

# Advancing agrobiodiversity through agroecology, seed management and enterprise development in Ghana

Producer organisation: Abrono Organic Farmers Association (ABOFA)



## Agrobiodiversity Case Study 2: Ghana

Takyi Ezekiel Paul



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Cover photo: An ABOFA member inspecting agrobiodiverse planting stock © Takyi Ezekiel Paul

Corresponding author: Takyi Ezekiel Paul  
Email: [kwamemobb1@gmail.com](mailto:kwamemobb1@gmail.com)

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## Acronyms

ABOFA	Abrono Organic Farmers Association
ACI	World Cocoa Foundation African Cocoa Initiative
ADRA	Adventist Development and Relief Agency
CIKOD	Centre for Indigenous Knowledge and Organizational Development
FAO	Food and Agriculture Organization of the United Nations
FFS	Farmer field schools
NGO	Non-governmental organisation

## Summary

The Abrono Organic Farmers Association (ABOFA) – formerly the Abrono Organic Farming Project – is based in Forikrom in Bono East Region of Ghana. The association has been supporting its approximately 6,000 members to manage agrobiodiversity through agroecological farming methods over an area in excess of 5,000 hectares.

ABOFA's members cultivate relatively small plots of about 1 hectare each but grow many different crops in those small areas, including a mix of root crops, cereals and fruit trees in agroforestry systems. A quick survey of 20 farmers groups (10 men's groups and ten women's) showed that farmers always cultivate at least two main cash crops and sometimes as many as six or more. But the number varies between farmers so that the total number of crops cultivated is much higher – and from a 10-farmer sample, included 16 crops for men and 15 for women. Additionally, the men cultivated nine different types of livestock, while the women cultivated three. There is little distinction between commercial crops (sold to local markets) and subsistence crops (eaten at home). But farmers did record a number of additional crops that were regularly used for foods in times of hunger, for medicinal and religious purposes, and for leather and manure. And both men and women collect a variety of wild plants and animals for various purposes.

Farmers use traditional knowledge from their ancestors or neighbours to manage complex mixes of crops. ABOFA has supported this diverse agroecological cropping system by offering a series of trainings on agroforestry and tree planting, and promoting the use of Indigenous species to support local farming systems and help build resilience to climate change. ABOFA has experienced some challenges in promoting these new approaches. But by using the farmer field school (FFS) approach, trainers have been able to offer guidance on issues such as soil testing, land preparation, organic vegetable farming, compost preparation, rainwater harvesting, nursery practices (including for fruit and agroforestry trees), beekeeping, grafting and recordkeeping. This has expanded the farmers' knowledge on how to use farming practices that support local agrobiodiversity.

Farmers mostly multiply and keep their own seeds or obtain them from their neighbours. However, some newer crops that were not historically cultivated in the region have to be bought or supplied by government services. ABOFA has helped its members to establish a community seed bank funded out by membership fees. ABOFA aims to expand its seed coverage from the current 31 crop varieties and expand both its stocks of these seeds and their availability to farmers in different areas.

ABOFA has also helped to make more profitable use of agrobiodiversity by helping farmers to add value to new agroforestry crops such as cashew, mango and cocoa or products such as honey. By enhancing marketing options, members can aggregate many different crops from their farms and upscale the planting of Indigenous trees and seeds. ABOFA has also been providing technical support for livestock rearing, which – alongside organic composting – is seen as a way to enhance organic fertiliser production in the face of shortages of inorganic fertiliser due to Russia's war in Ukraine.



# 1 Introduction to ABOFA and its land use

## 1.1 ABOFA's vision

The Abrono Organic Farmers Association (ABOFA) has a 30-year track record of working in Central Ghana. Its vision is to ensure 'favourable enabling environments, improved livelihoods and food security for rural farm families and communities'. ABOFA has eight main objectives:

- Improve Indigenous agriculture extension delivery systems
- Promote income-generating activities with youth and transform these activities into viable community-based groups and co-operatives
- Offer advisory services on organic agriculture and related topics to farmers, extension staff, rural youth and other interested parties
- Build, enhance and strengthen institutional and local community capacity to identify, plan, monitor and evaluate sustainable development so as to become custodians of their own environment
- Contribute to communities' economic sustainability by providing marketing and technical support, and linkages to market outlets
- Develop and implement organic agriculture, health and environmental strategies that lead to better and improved health for all
- Affiliate, link and collaborate with other like-minded institutions and organisations, and
- Given the beauty of the environment, promote ecotourism to boost local economic and sociocultural activities.

ABOFA does not have any specific written objectives that explicitly mention agrobiodiversity and not all of ABOFA's strategic activities relate to agrobiodiversity management.<sup>1</sup> But many do involve the management of agrobiodiversity. For example, ABOFA offers training on organic agriculture and related fields of agroecology and agroforestry. It also provides previously trained community groups with further technical mentoring. It promotes the preservation of Indigenous knowledge (including the use of traditional crop varieties) and promotes vegetable crop production and a range of alternative livelihood options that incentivise greater use of agrobiodiversity. ABOFA also manages a community seed bank. Finally, ABOFA has developed and runs a farmer-to-farmer extension delivery service. All of these elements add up to quite a sophisticated programme of agrobiodiversity management.

