEED GIST!

Eastern and Southern Africa Small Scale Farmers' Forum
ESAFF - UGANDA

coordinator@esaffuganda.org
www.esaffuganda.org

Eastern and Southern Africa Small-scale Farmers' Forum (ESAFF) Uganda

ESAFF Uganda solicits and compiles stories for the Seed Gist from a variety of sources worldwide, including NGOs, academia, small-scale farmers, researchers and the media among others. These stories are designed to broaden knowledge and drive sustainable change in the Farmer Managed Seed System (FMSS).

This Seed Gist is published under the Cultivating Change in a Warming World Project with Financial Support from OXFAM