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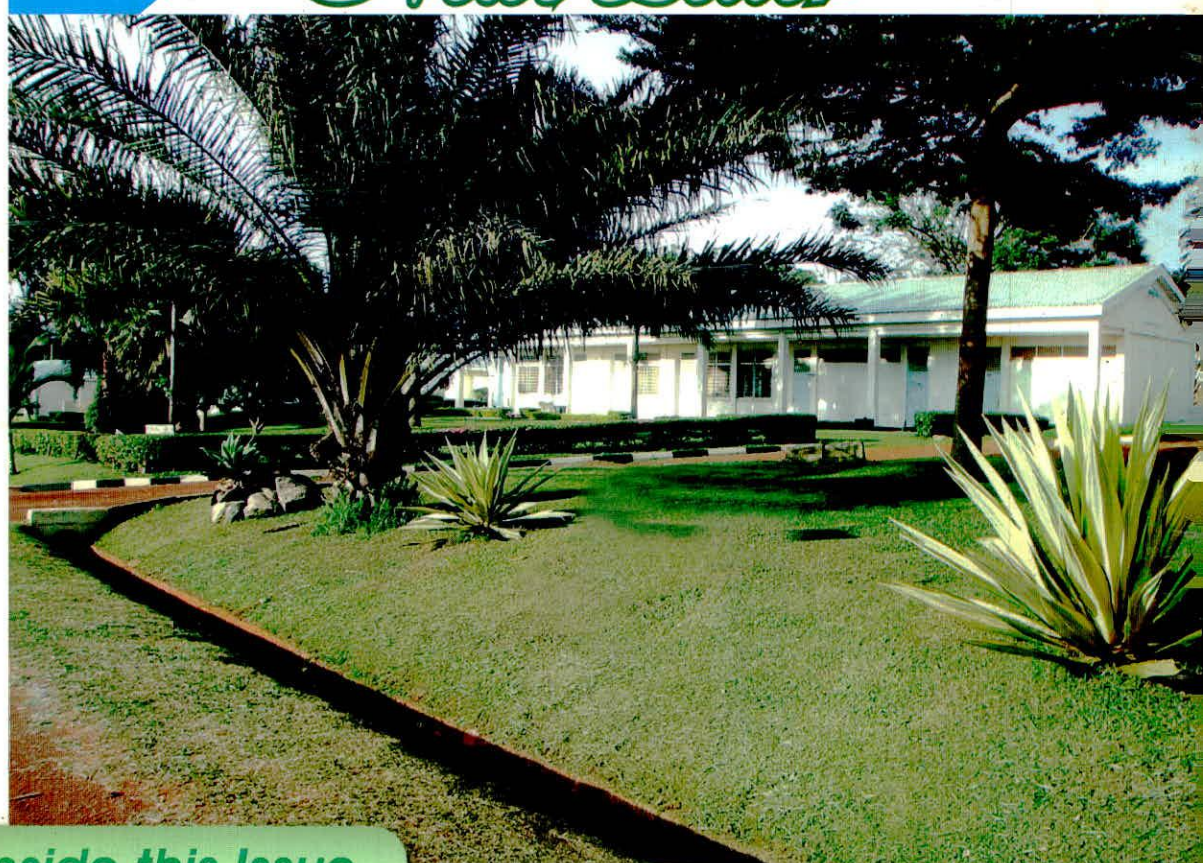
MUKONO ZONAL AGRICULTURAL RESEARCH & DEVELOPMENT INSTITUTE

MUZARDI News Letter



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Editorial Message

Welcome to our Premier Issue of the MUZARDI Newsletter. We would like to thank you for picking interest in reading it! In this Issue we give you an exposition of our institute. We share with you highlights of the happenings in the period June 2007- July 2008. This is from the time we upgraded from a Research and Development Centre (ARDC) to a Zonal Agricultural Research and Development Institute (ZARDI). We also want to introduce to you, the people behind the success of MUZARDI.

Many partners in the, NARO fraternity, Extension services, Civil Society Organizations, Universities, farmers and donors, we take this opportunity to thank you for your contribution to our success in every way. If we must contribute to changing the livelihoods of the resource poor Ugandans, we need one another. We look forward to building stronger partnerships with you.