## 1.2 ABOFA's founding principles

ABOFA was established in 1992 with the aim of helping its members and other rural farmers acquire techniques in improved farming systems as well as ensuring food sufficiency and food sovereignty among its member's families. ABOFA began by promoting organic agriculture through farmer-to-farmer extension methods. It also sought to develop local livelihoods, building and strengthening the capacities of poor or disadvantaged rural households and community groups through structures that assert their functional human rights and cater to their demands for improved standards of living. One element of this work has been to build financial foundations, empowering association members to acquire a culture of saving and loan schemes.

ABOFA actively seeks out new technologies that promote ecologically friendly farming systems and recognises the vital importance of managing Indigenous seeds. It has established a community seed bank to preserve and manage local seed for sharing among members. ABOFA has also been building up and supporting members with both agroecological and business training (conducted using training approaches employing farmer field schools or FFS) over the last six years.

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<sup>1</sup> For example, activities include advocacy and campaigning, gender transformation, community mobilisation and networking, and the development of community action plans.

### 1.3 Location

ABOFA operates around the town of Forikrom and Techiman City in the Bono East Region of the transitional zone of Ghana. It has members in the regions of Ahafo, Ashanti, Bono, Bono East, and Savanna Region. The ABOFA offices are located between Techiman/Forikrom off the Nkoranza Road, a five-minute drive from Techiman. The total land size managed by the combined total of ABOFA members is over 5,000 hectares. The members' lands are situated in what was once tropical moist rainforest with relatively infertile clay soils.

### 1.4 Membership

ABOFA started as a project in 1992. At that time, one community was involved in a project called Forikrom Promoting Afforestation. But during the project, other partners came on board to support the development of community action plans that ultimately targeted six communities. The membership established an association which expanded because each community set up groups to take part in the project. The non-governmental organisation (NGO) Concern Universal came in to support members to install drip irrigation systems for dry-season vegetable production as a way of diversifying their production. As a result, several other farming communities joined the association to benefit from the support package. The result is that the current membership now approximates 6,000 farmers (half women and a quarter youth), with a well-constituted secretariat, advisory board and farmer group leaders that run the day-to-day affairs of the association.

### 1.5 Pattern of land use

Each ABOFA member has their own unique planting arrangements. But looking across the whole landscape managed by the association's members, about half of the land is used to grow annual subsistence crops (tubers, vegetables, cereals and legumes). The main crops are cassava, maize, yam and cocoyam alongside many other food and vegetable crops. Most crops produced (65%) are sold to the outside markets – although a few people do patronise a local community market. Approximately a quarter of all land is devoted to tree-based cash crops, of which the more notable species include mango, cashew, cocoa, orange and coconut and about 15% is kept as natural forest. Finally, some 7% of land is under construction and 3% constitutes steep mountain slopes or rivers.

Typically, each smallholder member has a land area of just over 1 hectare (3 acres). This means that the association members collectively manage more than 5,000 hectares within the transitional ecological zone of Ghana. Farmers in this region are born into families that automatically own family land through both maternal and/or paternal inheritance. However, in addition, almost 15% of members of the total ABOFA membership are migrant farmers who have moved in from the Savannah zone and northern part of Tamale. These migrant farmers often do not own farmland, but rather rent land on which they farm. Private landowners also sometimes lease their land after harvesting a particular crop so as to share the land with others for part of the season. A few migrant farmers have managed to buy their own farmland and purchase their own properties on that land.

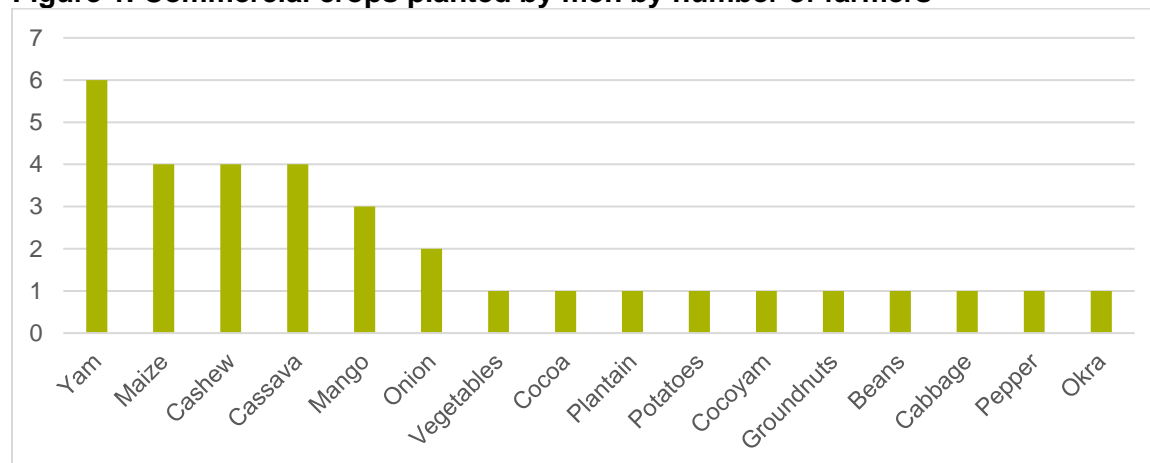
## 2 Understanding agrobiodiversity in the landscape

