ACSA
Advocacy Coalition for Sustainable Agriculture

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Best Practices in Sustainable Organic Agriculture among Smallholder farmers of ACSA Member CSOs

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Collective Voices for Sustainable Development

Contents

List of Acronyms

ACSA: Advocacy Coalition for Sustainable Agriculture

AFIRD: Agency for Integrated Development Initiatives

CSOs: Civil Society Organizations

UGX: Uganda Shillings

Rabbit Urine - The silver bullet in Sustainable Organic Agriculture

Meet Mrs. Natembo Kitaka Maria commonly known as Mukyala Mpata - a smallholder farmer from Kigwanya-Wabitembo village, Buwambo Sub County - Gombe/Nansana Division and a trained farmer under 'Agency for Integrated Development Initiatives' (AFIRD). Like many farmers in Uganda, Maria was affected by the COVID-19 lock down and was not able to access agro inputs- especially pesticides for her vegetable production and other enterprises. Initially, Mukyala Mpata was rearing 5-rabbits and upon the visit from AFIRD extension officer, the practice of using rabbit urine to repel and/or kill plant pests was introduced. Ever since then, Mukyala Mpata has been conducting on farm research to improve the rabbit urine concoction for use both as a pesticide and fertilizer.

Picture of rabbits in a cage with wooden frame and sloping iron sheets projected into a gutter to collect Urine

Generation and application of rabbit urine:

From 5 rabbits, Mukyala Mpata now has over 300 rabbits kept in wooden framed cages with wire mesh around them to allow proper ventilation. Beneath the cages lies sloping iron sheets projected into a gutter that enables collection of the needed urine. In order to improve the effectiveness of rabbit urine pesticide, the urine is mixed with garlic, pepper and tobacco and left covered to ferment for 14 days. After this period, the mixture is ready for use and concentration of the mixture differs depending on the crop pests and the crop to which it is applied. For example Mukyala Mpata uses 500ml of fermented rabbit urine in 2 litres of water to effectively control foliar eating pests in maize, beans, cassava and many vegetables. The fermented rabbit urine concentrate has also been applied on bananas which exhibited signs of banana wilt disease and they have responded positively.




Science of rabbit urine concentrate as perceived by farmers:

Mukyala Mpata believes that fermented rabbit urine contains nutrients needed to support the rapid growth of vegetables and plants in general. She adds that fermented rabbit urine has been proven to have high levels of nitrogen, which is a key element for healthy leaf formation and making it an appropriate folia boosting fertilizer.

Mukyala Mpata continues to defend the use of rabbit urine as organic pesticide and manure on claims that it is environmentally friendly and does not lead to soil and water pollution. She adds that Rabbit urine does not repel beneficial insects that help in pollination making it a viable practice of growing organic crops that are not harmful to one's health.

Major Lesson:

Mukyala Mpata says that since she started using rabbit urine to control pests, she has no regrets and believes that rabbit urine has a potential of saving more than five times the cost of conventional pesticides and therefore calls upon the government and other organizations to encourage rearing of rabbits for the multiple benefits that include; collection of urine of liquid manure and pesticide development, income generation, nutritional benefits among others.

Mrs. Natembo Kitaka Maria

Kigwanya-Wabitembo village, Buhambo Sub County - Gombe / Nansana Division

Contact: 0700598195

Community's access to quality seed through a community seed bank in Mende Sub County, Wakiso district

Katabire Joy, a 56-year old is an inspirational agroecology farmer under Mende Development, Savings and Credit farmers group from Mende Village, Mende Sub County in Wakiso district. Joy has ventured into bean multiplication for income generation. This was a response to a need by farmers for quality seeds during Covid-19 lockdown, when it was difficult for many farmers to access sufficient quantities of quality seeds during first planting season of the year 2020. Joy saw an opportunity to be part of the solution and started a home based community seed bank for indigenous beans.

How Joy conceived the idea of seed bank:

Having been trained by Agency for Integrated Rural Development (AFIRD) in the aspects of seed banking, and later participated in an exposure visit to community seed bank in 2019, Joy converted one of the family rooms into a seed bank. In the second season of the 2020, Joy started as an individual in multiplying 5 varieties of indigenous beans namely; Kazibwe, Kanyebwa, Kahuura, Red Kidney bean and the common yellow bean and in the subsequent seasons, she engaged the neighboring farming community as seed multiplication out growers by giving them startup seed with an expectation of bringing twice the quantity given, but sorted and graded based on quality. Currently, the seed varieties have increased from 5 to 23 and the capacity of the seed bank is supplying up to 5kgs of bean seeds to each farmer in the community per season. During the second season of 2022, we were able to give out about 610 kgs to 122 women in Mende Sub County and am in the process of collecting back the seed amounting to 900kgs.

