



Ukama Ustawi:  
Diversification for Resilient  
Agrifood Systems in East  
and Southern Africa

# CASE STUDIES OF SUCCESS STORIES IN KENYA'S AGRIBUSINESS SECTOR

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## Citation

This publication should be cited as: Gatonye, M., and Adam, R. 2022. Case studies of success stories in Kenya's agribusiness sector. Nairobi, Kenya: Ukama Ustawi: Diversification for resilient agribusiness ecosystems in East and Southern Africa (ESA) and Resilient and Aquatic Food Systems for Healthy People and Planet (RAqFS) initiatives.

## Acknowledgments

The Ukama Ustawi: Diversification for resilient agribusiness ecosystems in East and Southern Africa (ESA) initiative, led by International Water Management Institute (IWMI), and other CGIAR institutions, including WorldFish, publishes the case studies of success stories in Kenya's agribusiness sector. ESA is a multidisciplinary research for development program designed in collaboration with partners and stakeholders to develop and implement research innovations that enhance the contribution of smallholder farmers, agribusiness men and women in reducing poverty, increasing food and nutrition security, promote healthier diets and improving natural resource systems. Some of the resources to support this work came from Resilient Aquatic Food Systems for Healthy People and Planet (RAqFS) initiative. RAqFS is a multidisciplinary research for development program designed in collaboration with partners and stakeholders to develop and implement research innovations that enhance the contribution of small-scale fisheries and aquaculture to reducing poverty, increasing food and nutrition security, and improving natural resource systems. The ESA and RAqFS initiatives are supported by CGIAR Trust Fund contributors: [www.cgiar.org/funders](http://www.cgiar.org/funders).

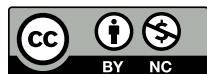
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# Executive Summary

Agribusinesses are an integral part of the Kenyan economy and, while facing many challenges, have shown to be adaptable to local and international conditions. These agribusiness case studies success stories provide insights into the constraints and opportunities of the sector. Most importantly, how CGIAR research centers can understand the different roles of women, men, and youth in agribusiness; highlight the constraints, barriers, and opportunities along the value chain; and exemplify the experiences and successes of seven agribusiness producers. Interviewees were selected based on attendance of the workshop and through referrals. The agribusiness case study success stories presented offer several lessons in opportunities, challenges, and solutions for agribusiness. Major common challenges are market access, transportation, and postharvest pricing. Market access has been exacerbated by the impact COVID-19, particularly international markets. Transporting produce to market—even to local markets—also poses challenges. Produce can spoil before reaching markets if not preserved for long distances, or if transported over poor roads. Low prices, especially from lower-priced government-subsidized goods, make it difficult for farmers to earn profits and reinvest in their agribusinesses. This can be offset to some degree by diversification, such as by growing various crops alongside apiculture or aquaculture, or by investing in other agrobusiness lines that yield regular income. Value addition, such as the use of cassava to make flour, chips, and crackers, is another avenue by which to enhance profits.

Other challenges are lack of affordable or accessible essential tools and technologies, such as machines for weighing and sorting. Freezers are also needed; while there are low-tech preservation techniques, such as salting or icing, these are not optimal. Climate change exacerbates the difficulty of preservation, as higher temperatures mean produce spoils more rapidly. Climate change also contributes to drought and the spread of disease.

Actual and proposed agribusiness solutions for some of these challenges are water reservoirs, crop diversification and rotation for soil health and disease control, trainings, and government-provided subsidies given directly to farmers—thereby bypassing current issues with cartels having access to these subsidies—to enhance access to inputs.

In addition to these strategies, farmers have found other solutions that bring them together, such as by forming associations that provide trainings and workshops; sharing resources to farmer groups; helping to subsidize certain costs, such as seeds, to other farmers; and collective bargaining of market prices.



# 1.

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## Introduction

Have you ever wondered what makes some farmers successful in their business? And how they began their business? Are there challenges? If so, how do they solve them? What innovations and technologies do they use in their business? Does the business break even?

The agribusiness case studies presented answers some of these questions. These case studies are a follow-up from the workshop on Gender equality and social inclusion (GESI) in agribusiness ecosystems for multidimensional mapping of opportunities and challenges, held on 26th July 2022. The workshop's goal was to better understand opportunities and challenges, and how to tap into them and address them. The workshop's venue was the International Livestock Research Institute (ILRI), Nairobi, Kenya.

