# Bulindi Zonal Agricultural Research and Development Institute-BuZARDI

# NEWSLETTER

**July-December 2021**



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- SNV, BuZARDI partner to advance soybean value chain in Bunyoro sub-region
- A tale of a teacher in Hoima district flourishing on NARO technologies
- Ensuring sustainable mango production in the Albertine Crescent Zone

## About Us

*BuZARDI is one of the 16 Public Agricultural Research Institutes of the National Agricultural Research Organisation (NARO)*

## Mandate

*To conduct applied and adaptive research and to spearhead the promotion and dissemination of technologies to uptake pathways for increased adoption in Lake Albert Crescent Zone (LACZ)*

## Mission

*To innovate for sustainable agricultural transformation in LACZ*

## Vision

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



## Major commodities and services:

- Cassava cuttings-*NAROCAS I*
- Cattle fattening-*Feedlot model*
- Training farmers
- Mango seedlings-*Bire, Kent & Tommy Atkins*
- NARO honey & Bee Venom
- Piglets-*Camborough, Duroc & Large White*
- Livestock forage-*NARO Napier I & II*

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# Message from the Director of Research

**ur Cherished Reader,**



In fulfilment of our mandate, we are excited to bring to you the **July-December 2021** issue of ***BuZARDI newsletter***. I am glad to inform you that despite the turbulence of COVID-19, we ended the year in high gear.

During celebrations to mark World Food Day in Bunyoro sub-region, we hosted the Minister of Bunyoro Affairs, Hon. Namuyango Kacha Jenifer and State Minister of Public Service, Hon. Mugasa Mary. Over 300 invited participants were exposed to cutting-edge agricultural technologies generated by NARO, not to mention hundreds of audiences who followed the proceedings via our social media platforms. The success of the event is attributed to, amongst others, benchmarking during the 23rd edition of Seeds of Gold Farm Clinic in AbiZARDI, a sister NARO institute based in Arua city, west Nile.

With support from JICA PRiDe II project, we concluded upland rice trials on sowing methods focusing on water and nutrients management to facilitate informed farming decisions among rice producers. Efforts to revolutionise soybean production , a crop useful for both food and industrial purposes, saw BuZARDI team up with SNV in building the capacity of 21 key players along the soybean value chain in the Zone.

In staff news, we welcomed Mr. Zaabwe Thaddeus, an Aquaculture Technician, after successful completion of a masters degree in fisheries and aquatic sciences from Mzuzu university in Malawi. Management and staff were trained on Basic Principles of Management. During the reporting period, there were also promotions, transfers and departure.

Lastly, we organised end of year party to celebrate the milestones, recognise most outstanding staffs and promote teamwork spirit.

I take this moment to thank you for the constructive feedback on the previous edition of our newsletter and encourage you to get back to us with your views on the matters covered herein.

Wishing you a productive 2022!

**Dr. Sylvester Dickson Baguma**

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*The Minister of Bunyoro Affairs, Hon. Namuyango Kacha Jenifer (second left), inspecting exhibition stalls during World Food Day Regional Celebrations at BuZARDI. On the left is the State Minister for Public Service, Hon. Mugasa Mary.*

# From the Editor

**Dear Reader,**

A warm welcome to this issue of ***BuZARDI newsletter.***

Development communication is premised on facilitating knowledge sharing to achieve positive change in development initiatives.

Whereas other sectors of the economy continue to grapple with the shock of COVID-19 pandemic, we have documented two farmers who have attained socio-economic transformation through adoption of improved technologies more especially NARO Napier grass, NAROCOFFEE, NAROBEAN II, Calliandra and honey.

By sharing these successful stories, I am optimistic that you will appreciate the role research extension plays in agricultural transformation and position yourself to contribute more effectively to agro-industrialisation as envisioned by government of Uganda in the National Development Plan III, 2020/21-2024/25.

I wish you a good reading!



**Mr. Abor Bob,**
**Development Communication Officer**

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*Results showed that planting using drills and dibbles is labour saving, requires little fertiliser, leads to high early vigour and increases yields as compared to broadcasting.*

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**NARO technologies powering socio-economic transformation in Bunyoro:**

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# WFD celebrated in Bunyoro with a call to parents to feed their children on nutritious meals

*Uganda every year joins over 150 countries to commemorate World Food Day (WFD). According to World Hunger statistics, 785 million people across the globe do not have enough food to sustain a healthy lifestyle*



NARO exhibitor explains to Hon. Mugasa Mary (front left) and Hon. Namuyango Jenifer (front 2nd left) the attributes of NARO honey

**Theme of the celebration**

Held under the theme **"Our actions are our future. Better production, better nutrition, a better environment and a better life,"** this year's WFD event was guided by the objective to promote awareness and action for those who suffer from hunger and for the need to ensure food security, better production and nutritious diets for all.

The celebrations were the 2nd of its kind to be celebrated under COVID-19 pandemic mode. This called for observance of the Standard Operating Procedures to curb the spread of the virus among masses. For Uganda's case, the National Organising Committee adopted a series mode to effectively achieve the objective of the celebrations. Hosted by NARO, four Zonal Agricultural Research and Development Institutes (ZARDIs) which have a mandate of taking technologies to the end-users were carefully selected to serve as satellite stations for the regional events to ensure that the population actively participates.