Ten association members (all male) were randomly selected by ABOFA to take part in a quick questionnaire survey undertaken by the author to better understand the agrobiodiversity the farmers manage. The results were then discussed for verification by three groups of farmers (consisting of men, women and youth). For the purpose of this case study, two groups were selected from the Asentanso community off the Baamire Road (Techiman South District) known as the Asentanso odo kuo and Anidaso groups. With the help of three ABOFA staff, the group responses were disaggregated into three respondent categories: women aged 35–60, men aged 35–60 and youth aged 18–35.

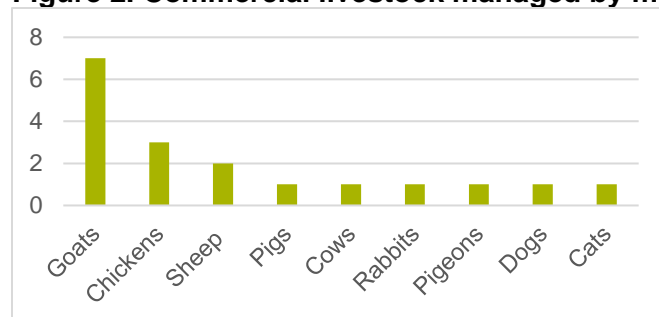
### 2.1 Cash crops grown by men

The ten male farmers who took part in the initial survey described their main commercial crops. In most cases, for both men and women, the respondents said that these crops are both sold and consumed at the household level – and so the breakdown into commercial and subsistence crops does not really apply (see Figure 1 below). The survey results were then subsequently triangulated during discussions with the three farmer groups. Across the sample of ten male farmers ABOFA surveyed, it was found that 16 different cash crops were mentioned as commercial crops with every farmer planting at least two different cash crops and up to as many as six. In addition, the male farmers also mentioned nine different types of livestock within Asentanso managed by all but one farmer (with a maximum of three on one farm) (Figure 2).

**Figure 1. Commercial crops planted by men by number of farmers**



**Figure 2. Commercial livestock managed by men by number of farmers**

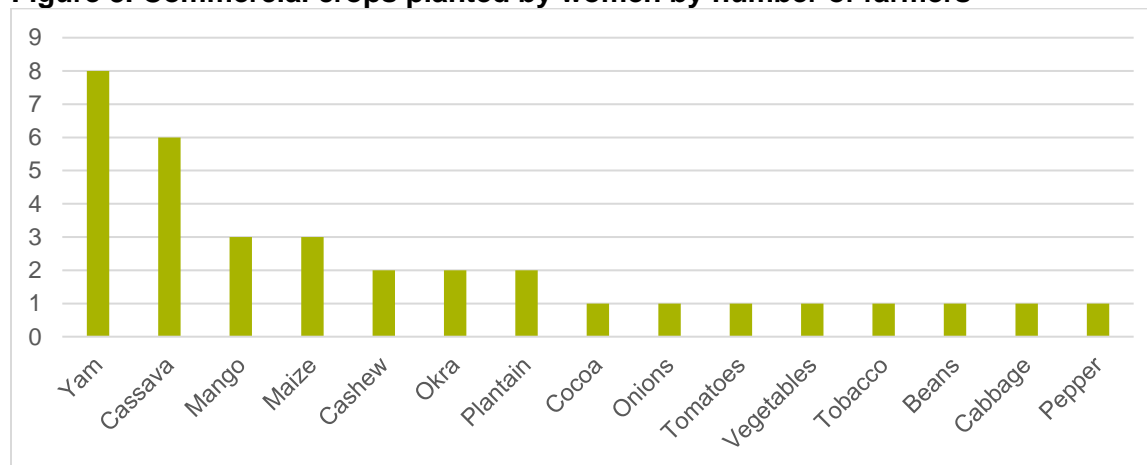




## 2.2 Cash crops grown by women

In the same way, the survey team also wanted to know how many commercial crops and animals are cultivated or reared by women. Of the women who took part in the three group discussions, 20% said they did not have a separate farm but rather supported their husband in farming. The remaining 80% of women remarked that they farmed vegetables for home consumption but also sold surplus to the market. In total, the women cultivated 15 different crops (Figure 3). In terms of livestock, women had little involvement in animal rearing because the culture is for the men to rear, slaughter and sell livestock (Figure 4). However, several women rear chickens for meat and eggs for home consumption in addition to purchasing these products from the market. Only two women said that they sold goats and sheep; one stated that she had lost her husband and consequently had full control of sales.