The case studies were funded by One CGIAR partnership strategy of integrated research that aims to achieve a food-secure future, with a focus on East and Southern Africa Region, through the Ukama Ustawi initiative. They collate experiences, challenges, and successes from seven diverse agribusinesses (small-, medium-, and large-scale) in cereals, roots and tubers, livestock (cattle, chickens, pigs), aquaculture, fruits and vegetables, and apiculture. The objective is to examine and narrate the constraints and opportunities; outline production and market value chains; understand the different roles individuals play in agribusiness; and highlight the experiences and successes.

These stories span stakeholders in six counties: Busia, Kajiado, Kakamega, Kiambu, Nandi and Uasin Gishu.

# 2.

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## Agribusiness case studies



# 2.1

## Jungle Honey Limited, Kakamega County

Beekeeping in Kenya has existed since time immemorial. Yet only about 20 percent of the country's potential has been tapped. Apiculture is most common in arid and semi-arid areas due to the abundance of bee flora, such as red bottle brush and Japonica flowers. More than three-quarters (about 80 percent) of Kenya's honey is from traditional log hives.



Figure 1. Table beehive farm at Jungle Honey in Kakamega County: Photo by AZE World



Kakamega County is famous for its vast swathes of sugarcane, a very attractive plant for bees. Winding along a dusty road, we encounter tractors towing huge wagons piled high with sugarcane. Our destination: Khwisero village, home to Jungle Honey Limited, an enterprise started in 2016 by the Mukungu family following the death of their father from a bee sting. Pained by his father's death, Jackson Mukungu began his journey of understanding bees better, and turning tragedy to triumph. See Figure 1, beehive farm at Jungle Honey in Kakamega county.

Jackson is a bee and theology expert, he has researched bees' connection to witchcraft, spirituality, and symbolism. His vision is to be a change-maker to see his community prosper and for Jungle Honey Limited to become a local hub for learning and understanding bees. His life's mission is to understand the importance of bees and their connection

to people. As he speaks, his passion and respect for bees shines through.

"There is a spiritual connection between bees and people," Jackson asserts. After working for many years away from home, Jackson believes that he got a divine calling to return home to help his community.

Jackson has been in beekeeping for the last 15 years. He has 100 hives, where he harvests honey for sale. He also supplies hives to other farmers. "Bees are very symbolic creatures," says Jackson. "They signify luck and prosperity. To understand bees, we need to know what triggers them to be part of us. I believe there is always a message behind bees" (see Figure 2).



Figure 2. Jackson demonstrating how the bee colonies are formed: Photo by AZE World

“

**Jungle Honey** was registered and certified by the **Kenya Bureau of Standards** under the Companies Act. This has enabled us to **sell our products internationally.**

*Jackson*



According to Jackson, despite beekeeping being highly enjoyable and rewarding, it is poorly understood. Compared to other farming enterprises, it in fact requires less capital. Besides honey, apiculture also produces beeswax, pollen, propolis, bee venom, royal jelly, bee colonies, bee brood, queen bees, and package bees.

Jungle Honey works with over 3000 farmers across Kenya, Uganda, and Tanzania in various aspects including surveys on suitability of beekeeping and recommendations, installing beehives, and training on good apiary management.

“We have also opened our home to the community where we house other amenities such as a community and training center, primary school and church, all in one compound. Change begins at home!” Jackson asserts.

Jungle Honey has 47 employees, of whom three are women. Training includes introduction to beekeeping and its importance, types of hives and their management, bee management, bee forage and environmental conservation, apiary siting and selection, the life cycle of bee colonization and baiting, and record-keeping.

To assure purity and quality, Jungle Honey has honey squeezer and honey harvesting equipment. See bee honeycombs candle shown in Figure 3. Market-ready honey is packaged in 500-gram containers, sealed and labelled. They produce about 28 tons of honey bimonthly.

In 2019, Jungle Honey was registered and certified by the Kenya Bureau of Standards under the Companies Act. “This has enabled us to sell our products internationally to markets in Korea, Spain, Australia, Uganda and Tanzania,” Jackson reports.

Honey is gaining popularity as a sweetener alternative to processed sugar. Consequently, for Jungle Honey, the growing demand is outstripping supply. Honey is also used as a bread spread, medicine (most hive products are remedies in apitherapy), and preservative. To assure, retain, and enhance market access, Jungle Honey values quality. A kilo of honey retails at 800 Kenya shillings (KES) locally, and at KES 1,200 internationally (respectively equivalent to \$8 and \$12 United States dollars (USD)).



