Biovision Africa Trust

THE ORGANIC FARMER

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Dear reader,
FARMERS ACROSS THE country are defying the harsh reality of climate change by turning to climate smart agricultural technologies. Through interventions by Biovision Africa Trust's Farmer Communication Programme, knowledge on agro-ecology is being transferred through trainings at the grassroot with farmers reporting increased production, reduced expenditure on farm inputs and diversified income generating activities. In this edition, we feature stories of impact collected from Eastern, Central and Western Kenya, of farmers whose livelihoods have significantly improved, after training offered by BvAT's extension officers. Read on and get inspiration to turn around your farming ventures, with knowledge on organic agriculture.

Mr John Mutisya BvAT extension officer with, a farmer from Wote Makueni County inspecting Bokashi fertilizer

ORGANIC FARMING

Young Busia farmer breaks even harnessing knowledge on organic farming

By Caleb Musilwa

EDWIN OMONDI, A 24-year-old unemployed graduate lives in Okiludu village in Chakol South. He has much interest in farming and believes that with good preparation and knowledge, he can eke a living out of his ½ an acre piece of land. After learning about Biovision Africa Trust's initiatives with farmers in Teso South, he invited me to his farm, which was in poor condition and showed signs of poorly managed soil. The infertility of the soil was evident in the weak, yellowing vegetables that were sparsely growing, apparently stunted by the scorching sun.

Through the zeal seen in his eyes the first time we met, I could see a high appetite for knowledge on how to improve the yields of his farm. We began by making a training programme and agreed to have training sessions at least once a week.

At the onset, I advised Edwin on the importance of having a good farm map as the first step so as to have an organized farm. Next step was to deal with the issue of drainage. With the use of an 'A' frame I showed him how to determine the flow of rainwater on their farm and dug trenches to direct excess water down the river. With the knowledge that soil health is key in producing healthy crops, Edwin had training sessions on composting different types of manure, using material from his farm and household. He learnt how to make compost manure and bokashi to help him cut production costs that come with purchasing synthetic fertilizers.

Through the zeal seen in his eyes the first time we met, I could see a high appetite for knowledge on how to improve the yields of his farm

Intercropping, a technique used in organic farming

Among the various technologies Edwin has adopted on his organic farm are intercropping to deter pests, diversifying farm produce, and preparing natural pesticides using different plants such as neem, garlic, and pawpaw leaves.

Eventually, Edwin started improving his vegetable garden by using compost manure and natural pesticides. He planted indigenous vegetables, legumes, sweet potatoes and bananas, which thrived long

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BUSIA

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Young banker discovers a lucrative companion crop for his onion farm

Felix Kimunya is now convinced of the potential of crop diversification. **PAGE 3**

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after rains as manure enhanced moisture retention and soil fertility. The first harvest season was fulfilling, and Edwin could not contain his joy; his leafy vegetables were large and healthy, attracting buyers at the farm gate, while the surplus was taken to the market.

Edwin has since mastered the techniques of ecological organic agriculture and employs them in all his farming activities. "I not only have leafy vegetables, but tubers and fruits as well, I am glad that my soil is continually getting enriched and I do not have to incur costs in purchasing farm inputs," he says.

Additionally, Edwin undertook training sessions on financial management and record keeping so he could invest into different farm ventures and thus expand his enterprise. From the vegetable business, he saved some money and started keeping poultry for the market.

One year down the line, Edwin has saved enough and bought pigs. "I am now eager to learn more about recycling wastes from the farm, such as chicken waste and rearing insects to feed the pigs and the poultry," he says with optimism.

Today he is a prudent agro-entrepreneur who has become a lead farmer and offers training to other farmers in Teso South sub-county.

Edwin uses his farm as an example of what smart farming can give. "Knowledge is the only key we need to unlock the potential around us," he says.

I am now eager to learn more about recycling wastes from the farm, such as chicken waste and rearing insects to feed the pigs and the poultry

BUSIA

Caleb Musilwa conducting on-farm training to Alfred Adika's farmer group

FERTILIZER

New farming practices restore hope for Busia farmer and his family

I would harvest approximately 50-60 bags per acre in the previous seasons, but this time we harvested 80 bags of potatoes, from the same parcel

By Caleb Musilwa

ALFRED ADIKA, A 48-year-old father of three from Asinge village in Teso South, Busia County, faced numerous challenges on his farm due to degraded soils and unreliable sources of water. The primary issue was inadequate food to feed his family of five.

With unwavering hope, he tried his best to produce food on his piece of land by planting different types of seeds and using artificial fertilizers in a bid to produce more. However, this only drained him further as the cost of inputs would often leave him without resources to run his household. I spent so much money on the farm, but the yields did not provide equal returns," he explains, describing how this situation led to increased difficulties.