We request you to advise us on how we can improve the delivery of our services; first in the way we conduct our business and secondly, on how we make this Newsletter better. We promise to heed the advice for better delivery.

We would also be more grateful for your comments on how to improve this Newsletter. In order, not to miss out on anything, please make sure you read every part of this Newsletter. Wishing you wonderful reading. Webale Nyo!

Message From The Director MUZARDI

Overview of NARS Reform Process



NARO's current programme was developed in 1999 from national-wide stakeholders' consultations. The activities focused on addressing what was categorized as killer constraints. When the Plan for Modernization of Agriculture (PMA) was developed, NARO's Medium Term (MTP) 2000-2005 was reviewed and operational funds were released from 2004. NARO's original plan was converted into a wider National Agricultural Research System (NARS) Review – Reform processes. This led to the development of a new National Agricultural Research Policy (NARP) which focuses on establishing a new institutional framework for conducting agricultural research. A new National Agricultural Research Bill established the National Agricultural Research Council as an apex coordinating body. These reforms changed the institutional framework and method of doing things. Currently outputs from the scientists is knowledge and policy advice. Mukono ZARDI evolved out of the above NARS reforms.

Vision

Improve livelihoods of the farming communities in the Lake Victoria Crescent Agro- ecological Zone.

Mission

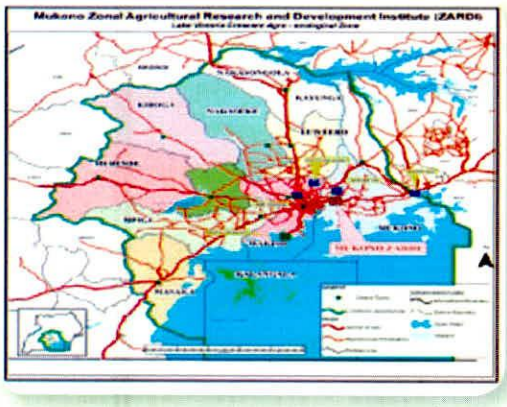
To develop, adapt and effectively disseminate appropriate agricultural technologies in the Lake Victoria Crescent Agro- ecological Zone.

Cherished values

Integrity, Transparency, teamwork, adherence to work plan, security, and political will.



About Mukono Zonal Agricultural Research and Development Institute (MUZARDI)





Mukono Zonal Agricultural Research & Development Institute (MUZARDI) is one of the 9 Public Zonal Agricultural Research & Development Institutes that were created as a result of the NARS Act in 2005. MUZARDI has gone through an 'evolution' process to become the institute it is today. It originated from a District Farm Institute (DFI). NARO effectively took it over on 3rd July 2000 after changing its status to an Agricultural Research and Development Centre (ARDC). Under the NARS reforms it was elevated to Zonal Agricultural Research and Development Institute. The institute's main objective is to conduct adaptive and applied agricultural research and disseminate appropriate technologies in the Lake Victoria Crescent Agro -ecological zone. It is also mandated to conduct specialized research that is of a specific nature to the zone.

The zone is made-up of 13 districts namely: Mukono, Masaka, Kampala, Luwero, Nakaseke, Mpigi, Nakasongola, Mubende, Mityana, Kiboga, Kalangala, Wakiso and Kayunga. MUZARDI is located in Mukono District, about 20Km East of Kampala, and about 2 Km off the Jinja Highway. It has an area of 41 hectares of which 60% is arable land. Part of it is forested.

The ZARDI Management Committee

The Director conducts the day to day management of the Institute with the Management Committee providing strategic direction. The Management Committee is made up of eight members who elected their chairperson. The Director of the Institute serves as the Committee Secretary, 1 representative from district local government, 3 farmer representatives, 1 Representative of National - Agricultural Advisory Service providers, 1 youth representative and 1member representing persons with disabilities.

The major functions of the committee include formulation of policies for the ZARDI and ensure the proper functioning of the ZARDI based on approved work plans. Other duties include hiring of staff and resource mobilization. The committee convenes regular meetings to monitor and evaluate progress of the ZARDI's activities.