**Figure 3. Commercial crops planted by women by number of farmers**



**Figure 4. Commercial livestock managed by women by number of farmers**



## 2.3 Subsistence crops and animals cultivated or reared by men

Local farmers have a rich cultural knowledge of local food crops. As noted above, the men make little real distinction between crops cultivated for local sale and those cultivated for subsistence. In the survey with ten male farmers, the term 'subsistence' was taken to mean crops that are set aside for food during acute hunger or used for special occasions. Some livestock are also kept in the house for such purposes.

In addition to the use of these crops for food, some plant species are also used as medicines. In total, 12 species were mentioned for such special circumstances, including:

- Area yam (used for food in times of hunger)
- Maize (used for food in times of hunger)
- Plantain (used for food and for offerings to local deities)
- Cassava (used for food, especially in times of warfare)
- Cocoyam (used for food, including mixed with cassava to make *fufu*)
- Potatoes (used for food in times of hunger)

- Bananas (used for food in times of hunger)
- Yellow yam (used as a medicine)
- Avocado (used for food and as a medicine)
- Mucuna (use as a cover crop but also used for food)
- Cocoa (leaves and roots used for medicine), and
- Pepper (for preparing a traditional bone-healing medicine).

Additionally, five livestock species were mentioned in terms of their use for special occasions:

- White chickens (used for medicine by traditional healers)
- Black chickens (used during spiritual libations)
- Red chickens (used for rituals with fetish chiefs)<sup>2</sup>
- White male sheep (used pay fines to the local chief), and
- Snails (used for food in times of hunger).

## 2.4 Subsistence crops and animals cultivated or reared by women

In both the survey interviews and later group discussions, both men and women did not distinguish readily between commercial and subsistence crops. The list of subsistence crops in this section therefore refers to foods that are kept for unforeseen circumstances. On the whole, the livestock kept by women serve special purposes (such as guarding the house and killing rodents, providing manure, or for medicinal purposes) but that once fully grown, some of these animals are also used or sold to other tribes for food. In total, 11 plant species were used for special purposes:

- Cassava (used for starch and food)
- White yam (used for food)
- Yellow yam (used for food around January)
- Maize (used for food)
- Mango (used for food)
- Vegetables (many different types used as food and medicine)
- Ginger (used as food and medicine)
- Turmeric (used as food and medicine)
- Okra (used as food and medicine)
- Red pepper (used as food and medicine)
- Onions (used as food and medicine)

The women used a total of seven different animal species for special purposes including:

- Male sheep (used for leather work and libations by the fetish priest)
- Cows (used for leather to make drums and stools)
- Rabbits (used for food and pelts)
- Goats (used for food and also their droppings used for fertiliser)
- Dogs (as guard animals but also for food by some tribes)
- Cats (as rodent killers but also sometimes eaten for spiritual purposes), and
- Ducks (used to prepare Christmas meals in groundnut soup).

## 2.5 Wild products harvested by men

In talking about the wild plants and animals collected by men it seemed that one key motivation for men to collect these wild plants and animals was to produce medicinal mixtures intended to build their power and endurance. Additionally, some of the wild animals are kept as pets for the men's children to learn from these species. Others are consumed locally.

In terms of plant species, the four main wild plants collected included:

- Cocoa

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<sup>2</sup> In Ghana, 'a chief operates in the public, political sphere of life while a fetish priest operates in the more private, religious sphere' and may provide 'a medical service' (see [www.refworld.org/docid/41501c097.html](http://www.refworld.org/docid/41501c097.html)).

- Local mango
- Cola
- Prekese

The five main wild animals collected included:

- Tortoises
- Snails
- Monkeys
- Parrots
- Snakes

## 2.6 Wild products harvested by women

In the group discussions, women mentioned six main plants that they collected from the wild – mostly for home consumption or medicinal purposes. Their stated intention was to keep the seeds of these plants and multiply them for future use by planting them in their home gardens. Plants mentioned included:

- Cocoa
- Local mango
- Cola
- Common guava
- Prekese
- Marigold

For wild animals, the women mentioned six different species that are often kept as a source of entrainment or to provide security at home. A few mentioned that some of the animals are also eaten by specific tribes, notably from the northern part of Ghana. Wild animals collected included:

- Tortoises
- Snails
- Monkeys
- Parrots
- Snakes
- Crabs

## 2.7 Key crops that have important local varieties

When asked about especially important local varieties of crops, farmers mentioned that two crops are especially prized. Both are tubers – water yam and cocoyam – and many local varieties are maintained. In planting season, these crops are planted last because even if you plant them first, you may have to wait to harvest them. These are usually the last crops to be harvested every year as they are used for making *fufu* and *ampesi*. Now popular with all tribes across Ghana, the leaves of the cocoyam are consumed locally and exported for making stew. The roots contain a lot of fluid when harvested and take time to dry before being used for food in the home or for livestock feed.