**Figure 3. Bee honeycombs candles: Photos by Jungle Honey Ltd**

But the sweet honey story also has sour points. Countrywide, the main challenge is inadequate research on beekeeping technologies, equipment, honeybees, and product utilization. Other challenges include a lack of adequate skills on managing and handling hive products, inadequate training for farmers and extension staff, and underdeveloped

marketing system for hive products, both locally and internationally, due to problems of quality and marketing. For this reason, Jungle Honey makes a concerted effort to educate and inspire others on beekeeping. See Figure 4, activities going on at the farm.



**Figure 4. Jungle honey employee painting beehives to be later installed in one of their members farms: Photo by AZE World**

And yet this giving extracts a price and nasty surprises. “People you raise and train stab you in the back,” Jackson laments. Still, Jungle Honey enjoys more friends than foes. Numerous partners have supported them over the years including the United States Agency for International Development (USAID), World Vision, Kenya Climate Smart Agriculture, and the county government of Kakamega, among others.

“Countrywide, the **main challenge** is **inadequate research on beekeeping technologies, equipment, honeybees, and product utilization.**”



## 2.2

# Tom Bowen, maize farmer, Sugoi, Uasin Gishu County

As one travels along the Eldoret–Uganda road, glimpses appear of Kenya’s main cash and staple crop—maize. Maize-covered farmlands stretches as far as the eye can see, dipping into the horizon. We are in the backbone of Kenya’s maize belt. Along the roads are tractor-wagons and trucks laden with sacks of maize heading to the millers. The scene is no different as we turn towards Sugoi village, a town now famous for its leading native son, the current President of Kenya, Dr. William Samoei Ruto. Sugoi is approximately 264 Kilometers southwest of Nairobi.

Here, we meet Tom Bowen and his wife, Ellen Bowen, farmers who grow maize for sale on more than 80 acres of leased land. They lease the land for between two and five years, depending on the leaser. Photo of Ellen sorting maize, Figure 5.

Their journey to maize farming did not come easy, however. Tom reflectively looks back at the road behind him. A class four dropout, he held a motley series of odd jobs for 32 years, including house boy, broker, and driver. He finally landed on maize farming, learning from observing one of his past employers and mentor. He looks back at his life with gratitude, amazed at where he is today. Tom says their farming is a family enterprise in which his wife (Ellen Bowen) and five sons are also involved: each has a distinct role in the smooth running of the business.



**Figure 5. Ellen Bowen sorting maize: Photo by AZE World**

As we arrive at the Bowen homestead, we are welcomed by the sight of what must be nearly 100 sacks of maize spread out to dry. Drying requires a maize moisture analyzer test kit to ensure that the maize dries properly (no more than 12.3% moisture content) before taking it to the miller (see Figure 6). A certain degree of losses is part of the business:

for each hand of maize (i.e. handful), you can only remove a maximum of four maize for it to be of quality (each hand is approximately 100 maize). Currently, the Bowens grow three varieties of maize: 6213, PANA, and 6218. Blended, they produce a stronger, disease-resistant breed.



**Figure 6. Tom Bowen demonstrating how a maize moisture analyzer works: Photo by AZE world**



Tom had just delivered over 200 sacks of maize to the millers in nearby Eldoret that morning. Each week, he sells more than 500 sacks on average. A sack's farmgate price is KES 4,300–4,500, it fetches KES 4,700 at the millers, and goes for KES 4,800 through brokers.

He believes in a “willing buyer, willing seller model.” Recently, however, the market has been a major challenge, especially due to low prices due to lower-priced government-subsidized goods and attendant exploitation of farmers. Still, he forges on with maize farming as a business, convinced as he is that “what will destroy this country's economy is hunger and drought, if things don't change with the new government.” With the volatile market prices, Tom prefers to store his maize until the market stabilizes. He says maize, properly stored, can last up to a year without spoiling. Through maize, he has educated his children up to the

university level, diversified his business portfolio, expanded his property, and grown his wealth.

But it is not all rosy—there have been challenges. He laments that cartels that have acquired government-subsidized cereals and fertilizer are now selling them at exorbitant prices. Additional challenges include lack of access to timely and low-interest loans, lack of a market, poor weighing machines at farmgate due to the high import costs, and widespread theft. “I recently got robbed of more than five sacks of maize as I was harvesting,” says Tom. He wryly notes that farming is never smooth. “It is a game of pata potea [today you gain, tomorrow you lose],” Tom observes. Unpredictable weather also affects the drying period and process. Figure 7, showing Tom and his brother harvesting maize.