His land yielded low harvests due to poor soil management that led to its infertility, making it totally dependent on external inputs to produce food. This was not sustainable, and, in the end, his soil could not yield much, which led to insufficient food for his family. This problem was compounded by limited financial resources and inadequate knowledge about sustainable farming practices, making it difficult for Mr. Adika to provide for his family. With the support of Biovision Africa Trust's Outreach Project, Alfred attended training sessions on sustainable farming and water management. He learned how to implement rainwater harvesting techniques and prepare bio-fertilizers, including composting and Bokashi preparation, and he was provided with seeds.

Additionally, the project introduced him to crop rotation and organic farming practices. Initially, Alfred faced challenges in adapting to these new methods, but with persistence and support from the outreach team, he began to see improvements. The training also empowered him with financial literacy skills, enabling him to better manage household finances.

Alfred adopted sustainable farming techniques which led to increased crop yields, providing ample food for his family and even a surplus to sell in the local market.

This additional income has allowed him to embark on other projects that he used to dream of such as poultry and cattle rearing. Alfred reflects on the transformation, stating, "Thanks to Biovision Africa Trust's Outreach programme, our lives have greatly improved as we get our daily food from the farm, and we have a source of income to run the household".

The experience has taught him resilience and the value of sustainable agriculture practices, securing a better future for his wife and children.

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FERTILIZER

Mother of three enjoys income boost after training on poultry and vegetable farming

From her earnings Praxicidise is now able to comfortably take care of her family needs without asking much support from her husband

By Caleb Musilwa

Mrs. Praxidise Iseme a mother of three from Amongura village in Chakol South Sub-county of Busia County, is astounded by the transformation of her farm since she encountered officers from Biovision Africa Trust. Having struggled to grow healthy vegetables on her small piece of land, due to attacks by pests that seemed uncontrollable, and unyielding soil, she almost gave up on vegetable production.

She was afraid to invest in poultry, as she had previously incurred significant losses from diseases that could strike and wipe out the entire brood. Luckily, Biovision Africa Trust in collaboration with GIZ, was at the time launching a project in Western Kenya, targeting farmers in vegetable and poultry value chain. She was among the beneficiaries of this project through her farmer group Ushirikiano Self Help Group.

"The project gave us an opportunity to be trained by experts on best practice for poultry rearing, especially on housing, feeding and disease management, as well as using manure to enrich the soil and making biopesticides for vegetable production," she says. Praxicidise testifies that since she was trained she is able to do serial hatching at least two times and does chick brooding for 4-6 weeks. She vaccinates them against major common poultry diseases like New castle infections, bronchitis disease, Gumboro and fowl pox. "I sell my chicks after 6-8 weeks at Ksh350 to Ksh400 each," she joyfully quips.

From her earnings, Praxidise is now able to comfortably take care of her family needs without asking much support from her husband. She says this year she has felt a relief because she catered for her children's school fees with ease and can comfortably feed her family. "Before the training, we did not know that we could depend on farm waste to make our own fertilizer.

We were also shown how to make Bokashi manure using readily available material within the household and the farm, and since it only takes two weeks to be ready for use, I ensure a constant supply for my vegetable garden", she says. Vegetables from her garden are a clear testimony that the knowledge she acquired from the training are helpful. Their appeal fetches a good price in the market, as she sells a bunch at Ksh30 to Ksh50.

She testifies that since she started this project, she has experienced peace of mind in her marriage because of her commitment in the farm which has become her daily business and has no time to loiter at the neighbors' homes as she used to. Praxidise has eight hens that she uses to incubate her eggs and within the last six months she has raised 180 chicks and sold each at an average of Ksh350. She appreciates the efforts put especially by Mr. Caleb Musilwa, the field officer from Biovision Africa Trust, with whom she has

Photo left: Produce from Mrs. Praxidise Iseme's vegetable farm; right: one-and-a-half-month-old chicks at her poultry farm.

CROP DIVERSIFICATION

Young banker discovers a lucrative companion crop for his onion farm

Felix Kimunya is now convinced of the potential of crop diversification

By Caroline Mwendwa

Coming from the banking industry, Felix Kimuya always knew there was more he could do to remain financially resilient aside from his formal employment in the corporate sector. He believed there is an opportunity for him in agribusiness and was not shy to explore this idea. While working for a commercial bank in Nairobi, he convinced two of his friends to hire a piece of land in Kantafu Thika, where they would grow onions for the market. They put in resources to establish the farm, but the yields were unsatisfying due to their limited commitment in the project. The venture failed, but Felix had learnt enough to know that if he committed himself into onion farming, he would reap a full harvest and make money out of it.

So, when his career brought him to his hometown of Makueni in 2022, he knew it was finally time to fulfill his long-held desire, as he was now close to his family farm. He approached Joseph Mbithi, a field officer working with Biovision Africa Trust who is based in Makueni County. Mbithi, knowledgeable in sustainable agriculture, guided him on how he could diversify crops in the piece of land he intended to grow onions, emphasizing the opportunities available in herbs production. Felix was convinced and settled on intercropping onions with dhania.