MUZARDI Management Committee members from (L-R) Christine Kasirye, Peter Lusembo (Institute Director & Secretary to the committee), Helen Gakwaya, Vincent Kimuli (Chairman), Patricia Nakatudde, John Muwonge,, Nalongo Nantale Lukwago & Ssalongo Lutaaya.

MUZARDI thrives on EU support



EU team visiting the institute

Mukono ZARDI, received support from the European Union (EU) under the "Decentralization and Institutional Learning Programme." The support lasted for nearly four years (December 2002 to September 2006) and was aimed at building the capacity of the Institute in;

(i) Conducting decentralized and client-orientated research services,
(ii) Developing sustainable approaches to technology identification, generation and validation.
(iii) Coming up with sustainable approaches for research.

It was envisaged that the Institute would, in the long run, be able to effectively meet its mandate of managing and carrying out applied and adaptive agricultural research, and develop and transfer improved agricultural technologies relevant to the zone.Under EU support, the target results were;

1. Rehabilitation and operationalising the institute.

2. Strengthening Capacity of zonal research teams and Institute scientists to carry out client and market oriented research in partnership with stakeholders.

3. Enhancing Capacity of ZARDI scientists to paticipate successfully in competitive grants.

4. Understanding , documntaing, regularly updating and disseminating findings of livelihood systems of households.

5. Identifing, testing and disseminating to uptake pathways technologies that address zonal specific problems of small farmers.

6.Operationalising effective learning process based on client driven monitoring and evaluation procedures

7. Developing partnerships and increasing client interface with researchers.

MUZARDI staff welcome their first Director in Style

On 31st August 2007, Mukono ZARDI staff held a congratulatory party in honour of Mr. Peter Lusembo for his new appointment, as Director of Research for Mukono ZARDI. In their speech read by Dr. Beatrice Akello, the staff congratulated him, upon elevation to the status of Director from a Centre Manager. They appreciated him for effecting the fundamental changes of the institute from the District Farm Institute (DFI) until 1999, through Agricultural Research and Development Centre to a ZARDI.

They observed that he had been in the middle of all the reforms and changes and had stood the test of time. He had ably kept the staff united and working together as a team to deliver quality research outputs to the clients. They appreciated his entrepreneurship and his commitment to work amidst



The Director Mr. Peter Lusembo receives a present on the Auspicious day

the challenges of scarce resources. The staff acknowledged that, the success of their Director was a great inspiration to them. They cited his humility and respect accorded to all categories of staff, to visitors, stakeholders and clients.

The Director on his part expressed surprise at the style in which the staff had chosen to honor him. "It is a surprise party, and I don't know how you managed to keep it a secret" he said in amusement. He emphasized staff motivation as a key to achieving the objectives of the Institute. With their support, he promised not to disappoint them but deliver to the expectations of the people in the zone.

Who is Who at MUZARDI

There are about 40 staff members working at MUZARDI and these belong to various categories and disciplines. The core research and development work is done by research officers and technicians with expertise in agronomy, plant - pathology, entomology, rural sociology, socio - economics, agricultural engineering, and animal production. Support staff handle administrative issues and have expertie in administration, finance, information management and procurement.