**Figure 7. Tom Bowen (Left) with his brother (right) harvesting at his farm: Photo by AZE world**

To address some of the challenges, Tom says the government should provide fertilizer subsidies directly to farmers and be vigilant on cartels: “I have resorted to borrowing money from

friends and family to be able to afford the fertilizer,” he says. Security should be enhanced to curb theft. Many farmers are now forced to hire guards for their crops.



The government should **provide fertilizer subsidies** directly to farmers and be **vigilant on cartels**

Tom



## 2.3

# Elevating aquaculture farming at Makindi Fish Farm

Kenya's fisheries and aquaculture sector plays a critical role in socioeconomic development. The sector provides opportunities for jobs and wealth creation, and improves food security, all of which contribute to achieving the sustainable development goals. The aquaculture sector directly supports more than 80,000 people. Another approximately one million and their dependents indirectly benefit as processors, fishers, traders, suppliers of inputs and fishing accessories, and employees.

Nestled amidst coffee plantations and gently sloping hills along a dusty, winding road off the Thika–Murang'a road lies a hidden gem—Makindi Fish Farm (Figures 8 and 9). The farm sits on land reclaimed from a swamp more than five years ago. Makindi boasts 30 open Tilapia ponds, 28 raised concrete ponds in a catfish-filled greenhouse, and two hatcheries.

“The **aquaculture sector** directly supports more than **80,000** people.”





**Figure 8. Tilapia earthen ponds layout at Makindi Farm: Photo by AZE World**

The farm employs three women and four men. Martha, the aquaculture manager, holds a degree in Fisheries and Aquaculture from Eldoret University. She oversees the day-to-day running and handles most of the training for employees on farm management, best practice such as breeding, hatchery management, grow-out, harvesting and fish processing, among other areas.

The farm produces fingerlings, grow-out tilapia, and catfish. Their main fingerling buyers are small-scale farmers and the county government. They sell grown tilapia and catfish to hotels, individuals at farmgate, schools, and middlemen (the term frequently used by fish farmers and traders): “We get most of our market through referrals and social media platforms, such as Facebook,” says Martha.



**Figure 9. Greenhouse concrete raised Catfish ponds(left), Properly labeled earthen tilapia ponds (right) at Makindi Farms: Photo by AZE World**



A highly perishable product, fish must be stored in low temperatures, preferably by icing at harvest or freezing after harvest. Makindi Fish Farm has freezers, and a fish-processing area where they scale, gut, fillet, and vacuum-pack fish. A kilo of whole tilapia sells at KES 500; fillet fish for KES 700 and smoked catfish costs KES 1,200. “Most of our fish is sold at the farm, so we never worry about transportation,” Martha reveals.

Quality fish seed is imperative to enhance production. This is why Makindi invested in a state-of-the-art hatchery in 2018 which produces more than 60,000 fingerlings per month. “A fingerling goes for 10 to 20 shillings, depending on the size,” says Martha.

Over the last two years, Makindi has been gravely affected by COVID-19, with sales dropping drastically. “Before COVID, our monthly net sale was around 400,000 shillings. Today, our sales are half of that,” regrets Martha.

A major challenge for fish farmers in Kenya is availability, affordability, and accessibility of fish feed; Makindi is no exception. Most of the raw materials for making fish feed—

such as soy beans and fish meal—are imported. “We buy fish feed from Unga Feeds,” says Martha, adding, “A kilo of starter feed goes for 500 shillings, and grow-out tilapia, 2mm (millimeters) at 180 per kilo; 3mm at 150; and 4mm for 130. This makes it difficult to meet production costs.”

Other challenges are predators, including birds, and theft. The farm has installed bird/predator nets on the ponds and built a water reservoir to assure steady water supply.

On market access, Martha reveals, “One way to promote ourselves is during farmer days. In the next five years, we hope to increase our clientele and increase our fingerling production. We also hope to add more nurseries, such as the plastic tanks, and to increase diversification of our products. Our other products are coffee, bananas, sweet potatoes, and cassava.”