In the first season, he planted one kilogram of amulticut variety of dhania between rows of onions. "There are

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different varieties of dhania, and a farmer needs to identify superior varieties such as amulticut, which is one of the high yielding varieties," says Mbithi. Felix attests to the quality of this variety of dhania, as he discovered. "It does not rot quickly and is appealing for the market as it produces visibly healthy leaves," he says, further explaining that the management is key to getting good yields. Kimuya emphasizes the need to establish seed beds enriched with compost manure, and application of organic foliar on the plants on a weekly basis.

"Mbithi introduced me to organic inputs, that is Stopgel and SuperK, which I applied on the leaves on a weekly basis after the first two weeks of transplanting; these enhanced the growth of the buds while suppressing thrips and mildew, which are the most common pests and disease affecting dhania farmers," he says.

While Kimuya's focus was on onions, guidance by an expert led him to discover the benefits of crop diversification by integrating onions with dhania, not only to manage pests, but also to increase income. "I harvested enough dhania to cover cost of production for onion as in one and a half months, I harvested and sold dhania worth Ksh35,000 which I used to cover the cost of onion production.

In the process of marketing the onions, Kimuya has discovered that taking the produce to the market himself is the most profitable approach compared to selling to brokers, who buy in a rush, and at a throw away price. "While selling the dhania, I also identified a gap in the market for indigenous vegetables, and considering that growing them alongside dhania and onions, does not require me to make any new investments, since they all use the same water and inputs, I intend to include them in the next season," he says.

For Kimuya, the practice of organic farming is one that is very exciting as it opens the farmer's mind on how he can recycle materials, and diversify crops in the farm, to reduce the cost of production while increasing yields. In his homestead they keep cows, goats, sheep and poultry, as well as grow maize, beans, pigeon peas; and from these he has learnt to do composting, by complementing stalks with animal manure. Above all, the onions bulge in health, as they are free from any pests and diseases due to the integration of pest management practices, that is, intercropping and use of biopesticides. He targets the local market for the organically grown onions, and calls upon youths to emulate the culture of hardwork.

"Organic agriculture presents myriad opportunities for the youth, as our county government, has demonstrated by encouraging young people to venture into agribusiness. I am a civil servant in the County government, and I must say that it is indeed fulfilling to invest and reap benefits from agriculture. Let us embrace organic farming to produce safe food, and protect our environment," he says.

Considering that growing them alongside dhania does not require me to make any new investments, since they all use the same water and inputs, I intend to include them in the next season

INSPIRATION

Mawani Primary School: A light for the community

The school exemplifies the transformational power of knowledge placed at the right hands

By Caroline Mwendwa

For Mawani Primary School, the will to improve the conditions of the school community outdid the harsh conditions surrounding it. With the leadership of Ms Janet Musyoka, the vision to transform not only the school outlook, but the garden as well was brought to life by Biovision Africa Trust field officer, Joseph Mbithi. "While attending to a school in my neighbourhood in Kavyuni village of Makueni County, I was referred to Mawani Primary School, whose headteacher had an unbeatable desire to recreate the school environment, by planting trees, vegetables and other beneficial crops within the school garden. I simply injected workable ideas, to an already existing vision," says Mbithi.

Mawani Primary School, had been sun-scorched considering its location at the dry areas of Makueni County. Motivated to bring this vision to life, Ms Musyoka knew that to succeed, she needed an expert's guidance. Once involved, Mr Mbithi developed a project

plan to transform the school garden. Unfortunately, to implement the plan, the school needed to hire labour, as the agroecological technologies recommended by Mbithi require intense labour. An idea to involve the parents of the school to close this gap was welcomed by the school management, and the parents were willing to contribute to the school's journey of transformation. Out of 65 parents, 41, of them showed up to dig and prepare land for planting the already identified crops. "Acquiring quality seeds requires resources, but through partnership with KALRO centers, the school obtained quality certified seeds and the learners supported by teachers hap-

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REGENERATIVE AGRICULTURE

Makueni-based farmer turns around fortunes of her farm by practicing regenerative agriculture

By John Mutisya

As the effects of climate change continue to impact weather patterns and other production factors, many farmers find themselves at a crossroads, deciding whether to adopt new farming practices or abandon farming altogether. The problem is worsened by the increasing migration of young people from rural areas to towns in search of better-paying jobs, which leaves the older generation bearing the responsibility for food production. This shift creates significant challenges for farmers, but there is hope. By adopting climate-smart agricultural practices, they can effectively tackle these difficulties. One promising approach is regenerative agriculture, which empowers farmers to combat the impacts of climate change and create a more sustainable future for their communities.

Petronilla Makau, a widow from Limuni village in Makueni County, has adopted regenerative agriculture and is reaping big from the technologies adopted. After many years of practising monocropping of maize and beans, her 1-acre piece of land had become completely degraded. In 2022, Petronilla hosted a training session on her farm conducted by extension officers from Biovision Africa Trust and ENVIU on regenerative farming. As she followed through the training, she realized that there is an opportunity

Petronilla inspecting her transformed land

to restore her low yielding piece of land through application of regenerative farming technologies. She would later look back with joy and fulfillment as this has proved to be the best decision she ever made as far as her farming activities are concerned. Initially, she used to harvest 7 bags of maize from one-acre farm but after adopting regenerative agriculture, she harvested 12 bags from the same piece of land.