Located in Bunyoro sub-region, BuZARDI hosted the first WFD regional celebrations on **11th October 2021**. The event attracted more than 300 participants that comprised exhibitors and key stakeholders including policy makers, researchers, extension workers, farmers, agri-prenuers to mention a few. It provided the platform for the sector stakeholders-through exhibitions, speeches and edutainment-to share, learn and appreciate latest developments and progress made towards addressing challenges around the food system. In his remarks, the Director of Research, Dr. Sylvester Dickson Baguma, welcomed participants and elaborated the mandate of the institute. The chairperson BuZARDI Advisory Committee, Dr. Mary Rwakaikara, re-echoed this in her remarks and emphasised the need to be very responsible with our actions.

**NARO's contribution to the theme**

"As NARO, our goal is to increase total factor productivity. We release varieties that are high yielding, tolerant to pests and diseases, environmentally-friendly, drought resilient and with long shelf life. In that regard, we sustainably contribute to the four betters," noted Dr. Sadik Kassim, the Deputy Director General in-charge of Technology Promotion, NARO.

**Invited dignitaries speak out**

The occasion was graced by the presence of State Minister for Public Service, Hon. Mugasa Mary, who encouraged sub-county extension workers to support farmers at village level so that they can benefit from the Parish Development Model aimed at improving household incomes.

Hon. Namuyango Kacha Jennifer, Minister for Bunyoro Affairs, also the chief guest, was delighted that Bunyoro was considered to host the first regional WFD celebrations of 2021. "We should be conscious of our actions because our future is determined by our actions today" She further noted that the government wants all Ugandans to have a better and sustainable future and that all government programmes aim at securing the future of every Ugandan. At this point, she urged participants to work towards the desired and better future. The four betters are what we aspire to achieve through adopting improved production technologies released by NARO. In this respect, she applauded NARO for excelling in generating and disseminating appropriate technologies.

The Hon. Minister highlighted the parish model which aims at better production to ensure household food security, nutrition and income. Beyond production, she noted the model further addresses issues of processing, storage and marketing.

Parents were encouraged to feed their children on nutritious meals while adults were challenged not to eat to just fill their stomachs but rather to derive all the necessary nutrients, if the country is to have a healthy, strategic thinking and operational communities. Hon. Pius Wakabi the area Member of Parliament (Bugahya county), who recently bought two new tractors to support agriculture transformation in the constituency, was also present. Other regional satellite WFD celebrations were held at Buginyanya, Ngetta, and Kachwekano ZARDIs respectively climaxed by the main event hosted by the National Agricultural Research Laboratories, Kawanda, to commemorate the **41st World Food Day** celebrations on **16th October 2021.**

# BuZARDI staff attend Seeds of Gold Farm Clinic in west Nile for benchmarking

*NARO in collaboration with Nation Media Group and partners organises farm clinics as an avenue of enhancing exposure to and uptake of improved technologies for smart farming and bumper harvest*



Farmers attending a training session on mango growing and management of fruit flies during the farm clinic



The Marketing Manager of Monitor Publications Limited, Ms. Namaganda Elizabeth (front), addressing participants

On **Saturday 11th, September 2021,** Abi Zonal Agricultural Research and Development Institute (AbiZARDI) located in the outskirts of Arua city hosted the 23rd edition of Seeds of Gold Farm Clinic.

Whereas farmers turned up in big numbers to learn modern farming practices, the team from BuZARDI went to pick a leaf on how best to host the 2021 World Food Day satellite exhibition in the new normal of COVID-19.

The three-man delegation that encompassed Dr. Sylvester Dickson Baguma-Director of Research, Mr. Abor Bob-Development Communication Officer and Mr. Kasumba Joseph-Transport Manager, attended opening remarks and afterwards, toured technology demonstration plots, where trainings were being conducted from.

Bee farmers learnt the different types of beehives (traditional, Kenya Top Bar and Langsthroth), bee forages, techniques for harvesting, processing and packaging honey, propolis, bee venom and making bee wax candles. In agro-forestry, farmers learned mango production and management of fruit flies using locally made fruit fly bait. There was excitement among the fish farmers as aquaculture specialists unpacked culture best management practices especially feed management, water quality management and predator control. Fish value addition for *Mukene* and *Angara* were also showcased.

The farm tour concluded with visits to cassava, mangoes, Irish potatoes, maize, sorghum, millets and rice gardens where improved varieties, best agronomic practices and sustainable land management technologies such as grass bunds and contour bunds were being demonstrated. Upon return, the team shared their experiences and new insights with the programme leaders and scientists to ensure effective services delivery.



(L-R): Mr. Mwesigwa Joshua, Internal Auditor AbiZARDI, Dr. Sylvester Dickson Baguma, Director BuZARDI and Dr. Sadik Kassim, Deputy Director General NARO, share a light moment during the farm tour



Part of the 54 acres of Maksoy 3N foundation seed planted in Season "B" 2021 in Kigumba satellite farm, Kiryandongo district

# Solving the puzzle of soybean value chain in Bunyoro

***Soybean production in Uganda declined after the outbreak of soybean leaf rust disease. Researchers from Makerere university and NARO responded by releasing varieties that are resistant to rust, high yielding and early maturing such as Maksoy 1N, Namsoy 4M, Maksoy 2N, Maksoy 3N, Maksoy 4N and Maksoy 5N***

Despite this effort, production and productivity of soybean particularly in Bunyoro has been unimpressive. A survey by Uganda Bureau of Statistics in 2018 established that Bunyoro registered merely 0.2 metric tonne per hectare compared to the national level yield of soybeans estimated at 0.4 metric tonne per hectare. Subsequently, it contributed a dismal 248 metric tonnes out of the national production of soybeans estimated to be 107,600 metric tonnes in the same year.

