



## Buginyanya Zonal Agricultural Research and Development Institute (BugiZARDI)



Newsletter, October 2024 - March 2025

# Farmers in Amuria District awarded for championing climate resilience

By Bob Abor, Brian Owoyesigire, Ismail Kagolola and Nasser Kasozi



**A display of seed varieties exhibited by Ongeroi Farmer Field School during the seed diversity fair.**

**F**armers in Kuju Sub-County, Amuria District, were awarded for their outstanding performance in building their resilience to climate change through agro biodiversity restoration by promoting establishment of community seed banks and tree

nurseries. The awards were presented at the Seed Diversity Fair, held on March 28, 2025, at the Kuju Sub-County Headquarters. The event was organized by BugiZARDI with support from the Food and Agriculture Organisation (FAO) of the United Nations and in collaboration with Amuria

District Local Government. The theme of the seed fair was "Building Farmers' Resilience to Climate Change Through the Exchange of Quality Seed." Among the exhibitors were farmer field school (FFS), individual farmers, and agro-input dealers and seed stockists. In a closely contested competition, Ongeroi Farmer Field School (FFS) was named the best exhibitor, while Gifted Animal Feed Centre and Orwadai Forestry Enterprise emerged the 1<sup>st</sup> and 2<sup>nd</sup> runner respectively. These organisations showcased diverse local and improved seeds from NARO, featuring drought-tolerant varieties of maize, sorghum, millet, cassava, simsim, and ground-nuts, as well as high-yielding crops like rice and pumpkins.

Others displayed comprised of drought resilient pasture varieties, indigenous poultry lines, and woodlot and fruit tree species. Fruit and woodlot tree species included; *Persea Americana* (Avocadoes), *Citrus spp* (Oranges), *Psidium guajava* (Guava), Jack fruit (*Artocarpus heterophyllus*), *Annona muricata* (Soursop), *Carica papaya* (Pawpaws); *Azadirachta indica* (Neem), *Gmelina arborea* (Malina), *Eucalyptus globulus*, *Maesopsis eminii* (Musizi), *Grevillea spp*, *Milicia excelsa* (Mivule), *Tectona grandis* (Teak tree), and *Albezia spp* among others all contributing to enhanced food security and environmental sustainability.

Exhibitors were evaluated by a panel of experts based on seed diversity, content quality, branding and presentation led by Dr. Kamatara Kanifa from

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Makerere University. Ongerai FFS's exceptional performance was rewarded with an ox-plough and high-quality seed, while Gifted Animal Feed Centre and Orwadai Forestry Enterprise received improved seeds and watering kits to boost their agricultural enterprises.

The Project Investigator Dr. Brian Owoyesigire thanked NARO and FAO of UN for all the financial support rendered to the project *"Integrating climate resilience into agricultural and pastoral production in Uganda, through a Farmer/Agro-pastoralist Field School Approach"* in order to build the resilience of smallholder male and female farmers to climate change.

Speaking at the award ceremony, Dr. Kasozi Nasser, Director of BugiZARDI, underscored the critical role of quality seed and good agronomic practices in driving agricultural transformation. He hailed Amuria District for integrating seed diversity fairs into its work plan, ensuring the initiative's long-term sustainability.

Dr. Ogwang Dickens David, FAO's Field Office Coordinator for Lango and Teso sub-regions, commended the partnership between NARO and FAO in establishing tree nurseries and community seed banks. As the project concludes in December 2025, Dr. Ogwang urged farmers to take ownership of it and scale-up its benefits.

Ms. Apio Rebecca, representing the Chief Administrative Officer of Amuria District, congratulated the winners and appreciated NARO and FAO for their support. She acknowledged the positive impact of the project

outputs on the livelihoods of farmers, particularly those from the participating FFS. The Chief Guest was Amuria District Resident District Commissioner, who was represented by Ms. Arongo Proscovia. Ms. Arongo noted that the event's theme resonates deeply with the district, which has endured wars, insurgencies, and the effects of climate change. "Teso used to be a food basket, but these challenges have impacted us severely. I'm excited to see the diverse, drought-

resistant seeds on display today, which are well-suited for our region," she stated. Ms. Arongo applauded NARO for promoting commercial agriculture, which she said is aligned with the National Resistance Movement Organisation's manifesto.

Last year, on 1<sup>st</sup> October 2024, over 500 farmers from Buyende and Kamuli districts benefited from a similar event.