“ A major challenge for **fish farmers** in Kenya is **availability, affordability, and accessibility of fish feed.**”



## 2.4 Vegetables and poultry at Guango Green, Kajiado County

### 2.4.1

## Vegetables farming

Horticulture is perhaps the most vibrant sector in Kenya's agriculture industry, employing more than two million people and contributing significantly to the country's gross domestic product (GDP). Horticulture food crops such as fruits, vegetables, and tomatoes are grown for local consumption and export. An estimated 80 percent of horticulture producers are small-scale.

It is early morning in Kitengela, Kajiado County, where Joseph Kigathi walks us round his beautiful orchard at his 15-acre Guango Green Farm (Figure 10). A retired banker, Joseph is one of many vegetable farmers in the area. We are curious

to know what led him from banking to farming: "Farming is in my blood," says Joseph. From a young age, he had always longed to farm. The start was slow and gradual. He began the vegetable farm in 2001, buying the land using his savings. Joseph grows a variety of vegetables and fruits, such as onions, terere (amaranth), managu (edible nightshade), cabbage, kale, spinach, tomatoes, carrots, peas, banana, oranges, and butter nuts, among others.





**Figure 10. Spinach on drip irrigation Guango Green Farms: Photo by AZE World**

Beneath the farm office is a water reservoir whose capacity can last more than a week in case of supply interruptions. Currently, he uses drip irrigation water pumped from a borehole. This is more efficient than overhead irrigation. The water is analyzed for safety at least twice a year (Figure 11).



**Figure 11. Joseph (Owner) taking a tour around his farm: Photo by AZE World**

Joseph has 14 employees, mostly women, for tilling and harvesting. Sam—the farm manager—invented an innovation to preserve onions for longer (see Figure 12). This was at a time when there was no stable market for onions, coupled with the complication of them spoiling too soon. According to Joseph, “Sam has been a blessing, lifting this farm from a bad place.” Sam oversees operations, and trains employees on good farm management and meeting market needs. Guango Green also grows tomatoes and green peppers in their greenhouse.





**Figure 12. Sam (Farm Manager) explaining how the different operations of the farm are managed: Photos by AZE World**

Onions and local vegetables occupy half the farm (Figure 13). According to Joseph, vegetables grown are dictated by market preference and forces. For example, before COVID-19, the farm exported French beans to Europe. But thereafter, frustrations arose with the international market, resulting

in Joseph abandoning French beans altogether to focus on local produce for the local market. The farm diversifies their crops to meet new market demands.



**Figure 13. Pre harvested onions (left) Harvested and dried onion (right) from Guango Green Farms: Photo by AZE World**



Today, all the farm's vegetable produce is sold locally and at farm gate. "We can barely meet market demand," says Joseph. Marketing strategy is by word of mouth. "Once we announce to one of the traders that the vegetables are ready, we are guaranteed that they will take all the stock. In a day, we can have up to 300 traders waiting to buy the vegetables."

Spraying for pest and disease control is a last resort, with non-chemicals always preferred. Crop rotation is practiced for fixing nitrogen and for pest and disease management, rotating kale and cabbage with non-leguminous crops, such as butter nuts.

Besides the frustrations from the European market, Guango Green has faced other challenges, such as the post-COVID

price spikes for inputs, resulting in expensive raw materials. The other is rising energy costs. "The cost of electricity is too high," laments Joseph. The market was also sluggish, "But is slowly picking up," Joseph observes, adding, "We have had to let go of other farming activities that were not bringing in income, such as pigs and cows."

Regarding the future, Joseph is hopeful: "In the next five years, Guango Green hopes to expand its market by increasing its production by 50 percent. We also hope to add fruits to our product portfolio."



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In a day, we can have up to **300 traders** waiting to buy the vegetables.



## 2.4.2

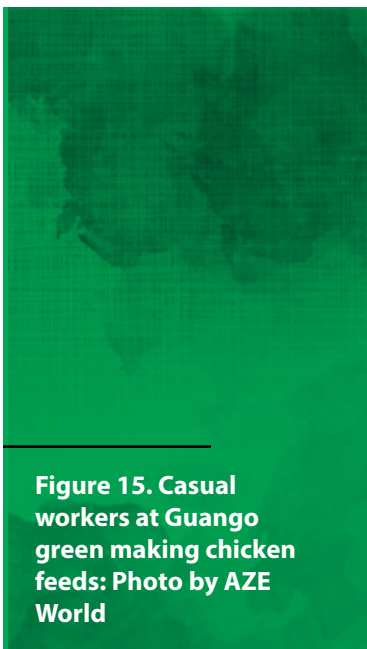
### The hidden treasure that is poultry farming

The story of Guango Green does not end with vegetables. As we are about to leave the farm, Joseph says there is a poultry business he recently started earlier this year that he would like to show us (Figure 14). Expecting to see a few chickens, he opens door to what he calls his "hidden treasure." After his pig and cow business failed, Joseph decided to venture into poultry farming. Today, he has more than 4,000 birds. He also makes his own feed (Figure 15).