Post-Harvest handling of Seed:

After sorting and grading, Joy uses organic and traditional agroecology practices to preserve the bean seeds by storing aggregated volumes of bean seeds in locally made baskets (women group), calabashes and other locally sourced plastic containers.

Joy stresses that plastic containers will eventually be replaced when they acquire more local storage materials. Locally dried pepper, tephrosia and dried cow dung are used to preserve the seeds for a long period of time.

Major milestone:

AFIRD supported Joy to launch the seed bank in February of 2022, which is now recognized in the entire Mende community as a source of quality indigenous bean seed.

Lessons learnt:

Joy emphasizes that in order for a farmer to be assured of the seed quality and quantities; local seed multiplication ought to be promoted. She encourages farmers of Mende Sub County and later Wakiso district to adopt the practice. Joy acknowledges that the community seed bank is still new and is challenged by a number of logistical obstacles. Nonetheless, its impact particularly on the Mende parish community farmers in ensuring sustainability of access to quality been seeds is commendable.

Ms. Katabire Joy

Mende Village, Mende Sub County - Wakiso district

Contact: 0772657582

Bio Slurry turning wasteland into arable land in Busimbi Division - Mityana Municipality

Mr. Joseph Kayizzi (46), a farmer under **Mityana District Modern Farmers Limited** is from Kunywa zone, Busimbi Division-Mityana Municipality. Joseph is a successful progressive farmer managing a 4.5 acre farm with a number of thriving enterprises. His farm was initially located on a barren stony and barely fertile soils, where Joseph applied Bio slurry to transform the land by improving soil fertility, soil structure and overall farm productivity. The increase in productivity of land resulted in improved yields, which enabled Joseph acquire more zero grazing cows (from 2 to 6) in a spell of 5 years with a major purpose of collecting animal waste.

Stony soils and less fertile soils seen at the edge of the farm and the preparation and use of bio slurry

Method of application:

Improvement of the farm started by clearing bigger stones and digging deeper and wider holes for coffee which was the first enterprise. The holes were then filled with bio-slurry and left to percolate into the soil for some time before coffee was planted. He later introduced chicken enterprise on the farm to provide manure to supplement bio-slurry.

Lessons:

Currently he has seven enterprises established on farm; cattle, coffee, bananas, cassava, vegetables, chicken & fodder and Joseph has continued to use bio slurry to maintain soil fertility. He stresses that when bio slurry is fully-digested as evident in absence of smell, black or dark brown color, the small living organisms contained, and no solid substances visible.It contains nutrients and micronutrients readily available to plants than composted manure alone, hence a need to ensure that bio slurry is fully-digested before being applied.

In order to maximize the benefits of bio slurry, Joseph covers the holes with organic mulches and the holes act as application sites for bio slurry, which is a very good fertilizer /composting substance and the mixture of bio slurry and organic manure in the holes continue to decompose releasing nutrients to surrounding plants.

According to Joseph, he stresses that when compared to chemical fertilizers, bio slurry in these holes decomposes in a slow process, which is not only better for nutrient uptake and assimilation for plants but also the holes facilitate water absorption when it rains, thus encouraging water filtration and retention.






Other Uses of Bioslury:

Joseph uses bio slurry not only in liquid but also in dry form. In dry form, bio slurry is mixed with chicken feeds to subsidize the cost of feeds. This has increased the production of eggs in chicken. Bio slurry has also facilitated growing of elephant grass as fodder for cattle in one month and this has promoted steady production of milk in cows. The farmer also noted that bio slurry has acted as a pest repellent on the farm and other farm seeds once treated with bio slurry to give them better germination rates. Joseph concludes that bio slurry can be a solution to many challenges in organic agriculture among smallholder farmers. He stresses that a bio-gas plant does not only provide a solution to soil fertility management challenges but also provides renewable energy for cooking and lighting. Therefore, the use of biogas and bio slurry should be promoted as much as possible.