In addition to those key varieties, the farmers also keep a number of different varieties of other crop species. The following crops have at least three main varieties each in the region: maize, onions, garden-egg fruits, tomatoes, red peppers, beans, okra and pawpaw (see also Section 4).

### 3 Crop cultivation and rearing livestock: knowledge sources

The ABOFA membership covers communities with a population of approximately 56,000 people from 14 different tribes with different languages, traditional authorities and chiefs, and religions (Christians, Muslims and traditional Africa spiritual believers). The region is dominated by a tribal culture governed by local chiefs. Within that culture, the main way in which knowledge of different plant and animal species is maintained is primarily through Indigenous ways of learning. This involves information – about all aspects of nature and meaning – being passed down from parents to children and from their children to their grandchildren. Farmers regularly share knowledge as part of nurturing their children.

Other knowledge is also occasionally shared in the form of new ideas from immigrant farmers. While on the move, migrant farmers introduce new ideas and ways of doing things to the communities where they finally settle (see for example Box 1). Moreover, the Ministry of Food and Agriculture (MOFA) also provides farming communities with training and shares information about new varieties of livestock and crops that farmers can manage in their own localities. Into that mix, ABOFA has also helped to improve knowledge management, which is discussed in the following section.

#### **Box 1. How knowledge is shared by migrant farmers**

In Forikrom, the early migrants from northern Ghana who came to settle in the region started planting millet, one of the staple cereal crops in the north of the country. But while the millet grew well, it failed to produce sufficient seeds for selling and replanting, so local communities stopped growing it. They decided to learn and adopt crops that were then commonly grown in the more southern parts of Ghana, such as yams. Farmers were already familiar with planting different yam species, but another migrant tribe introduced a specific variety, known locally as *kulonku*. This yam variety grows fast and was soon in high demand, becoming the staple diet. Those migrant farmers taught the existing local communities how to plant and stake the plants. The migrant farmers used one stick per plant which was not the original method of sticking.

#### 3.1 Biocultural heritage

Food is believed to be both medicinal and spiritual in the culture of the peoples of Bono East, a fact that is reflected in their annual yam festival. The community is blessed with a cultural heritage and ecotourism centre located in the heart of town. The executive director of ABOFA, Nana Kwaw, is also a sub chief and due to his vision for ecotourism, he supported the community to build an accommodation unit to help promote the site. The ecotourism centre near Forikrom has been designed with two main entrances and sections – one for Christians who believe in the Holy Ghost – and one for use by traditionalists for spiritual rituals and the pouring of libations. During special religious ceremonies or at times of great hardship (such as droughts) there are the yam and Apoo festivals at which special prayers are performed at the site by fetish priests and chiefs.

Hunting around the heritage site is not permitted by anyone, including the chief. The penalty for breaking this rule is a payment of seven male sheep and 10,000 cedis. Also, farmers owning land close to the site have been tasked with planting cash crops such as mango, cashew, cocoa and also Indigenous trees to protect the site from bush fires, and also to protect wildlife and maintain the forest.

The Forikrom community includes seven villages. Almost everyone wears casual imported clothes to work and to the farm. But for occasions such as funerals and weddings, they prefer to wear traditional African dress. During festivals, such as the important yam festival and others, people wear local clothes (often made of cloth or *kente*, a type of silk and cotton fabric made of interwoven cloth strips that was originally native to the Akan tribe in Ghana). But cloth making is not a major part of crop cultivation in the region.





This rock formation – known locally as the Ark – is part of the Forikrom ecotourism heritage centre. The rocks are shaped like a map of Africa and are a popular tourist attraction © Takyi Ezekiel Paul

### 3.2 Intergenerational knowledge transfer within households

Family farming is widely practiced and this where much of the teaching and learning take place. Knowledge about local agrobiodiversity is usually transferred from fathers to sons who in turn pass on this knowledge to their own sons and daughters – a traditional learning process that is essentially 'learning by doing'. Children who are not in school support farming activities on a daily basis, while school children (from primary to secondary high school) work on family farms at the weekends. There is also a traditional practice of giving children an independent plot on family land where they are taught how to weed and manage a small farm. In addition to this intergenerational transfer of knowledge, children and youth can learn agricultural studies at school. These classes are well attended, from primary school level through junior high and senior high school and beyond to university.

### 3.3 Knowledge transfer between neighbours

Farmers tend to learn more from (and follow more closely) other successful farmers than they do from the extension office from the Ministry of Agriculture. The ratio of farmers to extension officers is approximately 2,000:1, so learning from successful neighbouring farmers is much easier.