Photographs of Senior Staff



Mr. Lusembo Peter
Director MUZARDI



Dr. Kabanyoro Ruth
Research Officer



Dr. Beatrice Akello
Research Officer



Cecilia Abasereti
Internal Auditor



Deborah Irotu
Senior Finance Officer



William Odeke
Cashier



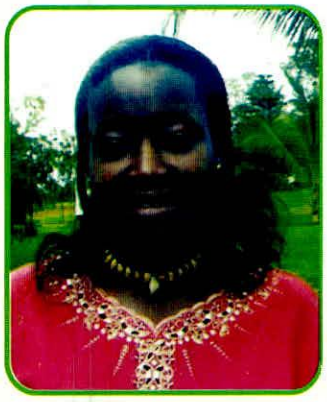
Stella Ajibo
Administrative Assistant



Seruwu Godfrey
Crop Pathologist



Winfred Nakyagaba
Crop Scientist



Damalie Magala
Rural Sociologist



Francis Nakakawa
Monitoring & Evaluation Officer



Losira Nasirumbi
Social Economist



Moses Mwesigwa,
Animal Production Scientist



Jimmy Ssemakula
Animal Health Scientist



Sarah Mutonyi
Agro-forestry Scientist



Maria Nampeera
Public Relations Officer



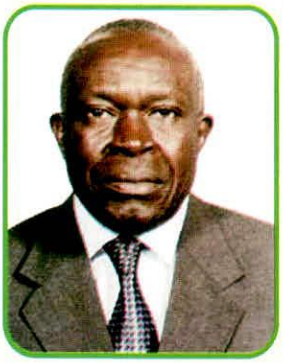
Immaculate Mugisa
Crop Agronomist



Teddy Kizza
Research Assistant



Barbra Kyampeire
Information officer



Senyonjo Joseph
Senior Technician Livestock



Kyambadde Kyeyune
Project Staff

Highlights of Institute Achievements

Understanding the Farming Systems and Livelihoods in the Lake Victoria Crescent Zone

One of the preconditions for research and development interventions in farming communities is an understanding of the local farming systems and livelihood strategies. The first Farming Systems and Livelihood Analysis (FS&LA) study of the Lake Victoria Crescent zone was undertaken between in 2002-4 in all the districts of the Zone. A detailed report of the study is available at the institute but copies have been provided to various stakeholders on request. This study was followed in 2006 by periodic case studies of selected households in different sub-systems.

The farming communities in the zone were grouped in 4 major sub-systems i.e. Crop-dominant, Cattle dominant, Peri-Urban and Fish-dominant Communities. The case study tracking survey initiated in 2006 was to generate more in-depth understanding of the farming systems and individual household characteristics within the zone. The selected households from different sub-systems and wealth categories were selected i.e. very rich, rich, poor and very poor.

The case study tracking surveys have been done in Mubende, Kayunga, Masaka and Mukono districts. From the studies, research and development needs were identified. The identified priority technologies were in improvement of poultry, goats, beans, maize and cassava and the Institute made appropriate interventions.

The fight against Destruction of Swamp forests in, Nakaseke District

MUZARDI joined other stakeholders and took lead in promoting sustainable utilization of natural forests for the production of rice in 2004. At the time , the Institute was charged with the responsibility of coordinating NARO's participation in the World Food Day cerebrations held at Nakaseke. During a field tour of the communities near the site, it was observed that there was massive clearing and burning of swampy forests for rice growing. MUZARDI realized it was time to intervene.

In collaboration with Environmental Alert and the District Leaders, a study was initiated to assess the extent of forest clearing. It was found that rice growing had rapidly increased in recent years and so had forest clearing. Semuto was found to be the most affected sub county in the district.



Intensive forest clearing for rice growing in Semuto, Nakaseke District

Farmers in the area practiced shifting cultivation i.e. cleared the forests and planted rice for two or three seasons then cleared more forests in search of virgin land. The reasons that farmers gave for shifting cultivation were declining soil fertility and increase in weeds with continuous cultivation on the same land. The other major reason for clearing the forests was to reduce the habitat for birds which were the main pest on rice.

MUZARDI's first intervention to save the forests was to avail farmers with alternative technologies like upland rice, vanilla, coffee, beans, maize, and cassava which would be an incentive for reducing on growing rice in swampy forests. In 2006, the Institute established soil fertility and weed management trials in order to come up with answers to the issues causing farmers to practice shifting cultivation.

The trials were set up on virgin fields both in the upland and the lowlands and the same fields were used for 3 trial seasons. An evaluation trial for 3 herbicides (Sanil, Butanil and 2-4, D) was set up on fields that had been planted with rice for three consecutive seasons.

Results showed that soil fertility declined within two consecutive seasons of rice production. Butanil proved to be effective in controlling weeds in rice fields in both wetland and upland. Fields where NPK was applied had improved grain yield. Higher yields were realized from the wetlands in all treatments compared to the upland. Therefore, farmers can use Butanil to control weeds and also apply fertilizers (NPK) to maintain fertility of the soil, thus reduce shifting cultivation.