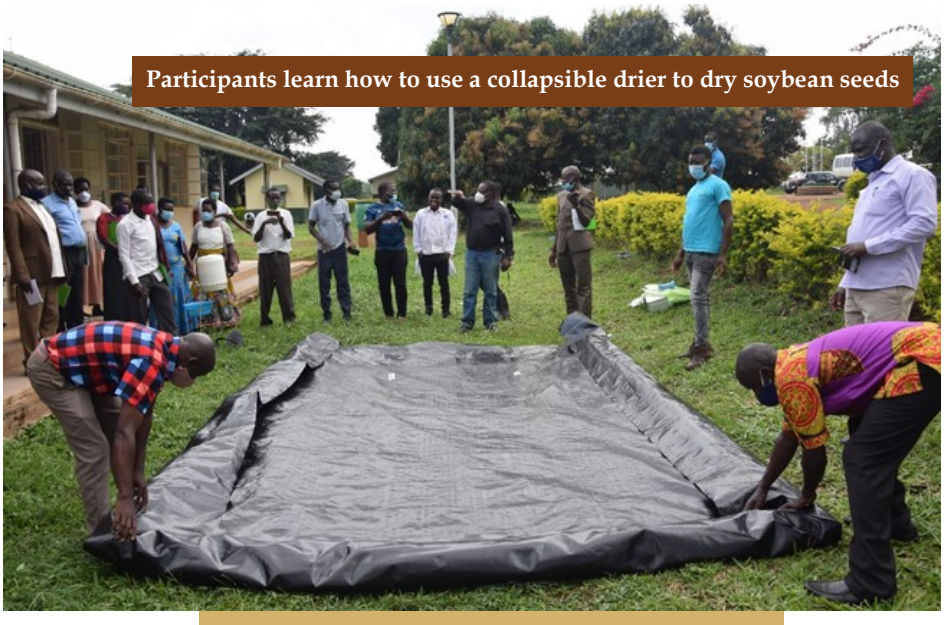
It is on this background that BuZARDI in partnership with SNV Netherlands Development Organisation conducted a training from **18th-19th August 2021** for 21 soybean actors-lead farmers, agro-inputs dealers, agro-processors and agricultural officers-from Hoima and Masindi.

Dr. Ssekiwoko Fred, Pathologist, attributed the low productivity to use of poor quality seeds. He encouraged the farmers to buy quality declared seeds from certified seed companies and NARO institutes. To enhance farmers' access to quality soybean seeds, BuZARDI has established 54 acres of Maksoy 3N foundation seed in Kigumba satellite station, Kiryandongo. Dr. Ssekiwoko also demonstrated to participants how to conduct germination test before planting.

According to Mr. Walya Severin, Masindi District Agricultural Officer, most farmers have not yet embraced soil testing to determine which nutrients are lacking in their gardens, leading to poor yields. As the first priority, Mr. Senabulya Steven, Soil Fertility Technician, encouraged farmers to apply organic manure that are fully decomposed in their soybean gardens. When conducting soil testing, he urged them to focus on mobile nutrients especially potassium and phosphorus, which are essential for soybean.

To minimise post-harvest losses, Dr. Kalunda Patrick, Socio-economist, used a short video to demonstrate how to harvest, thresh, sort, dry and store soybean seeds. Participants were also exposed to collapsible drier, which dries 1,000 kilograms of seeds within 2-3 hours.

In line with the aspiration of the National Development Plan III (2020-2025) that focusses on sustainable agro-industrialisation, the Outreach Officer, Ms. Birungi Pauline, discussed soybean value addition such as making soya cakes, soya bagiya, poultry feeds, fish feeds, soybean snack, soybean flour and soybean milk. Mr. Kebirungi James of SNV assured participants of the Organisation's support towards soybean value addition as a way of improving their household incomes. In his closing remarks, the Director of BuZARDI, Dr. Sylvester Dickson Baguma, said that the institute was established to bring services closer to the community and urged participants to utilise the knowledge acquired to better their livelihoods.



Participants learn how to use a collapsible drier to dry soybean seeds

# Seeking for adaptive rice cultivation practices to changing conditions in uplands

*Rice has become a major food security crop as well as a cash crop in several districts in Uganda and its cultivation is increasing, especially with the introduction of upland varieties*

Not long ago, computers were rare, extremely slow and less efficient. Storing videos in one floppy disk was a dream because the devices were of low capacity. We saw the progress in this industry – introduction of compact disks before flash disks; eventually drop box and recently wireless storage systems.

Like technology has become a major constituent of the modern world, helping man to live safe and easier; cropping practices are no different. Production of upland rice has evolved – in particular rice varieties are changing over the last two decades. New Rice for Africa (NERICA) dubbed as 'VP-rice' (referring to former Vice President Prof. Gilbert Bukenya) and Namche varieties are recent breeding advancements. Like other varieties, they have different yield potentials, maturity duration and most importantly crop architecture.

Today, we cannot cultivate the tall, medium maturing erect-leaved varieties in every respect as the short, long maturing broad-leaved rice varieties of 20 years ago! It is imperative to refine agronomic practices on water, nutrients, pest and disease management to improve their adaptation to different conditions.

With respect to sowing methods, traditionally most farmers prefer broadcasting to drills and dibbles. The labour requirements to sow rice in rows are usually high –a criticism of drill and dibble by farmers. Well, it took about four minutes for one person to broadcast rice seed on 3 square meter plot at BuZARDI. For the same area and time, three persons for dibble and four persons for drill.