**Figure 14. Raised chicken house installed with modern feeders: Photo by AZE world**



**Figure 15. Casual workers at Guango green making chicken feeds: Photo by AZE World**



Poultry farming is mostly small-scale, primarily for domestic consumption. But it is steadily gaining popularity as an agribusiness in urban and rural Kenya. Although poultry farming includes rearing different birds such as turkey, geese, and ducks, chicken remains the most popular in Kenya. There are many types of chicken, such as kienyeji (indigenous), layers, broilers, and Sasso. Indigenous chickens are the most

common. They are a readily available source of protein and income for vulnerable communities. Poultry meat has become more popular over the years, especially due to its health benefits. Figure 16 shows broiler chickens at a growing stage at the farm.





**Figure 16. A weeks old (left) and 4 months(right) broiler chickens at Guango Green:  
Photo by AZE World**

A few months into the new venture, Joseph confesses that he wishes he had started poultry farming earlier because by now he would be very far ahead. He has 800 birds in each chicken house. Because he does not have an incubator, he

buys his chicks from a nearby farmer who hatches chicks for sale. In a day he collects 45 trays of eggs. A tray sells at KES 380 wholesale, meaning he can easily make KES 22,900 in a single day. Figure 17 eggs harvested from the farm.



**Figure 17. Eggs collected that day at Guango Green:  
Photo by AZE World**

He has a mill at the farm where he makes his own feed. But with the challenge of getting raw materials and the high cost of electricity, he is disappointed by the feed industry as an

enterprise. Despite the discouragement with feed, Joseph hopes to expand his poultry business from 4,000 to 10,000 chickens in the next five years.

2.5

## Nandi Potato Growers Farmers' Cooperative Society

Exiting the Eldoret–Nandi road and entering Nandi town, we meet Jairus Sugut in his office (Figure 18). He is the Chairman of the Nandi Potato Growers Farmers' Cooperative Society, the Nandi chapter for potato farmers in Kenya. With him is a team of experts that work together to ensure the smooth running of the society.



**Figure 18. Jairus Sugut, chairman the Nandi Potato Growers Farmers' Cooperative Society**



The society was registered in 2017 to address seed quality and input supply (such as fertilizers), to unite farmer voices for amplification, and to organize and sensitize potato farmers. It is governed by a nine-member board of directors and three supervisors elected during the annual general meeting. In addition, the society has several sub-committees that guide the day-to-day activities which

include production, training and education, financing, welfare, and marketing. The society has 2,980 registered and active members. Figure 19, shows a gross margin analysis of Irish potato done on the farm.