Additionally, she had been practicing monocropping over years, but after exposure to regenerative farming practices, she embraced crop diversification and planted sweet potatoes, pigeon peas, pumpkins and thorny melons which she used to buy from the market as she never thought they could be homegrown. In the first season, she harvested 2.5 sacks of sweet potatoes, and 156 pumpkins. In addition, she harvested 2.5 tonnes of thorny melons which she sold for Ksh 67,000. In her regenerative farm, Petronilla has planted fruit trees including paw paws, avocadoes, and mango trees and within one and a half years, she is about to get the first fruits from some of them.

"Regenerative farming has turned around my farm's ability from low yields, to high yields and diverse farm produce," says Petronilla, challenging farmers to embrace climate smart farming techniques, and turn around their farms' productivity. Regenerative farming focuses on restoring the health of the soil and its vitality promoting biodiversity and sequestering carbon. This is achieved by minimal tillage, cover cropping, crop rotation while improving the soil fertility and the ecosystem's health. Through regenerative farming there is interdependence between the plants especially in water conservation by trees or larger plants providing a shadow above other crops and also the mulch placed on the ground to stop the moisture in the soil from evaporating to the atmosphere. Following the transformation in her farm, Petronilla is now a model farmer. She trains other interested farmers. She regularly hosts farmer groups in her farm to showcase the technologies she has adopted in her regenerative piece of land.

"I am grateful to Biovision Africa Trust for introducing me to this initiative, I plan to continually employ the techniques I have learnt and expand the land under cultivation," she says.

MAKUENI

CONTINUED FROM PAGE 4

pily engaged in planting in the evenings after classes," says Mbithi. The plan involved digging terraces to harvest water, along which bananas, avocado trees, and root crops are planted alternately. Between the terraces are plots of green leafy vegetables, maize, beans and pumpkins. "The process of planting by involving learners helps bring up holistic pupils. Right now all learners already know how to plant a banana tree, and establish a vegetable garden," says Ms Musyoki. The technologies employed in establishing the garden such as digging zai pits, intercropping, application of compost manure, and use of biopesticides to manage pests are already being transferred to the community as parents practice them on their farms as well as teachers.

"I am delighted because through this project, our school is gradually becoming a light for the community; even parents who were discouraged by the dry conditions in this region, are now starting to grow diverse crops on their farms, using these technologies," she says. As the school harvests green leafy vegetables from the garden, they are already generating income to purchase material to use, and this has inculcated in the learners the knowledge that agriculture can be a source of livelihood. Implementing this project has not been without its challenges, as Ms Musyoka attests. Obtaining manure for instance, has been a collaboration effort as learners take turns to bring some from their households. "We have water

I am delighted because through this project, our school is gradually becoming a light for the community; even parents who were discouraged by the dry conditions are now starting to grow diverse crops on their farms

in the school compound, but it is far from the garden; even as we gather resources to establish an irrigation set up, we are engaging the pupils to fetch and take to the garden using containers, which is tedious at times," she says.

The project, however, is proving to be an eye opener for the community as parents now embrace the knowledge, testifying that lack of knowledge had limited them for a long time. They are upbeat that by replicating the technologies they have learnt in co-implementing this project, in their family farms, their households will never lack food, or at least a source of livelihood.

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Using homemade foliar booster increases vegetables production and minimizes costs

Most small-scale farmers do not use foliar booster, although it is highly recommended because of its fast uptake through the leaves

By Miriam Makato

Vegetables are common crops grown in Kenya for their nutritive value. There are two major types of vegetables: the indigenous varieties and the exotic. The exotic varieties include kales, spinach and cabbage, while the indigenous vegetables include cow peas, pumpkin leaves, Ethiopian kales, amaranth, night shade and spider plant. These vegetables are grown for their nutritive value, because they are rich in potassium, fiber, foliate and vitamins A and C. Maintenance practices include watering (during the dry season) and manure application. Most small-scale farmers do not use foliar booster, although it is highly recommended because of its fast uptake through the leaves.

Cecilia Muli is a small-scale vegetable farmer based at El-Nino, Kisukioni, Machakos county. She grows kales, spinach, amaranth and night shade for home consumption and sells the surplus to her neighbors. She is a member of Tumaini farmer group, a group currently undergoing organic farming training by Biovision Africa Trust.

Before trainings by BvAT, Cecilia used to buy a 100ml of foliar booster at Ksh100 from the local agro vet. "Since Miriam Makato from Biovision Africa Trust trained our group on how to make plant tea, an effective foliar fertilizer, I have saved on this cost, as I no longer need to buy the booster from the agrovet," she says.