**Members of Ongerai Farmer Field School receive an ox-plough after being recognised as the best exhibitor at the seed diversity fair.**

# NARO Buginyanya and Eco-PRiDe Project advance sustainable rice farming at Doho Irrigation Scheme

By Emmanuel Omiat

**B**uginyanya Zonal Agricultural Research and Development Institute (BugiZARDI) is making notable strides in promoting sustainable rice farming in the Doho Irrigation Scheme through the Eco-PRiDe Project, a five-year initiative launched in June 2024 with support from the Japan International Cooperation Agency (JICA). The Eco-PRiDe Project is designed to enhance rice production through environmentally responsible farming practices, comprehensive farmer training, and coordinated institutional efforts. In addition to Buginyanya ZARDI, the project is being implemented at Abi ZARDI in West Nile and the National Crops Resources Research Institute (NaCRRI) in Namulonge, with active involvement of District Local Governments to ensure local relevance and foster ownership.

## Structured collaboration for lasting impact

To ensure effective coordination and impactful implementation, the Eco-PRiDe Project operates under a structured coordination framework. At the national level, strategic direction is provided by the Joint Coordination Committee (JCC), chaired by the Permanent Secretary of the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF). At the technical level, the Joint Technical Committee (JTC), often referred to as the Rice Zonal Meeting, focuses on reviewing technical progress and promoting knowledge sharing across participating institutions. Meanwhile, regular project management



**A monitoring visit to a research site at the Doho Irrigation Scheme.**

meetings, held every two months, monitor implementation on the ground and respond to any operational challenges that arise.

## Empowering farmers through innovation and sustainability

Eco-PRiDe is grounded in three core pillars, namely: Eco-Friendly Agriculture, Economic Sustainability, and Ecosystem Collaboration. Under the eco-friendly approach, farmers are being trained in sustainable farming practices, including integrated pest management, efficient water usage, and improved soil fertility management. Researchers are also exploring ways to reduce greenhouse gas emissions from paddy fields, aligning the project with global climate change mitigation goals. To foster economic sustainability, the project is implementing the



**Members of the Joint Technical Committee visit a rice demonstration plot managed by a Musomesa Field School in the Doho Irrigation Scheme.**

Musomesa Field School (MFS) model. This hands-on training approach not only equips farmers with practical rice cultivation skills but also empowers them to become trainers within their own communities, facilitating wider knowledge dissemination. In parallel, efforts are underway to strengthen the rice seed system, with plans to establish a seed testing laboratory and improve access to high-quality seed. Ecosystem Collaboration remains central to Eco-PRiDe's strategy. The project brings together diverse stakeholders, notably district local governments, universities, and international organisations such as UNHCR and UN Women. These collaborations are crucial in ensuring that innovations in rice farming are inclusive, scalable, and impactful.

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### Highlights from the Joint Technical Committee Meeting



(L-R) Dr. Nasser Kasozi, Director of Buginyanya ZARDI; Dr. Titus Alicai, Director of National Crops Resources Research Institute; and Ms. Dugo Amina, Butaleja District Production and Marketing Officer, during the Joint Technical Committee meeting.



Participants of the Joint Technical Committee meeting held at City Resort Hotel, Butaleja District.

BugizARDI hosted the inaugural joint technical committee (JTC) meeting under the Eco-PRiDe framework on December 5, 2025, at the City Resort Hotel in Butaleja District. The meeting was moderated by Mr. Omiat Emmanuel Gilbert, a Research Scientist and the Focal Person for the Eco-PRiDe Project at BugizARDI, who guided discussions throughout the day. In his remarks, Dr. Nasser Kasozi, Director of BugizARDI, extended his appreciation to JICA for its continued support and noted the significant role of rice farming in ensuring Uganda's food security. He drew attention to the key challenges

facing rice cultivation, including declining yields attributed to limited access to quality seed, and advocated for rice-fish integrated farming. Dr. Titus Alicai, Director of Research at NaCRRI and Project Manager of the Eco-PRiDe Project, commended the regional approach of the JTC meetings, noting how they bring stakeholders closer to the areas of implementation. He encouraged farmers to embrace the newly developed rice varieties as a means to improve productivity. Dr. Kisho Miyamoto, Chief Advisor of the Eco-PRiDe Project, shared an overview of the project's management structure,

emphasising the importance of a coordinated and inclusive implementation strategy. Contributions from other key stakeholders, including Ms. Dugo Aminah, Butaleja District Production and Marketing Officer, and Mr. Peter Dhamuzungu, a representative from MAAIF, echoed support for the project's dual focus on environmental sustainability and economic viability in rice farming. After the productive meeting, participants visited selected project sites within the Doho Irrigation Scheme, where they observed ongoing efforts to improve rice cultivation practices first-hand.