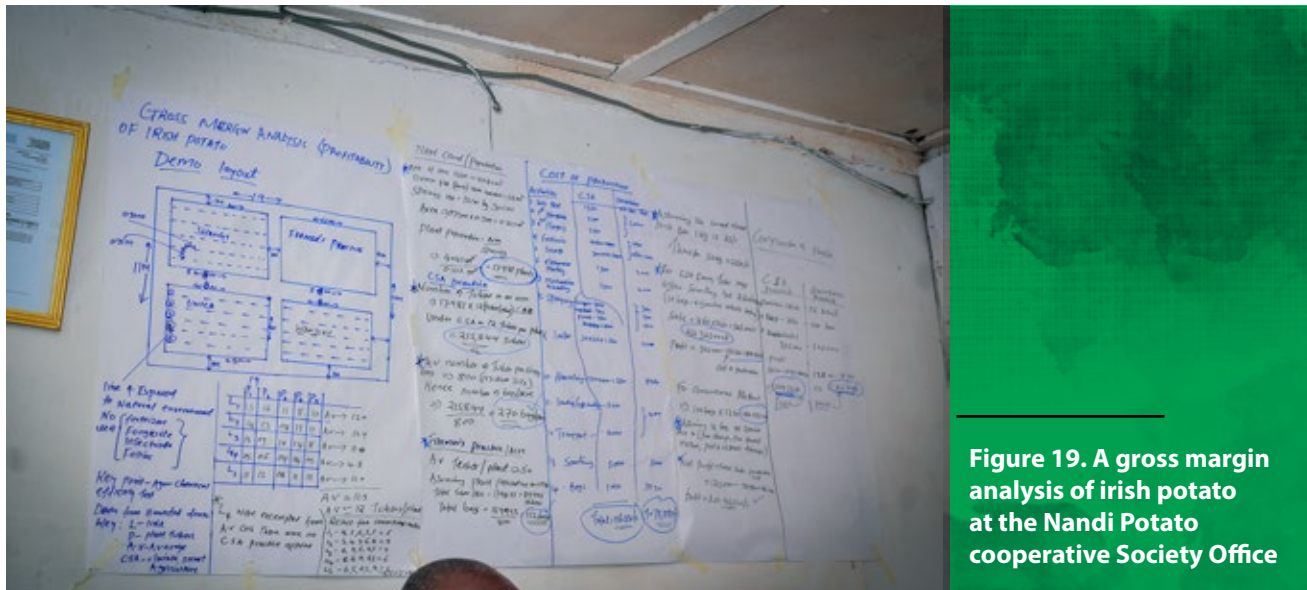


Figure 19. A gross margin analysis of Irish potato at the Nandi Potato cooperative Society Office

After a brief chat in the office to better understand the society's operations, we went to a demonstration farm where different varieties of quality and climate-resilient potatoes are grown. Kenya has more than 67 varieties of potatoes. The main varieties for the society are Wanjiku, UNICA, and Shangji. Wanjiku is an improved Shangji that takes three months to break dormancy (i.e. germinate) compared to other varieties.

"We use our demonstration farms to not only grow potatoes, but also as training centers," Jairus explains. Income from these activities goes to the society's account after which it is shared among members.

Thus far, the society has trained about three-quarters (75%) of its members in its six-module course covering climate-smart agriculture, pre-season planning and planting, crop and

field management, harvest and postharvest management, marketing and economic benefit, and a practical module through the demonstration plot. While most members are women, no training on gender issues has been conducted.

Small-scale potato growers working and producing together assures constant quality supply and good market collective bargaining power for competitive prices: "We set the market prices for potatoes. For example, a sack of potatoes sells for 5,000 shillings," says Willimina Jeptoo, the society's manager. Clients include local hotels, schools, Moi Barracks, Twiga Foods (a quality-conscious company), and Norda (snack manufacturers). Figure 20, shows drip irrigation practiced by the farm.

“The society has **trained** about **75%** of its members in its **six-module course**”



**Figure 20. Drip irrigation plan at the Nandi Potato cooperative society's demo farm: Photo by AZE World**

Some of the challenges for the society are availability, accessibility, and affordability of quality seed; lack of storage facilities; a poor road network which makes it difficult to reach farmers, and for produce to reach lucrative markets; inadequate training; duplication of activities by multiple entities; and changing weather patterns, leading to prolonged droughts.

To solve some of these challenges, the society aims to improve their seed production and support their members by subsidizing seeds, training farmers on value addition, acquiring a potato sorting machine, and expanding demonstration farms and training centers for different potato varieties. Figure 21, shows different varieties of potatoes present in the farm.



**Figure 21. Willimina Jeptoo showing different varieties of Potato's in one of their farmers storages: Photo by AZE World**



"We have worked with many partners over the years, including Kenya Plant Health Inspectorate Service [KEPHIS] who have assisted us with seed certification, soil testing, and training of members. The county government of Nandi which has supported us in market access, extension services, and technical know-how, while the National Agricultural and Rural Inclusive Growth Project [NARIGP] and the International Potato Center [CIP] have been very helpful in strengthening

the society by offering training and capacity-building, through financial support, and conducting research on different varieties of potatoes."

In the next five years, the society hopes to establish a fertilizer and agrochemical store, introduce a savings and credit cooperative organization (Sacco) for farmers to access credit, a cooling storage facility to preserve potatoes after harvest, and to increase member training and recruitment.





# 2.6

## Cassava farming: Tangakona Cassava Farmers' Cooperative Society

Tangakona Cassava Farmers' Cooperative Society is in Busia County, Western Kenya (Figure 22). Established in 1997, the aim was to bring cassava farmers together for access to markets and quality seed, and for farmer training. Through the years, the society evolved into a community-based organization (2010), then a cooperative (2016).