Sharing knowledge and experience with other farmers is one key mechanism whereby farmers adopt different farming practices. This transfer of knowledge between neighbours has underpinned significant

changes in farming over the years, as populations and climatic conditions have changed. For example, farmers in Forikrom and other communities did not farm certain species of crop or livestock until farmers from the savannah zone migrated to the transitional zone, and farmers from the transition zone also moved into the forest zone. These migrations have gone hand in hand with changing preferences for food and exchanging planting materials. For example, another new variety of yam call *kuruku* was initially largely planted by the farmers of Fiaso but has now been adopted by farmers within the transitional zone due to its faster growth rate and high market demand.

### 3.4 FFPO knowledge networks

Since it was established, ABOFA has trained around 120 community volunteer trainers, who themselves have gone on to support and train more farmers within their working communities. With support from Grassroots International, ABOFA has trained its members in agroecology and women's empowerment, targeting women and youth leaders from farmer groups and communities. This training is conducted every year before the start of the season. Selected members receive training for two days a week over three months. Before graduation, there is a farmers' field day, where ABOFA invites the director from the Ministry of Food and Agriculture, traditional leaders, other NGOs that share the same vision for agroecological farming, and community volunteers to assess the trainees. Awards are given out and all new trainers are awarded with a Certificate of Participation and a manual.

The main content of the trainings is focused on agroecological farming systems. The trainers are taught to use a farmer field school (FFS) approach – a field-based training method based around an agreed curricula that is co-designed to be useful to farmers. The training includes a range of modules: soil testing, land preparation, organic vegetable farming, compost preparation, rainwater harvesting, nursery practices (including for fruit and agroforestry trees), beekeeping, grafting and recordkeeping.

These yearly FFS trainings have supported ABOFA members to explore additional livelihood options, such as beekeeping, snail rearing, soapmaking and value addition for cashew and other cash crops such as mango and cocoa. All of these activities help farmers to diversify their income streams and maintain agrobiodiversity on their farms. ABOFA has also provided farmers with a training manual to keep and refer to when they face challenges dealing with particular crops. The manual has proven useful in dealing especially with problems faced in growing cabbages, carrots, green peppers and cucumbers.

ABOFA also coordinates with government agencies. For example, the Ministry of Food and Agriculture has supported several training workshops run by their agricultural extension agents (AEAs). These workshops aim to transfer knowledge to a wider number of group members, families and households. Additionally, the Forestry Commission provided farmers with 6,000 tree seedlings during the Green Ghana Day. In addition, national and international NGOs including ADRA, the World Cocoa Foundation African Cocoa Initiative (ACI) and the German Agency for International Cooperation (GIZ) have also supported farmers with different trainings about farming business.

ABOFA has also instituted a women's wing as part of its organisational structure, where women leaders champion women's needs in agriculture. These women have been broadcasting radio and advocacy dialogues about the Plant Variety Protection Act 2020<sup>3</sup> and campaigning against the use of hybrid seeds and GMOs food and seeds. Every year, these women showcase traditional seeds at the ecocultural activities and farmers' field day celebration.

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<sup>3</sup> Sometimes known as the plant breeders' bill, the Plant Variety Protection Act became law in 2020. It establishes a legal framework to protect the rights of breeders of new varieties of plants or plant groupings and to promote the breeding of new varieties of plants in Ghana. See <http://bit.ly/3X9rl3l>





Training in agroecological farming methods using an FFS approach © Takyi Ezekiel Paul

ABOFA recognises the importance of communication with group members and so has created a social media WhatsApp platform to enable members to network and share useful information. Some youth have used the platform to exchange information on training in grafting cashew, mango and avocados as a way of diversifying and generating more income while enhancing agrobiodiversity. This has enabled them to generate extra income that has supported their education and offers them a career moving forward.

## 4 Cultivating and managing seed and animal resources

### 4.1 Farmer seed harvesting and seed multiplication

The main methods that farmers use to manage seed and livestock is setting aside seed from the current harvest for future planting, and rearing their livestock using their traditional knowledge. Over the years, ABOFA has been supported by a range of NGOs including Grassroots International, the United Nations Development Programme (UNDP), ACI, CARE International, the Centre for Indigenous Knowledge and Organizational Development (CIKOD), and FAO. These organisations have worked to help rural farmers maintain their Indigenous systems of farming, including the seed sources that have been used for generations.

Because of their traditional knowledge and the external support they have received, farmers are well aware of the importance of keeping seeds, and this issue is close to their hearts. They also maintain stocks in the event of food or seed shortages. ABOFA estimates that 90% of farmers within the transitional ecological zone have been trained in various methods of seed preservation and food security.

Training has included how to multiply their own Indigenous seeds and animals from their own farms, balancing ecosystem restoration and protecting rivers, so as to maintain year-round production.

## 4.2 Bartering for and purchasing seeds

For some crops such as cabbage, green pepper and carrot, only hybrid seeds are readily available. Farmers usually buy these seeds from local stores for planting cash crops and or to grow food for home consumption. For other crops (notably tree-based crops for farmers who wish to adopt agroforestry systems), farmers can obtain seed from the Forestry Commission for planting trees that provide shade to grow on cocoa, mango or cashew farms, such as wawa, mahogany, odum and framo. These trees provide a canopy that helps improve the ecosystem by reducing the amount of direct sunlight and preventing damage to crops.