Plant tea is prepared using the Mexican sunflower plant, locally known as Tithonia. To make the plant tea, harvest the leaves and cut into pieces, then put in a bucket or drum. Press the leaves and fill the bucket with water. Cover the container with a lid or a nylon paper and tighten the edges using a string, then store in a warm place (preferably outside under shade). After three days, uncover the container stir the mixture, and tightly cover the bucket again.

Let the mixture stand for 11 days. On the 14th day, remove the cover, stir the mixture, and remove the leaves. They will have fermented by then. This leafy matter should be placed on the farm as mulch. Sieve the remaining liquid content, which is the plant tea, into another container and cover with a lid. This plant tea should be used as foliar booster, at the rate of 1 liter in 20 liters of water. For kitchen gardens, the plant tea can be applied around the base of the plant,100ml per plant. For best results, foliar booster should be repeated after two weeks. After spraying, the vegetables can be harvested after 3 days.

After applying the plant tea, Cecilia noticed improvement on her vegetables. "Three days after application of the plant tea, the kales became dark green, and with continued application, the leaves blossomed with vigor and were bigger in size. I always make sure I have a container with plant tea in the farm," she says.

Plant tea is an effective foliar booster, because it is easy to prepare, uses locally available materials, and has no toxic impact to the environment. Tithonia grows everywhere and is a low maintenance plant. "I urge farmers shifting to organic farming to embrace making plant tea. They can grow Tithonia in the farm as a hedge, and trim it to prepare plant tea." Cecilia says.

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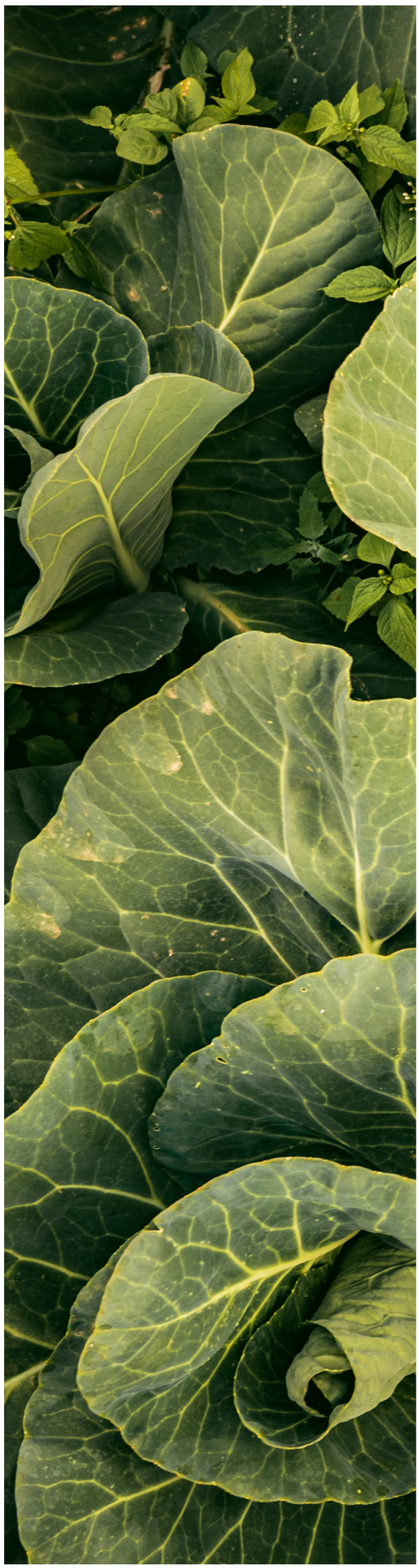

KANG'UNDO

AGROECOLOGY

Setting up demonstration farms with farmer groups is an important aid in information dissemination on agroecology

Mr Joseph Mbithi one of BvAT's farmer field officers in Makueni demonstrates a water conservation technology to a farmer in Kavyuni, Makueni County

The group members held a discussion and decided that they should implement all these activities in one place for easier learning and follow up

By Miriam Makato

Demonstrations have been an important tool for training farmer groups and students in agriculture. A demonstration can focus on a specific technology, such as making plant tea, where farmers combine the materials, prepare the tea, and share the final product. Plant tea is a liquid extract made by soaking plant materials in water to create a nutrient-rich solution that enhances soil fertility and promotes plant growth.

Biovision Africa Trust, through its Outreach Project is reaching numerous farmers through training using demonstration farms. In Kangundo, Machakos County for instance, farmers are acquiring new knowledge through demo farm trainings organized by Biovision Africa Trust.

One such group is Tumaini farmer group comprised of 16 farmers (16F,2M,4Y), which was formed in 2024.The group was later introduced into BvAT Farmer Communication Programme project in May and has been undergoing training on agro ecology. During induction, the group came up with an action plan with the help of the field officer, which had activities to be implemented in the next three months (June-August).

These activities included composting, making plant and animal teas to improve soil fertility, creating bio-pesticides for pest and disease management, constructing zai pits and fertility trenches for water harvesting, and double digging. The group members discussed and decided to implement all these activities in one location for easier learning and follow-up.