# NARO Buginyanya welcomes new advisory committee to strengthen stakeholder-driven research


By Cecilia Nakato Nagujja

**B**uginyanya Zonal Agricultural Research and Development Institute (BugiZARDI) has inaugurated a new Advisory Committee with the objective of enhancing its research focus and deepening stakeholder engagement. The inauguration ceremony, which took place at the institute's headquarters in Bulambuli District on February 20, 2025, marks a pivotal step in advancing inclusive, demand-driven agricultural research within the south-eastern agro-ecological zone. The newly appointed committee takes over from the previous team that served from 2014 to 2024. This fresh cohort comes with a blend of expertise and regional representation, positioning the institute

to more effectively align its research with national priorities and the needs of farmers and other end-users. The four-member committee is chaired by Prof. Callistus Welchy Baliddawa, a distinguished academic from the Busoga region. He is joined by Mr. Nelson Kusuro, a practicing farmer from the Sebei region; Mr. Patrick Okware, representing local government from the Bukedi region; and Ms. Buhule Janet Nafuye, a private sector representative from the Bugisu region. Their responsibilities include identifying research priorities informed by stakeholder input, reviewing proposals for alignment with current agricultural challenges, and monitoring the adoption and performance of new

technologies in the field. Dr. Nasser Kasozi, Director of BugiZARDI, warmly welcomed the new committee and expressed heartfelt gratitude to the outgoing members for their dedicated service. He also highlighted the institute's recent accomplishments and candidly addressed current challenges facing agricultural research and development. Programme Leaders presented updates on ongoing research initiatives, while Heads of Satellite Stations in Ikulwe and Bulegeni shared their respective operational overviews, offering the new committee a comprehensive understanding of BugiZARDI's current activities.

In his inaugural address, Prof. Baliddawa praised the staff for their commitment and outlined several key recommendations to enhance institutional effectiveness. He stressed the importance of making the institute's mission, vision, and goals more visible to motivate staff and reinforce a shared sense of purpose. He further called for deeper collaboration with partners, better follow-up with farmers using new technologies, and a stronger focus on delivering tangible benefits to local communities. Importantly, Prof. Baliddawa encouraged researchers to consider Intellectual Property (IP) rights as part of their innovation processes, underscoring the value of protecting and promoting locally developed solutions.



Staff members alongside incoming and outgoing advisory committee members at the institute headquarters in Bulambuli District.

# NARO Buginyanya showcases innovations at the 4<sup>th</sup> Eastern Agricultural Exhibition in Soroti District

By Saufa Nyakahima, Cecilia Nakato Nagujja and Mercy Chebet



Ms. Saufa Nyakahima, an Agroforestry Technician from Buginyanya ZARDI, engages with attendees at the agricultural exhibition in Soroti District.



A farmer (left) receives fish farming tips from Ms. Cecilia Nakato Nagujja, an exhibitor from Buginyanya ZARDI, during the exhibition.

**B**uginyanya Zonal Agricultural Research and Development Institute (BugiZARDI) recently participated in the 4<sup>th</sup> Eastern Agricultural Exhibition, organised by the National Agricultural Research Organisation (NARO) in collaboration with Riverside Farm and supported by the Soroti District Local Government. The event ran from February 26 to March 1 at Awoja Riverside Farm in Soroti District, under the theme: *"Seeding Success: Unlocking Agricultural Potential for Every Household."* This year's exhibition pulled a diverse community of farmers, researchers, and

agricultural enthusiasts, offering a collaborative atmosphere for innovation and knowledge exchange aimed at empowering households across the region with sustainable agricultural practices. Key to the exhibition were engaging exhibits and demonstrations showcasing cutting-edge agricultural technologies designed to enhance productivity while promoting sustainability. Participants interacted with a wide array of innovative solutions, including soil health diagnostics and precision farming practices aimed at optimising resource use. BugiZARDI significantly contributed to the event by

showcasing practical small-scale farming techniques, such as Robusta coffee cultivation, Hass avocado production, enhanced fish breeds and farming, and improved livestock feeding practices that are easily adoptable by local households. The event also featured expert-led discussions on critical topics such as nutrient management, crop diversification, and climate-resilient agricultural practices. These interactive sessions encouraged hands-on learning and facilitated valuable dialogue among participants, allowing farmers to share experiences and best practices. In closing, Paul Eseru, the Soroti Resident District Commissioner (RDC), emphasised the essential role of agriculture in sustaining families and driving economic growth within the community. "We're not just cultivating crops; we're sowing the seeds of innovation," he stated, encapsulating the spirit of the exhibition. Eseru further articulated the importance of collaboration among stakeholders, particularly NARO institutes, and urged

everyone to apply the insights gained from the exhibition. "Let's ensure that every household has access to the knowledge and resources necessary to unlock their agricultural potential. Together, we can create a more sustainable future for our district and our country," he said. The Director of BugiZARDI, Dr. Nasser Kasozi, encouraged attendees to stay actively engaged and leverage the connections made during the event. "Whether it's by implementing new agricultural practices, participating in local cooperatives, or attending future workshops, your involvement is essential," Dr. Kasozi remarked.