Saying "sowing rice in rows is labour demanding" look at the opportunity cost a rice farmer is later paying. We observed that one month after sowing, it takes about twice more time and more labour to weed the same area for broadcasted rice stands than for dibble and drill. Moreover, a hand hoe was practically ineffective for first weeding broadcast rice stands. That said, competition for water, nutrients and light between plants in dibble and drill rice stands seemed high resulting in higher early vigour than broadcast.

A farmer may apply a lower rate of about 80 kilograms of Nitrogen per hectare to maximize grain yield of NERICA 4 under dibble and higher rate under broadcast. So, farmers who are constrained with fertilizers, which is often scarcer resource compared to water in terms of access; that is a second option. For each kilogram of Nitrogen applied, we found that yield increase compared to zero-Nitrogen is highest with dibble sowing (20.6 kilograms), followed by drill (18.8 kilograms) and broadcast (8.7 kilograms).

**Most of the increases in rice production in Uganda come from extensive rather than intensive farming activities.**

**This study has demonstrated that using the appropriate sowing method and fertiliser application rate rice growers can reap more without having to increase the acreage.**
















**Photo 1: Two weeks old rice: Sowing methods**
**Photo 2: Broadcast (background) and dibble (foreground)**
**Photo 3: Dibbles**
**Photo 4: Broadcasting**
**Photo 5: Soil Fertility Technician, Mr. Senabulya Steven, taking yield data**

# Ensuring sustainable mango production in the Albertine Crescent Zone

*Most fruit farmers in Uganda produce mango fruits seasonally and face a challenge of managing fruit flies*

Mango is one of the most prevalent and sweetest fruits in the tropics cheaply, easily but also seasonally produced.



Mangoes in on-station orchard

Under normal conditions, we have supply of these nutritious fruits twice a year (in June, July and August and; also in October, November and December).

With support of BuZARDI, two fruit farmers in the Albertine Crescent Zone- Mr. Bagada John Winter in Biizi, Masindi and Mr. Isingoma Bwambale in Kyangwali, Kikuube-are already producing mango juice and wine.

One wonders how this is possible throughout the year because someone enjoying sweet mango juice may not know that there are no mango fruits in Bunyoro since they are seasonal as shown above.

We ensure all year around mango production using a technology called off-season mango production both locally and using chemicals like potassium nitrate.

Locally, if you burn grasses and produce smoke underneath mango trees without burning them you induce flower production and subsequently, fruiting and hence fruit is produced off the season. Technically smoke contains the chemical Ethylene that induces off-season mango production.

Alternatively, potassium nitrate at 4 percent will also induce off-season mango production which is free from pests and diseases because it is normally in the dry season.

We encourage our fruit growers in the Zone to embrace off-season mango production because it is safe and profitable here in Uganda and elsewhere. It was first done in India and the Philippines in Asia.

Apart from seasonality, we control mango pests and diseases like Mango fruit flies and Mango anthracnose using Rocket and Victory fungicides that one can buy straight from retail inputs dealer shops.




Mount Sinai mango juice and wine produced in Masindi by Mr. Bagada



Mr. Masanyu Julius, the Agro-forestry Scientist (2nd left), giving a fruit fly trap to a farmer in Mugarama sub-county, Kibaale district

# My family thrives on NARO technologies–says Mr. Balijja Jackson

***Two years ago, Mr. Balijja Jackson was selected to host His Excellency, Yoweri Kaguta Museveni in his 51-acre farm located in Kiranga village, Kyabigambire sub-county in Hoima district, during celebrations to mark World Food Day. Mr. Balijja also teaches agriculture at Duhaga secondary school in Hoima city***

Like many salary earners, Mr. Balijja was in comfort zone until he started having trouble paying school fees for his children.

His journey to prosperity in farming started with as few as five bee hives which he recalls were made of papyrus. The turning point in his life was during a small show in Kyabigambire sub-county, where he was showcasing honey and bee wax candles that were molded out of pawpaw stem. At the show, he encountered an apiculture technician from the District Farm Institute (now BuZARDI) called Daudi Mugisa, who later trailed him up to his home to encourage him to undertake apiculture as a business. Luckily, the District Development Support Programme equipped him with Langsthroth and Kenya Top Bar bee hives.



Mr. Balijja inspecting the apiary



Mr. Balijja displays Hoima Natural Honey

At that time, his coffee was also glowing and thus, he was among the few farmers who were selected to participate in a learning visit in south western Uganda. During the one-week event, Mr. Balijja visited, amongst others, Kabarole and Bunyagabu Bee Keepers' Associations where he learnt about honey processing. When he got 16 jerrycans of honey (20 litres per jerrycan) in a single harvest, Mr. Balijja knew that time was ripe to explore value addition. Using honey extractor, settling tank and filter, Mr. Balijja processes and packages his honey in containers of different sizes that are distinctively branded *Hoima Natural Honey*. He is quick to explain that the aroma in his honey is a blend of nectar from Calliandra and coffee.

He decided to plant Calliandra from BuZARDI after realising that it provides bee forage throughout the year and the sticks can also be used to support bananas.

Further, Mr. Balijja has replicated best management practices on-station in his farm such as intercropping coffee with bananas, crop rotation, mulching, pruning and de-suckering. Last year alone, Mr. Balijja earned four millions and six millions Uganda shilling from sale of coffee and 3.8 tonnes of NAROBEAN II correspondingly. So far, Mr. Balijja has educated three children in the university and bought a new Bajaj motorcycle. While NARO has done its part by generating highly productive, cost effective and environmentally sound technologies, Mr. Balijja is tasking government to fast track recruitment of more extension officers so as enhance farmers' access to these technologies if agro-industrialisation is to be realised.