One of the group members, Francis Mutisya, volunteered a section of his farm which is an eighth of an acre for the activities. This farm has reliable water supply from a man-made dam and is secure.

Demonstrations began in June, during which we created double raised beds to grow beans of the Nyota variety, developed by KALRO Katumani. The produce from the beds will be shared among the farmer for planting during the October rains. We also created ridges to grow sweet potatoes. Zai pits were used for multiplying sweet potato vines, while a fertility trench was established to grow arrowroots for consumption and sucker production. The members also prepared bio-pesticides and plant tea to apply to the crops.

We are looking forward to seeing the fruits of our work from the farm, the beans are starting to dry, and we will soon share the produce

We also established nurseries on the farm to grow amaranth for flour production and Red Creole onions for consumption. These seedlings will be shared among the farmers, and each one will have a kitchen garden featuring various implemented technologies.

The demonstration has fostered a sense of ownership and responsibility among the group members. They now make weekly contributions to purchase fuel for pumping water to irrigate the crops and meet during the week for activities such as weeding, and making and applying bio-pesticides and plant tea.

"We are looking forward to seeing the fruits of our work from the farm, the beans are starting to dry, and we will soon share the produce," says Francis Mutisya, the group secretary.

Other farmers working in groups should embrace learning by setting up demonstration plots. This approach will make it faster and easier to implement these practices on their own farms.

REGENERATIVE AGRICULTURE

Farmer breaks even in agribusiness after embracing organic farming, triggering neighbors to try out the practice with great success

By Ruth Mutisya

Florence Muteti, an organic farmer from Jikaze women group has been a great resource to her community. After transforming her farm to a model organic site, she has become a visible light for Kithini village in Machakos County.

Guided by Ruth Mutisya, an extensionist working with Biovision Africa Trust in Machakos County, Florence has employed climate smart technologies in her quarter acre piece of land to grow diverse types of indigenous vegetables. "Through training by Ruth, I learnt how to establish vertical gardens, zai pits and double dug beds, to grow different vegetables," says Florence. With these technologies, water use in the farm is minimal, and this has made it possible for her to grow vegetables despite the prolonged dry seasons in Machakos.

"Technologies such as vertical gardens, zai pits, double dug beds and mulching enable efficient use of resources in the farm including water and manure and helps to conserve moisture in the soil so that the plants can still thrive even under dry weather conditions," says Florence.

Having adopted these technologies, her garden is always vibrant with green leafy vegetables, teaming with health. In addition to feeding her family with a balanced diet, Florence makes an income from selling surplus produce in the market. Most of her neighbours have started to notice the benefits of employing these technologies and she is already offering training to other interested farmers. "I have already linked numerous farmers to Biovision Africa Trust for further training, on organic farming," says.

Benjamin Kyalo is one of the beneficiaries of this impact. He was introduced to a BvAT officer by Florence after she convinced him that farming can be undertaken as a business venture rather than a subsistence practice. Benjamin had earlier faced numerous challenges including, low production due to unpredictable rain patterns and inadequate knowledge on organic farming. Being a conventional farmer he had been using synthetic farm inputs.

This did not work well for him as the yields from his farm were far much lower on value than the resources invested in form of inputs. This was one of the motivators for him to adopt organic farming and employ climate smart technologies, in production. Benjamin having been taken through the organic farming training, took upon himself to start immediately as he had already seen how it had worked well for Florence. He redesigned his farm to diversify crops, and establish the planting plots by digging zai pits, double dug beds and vertical gardens. "One of the crucial practices I learnt was use of compost manure in place of synthetic fertilizers, a practice I have seen greatly improve fertility of the soil," says Benjamin.

Composting using kitchen waste

Zai pits technology

Additionally, he prepared raised and sunken double dug beds for his onion seed propagation, which he did after using lactic acid bacteria as he was advised by the officer that doing this breaks the dormancy and increases plant growth and yield.

One of the crucial practices I learnt was use of compost manure in place of synthetic fertilizers, a practice I have seen greatly improve fertility of the soil

The results were worthwhile as the seeds shot up quickly at the sixth day compared to the normal propagation which occurs between the 14th and 21st day. They were planted on well-prepared double dug raised beds with well decomposed manure applied for better soil fertility and improved water holding capacity to enhance maximum yields.

To diversify the crops in his garden, Benjamin planted more fruit trees, including Hass avocado and Malkia pawpaw trees, along with sweet potatoes and cover crops to increase soil moisture retention.

"I am projecting a harvest of 1.5 tons of onions from my 0.25 acre of land which will translate to Ksh. 150,000," says an optimistic Benjamin.

With the surplus production of kales and sweet potatoes, he is now selling at the farm's gate. He has also planted Napier grass around the farm to shield the crops from the African army worm and serve as fodder for his cattle. Additionally, Ruth has trained him on how to make home made biopesticides from plant extracts and he does not rely externally purchased pest control solutions to manage pests in his garden.