Generating sweet potato market innovations by engaging Market Chain Actors

In 2005, MUZARDI started to pilot the Participatory Market Chain Approach (PMCA) on the sweet potato sector in Uganda. The PMCA process is a methodology that enhances collaboration between commodity market chain actors from production to consumption. The process emphasizes the need to involve all stakeholders i.e. farmers, traders, middlemen, processors, consumers and service providers to identify market opportunities based on mutual trust. When the traders, processors and consumers share information with the farmers on the kind of agricultural products they want to buy, this improves market access for the farmers.



Well packaged Orange sweet potato composite flour, an innovation from the PMCA process.

The project was funded by DFID and ASARECA. The collaborating institutions were the International Potato Centre (CIP), National Crop Resources Research Institute - Namulonge and National Agricultural Laboratories Research Institute at Kawanda. MUZARDI was the lead Institute and coordinated all stakeholder meetings, trainings and exposure tours. In September 2007 farmers, traders and processors launched what they had developed over two years, in a PMCA Final Event at Uganda Manufactures Association (UMA) Hall in Lugogo. The public was impressed with well packaged nutritious sweet potato composite flour produced by SOSSPA and KASAWO Millers. TOMCRIS, a popular producer of potato crisps showcased crisps made from Orange-fleshed sweet potato popularly called 'Kipapaali' in Central region.

Other products included dry sweet potato chips produced by Bagyabasaaga Farmers group in Luwero. They supplied their dry chips to Kasawo millers. Other achievements included a kiosk constructed to showcase improved marketing of Fresh sweet potato that is sorted and graded showcased crisps made from Orange-fleshed sweet potato popularly called 'Kipapaali' in Central region.



Improvement of local Chicken in the Lake Victoria Crescent Zone, Effects of New Castle disease and increased Productivity in the project Areas.

MUZARDI has helped farmers to increase the productivity of local chicken through systematic selection and breeding, improved management and disease control. This was done through a collaborative project with DANIDA, NaSAARI and selected poultry farmer groups. MUZARDI's task was to stabilize the three plumage lines (feather colour) - of white, black and brown chicken and then recommend the best to the farmers.

In Luwero about 500 farmers organized themselves to form the "Nakaseke Poultry Keepers Association". This association comprised of smaller groups of farmers from Kikamulo, Nakaseke, Kasangombe and Kapeeka sub-counties. In Luwero district, a hatchery (920-egg setter incubator) was provided to the association with the aim of cutting down costs incurred in transporting the eggs to Kampala for incubation. However, its operation was challenged by lack of continuous power supply in the area.

In Mukono district, the project was implemented in Ntawo-ward with ten farmers who rear local chicken. The farmers were provided with improved cocks. Major problems reported by farmers in the project were poor feeding of the chicken and New Castle Disease (NCD).



The black, red and white feathered chicken at MUZARDI

Training was therefore, provided for 60 farmers on poultry feeding, disease management and record keeping. Farmers were also trained in vaccination techniques after which a participatory mass vaccination exercise against NCD was done in 5 villages in Mukono: Ntawo, Nsambwe, Buddugala, Nyenje and Kauga. Current reports show a significant reduction in incidence of NCD.

MUZARDI 2007-2008 Annual Event

It has become a tradition of MUZARDI to hold an Annual event, to have fun and recognize the best performers in the year. The 3rd Annual Event took place on 15th February 2008 at the institute's own Picnic Site.



Dr. Isreal Kibirige Sebunya (R.I.P) gives remarks at the function

Members of staff thought it fitting to grace the occasion by inviting colleagues from the NARO fraternity, partners from districts in the Zone, Universities, NGO, CSO and farmer community. Altogether, more than 60 people had fun including the "gate crushers" from the neighboring community. The chief guest was the Minister of state for Agriculture, the late Hon. Dr. Israel Kibirige Sebunya. The programme line up included speeches, awarding prizes to best performers, eating and dancing.