For many farmers, buying inorganic fertiliser has been a key cost outlay. But farmers have learnt that by composting plant waste and rearing livestock such as cows, goats, chickens and sheep in order to use their manure as compost, farmers can reduce their inorganic fertiliser costs. The demand for composted fertiliser is currently high, not only because of fertiliser shortages due to the war in Ukraine, but also because farmers themselves have realised that using inorganic fertilisers has a long-term negative effect on the land and soil fertility, and are not in line with protecting Mother Earth.

Farmers have also learnt from another other common farming practices, such as using crop rotation to balance soil nutrients. But there was greater lesson learnt about self-sufficiency during the COVID-19 pandemic. Large markets and stores in cities were closed down, so farmers dependent on buying seeds to plant could not buy any in stores. Those who had saved seed (or had neighbours to help them) went ahead to plant while restrictions were still in place in the cities. This mutual help strengthened those village communities, which was a great advantage and enabled them produce more during COVID-19.

## 4.3 Seed banks: community or FFPO stores or purchase systems

As already noted, farmers use a wide variety of plants on a regular basis, including many more occasional fruits and medicines not recorded here. Keeping Indigenous seeds and crop varieties for multiplication has been a long-term vision for ABOFA and its members.

ABOFA in partnership with CIKOD is supporting farmers in Forikrom and the surrounding communities to construct a community seed bank attached to their association office for the express purpose of managing and preserving Indigenous seeds. The project was funded by the AgroEcology Fund,<sup>4</sup> which it was possible to access because of the organised nature of ABOFA. The community seed bank is managed by ABOFA and is maintained through member contributions.

The purpose of the community seed bank is to create a centre that promotes sharing and learning, focused on maintaining traditional food and seeds for today's youth and future generations yet unborn. It enables ABOFA's members to maintain control of their seeds and to set some aside from each harvest so as continuing multiplying their seeds. The new storage unit now also includes the seeds of medicinal plants, and so contributes to keeping alive spiritual and cultural knowledge which is diminishing from their everyday life.

To celebrate the new seed bank being built and to promote seed multiplication and sharing among farmers, CIKOD organised a day-long seed and food exhibition in Forikrom. ABOFA also plans to expand its local Indigenous food and seeds project to other communities in order to increase the volume of seeds available and to distribute them more widely to other farmers. At the moment, the ABOFA community seed bank has the following seeds available:

- Three varieties of maize
- Three varieties of onion

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<sup>4</sup> The Agroecology Fund is a multi-donor fund that supports just and sustainable food systems. See [www.agroecologyfund.org](http://www.agroecologyfund.org)



- Groundnuts
- Cashew
- Two varieties of garden-eggs
- Two varieties of tomatoes
- Three varieties of red peppers
- Seven varieties of beans
- Three varieties of okra
- Soyabeans
- Three varieties of pawpaw
- Ginger, and
- Turmeric.

Another advantage of the community seed bank became apparent during the COVID-19 pandemic, when it became clear that farmers within Bono East were still leading strong and healthy lives. The nutritious food they were able to grow gave them more resilience. For example, farmers consumed local herbs that may have helped them to remain healthy and less susceptible to disease.

Early seed-collection storage units at ABOFA office (left) and seeds displayed during the seed and food exhibition in Forikrom organised by CIKOD (right) © Takyi Ezekiel Paul



## 5 Enterprise strategies and agrobiodiversity

### 5.1 Cash-crop enterprises

Farmers have long been selling and aggregating food products such as maize, yam and cassava on a daily and often individual basis. But perennial crops or cash crops such as cocoa, cashew and mango have been introduced more recently.<sup>5</sup> Farmers have benefitted from ABOFA's support in attracting development partners to grow these new crops, but there have been problems.

For example, between 1990 to 2000, the Adventist Development and Relief Agency (ADRA) tried to introduce cashew as a crop to the people of the Bono Region. However, most farmers did not plant it. Later, ADRA changed its strategy to encourage planting, and offered the farmers both seeds and nursery-grown seedlings with a bag of rice as an incentive. At that point, a few additional farmers took the seedlings plus their rice but again failed to plant. Many thought that planting cashew would take up too much land, making it difficult to plant their yams, beans and cassava. But others did plant, despite doubts about being able to sell their harvested cashew, as it was not a local staple food.

Later, some farmers also began to intercrop their cashew trees with other cash crops, such as mango, coconut and orange – an idea taken from exposure to other areas. However, these crops involved high labour requirements, such as regular clearances to keep them growing. After some years, once the canopy became interlocked, farming other cereals crops become impossible. In addition, Indigenous trees within the farm needed to be cut down to maintain the minimum sunshine levels required by those crops. These observations show that ideas about maintaining or increasing agrobiodiversity are not always possible – and take time to experiment with and to establish workable systems.