"I am happy now that my income is increasing due to improved soil fertility and low costs of pest and disease control after learning on how to use integrated pest management approaches," he says.

Vertical gardening

CONTINUED FROM PAGE 7

Benjamin has greatly benefited from exposure to sustainable farming technologies, and encourages other farmers to try it out. "If you grow leafy vegetables for the market and home consumption, organic farming is the best way to grow them as the produce is free of any toxins, and has a longer shelf life, compared to those grown using synthetic pesticides," he says.

Benjamin has since joined Florence to as an ambassador of organic farming in Kithini village. Through their stories of improved livelihoods, many more farmers are approaching Biovision Africa Trust officers in their community to learn these new life changing technologies.

Ruth Mutisya is a Farmer Field Officer at Machakos County.
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PEST MANAGEMENT

Farmers adopt Integrated Pest Management to boost yields, cut costs, and protect health

By Ruth Mutisya

The desperation by farmers to minimize losses caused by pests and diseases and the unlimited availability of pesticides, insecticides and herbicides in the market has led to chemical overreliance in food production. Some of these farm inputs have hidden dangers to consumers of the farm produce grown using them, the soil on which they are applied, and the environment in general. While all of them are labelled with directions on how to use them, studies show that most farmers do not adhere to the guidelines, hence putting their health and those of the consumers at risk.

Aside from the safety precautions of application, the chemicals in some of these products affect human health in adverse ways, yet they are readily available in the market. Due to rising cases of non-communicable diseases, linked to toxins in food, the dangers posed to the environment and the farmers' exposure to the chemicals in the process of application, safer approaches of disease and pest management are recommended. One of these approaches is the integrated pest management approach. Field Officers based in Machakos County, working with Biovision Africa Trust, have made this approach applicable by farmers in the county through trainings.

Tukilanie women group which hails from Kathiani Sub- County, Kaani ward in Machakos County are beneficiaries of these training efforts. The group members have individual kitchen gardens and tree nurseries as sources of income. However, attacks by pests and diseases had made these ventures difficult to run. With synthetic pesticides being readily available and the group members' lack of knowledge on naturally produced pesticides, they resorted to chemical overuse. With time, they noticed that the pests had become resistant to the pesticides. This led to the increase of the infestation which they thought they could counter with using more pesticides not knowing the health hazard they were exposing themselves to. However, this changed after they attended a workshop conducted by Biovision Africa Trust on the adoption of Integrated Pest Management (IPM). During the workshop, the group was trained on the use of locally available resources such as tithonia, blackjack, lantana camara leaves, African marigold which they brewed and fermented to produce a biopesticide. This came as a shocker as the older women in the group had knowledge on the natural pest control practices but felt it was outdated, hence not sharing the knowledge with the other members.

Chairperson of Tukilanie women group inspecting her vegetable garden

Two months after adopting this technology, members witnessed a huge improvement in their produce, with much less investment in farm inputs. During an interview with the group members, the chairperson had this to say: "I am already earning Ksh 500 per week from vegetable sales to my neighbors, at farm gate, and they are tastier than conventionally grown vegetables," said Agnes Mueni, the Chairperson of the group.

Other groups who participated in the training also had a testimony to give. Christine a member of Mbilini Self-help group embraced the training and fully employed the IPM method. This was after a sharp decline in the harvest from her pigeon pea plants which were infested by pests and diseases.

The use of fermented mixture of tithonia, hot pepper, African marigold and lantana camara leaves and a small piece of washing bar soap as a sticker successfully managed the adamant pests with minimal costs.

Following the training, Christine also started growing Moringa tree which she includes in every meal she prepares for her family as she learnt of its health and dietary benefits. Additionally, she sells the excess moringa powder to her neighbors and other members of her group.

Christine is now an ambassador for the use of IPM. She trains other farmers on how to implement it on their farms, educating them about its effectiveness and cost-efficiency. This practice is gradually gaining popularity in the community as farmers share this knowledge with one another.

POULTRY FARMING

Young poultry farmer in Murang'a County evades loses by proactively seeking knowledge

Having observed some farmers incur losses in poultry due to diseases, attacks by predators and harsh weather, Cyrus was intentional on getting guidance from the onset

By Magdalene Wangechi

Cyrus Munene, a 29-year-old resident of Kiharu sub-county in Murang'a County, faced challenges in securing employment after completing his college education. Determined to create his own opportunities, he decided to venture into poultry farming in 2023 and established WAMU Poultry Farm.

Having observed some farmers incur losses in poultry due to diseases, attacks by predators and harsh weather, Cyrus was intentional on getting guidance from an experienced extension officer from the onset. Since he was aware of Biovision Africa Trust's field officers' work in his community, he sought help from their office, in Maragua town. Magdalene Wangechi, the farmer field officer in Murang'a seized the opportunity to offer on farm training to Cyrus, on how to construct a suitable chicken coop. She also trained him on feeding requirements for chicks, and vaccination schedule.