Mr. Joseph Kayizzi

Kunywa zone, Busimbi Division - Mityana Municipality

Contact: 0755146097 / 0772917640

A successful case of banana-coffee integration in Namayumba Town Council, Wakiso District

Mr. Andrew Walugembe (42) who hails from Kyampisi village, Namayumba Town Council, Wakiso District has been trained by Kulika Uganda as a Key Farmer Trainer (KFT) for his community. Given his position and existing good on-farm practices, Andrew has become a role model for smallholder farmers in his community.

Traditionally, he has maintained a banana plantation and grows crops such as maize, beans, selected fruits and vegetables, and a small poultry unit. Following the training from Kulika Uganda, Andrew decided to integrate coffee into the banana plantation and the early signs show a successful integration of enterprises.

Method of application:

Mr. Andrew Walugembe says his earlier integration efforts into the banana based on random inter-planting did not yield as expected and so he then developed his own spacing modeled along the lines of Brazilian coffee spacing measurements. Since then Andrew uses a spacing of 3 rows of bananas of 3 feet by 3 feet and after the third row, a space of 6 feet is left where a line of coffee is planted before another 3 rows of banana. After 3 successive intervals of bananas and coffee, he constructs a contour ditch and on its ridge, plants fodder for animal feeds. According to Andrew, planting of fodder grass along the contour ridge helps soil preservation because it slows the water flow, spreads water evenly during torrent rains, and protects the soil against erosion.

Planting coffee in an already established banana plantation

Lessons learnt:

While planting coffee in already established banana plantation, Andrew stresses that bananas provide valuable shade coverage for highly climate-sensitive young coffee crops. He also noted that banana plants can remain hydrated under water stress condition, reducing water competition during drought, compared to other tree crops inter-planted with coffee.

Andrew acknowledged that farmers need to always find new low-cost ways of managing their farming systems to accommodate changing climates and livelihoods. Andrew adds that intercropping coffee into bananas is one of the best available options of reducing risks related to income and food security emanating from declining farm sizes.

Advice to Banana-coffee farmers:

From his experience, Andrew points out that intercropped bananas provide leaves and stalks that can be used as mulch to suppress weeds in both enterprises and this decreased his workload. Andrew also argues that intercropping coffee and banana with this spacing and proper weed control reduces the spread of the disease, increasing productivity in bananas, coffee and fodder grass. Andrew is currently expanding his banana plantation by 0.5 acre in which after 18 months he will add coffee.

Mr. Walugembe Andrew

Kyampisi village, Namayumba Town Council, Wakiso District

Contact: 0774344948

Runoff water for climate resilient backyard farming in Muduuma Sub County

Meet a 56 year old Mr. Posiano Mpagi - a smallholder farmer from Kisuuto Village, Malima parish, Muduuma Sub County, Wakiso district. Posiano owns 4 acres of land and has been passionate about agriculture since his childhood.

Posiano says, back in time all the farmers were depending on rain water for production and he always wanted to try out innovative methods of rain water collection, storage and application to save crops during the dry seasons.

Runoff water and rainwater harvesting:

Posiano says the utilization of runoff water and rainwater for irrigation is a cost effective and an efficient way of irrigating crops for smallholder farmers given scarcity of water for production in the country. Initially, Posiano depended on rain water harvested in a small tank supplemented by water fetched from community water source points. Both sources were inadequate given the limited capacity of the water tank, the congestion of community water sources and their dry-up during dry season.

This led to limited access to water for backyard garden irrigation. Following the training about rain water harvesting techniques by Skills Oriented Development Initiatives (SODI), Posiano realized that during the rainy season, a lot of water was lost as run off. Posiano opted for a ground reservoir that stores much more water of up to over 200,000 litres to ensure continuous provision of water for irrigation.

Adoption of simple irrigation technologies:

Initially, Mr. Mpagi started off using the bottle irrigation. Because bottle irrigation was less effective and labor intensive, he later adopted a watering can to irrigate his vegetables throughout the dry season. These are sold in community markets all year around including during the driest months of January and February.



Benefits:

Posiano stresses that since his adoption of watering can irrigation method, he not only cultivates vegetable crops such as cabbages, carrots, leafy vegetables but has also started using the stored water to plant other crops like coffee and fodder grass for animals.

Other innovative practices:

COVID-19 lockdown was a time for Posiano to be innovative in his irrigation practices. He started applying organic manure as liquid-fertigation using locally made plant teas and animal manure in the watering system. The fermented plant extracts and animal excrete are rich in nitrogen and once mixed with water lead to rapid growth of plants.