Also, since ABOFA was established, the sales prices of different commodities regularly changes. For example, the price of cashew is high for the first month of the harvest and usually drops towards the end of the harvest. Last year, a kilo of cashew started at 7 cedis but subsequently dropped to 4 cedis.

With support from other NGOs, ABOFA has helped 60 farmers acquire 200 beehives to provide them with an alternative livelihood. ABOFA has also trained farmers who plant cash crops such as mango and cashew to increase their planting spacing so as to intercrop their cash crops with other species such as maize, onions, cowpeas and yams. ABOFA has also shown farmers how to maintain intensive pruning of cashew and mangos when these crops become overgrown. Within the plantation cows, pigs and poultry are left to feed and graze. This practice helps to fertilise the soil and enriches agrobiodiversity.

### 5.2 The role of FFPOs in improving market access

When farmers try to sell their crops individually, they can get poor prices from market traders. ABOFA has played a major role in aggregating members' produce such as maize, beans, onions and other vegetables to meet the demand for high volumes from the market and helping farmers to negotiate a fair price.

Mango buyers (large-scale companies such as HPW Fresh & Dry Limited and Bomarts Farms Limited) often buy directly from farmers at the farm gate. However, farmers have learnt that they can negotiate a better price for their produce as members of Yilo Krobo Mango Farmers Association, a farmer-based apex organisation, providing they can satisfy the fruit-selection criteria and traceability required by large food-supply companies.

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<sup>5</sup> For example, cocoa was purportedly first introduced to Ghana in the late nineteenth century by a farmer name Tetteh Quarshie. Although some farmers were already planting small cocoa farms at that time, trade in cocoa had yet not developed on a large scale. Some farmers simply planted cocoa in thick forest or waterlogged areas just to help keep the land clear if they considered it unusable.

## 5.4 ABOFA's future plans

Climate change and its impact on food systems and seasonality is making food security even more important. The timing for rains and drought has changed and many fear that the transitional zone will become a savannah landscape due to excessive sandstorms, population growth and expanding settlements. Because of this, ABOFA is continuing to promote and help sustain agrobiodiversity with its members, for example during regular round table meetings, and by producing flyers, banners and infographics. ABOFA has also developed new virtual markets for organic food production to sell food directly to local consumers, as a result of the COVID-19 pandemic.

In the short term, ABOFA's target is to expand its operations into other districts for broader coverage and dialogue on promoting agroforestry, supporting youth and women in afforestation, and supporting them to develop alternative livelihoods, such as beekeeping. For example, ABOFA with external NGO support has helped train 30 of its women and youth members on how to add value to raw cashews to generate additional income. Grafting mango, avocado and cashews to enhance their enterprises has also been the subject of training for 65 women and youth in three communities.

The community seed bank is open to all of the 6,000 farmers ABOFA currently works with, and is also accessible to other interested farmers. The long-term plan is for ABOFA to become a hub for storing and preserving Indigenous seeds and plant food species from across Ghana, which other organisations can also learn from.



Learning to plant diverse vegetable crops © Takyi Ezekiel Paul



## 6 Conclusions and recommendations

### 6.1 Conclusions

ABOFA understands that knowledge exchange is key to promoting agrobiodiversity practices. For sustainability, ABOFA needs to ensure that it encourages as many people as possible to champion agrobiodiversity. For example, it has been keen to help its members to adopt, promote and expand agroforestry systems of farming and to plant Indigenous tree species that benefit the local ecosystem and help prevent deforestation. ABOFA is also promoting agroecology farming practices that diversify crops and repair, conserve and boost soil nutrients. Family farming, which is still widely practiced, maintains high levels of diversity in the landscape. ABPFA believes that family farming practices will continue to motivate youth and families to share knowledge and maintain traditional and Indigenous plant species and livestock – not just for food, but for future generations.

### 6.2 Recommendations

ABOFA has played a key role in helping local farmers to manage their agrobiodiversity. The following are based on interviews with ABOFA and its members, who recommended that ABOFA should:

1. Expand its coverage to new selected districts and provide its members with additional timber and fuelwood trees species such as mahogany, oframu, teak, acacia and sapele. It should also promote tree planting to restore degraded lands.
2. Train women and youth on the effects of climate change in order to build their understanding of the need to adapt and mitigate using a strategy of diversification, so that farmers can grow enough food all year round to sustain their families.
3. Expand its community seed bank to two districts to make access easier for its members. The seed bank should also become a learning point for other interested organisations.
4. Continue to support groups with additional training on other elements of agrobiodiversity such as livestock rearing and how to generate additional incomes from various elements of the planted agrobiodiversity.
5. Expand the production and uptake of organic composting and microbial fertilisation to help farmers to become less reliant on chemical fertilisers, especially given the recent problems with supply due to Russia's war in Ukraine.
6. Expand the use of agroecological farming practices more generally.



Training in organic composting © Takyi Ezekiel Paul