The Director MUZARDI expressed a hearty welcome to all the guests. He introduced his staff and appreciated the hard work and achievements of the previous year (2007). Other speakers for the day, included Dr. Vincent Kimuli - Chairman Management Committee; Mrs. C. Ntege, Dr. Magyembe and Dr. Ebong (NARO Secretariat), Mr. Baliloda Mukasa (Kalangala district) and the LC1 Chairman (Ntawo) were full of praises for MUZARDI and its staff.

The then Minister of State for Agriculture, the late Dr. I. Kibirige Sebunya congratulated NARO for making great strides in Research and recognized the best performers who were awarded prizes. The best performers included: Godfrey Seruwu, Joseph Senyonjo, Maria Nampeera, Teddy Balungi, Sarah Namatovu, Harriet Namuli, Namusisi, Anna Hadudu, Florence Namwanje and Maria Kajimu. The minister concluded by thanking MUZARDI management for organizing such a wonderful function.



Some of the best performers receive prizes at the event

Goat Improvement at MUZARDI

Goat production is one of the priority livestock enterprises in a number of districts in the Institute mandate zone. The goat improvement Unit of both local and improved breeds. Current efforts have been on crossing female local goats, especially the Mubende goat with South African Boer male goat in order to improve growth vigor and weight.

The Boer breed grows fast and adults have the potential of weighing up to 100kgs live weight. Farmers are then availed with the improved crossbreeds to up grade their local ones.

At the Institute, the goats are on extensive grazing in the paddocks with improved pastures including legumes like Siratro and Centrosema and grasses like Chloris Gayana and Panicum.



Goat rearing at MUZARDI

Open grazing is mainly done in the afternoon while in the morning animals feed on supplements like fodder tree leaves, Caliandra, Ficus, and Grilicidia. The Boer and lactating goats' diet is supplemented with wheat bran. For best performance goats need enough and continuous supply of drinking water, mineral lick and regular deworming. To learn more about goat rearing, you are encouraged to come and visit the Institute.

Farmer & School Contests Enhance Adoption of Agricultural Technologies

NARO has generated hundreds of technologies, many of which farmers are not aware of. At MUZARDI, we think dissemination of technologies requires alternative approaches. We have been using Farmer and school contests as an interesting tool to encourage farmers to learn about natural resource management, alternative improved varieties and agronomic packages.

Between 2003 and 2008 we have organized 5 farmer contests in Mukono, Kayunga and Mubende districts. During the same period, one secondary school and two primary school contests were organised. Farmer contests were based on judgments of their individual/group gardens. Primary School contests were based on Opera (Music and drama) while the Secondary school contests were based on Essay writing on a given theme.



Pupils of Nyenje Primary School participating in the opera.

The best performers received prizes including pigs, bicycles, wheel barrows, hoes and seedlings among others. Contests have generated a lot of interest from participating communities who have continued to demand for them. Such communities have continued to use the technologies exposed to them during the contests.



Mukono District D.E.O representative hands over a present to the best actress Namubiru Stella a pupil of Nyenje Primary School.

Experiences from studying in the Netherlands:

Richards's story

Dear readers, fellow staff and the farmer community served by Mukono ZARDI, allow me to use this opportunity to express my heartfelt gratitude to the entire management of Mukono ZARDI and the Director in particular for having allowed me to attend the International Course in Pig husbandry and Animal production at PTC+ Barneveld in the Netherlands. PTC Plus is a member of the Federation of International Educational Institutions in the Netherlands. It offers a number of short courses and tailor made programmes. These programmes are available both for those people who have obtained the Netherlands fellowship programme and for those with alternative financial sources.

As a result of the training, I acquired knowledge in practical skills to:

- Manage, supervise and guide pig production from back-yard systems to intensive, intermediate scale pig farming methods.
- Identify, recognize and analyze opportunities and problems taking into account constraints and utilize possibilities concerning pig husband ry and the use of locally available feed-stuffs.