Lessons learnt:

Posiano attributes his success to commitment and passion for rain water harvesting technologies. Posiano plans to have a tank placed at highest point at his 4 acre farm and acquire a water pump to push water to this tank and he strongly believes that agriculture is very profitable for smallholder farmers when they are able to integrate a number of enterprises on the farm.

Mr. Posiano Mpagi

Kisuuto Village, Malima parish, Muduuma Sub County, Wakiso district

Contact: 0758255439

In situ seed conservation providing traditional vegetables seeds to households of Najjembe Division Lugazi Municipality, Buikwe district

Mrs. Zadoki Kiwanuka (68) is a smallholder farmer under Caritas Lugazi from Kizigo Village, Najjembe Division-Lugazi municipality, Buikwe district. Zadoki is a farmer who is growing a wide range of enterprises with a particular niche of vegetables and vegetable seeds. Having been advised to eat more vegetables on health grounds, Zadoki decided to concentrate on vegetable growing to save on the expenses of making regular purchases.

Zadoki noted that most of the vegetables are seasonal and during COVID-19 lockdown when movement was hindered, she faced challenges in accessing the usual planting materials from the agro-input dealers. In order to address this challenge as well as supporting other vulnerable households to improve their resilience to future vegetable seed shocks, she decided to establish and maintain a vegetable in-situ seed bank to provide the community with vegetable planting material.

Methods of production:

Zadoki started by setting up a garden for the in-situ vegetable seeds as raised beds in rows with shallow ridges since these are easily water logged and warm up faster for proper germination. Zadoki selected an open space where there was sufficient exposure to sunshine since majority of vegetables thrive in full sun and need space that would ensure about 8 hours of direct sunshine daily. She used manure during planting and employs organic agriculture practices of weed control and locally made concoctions from tobacco and red pepper to manage pests to maintain the garden. Zadoki has successfully grown and produces seed varieties of Amaranthus, Spinach, Scarlet eggplant, Bitter berries, Cowpea, Chillies, African spider herb and Vergans among others. Since August 2020, she has been supplying vegetable seeds to other farmers in her community and Zadoki noted that the art of seed multiplication may not be for all farmers especially the delicate long-seasonal plants such as peppers and eggplant due to the intricacies of soil treatment and potting plants. This is being done as a business to support her income needs as well as addressing shortage of vegetable seeds within the community.

Lesson:

Zadoki notes that vegetable production requires a regular water source especially during dry seasons calling for adequate planning for future water needs by adopting rain water harvesting techniques.

Mrs. Zadoki Kiwanuka

Kizigo Village, Najjembe Division Lugazi Municipality

Contact: 0752720080

The taste of successful Integrated Farming in Nagojje sub county - Mukono district

Mrs. Resty Wasswa (45) from Namirembe village, Nagojje subcounty - Mukono district is a farmer under Bakusekkamajja farmers group trained by Caritas Lugazi. She owns about 4.5 acres of land, where she is involved in a number of enterprises like growing bananas, coffee, beans, maize, cassava, sweet potatoes, tomatoes, egg plants and a number of leafy vegetables. She also rears 3 cows, 7 pigs, a few goats and some local chicken on free range. Whereas Resty has been farming since childhood, it was not undertaken as a business. COVID-19 outbreak was an eye opener to diversify income generation and provide a supply of farmer products to a village grocery retail shop. Resty resorted to utilizing her land in farming where she started by growing seasonal crops like maize and beans to complement the banana plantation that had been in place. She adopted the integrated farming system using sustainable agriculture practices where loss in one crop could be substituted with the other enterprise.

Resty believes that one of the advantages of a mixed farming system is the ability of enterprises to support the family's food needs notwithstanding the fact that the complementarity and the supplementary relationships between enterprises generates more incomes, produces waste for organic manure and without the use of chemical based pesticides, Resty has been able to maintain soil fertility for consistent farm yields and is now among the few farmers in the sub county who have successfully engaged in about 10 enterprises on a 4 acre piece of land. This has enabled her to get a daily income from vegetable and at least UGX.12 million in gross incomes in a year from all farm enterprises.

She has become a strong women land rights advocate and believes that a woman can become a successful smallholder farmer once access and user land rights are granted and effected. Resty adds that women can be very good extension workers because they always make use of extension advice to make right decisions at the right time and they put in considerable hard work with patience. With a considerable portion of her farm under vegetable cultivation.

Mrs. Resty Wasswa

Bakusekamajja Farmers Group - Namirembe Nagojje Mukono

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