"We currently have 2,904 farmers, who, depending on the season, grow cassava, sweet potatoes, soybeans, and sorghum," clarifies Julian Nzioka, a cassava farmer

and a member of the Tangakona Cooperative. "We have membership in all Busia's seven sub-counties, as well as in Bungoma and Kakamega Counties," he adds.

Previously, cassava here was primarily grown for subsistence. This is slowly shifting due to changing climatic conditions and the consequences: farmers are increasingly more attracted to root and tuber crops owing to their high threshold for flood and heat tolerance, among other stresses.





**Figure 22. Tangakona Cooperative signage:**  
Photo by AZE World

Two cassava varieties are the most commonly grown: “The local variety takes more than 12 months to mature while the hybrid that takes between eight to 12 months,” Julian explains (see Figure 23). “For cassava to grow well, the type of soil where you grow the cassava is very important. It

determines how that cassava will taste. The way you tell the cassava is maturing is to look at the leaves. When you see the seeds, then that tells you that the root is also developed; however, for me I look at their roots because you harvest the root,” she continues.



**Figure 23. Julian Nzioka demonstrating to one can tell when the cassava is ready for harvesting:**  
Photo by AZE World



The cooperative has been fortunate to receive support from various institutions, such as the Research Triangle Institute, which funded the insulation of a solar-powered cassava dryer in May 2022. Solar drying requires two days.

Tangakona operates along most of the cassava value chain, undertaking farm sourcing, sorting, weighing, peeling, washing, crushing using a chipper, drying, re-weighing, stacking, and transport to the millers. Value-added cassava products include flour (which can be used to make chapati,

a flat bread), mandazi (akin to a type of doughnut), crackers, crisps, and chips, or can be mixed with maize meal or sorghum. The cooperative helps the farmers set prices: A kilo of raw cassava sells for KES 100.

Challenges facing Busia cassava farmers include lack of access to markets and capital; transport for produce; and cassava mosaic disease and cassava brown streak disease, which respectively affect the leaves and the roots. Figure 24, a member of the cooperative uprooting cassava plantation.



**Figure 24. Member of the Tangakona Cooperative uprooting cassava: Photo by AZE World**

The main market for Tangakona is Nairobi, primarily small-scale private buyers, but also large-scale buyers like True Trade and Agricycle. They also sell to local markets in Busia, Bungoma, and Kakamega (see Figure 25).



**Figure 25. Women selling value added Cassava at Port Victoria Busia Market: Photo by AZE World**



# 3.

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## Conclusion

The agribusiness case study success stories presented offer several lessons in opportunities, challenges and solutions for agribusiness. Major common challenges are market access, transportation and postharvest pricing. Market access has been exacerbated by the impact COVID-19, particularly international markets. Transporting produce to market—even to local markets—also poses challenges. Produce can spoil before reaching markets if not preserved for long distances, or if transported over poor roads. Other challenges are lack of affordable or accessible essential tools and technologies such as machines for weighing and sorting, and freezers. While there are low-tech preservation techniques such as salting or icing, these are not optimal. Climate change exacerbates the difficulty of preservation, as higher temperatures mean produce spoils more rapidly. Climate change also contributes to drought and the spread of disease.

Actual and proposed agribusiness solutions for some of these challenges are water reservoirs, crop diversification and rotation for soil health and disease control, training and government subsidies to enhance access to inputs. Moreover, while farmers have found solutions to many of the challenges noted above, such as by forming associations that provide training and other resources to farmer groups, other challenges such as climate change can only be adapted to, not solved.



## About WorldFish

WorldFish is a nonprofit research and innovation institution that creates advances and translates scientific research on aquatic food systems into scalable solutions with transformational impact on human well-being and the environment. Our research data, evidence and insights shape better practices, policies and investment decisions for sustainable development in low- and middle-income countries.

We have a global presence across 20 countries in Asia, Africa and the Pacific with 460 staff of 30 nationalities deployed where the greatest sustainable development challenges can be addressed through holistic aquatic food systems solutions.

Our research and innovation work spans climate change, food security and nutrition, sustainable fisheries and aquaculture, the blue economy and ocean governance, One Health, genetics and AgriTech, and it integrates evidence and perspectives on gender, youth and social inclusion. Our approach empowers people for change over the long term: research excellence and engagement with national and international partners are at the heart of our efforts to set new agendas, build capacities and support better decision making on the critical issues of our times.

WorldFish is part of One CGIAR, the world's largest agricultural innovation network.