Having constructed the coop as guided, and armed with the knowledge on best management practice, Cyrus purchased 100 improved Kienyeji chicks, for a start. As anticipated, the enterprise was not without its challenges. He encountered hurdles such as poultry diseases leading to high chicken mortality at a young age and predators like rats. However, he used each challenge as an opportunity for learning and improvement. By implementing the right vaccination program, using homemade solutions as guided by the field officer

Looking ahead, Cyrus plans for further growth which includes establishing a hatchery on-site with the aim to sell chicks while rearing others for meat and egg production

Cyrus Munene shows his poultry farming venture

and maintaining high levels of sanitation on the farm, he managed to significantly reduce the chicken mortality rate. Another major hurdle was feeding the chickens due to the high cost of commercial feeds. However, through training, Cyrus learned how to formulate homemade feed for his Kienyeji poultry supplemented with Azolla.

Additionally, Magdalene linked him with information material including TOF Magazines and Infonet Biovision which have detailed information on poultry feeding and disease management. At five months old, when they reached over 2kgs each, he successfully marketed and sold them locally at prices ranging from Ksh 1000-1500 per bird earning him a profit margin of 40%. Encouraged by this success and driven by satisfaction derived from it; he expanded operations by bringing new birds onto the farm monthly. He currently has around 400 birds.

Cyrus has also diversified into brooding chicks for one month before selling them on; earning Ksh 250 per chick while also selling mature birds for meat production. Additionally, he has tapped into another revenue generating activity, selling chicken manure at Ksh 300 per 10Kgbag. Looking ahead, Cyrus plans for further growth which includes establishing a hatchery on-site with the aim to sell chicks while rearing others for meat and egg production.

In conclusion, Cyrus is grateful for the assistance received which enabled him to establish himself economically, urging other unemployed youth not only seek employment but also consider venturing into agriculture as an alternative source of income generation.

Magdalene Wangechi is a Farmer Field Officer working with Biovision Africa Trust in Murang'a County Mwangechi@biovisionafrica.org

TOF Radio

Through weekly Kiswahili and local languages radio programmes, TOF Radio helps to improve awareness and knowledge of sound agroecological practices, strengthen the link between researchers and farmers to enhance food security, reduce poverty and increase household incomes among farmers in Kenya.

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FODDER GRASS

Makueni beef farmer leverages fodder production and conservation to save on costs

Boma Rhodes is a superior variety of fodder grass as once you plant it, you don't need to replant the seeds as they fall and sprout on their own

By Caroline Mwendwa

Hudson Nzoka a retired surveyor is an astute farmer who practices mixed farming. He has been doing beef farming for 20 years, where he buys young calves from the market for fattening to sell for slaughter at higher prices, when the market demand is high. "I buy a young cow at about Ksh30,000 - 40,000 and sell at Ksh 70,000 to 100,000, depending on the season," he says.

To rear healthy cows that will fetch an attractive price, one needs sufficient fodder. Mr. Nzoka had been incurring huge amounts of money to purchase fodder, before he met Joseph Mbithi, a field officer working with Biovision Africa Trust based in Makueni.

"During drought season, I used to spend over Ksh200,000 on fodder, as I did not have the knowledge on proper fodder production and conservation," says Mr Nzoka.

"When I learnt that I could grow my own grass and conserve as much as I need for the seasons of scarcity, that was my turning point," he adds. Following Mr Mbithi's guidance, he decided to rehabilitate an acre of land he had bought earlier which was lying idle as it was all stony with deep galleys with the aim to grow fodder. The process of rehabilitation required technical knowhow, and this is how Mr Mbithi came in. "The rehabilitation involved removal of stones and building of terraces to control erosion. This was followed by choice of grass to plant in the piece of land for optimal utilization.

LEFT: Hudson Nzoka checks his dried grass
RIGHT: At his Boma Rhodes farm

"Boma Rhodes is a superior variety of fodder grass as once you plant it, you don't need to replant the seeds as they fall and sprout on their own. It is also a drought resistant variety," he says. Looking at the piece of land where he has planted Boma Rhodes, it is apparent that Mr. Nzoka will have enough to feed his cows throughout the year, as Boma Rhodes is harvested twice a year.

Boma Rhodes is a superior variety of fodder grass as once you plant it, you don't need to replant the seeds as they fall and sprout on their own. It is also a drought resistant variety

Within his homestead, Mr Nzioka, has two large stores where he conserves fodder for later use. In one store, he has packed Boma Rhodes grass in plenty and is planning to bale them to maximize on space and this will also help him to know how much his cows, consume.

On the other store, he conserves maize stalks after harvesting maize, which he uses to supplement the grass. Having discovered the value of grass, especially during the dry season, Mr Nzoka is planning to expand the acreage of grass production within his farm. He has recently bought two acres of land adjacent to his farm, and bordering a dam, which he is already reclaiming for grass production.

"I look forward to being a grass supplier for cattle farmers in this community. This is indeed a lucrative opportunity that is worth exploring" he concludes.

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