# Mrs. Majugo Loy pockets 128,000 Uganda shillings daily from sale of milk

Located in Kyomukama village, Buhimba Town Council in Kikuube district, Mrs. Majugo's farm has specialised in livestock keeping-more specifically Mubende goats and Friesians.

Cattle rearing started in the farm in 2017 with 56 local cows and were gradually crossed with Friesians in order to get quality breeds. Even though bulls are regularly sold to cattle dealers, the farm still boasts of 76 cows. Out of the 76 cows, 16 are producing milk. Each cow produces about 10 litres of milk a day. With a litre of milk sold at 800 Uganda shillings (farm gate price), Majugo earns about 128,000 Uganda shillings daily.

From cow dung, she generates biogas which is used for cooking and thus, saving her from the burden of buying charcoal and conserving the environment. After extracting biogas, Mrs. Majugo uses the cow dung as compost manure for her banana garden.

## NARO's hand in Mrs. Majugo's success

Mrs. Majugo is one of the many livestock farmers in the Albertine Crescent Zone who faced a challenge of feeding and feed management especially in the dry season. To address the problem, she sent her farm manager, Mr. Tumwesige Vincent, to attend the Seeds of Gold Farm Clinic and World Food Day celebrations in BuZARDI in 2019. During these events, he learnt about NARO Napier grasses, which have high biomass yields, hay and silage making for feeding livestock all year around.

Besides, Mr. Tumwesige was exposed to the Mubende goats and low-cost goat housing unit under the commercialisation of the goat value chain project-a competitive grants scheme project being implemented by BuZARDI. Mubende goats have 40 percent twining ability. This inspired Mrs. Majugo to start goat rearing towards the end of 2019 with about 14 Mubende goats crossed with Boers. At the time of the visit, the goats had multiplied to 50, while 8 were sold off fetching up to 1.2 millions Uganda shillings.



NARO Napier grasses that were cut for feeding livestock in the farm



Mrs. Majugo constructed her goat housing unit using locally available materials



Mr. Tumwesige Vincent, the Farm Manager, during a visit to the cattle paddock



Some of the goats in the farm

# Kikuube district to award best performing farmers and farmer groups

*Agriculture directly supports 68 percent of Uganda's rural population. In its Third National Development Plan 20220/21-2024/25, the government of Uganda has prioritised agro-industrialisation to achieve the desired economic growth. Improvement of productivity and agro-processing are key in this effort. The ministry of agriculture, animal industry and fisheries (MAAIF) through the production department in the local governments organises farmers' competitions to identify lead and model farmers as a means of encouraging other farmers to work harder and to expose them to what others are doing for improvement*

In line with this , Kikuube district sourced the expertise of BuZARDI in the identification of best farmers and farmer groups in the district. Basing on a list of 29 pre-selected candidates, the panel of specialists that consisted of Dr. Ssekiwoko Fred, Ms. Birungi Pauline and Ms. Asekenye Lydia Patricia, conducted the assessment in all the seven sub-counties of Kikuube district.

Participants engaged in crops production were evaluated on improved variety usage, good agronomic practices (line planting, weeding, pest and disease control, tools and equipment), soil water and fertility management. With regards to livestock, the trio considered improved breeds, feeding (production, conservation and supplementation), health management (vaccination, deworming, spraying treatment, structures and equipment) and housing (type, maintenance and hygiene).

The five-day exercise involved interviewing the participants at their farms for the individuals and the manager for the groups. There was visual assessment on-farm and documents verification for the groups. Additionally, the groups were assessed on the aspects of legality, leadership and administration, gender inclusiveness, operations and financial management among others.

Data was analysed using Microsoft Office Excel and means were generated, which became the basis for ranking.



Assessing a coffee plantation in Buhimba sub-county



Interview with a pineapple grower in Kyangwali sub-county

**Best performing individual farmers**

| Rank | Name | Sub-county | Average Total Score |
|---|---|---|---|
| 1 | Kabagambe Kakuba Stephen | Kabwoya | 79% |
| 2 | Omuhereza Kwezi | Kyangwali | 75% |
| 3 | Birungi Stella | Kikuube town council | 70% |

**Best performing farmer groups**

| Rank | Group | Average Total Score |
|---|---|---|
| 1 | Kyangwali Dairy Farmers Cooperative Society Limited | 92% |
| 2 | Wambabya community Development cooperative Society Limited | 79% |
| 3 | Kyangwali farmers' Organisation | 60% |

**Awards**

According to Dr. Ntume Barnabas, the District Production and Marketing Officer of Kikuube, the best performing farmer groups will be awarded certificates while a total of 24 farmers will receive water harvesting tanks (2,000 litres), spray pumps and wheelbarrows. Officials from MAAIF are expected to preside over the award ceremony which is slated for early 2022.

