



BIO GARDENING INNOVATIONS

Food forests in Kenya are using modern forestry techniques to create food sovereignty and security.

The holistic gardening project in Emuhaya, Western Kenya, is attracting local and international acclaim. Bio Gardening Innovations (BIOGI) is equipping smallholder farmers to break away from monocultures and create thriving, overflowing “food forests” on their farmland.

Maize, the staple crop of Vihaga and Kakamega counties in Kenya, is harvested twice a year with agrochemical farming techniques. However, as a growing population encroaches on the land, bush-clearing and aggressive farming practices are becoming the norm.

The side effects are numerous. Soil exhaustion is common, to the detriment of the quality of each harvest’s yield. Farmers are rarely self-sufficient, relying on third parties to provide costly chemical fertilisers and pesticides. Further, the risks of monocultures are numerous, and it gives little diversity to the diets of the farmers who grow it.

Partnering with the Tudor Trust and Pangea, BIOGI sought out local farmers who had already shown some interest in agroecology. Combining these farmers’ indigenous knowledge of the land with permaculture methods, they embarked on a project to turn maize fields into food forests.



Growing a food forest

A food forest is much like a natural, wild forest: vibrant, green, and full of life. From the canopy to the floor are many, complex layers of plants and wildlife that live harmoniously with little human intervention. The food forest mimics this natural phenomenon but with crops and trees that are useful to Kenyan farmers both as cash crops and a source of food.

One of the features of these forest gardens is the swales-on-contour which are used for water harvesting. These great ditches are dug two feet deep along the curve of a slope and designed to catch excess water. It then drains or leaks slowly back into the land. It is a simple yet highly effective way of retaining water and preventing soil erosion.

Vetiver grass, with its tough, penetrating roots, are planted as a natural barrier along the edges. Water-loving plants like arrowroots and cocoyam thrive on the swales, as well as sweet potato and pumpkin which also provide good ground coverage. Banana and papaw trees assist by stabilising the lower banks.

“Had it not been for the swales on my farm, my house and crops would have been swept away by the rains. I pride myself in embracing care for my soil because I now have more diverse food for my family”
Mary, Mulimani village.

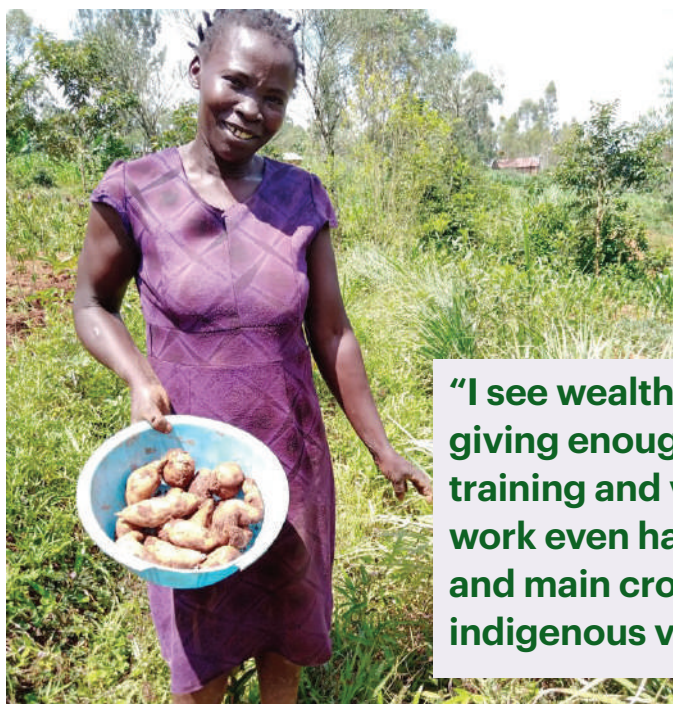
Everything serves a purpose

The result? A mosaic of crops across the farm. Vegetable gardens and fields are planted in thoughtful combinations. Cassava grows with mixed beans, and pumpkins nestle beneath the maize. The diversity is integral to restoring soil fertility and encouraging the return of native wildlife and insects.

Nothing serves a single purpose either. All elements of the farm must have multiple uses. Animal droppings and fallen leaves are collected and fermented to make Bokashi compost. By making organic fertilisers on-site, there is no need for outside resources, and the nutrient-rich compost is instrumental to soil amendment.

Women farmers lead the way

Ruth, a farmer from Emmakunda village, is one of the leading partner farmers in the project. She became interested in sustainable farming after repeated crop failures and ineffective chemical inputs. Before she was selling bananas for 200 KES, now she makes 800 KES.



“I see wealth in the soil and realised we were not giving enough attention to natural fertility. The training and visits to other farms have motivated me to work even harder. I have now improved my vegetables and main crops with new customers buying my indigenous vegetables.” - Ruth, Emmakunda village

Healthy, diverse crops: a source of vitality

Permaculture models work two-fold. They manage and conserve the land while yielding an abundance of biodiverse, indigenous foods. Such produce provides nutritious, balanced diets to the farmers and their families, increasing their health and their wellbeing.

The food forest is something to behold. From the fruit-laden trees to the roaming livestock, and the rich, fertile soil below, everything is teeming with life. BIOGI's approach requires little cultivation or intervention since nature is allowed to take over. The beauty of the swales, alongside the abundance of luscious green, has attracted interest from abroad - lending prestige to the lead farmers.

“There is an old saying: if your food becomes your medicine, your medicine becomes your food,” says Ferdinand, BIOGI’s coordinating officer.



Farmers are finding fame as they lead their farms to renown

The project caught the attention of the University of Wisconsin, who now sends its forestry students to Kenya every year. The students review the site and learn from the local farmers. Village-wide exhibitions allow local farmers as well as administrators and policy-makers to visit and see the farm in motion. There is a chance to present their findings and sell seeds and other permaculture resources.

‘I have a book and a pen which is the soil and my working tools. The knowledge I have is practical and must be applied and shared with other farmers and friends for a better future.’ - Simon, Eshiruli village.



How taking a risk, and trusting indigenous knowledge, has paid off

Such publicity is a powerful tool since finding farmers who are willing to participate in the project has proved tricky.

The idea behind food forests is simple, but the project takes time and patience, a luxury many local farmers feel they cannot afford. The model involves - and invites - a certain amount of experimentation too, a further cost that many find too risky.

However, as confidence in the theory and evidential success in the practice grows, more farmers are joining the movement. BIOGI has worked with 2000 smallholder farmers so far. Peer learning and collaboration are crucial, and master farmers like Ruth lead the farmer-to-farmer interactions. They hold regular meetings, share seasonal changes and results as well as the most effective agroecological methods.

With the spotlight on Emuhaya, it is an opportunity for smallholder farmers to take the lead in a more global conversation on agroecology. To show how they have confronted food insecurity while restoring and protecting biodiversity. And how they have provided their families and communities with a sustainable, healthy, prosperous future.



‘The future is agroecology — the world will not be habitable without it. Everything else that is convention will fail because it does not work with nature. Agroecology helps us use one stone, our land, to kill many birds such as improving soil, ending hunger, increasing income and combating climate change. This practice will succeed because it aligns itself to how nature works.’
- Julius Astiva, Ehubayi village

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WHO IS AFSA?

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