A consignment of bean seeds handed over to the Busoga Kingdom as part of an agricultural support initiative.



Top management of Buginyanya ZARDI and Busoga Kingdom officials during the handover ceremony held in Bugembe, Jinja City.

## NARO Buginyanya supports the Busoga Kingdom with seeds and seedlings to boost agriculture and improve livelihoods

By Nasser Kasozi and Bob Abor

**B**uginyanya Zonal Agricultural Research and Development Institute (BugiZARDI) has handed over 1.3 tons of bean seed, 1,000 kilograms of maize seed, and 1,500 improved coffee seedlings to the Busoga Kingdom. The handover is part of a strategic partnership agreement signed in 2024 between NARO and the Kingdom, aimed at enhancing agricultural productivity and improving food security across the region. The handover ceremony took place on April 25, 2025, at the Kingdom's headquarters in Bugembe, Jinja City. During the initial planning meeting, maize and coffee were identified as priority food and cash crops to drive agricultural development in Busoga. Dr. Nasser Kasozi, Director of BugiZARDI, noted that the inclusion of beans—specifically the nutrient-dense NAROBAN 1 variety—was a deliberate effort to address rising malnutrition among expectant mothers, children, and other vulnerable groups.

NAROBAN 1 is rich in zinc and iron, which are vital for boosting immunity and supporting bone development. The improved coffee seedlings were distributed directly to three farmers in the districts of Kamuli, Iganga, and Namutumba, selected by officials from the Kingdom's production department. These farmers will host demonstration gardens that will serve as practical learning centres for others to explore the benefits of NARO's improved coffee varieties, along with best agronomic practices and pest and disease management. The bean and maize (LONGE 5D) seeds—which are drought-tolerant, early-maturing, and high-yielding—will be distributed to farmers throughout the Kingdom in the current planting season. Dr. Kasozi encouraged farmers to diversify their crop choices, pointing out that overdependence on sugarcane has not led to meaningful improvements in household income. He also revealed that NARO is in

advanced stages of developing a Striga-resistant maize variety to combat the parasitic weed *Striga*, locally known as *Kayongo*, which continues to hinder maize production in the region. In the meantime, Dr. Moses Kaiira, Senior Research Scientist at BugiZARDI, urged farmers to adopt integrated weed management practices, including hand weeding, crop rotation, the use of trap crops, intercropping, and soil fertility improvement. Owekitiibwa Nkenga Sam Nathan, Busoga Kingdom's Minister for Agriculture, commended the partnership with NARO as a milestone in the region's agricultural transformation. He highlighted the importance of the foundation seed being provided for multiplication and appealed for continued farmer training in effective farm management practices. He also called for the integration of value addition technologies, such as maize milling, to help farmers retain more value from their produce and avoid exploitation by middlemen.

# NARO Buginyanya hosts inaugural seed diversity fair in Buyende District

By Bob Abor, Brian Owoyesigire and Nasser Kasozi

**B**uginyanya Zonal Agricultural Research and Development Institute (BugiZARDI), with support from the Food and Agriculture Organisation (FAO), successfully held its first-ever seed fair on October 1<sup>st</sup>, 2024, at the Buyende District headquarters. This inaugural event, themed: *“Building farmers’ resilience to climate change through exchange of quality seeds,”* aimed to enhance awareness of crop diversity, foster collaboration among stakeholders and create opportunities for local farmers. It attracted several key players in Uganda’s agricultural sector including researchers, farmer field schools (FFS), JICA PRiDE project, NASECO seed company, and agro-input dealers. The FFSs supported by BugiZARDI and FAO (*Yesu Afaayo, Kibajjatubona, Mukisa, and Batugemereku*) took centre stage, showcasing products from their tree nurseries, such as eucalyptus, pines, musizi, guavas, passion fruits, vegetables,



Officials inspect an exhibition stall by a Farmer Field School during the seed diversity fair at Buyende District headquarters.