# Deploying ICT to bridge the research-extension gap

***In public agricultural extension system, frontline extension workers are the direct link bridging the communication gap between researchers and farmers to promote adoption of improved technologies and innovations by rural communities***



Mr. Musinguzi Bonny Bwali , the Assistant Systems Administrator at BuZARDI, connecting users to NITA-U internet service in September 2021

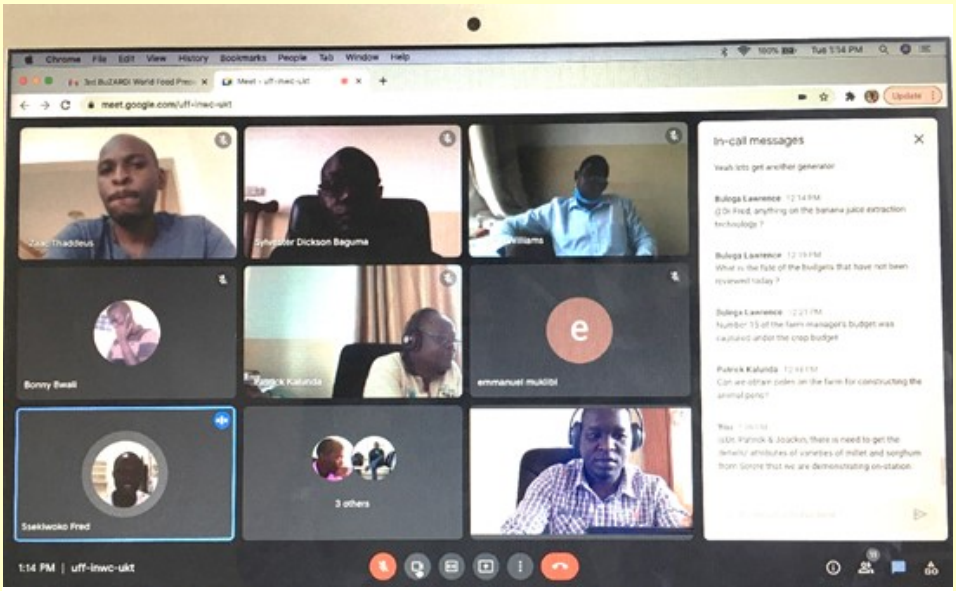
According to the ***New Vision*** dated **Wednesday, October 27, 2021**, the ratio of an extension worker to farmers in Uganda stands at 1: 1,800 as compared to the recommended 1: 500. This implies that the current extension practitioners in the districts and sub-counties are unable to meet the overwhelming demand for extension services driven by climate change and outbreak of pests and diseases among others.

The situation was further complicated by the outbreak of COVI-19 and the subsequent banning of agricultural trade shows and exhibitions in an attempt to stem the spread of the virus. Most farmers and farmer groups were unable to access improved technologies and related information.

As government through MAAIF gears up to strengthen public agricultural extension system in the 2022/23 fiscal year by recruiting more frontline extension workers, BuZARDI has intensified utilisation of ICT in communication and dissemination of improved agricultural technologies to the user-communities.

In September 2021, the Ministry of Information and Communication Technology (ICT) and National Guidance through the National Information Technology Authority-Uganda (NITA-U) connected BuZARDI to the fibre optic cable for internet and Voice Over Internet Protocol (VOIP) services.

With support of the ICT unit, the development communication desk has successfully captured, edited and shared 6 short videos via the institute YouTube channel (**Bulindi ZARDI**) with online audiences. These are: harvesting, processing and packaging quality honey, farmers' learning event on vegetable production, take home messages from upland rice trials, solar-powered irrigation system, establishment and management of NARO Napier grass and highlights of World Food Day satellite exhibitions 2021. As at 31st December 2021, these videos had garnered 397 views and 18 subscribers. The institute also has strong presence on Twitter **(@BulindiZ)** and Facebook/Meta (**Bulindi ZARDI**) with 611 and 276 followers respectively. Feedback obtained on these platforms helps the institute to respond appropriately to farmers' concerns.




BuZARDI staff and officers at the NARO secretariat participating in a Zoom meeting on 5th October 2021 to prepare for WFD satellite exhibition

# Gulu university, BuZARDI to seal MoU on research and technology transfer

***Over the years BuZARDI has established partnerships with like-minded institutions at international, regional, and local levels in the areas of resource mobilisation, technology development and upscaling to the user-communities***

The top management of Gulu university and their BuZARDI counterparts are set to sign a Memorandum of Understanding (MoU) that will go a long way in strengthening agricultural research and promotion of improved technologies.

This was disclosed by Mr. David Obol Otori, the Secretary Gulu university during a meeting between a high-level delegation from the University and BuZARDI staff on **7th September 2021** at the institute.

"We've large chunks of land in Nwoya and Amuru districts that we want to put into use. But, we want to start farming that is researched. We want to grow the best varieties on large scale that will be a demonstration to the local communities. As management, we think that BuZARDI is one of the best partners that any university can have collaboration with in agricultural research," said Mr. David Obol.

Prof. Owiny David, the Deputy Vice Chancellor in charge of Academic Affairs, Gulu university, said they are eager to partner with BuZARDI because the institute's three core research programmes [crops, livestock and technology promotion] correlate with the mandates of Gulu university, which are teaching, research and knowledge transfer.

The areas of collaboration proposed, according to Prof. Owiny, include: joint research grant applications and implementation, laboratory accesses, advisory services, training students and outreach engagements. He added that collaboration with the institute will help to expedite the accreditation of Gulu university Hoima campus by National Council for Higher Education. The campus offers agriculture and related courses.

Dr. Guma Williams, the then Ag. Director of Research, welcomed the delegation and briefed them that the draft MoU has been shared with the Legal Officer at the NARO secretariat for counsel before it is signed by both parties.



**The Secretary-Gulu university, Mr. David Obol Otori, stressing a point during the meeting**



**The top management of Gulu university and BuZARDI staff after the meeting**



**Interns harvesting rice in on-station trial field. BuZARDI is the preferred internship destination by students of Gulu university, Hoima Campus**



Ripe coffee beans in on-station technology demonstration garden. Coffee requires adequate water to cause strong blossom and good yields.