• Co-operate with people of various disciplines in planning, designing and implementing projects in the field of pig husbandry and animal feed production.
• Transfer technical knowledge, skills and technology concepts to small scale and intermediate pig farmers and feed producing units.
• Tackle more efficiently the problems with regard to optimum utilization of locally available feed-stuffs, which are unsuitable for human consumption.
• The method employed in the course was 'Learning by doing'. There were theory classes, practicals, demonstrations and I also had to produce Reports and write tests. intermediate scale pig farmers and feed producing units.

We had several technical field trips and excursions within the Netherlands and also in Germany and France, which exposed us to Modern and up to-date agricultural technologies. For example, we visited the prestigious Agricultural show in Hannover Germany. I had a wonderful experience. It was good to interact with different nationals and learn about different cultures and how different people behave.

I met people from Philippines, Zambia, South Africa, Mozambique, Kenya, India, Mongolia and Albania, to mention but a few. I was especially inspired by the hard working nature of the Dutch people which put their country at the forefront of development. Returning home is exciting. I hope to use the knowledge and skills I acquired to the benefit of the Institute.

I have already shared my experiences with my colleagues at the work. If you have what it takes, I encourage you to apply for courses under the Netherlands Fellowship Programme.



Picture of Richard (2nd - R) engaging in cheese making)

Harvest big through Agro - Forestry

Agro forestry is an old land use practice, probably as old as the biblical Garden of Eden. Mankind has interacted with his immediate surroundings (e.g. trees, animals, soils etc.) from as far back as the best historical minds can remember. Many farming systems have involved farmers deliberately integrating trees/shrubs into cropping and livestock rearing activities for various purposes.

In the Lake Victoria shore region of Uganda, for instance, growing trees like MUTUBA (Ficus natalensis), MUGAVU (Albizia coriaria), NONGO (Albizia zygia), MUSIZI (Maesopsis eminii) etc. for shade in coffee and banana plantations is a common practice of the farming system. Yet, many times, "Agro forestry" is taken to be something complex and detached from farmers' day-to-day farming activities.

So, what exactly is Agro forestry?
In broad terms, Agro forestry practices range from having trees in home gardens, along farm boundaries, in woodlots, as fodder banks, trees in pasture lands, fruit orchards, and trees scattered in farmland and other planting arrangements. The benefits of this land use system are quite many, ranging from provision of fodder and shade for livestock, soil fertility improvement, erosion control, water retention, biodiversity conservation.

On the other hand, integrating trees on farm provides the farmer with a steady supply of tree products such as firewood, poles and timber.

Today, Agro forestry is increasingly viewed as the only solution to mitigate tree cover and the associated shortages of products and services; as well as the devastating effects of climate change that our planet is experiencing. Sustainability in crop and animal production systems is becoming increasingly difficult given that the costs of supplemental feeds and fertilizers are ever rising; and are always beyond the reach of most smallholder farmers.

In light of this, Mukono ZARDI has demonstrated various Agro forestry technologies on station; improved fallows (for soil fertility improvement), woodlots (for timber, poles, posts and firewood), hedgerow intercropping and growing trees for shade, soil fertility improvement and other services. Researchers are working with farmers to assess the effects of improved fallows and Calliandra calothyrsus on yield of maize.



Cover crop: Crotalaria species

Possibilities of adapting high-value temperate fruits e.g. pears and apples to the lowlands are also being explored.

Preliminary evaluation of cutting edge technologies i.e. the use of hydrogels to enhance tree production in the drier parts of the agro-ecological zone.

From the look of things, integrating trees and shrubs on farmland is the way to go if we are to increase farm productivity and ensure the sustainability of our agricultural production systems.

MUZARDI partners & collaborators

The Institute attaches great importance to building functional and sustainable partnerships in order to improve livelihoods. Some of our partners include:

- Non-government Organisations (NGOs)
  - RUCID
  - CARITAS
  - Environment Alert
  - KULIKA
  - Sasakawa Global 2000
- Community Based Organisations (CBOs)
  - BUCADEF
  - Seyvode (Luwero District)
- Local Governments
- Farmer Research Groups
- National Agricultural Advisory Services (NAADS)
- Universities - Makerere, UCU Mukono
- International Potato Centre (CIP)
- NARIs and other ZARDIs
- Schools - Mukono & Kayunga Districts

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