Dr. Frank Kagoda (holding a microphone), Principal Research Officer at Buginyanya ZARDI, addresses participants at the seed diversity fair.

and pasture grasses. These crops are vital in providing local farmers with income and food security, particularly during times when climate-induced crop failures are a threat. Dr. Nasser Kasozi, the Director of BugiZARDI, emphasised the importance of climate-resilient agriculture. He highlighted the different crop varieties on display, such as maize, coffee, rice, and drought-resistant pastures, which can withstand the changing weather patterns and other climate stressors. “By adopting these technologies, we can significantly enhance food security, nutrition and improve the livelihoods of our farmers,” Dr. Kasozi said. He called for increased government funding and partnerships to ensure the effective dissemination and uptake of these innovations by farmers. FAO's Programme Specialist focusing on NARO activities, Dr. Ogwang Dickens David, applauded BugiZARDI for its achievements and stressed the necessity of community-level adaptation measures to address effects of climate change. He encouraged the adoption of technologies promoted by NARO and local partners to maximize their benefits. The success of the Buyende Seed Fair has paved the way for expanded outreach in districts such as Amuria, Katakwi, and Kaberamaido, according to Dr. Owoyesigire Brian, the Project Principal Investigator. He noted that these efforts are geared towards further empowering farmers across the region.

# Striga witch weed that devastates cereal crops is manageable

**Striga, a highly destructive weed locally known as “Kayongo,” can reduce crop yields by up to 100%, causing total crop failure. However, recent agricultural research and techniques have shown that it can be controlled, writes Dr. Kaiira Moses, a Senior Research Scientist at Buginyanya ZARDI.**

**S***triga hermonthica* is a notorious parasitic weed and one of the most significant biological constraints to cereal crop production, particularly affecting maize, rice, millet, and sorghum. It is capable of causing crop yield losses of up to 100%. Across sub-Saharan Africa (SSA), *S. hermonthica* is responsible for an estimated annual loss of \$7-10 billion in agricultural productivity and contributes to food insecurity affecting approximately 100 million people. This weed is entirely dependent on its host plant for nutrients, although it also performs some photosynthesis. Its growth is intricately linked to that of its host, often resulting in severe damage such as chlorosis, stunted growth, thin stalks, and even complete crop failure. A single Striga plant can produce up to 500,000 seeds, which can remain viable in the soil for up to 20 years, allowing for long-term infestation.

A survey was conducted in 2024 across five districts in eastern Uganda: Iganga, Bugweri, Luuka, Namutumba, and Bugiri to assess the economic and agricultural impacts of *Striga hermonthica* on farming communities. The study aimed to identify key challenges, guide the development of intervention strategies, and enhance crop management practices in Striga-affected areas. Data was collected using structured questionnaires administered to a

stratified random sample of 250 diverse farming households. The findings emphasised that effective Striga control relies on a combination of practices that focus on limiting new seed production, preventing seed spread, and reducing existing seed bank in the soil. This includes the use of resistant crop varieties (pre-and post-attachment resistance), applying fertilisers, appropriate herbicides, and improved agronomic practices such as hand hoeing, burning, fallowing, and seed coating with allelochemicals that suppress the release of germination stimulants from the host plant. Preventive measures such as using clean crop seeds and fodder, controlling livestock grazing, and observing phytosanitary measures were also emphasised.

Additionally, techniques like intercropping, planting trap crops, and crop rotation were recommended to deplete Striga seeds in the soil.

The study concludes that effective Striga management requires an integrated approach. This includes combining host resistance with seed coating technologies, using trap crops that induce suicidal germination, and applying Striga-specific herbicides with allelopathic potential. Such a holistic strategy is critical for sustainably addressing the Striga problem in African agriculture.

A full study on Striga management by Dr. Kaiira and colleagues is available in the *Journal of Experimental Agriculture International*,

<https://journaljeai.com/index.php/JEAI/article/view/3336>



**Severe Striga infestation in a maize field.**



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## A Brief on Buginyanya ZARDI

**Buginyanya ZARDI** is one of 16 public agricultural research institutes of the National Agricultural Research Organisation (NARO).

**Mandate:** To conduct and manage applied and adaptive agricultural research and facilitate the development and dissemination of appropriate technologies that address specific needs of the south-eastern agro-ecological zone of Uganda.

**Mission:** To innovate for sustainable agricultural transformation in the south-eastern agro-ecological zone.

**Vision:** A competitive society supported by a dynamic agricultural research innovation system.

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## Cover Photo

Invited guests, together with the senior management of Buginyanya ZARDI, tour the exhibitions at the recent Seed Diversity Fair held in Amuria District.