# MAAIF tips smallholder coffee farmers on irrigation systems

*The government of Uganda through the National Irrigation Policy (2017) plans to create 1.5 million hectares of irrigated land by 2040. Agriculture Cluster Development Project (ACDP) implemented by the Ministry of Agriculture, Animal Industry and Fisheries (MAAIF) is supporting smallholder coffee growers in the country to establish irrigation schemes so as to boost production*

Coffee remains Uganda's most important export as it constitutes about 22 percent of total exports. In June 2021, coffee export amounted to 618,388 bags worth US$ 58.56 million, the highest ever in a single month since 1991. Uganda has the potential to compete with Brazil and Ethiopia-the world leading producers of coffee-provided that water for production is available all year around. However, smallholder farmers who dominate the agriculture sector in Uganda need exposure and subsidies in order to acquire appropriate irrigation equipment and services.

With financial support from ACDP, BuZARDI hosted the Match Making Expo on **21st December 2021** for irrigation service providers to showcase the different irrigation systems and equipment they have to the coffee growers. On the eve of the expo, participants visited the solar-powered irrigation system installed on-station under the same project for benchmarking.

During the expo, Mr. Ojangole Steven, the Deputy Coordinator of ACDP in MAAIF, advised the farmers to select irrigation systems based on the cost, land acreage, source of water and ease of operation and maintenance. The event attracted a number of irrigation service providers including: Adritex, Balton, Karl Aqua Engineering Solutions, Anjjana, Akvo International, W&S Consult, Ferest Investment and Solar Now. Farmers had the opportunity to choose from a wide range of irrigation systems that were being showcased such as sprinklers, drip irrigation, drag hose, solar water pumps, and manual irrigation pumps.

Technical Officers from MAAIF, Cluster Coordinators and District Production and Marketing Officers were also on ground to guide the farmers to select appropriate irrigation systems.

Mrs. Dorcus Loga Okello, the Grants Officer ACDP, said the project will pay the bulk of the cost for purchasing, installing and testing the irrigation systems, adding that once a farmer enters into contract with MAAIF, works should be completed within four months.



Participants visited the water reservoir for the solar irrigation system in BuZARDI to benchmark ahead of the Expo



An exhibitor from Adritex (2nd left) explaining to farmers the advantages of using overhead sprinkler irrigation system

# Staff News:

## ACADEMIC ACCOMPLISHMENT

**Mr. Zaabwe Thaddeus, MSc. graduate of Mzuzu University, Malawi**

In 2019, Mr. Zaabwe Thaddeus, an Aquaculture Research Technician at BuZARDI, won the prestigious Intra-Africa Mobility Scheme Collaborative Training in Fisheries and Aquaculture in East, Central and Southern Africa (COTRA) scholarship.

The project, funded by the European Union and African Union, aimed at achieving Sustainable Fisheries Management and Aquaculture resources that shall lead to increased fish production, enhanced nutritional security and improved livelihoods.

He recently graduated with a Master of Science in Fisheries and Aquatic Sciences of Mzuzu University in Malawi.

His research focused on evaluating Iso-proteinaceous diets and digestibility studies in Redbreast Tilapia (*Coptodon rendalli*), in addition to water pellet stabilities.

In the course of his MSc. study, Mr. Zaabwe who is passionate about fish nutrition and biostatistics, published two manuscripts. The vast knowledge he has acquired will facilitate in novel innovation in fish nutrition especially feeds for improved fish production in the Albertine Crescent Zone.



Mr. Zaabwe in Mzuzu University

## PROMOTIONS

| Names | From | To |
|---|---|---|
| Abor Bob | Development Communication Officer Grade II | Development Communication Officer Grade I |
| Bulega Lawrence | Assistant Accountant | Ag. Accountant |
| Mukiibi Emmanuel | Monitoring and Evaluation Officer (M&E) | Ag. Programme Leader-Technology Promotion and Outreach (TPO)/M&E |

## TRANSFERS

| Names | Designation | From | To |
|---|---|---|---|
| Iga Brian | Accountant | BuZARDI | National Fisheries Resources Research Institute, Kajjansi Centre |
| Dr. Kakeeto Ronald | Crop Breeder/Programme Leader -TPO | BuZARDI | National Semi-Arid Resources Research Institute (NaSARRI) |
| Nakaweesi Margret | Procurement Officer | BuZARDI | National Forestry Resources Research Institute |
| Okongo James | Procurement Officer | National Agricultural Research Laboratories | BuZARDI |
| Nayebare Monica | Assistant Accountant | BuZARDI | National Agricultural Research Laboratories |
| Nassali Gladys | Assistant Accountant | National Agricultural Research Laboratories | BuZARDI |
| Musasizi Daniel | Assistant Accountant | NaSARRI | BuZARDI |
| Abitegeka Jude | Farm Manager | BuZARDI | National Crops Resources Research Institute |
| Andama B. Joackin | Farm Manager | AbiZARDI | BuZARDI |

## DEPARTURE /SEPARATION

| Name | Designation | From | To |
|---|---|---|---|
| Dr. Alou Isaac Newton | Soil Scientist | BuZARDI | Makerere University |

# Management and Staff of BuZARDI trained on basic principles of management



Staff members during the training in the new Conference Hall, Main Administration Building, BuZARDI



The Ag. Programme Leader-Technology Promotion and Outreach, Mr. Mukiibi Emmanuel (left), receives a Certificate of Attendance from the Training Facilitator, Dr. Sebastian Bigabwenkya (right)

The management and staff of BuZARDI attended a training workshop aimed at sharpening their managerial skills from **8th-9th December 2021** in the new conference hall, main administration building.

According to the Human Resources and Administration Officer of BuZARDI, Mrs. Nakimuli Madina Walusimbi, the workshop emanated from the performance gaps that were sieved out of the 2020/21 appraisal exercise. It was directed by two renowned lecturers from Uganda Management Institute- Dr. Sebastian Bigabwenkya and Mr. Hannington Businge.

To ascertain specific areas to work on in their line of duty, the facilitators engaged participants in a number of diagnostic tests. Learning was mainly through discussions and analyses of case studies on management issues.

Speaking on behalf of BuZARDI staff who attended the training, Mr. Zaabwe Thaddeus, an Aquaculture Technician, thanked the facilitators for the job well done as well as the management of BuZARDI for hiring distinguished trainers to help them grow professionally.

While giving his closing remarks, the Director BuZARDI, Dr. Sylvester Dickson Baguma, commended both the facilitators and attendees for the commitment during the training, despite their busy schedules. He was excited that members of staff are now well placed to;

- Conduct self-rediscovery
- Communicate & delegate effectively
- Set performance targets
- Supervise their subordinates effectively and assess staff satisfaction levels
- Write clear reports and research papers.
- Promote and advertise NARO's technologies/products/services effectively to potential end-users.

The Director concluded that more refresher trainings will be conducted as and when need arises.




**Abaho, I.**, Masembe C., Akoll P., Jones, C. L. W. (2021). The use of plant extracts to control tilapia reproduction : Current status and future perspectives. *Journal of the World Aquaculture Society,* 1-27.

https://doi.org/10.1111/jwas.12863

# Director of BuZARDI reappointed as chairperson IPMC in NARO




**Dr. Sylvester Dickson Baguma shows an award given to him by NARO's top management in recognition of distinguished service during first tenure as chairperson Intellectual Property Management Committee**

The top management of NARO on **13th December 2021** reappointed Dr. Sylvester Dickson Baguma, the Director of BuZARDI, as chairperson of Intellectual Property Management Committee (IPMC) in a colourful event held at Kabira Country Club in Kampala. Before assuming the position in 2018, he co-chaired the taskforce that developed the NARO Intellectual Property policy to promote effective management of intellectual property and provide a robust institutional framework that harnesses creativity and ensures research sustainability.

During his first term of office (2018-2021), NARO had the highest number of patent applications filed with Uganda Registration Services Bureau in the past two years. In September 2021, Dr. Baguma negotiated the historic signing of agreements between NARO and 17 seed companies to formalise commercialisation of NARO seed varieties such as Maize, Millet, Sorghum, Cassava and Sweet potatoes.

Members of the new committee are: Dr. Asea Godfrey, Dr. John Wasswa Mulumba, Dr. Winnie Nkalubo, Ms. Juliet Nassuna, Prof. Tukamuhabwa Phinehas and Mr. Ronald Jaggwe. Together with the new dedicated team, Dr. Baguma has promised to do more in his second term of office.

# Best performing staff recognised as BuZARDI holds End of Year Party

Human resource is the most important resource in an Organisation.

For this reason, BuZARDI organised End of Year Party on **22nd December 2021** in which staff who performed their duties exceptionally well were recognised and awarded.

During the event, the Director of Research, Dr. Sylvester Dickson Baguma, thanked members of staff for having stuck to the cause of the institute in spite of COVID-19 pandemic and limited funds for implementing research activities.

He acknowledged that all staff performed their duties well, which enabled the institute to deliver on its mandate. This year, however, Dr. Baguma said that management decided to start something new-recognising performance. To accomplish this, the Director disclosed that a small committee was instituted to identify best performing staff.

The criteria used for identification, he explained, included: commitment to work, going an extra mile (doing what others cannot expect you to do but you end up doing it) and respect for each other.

Ms. Asekenye Lydia Patricia, Animal Health Technician, emerged as the Best Performer, Mr. Steven Senabulya, Soil Fertility Technician (1st Runners Up) and Mr. Afe Afedra Octavia, Security Officer (2nd Runners Up).

While giving the awards, Dr. Mary Rwakaikara, the Chairperson BuZARDI Advisory Committee, congratulated the winners for the excellent performance.

Dr. Rwakaikara challenged the winners to keep up the outstanding performance and encouraged all staff to always aspire to be the best.

She said that the advisory committee members are extremely impressed by work that has been done on-station.

*....Continued on page 18....*

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Mrs. Nakimuli Madina Walusimbi, the Human Resources & Administration Officer BuZARDI (left), announcing the winners




Ms. Asekenye Lydia Patricia, Best Performer for the year 2021, shows her award



Right: Mr. Senabulya Steven, 1st Runners Up Performer for the Year 2021, receiving an award



Right: Mr. Afe Afedra Octavia, 2nd Runners Up Performer for the Year 2021, receiving, an award



Members of staff during the End of Year Party



Dr. Mary Rwakaikara, the Chairperson BuZARDI Advisory Committee, giving her End of Year message

# World Food Day Regional Celebrations through the camera lens



*The Chief Guest, Hon. Namuyango Kacha Jenifer, giving opening remarks*



*State Minister of Public Service, Hon. Mugasa Mary, urging extension workers to attend to farmers' challenges*



*Members of Hoima Community Seed Bank showcasing bean varieties conserved in the gene bank to ensure food and nutrition security*



*A section of stakeholders that graced the event*



*BuZARDI staff during a talk show on 89.8 Spice FM to enhance community awareness on World Food Day celebrations*



*Bunyoro cultural dancers entertaining participants*

*For more information, please contact:*

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*Published by Development Communication Office, Technology Promotion & Outreach Research Programme, NARO Bulindi*

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