



Miller Center
for Social Entrepreneurship



**Santa Clara
University**

NUCAFE'S FARMER OWNERSHIP MODEL FOR RURAL PROSPERITY

Prepared by Miller Center for Social
Entrepreneurship



NUCAFE'S FARMER OWNERSHIP MODEL FOR RURAL PROSPERITY

How Smallholder Coffee Farmers in
Rural Uganda Are Transforming Their
Destiny

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This case study developed through a partnership between
NUCAFE and Miller Center for Social Entrepreneurship, Santa
Clara University.

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EXECUTIVE SUMMARY

The mission of NUCAFE is to establish a sustainable market-driven system of coffee farmer enterprises and organizations which are empowered to increase their household incomes through enhanced entrepreneurship and innovation.

As NUCAFE desires to scale its impact globally, it seeks a framework to replicate its business model, the Farmer Ownership Model. To support this initiative, our team created this business case study for parties interested in adopting the Farmer Ownership Model and those interested in partnering with NUCAFE.

To evaluate the impact of the Farmer Ownership Model, we interviewed 115 NUCAFE associated farmers. We also conducted interviews with 16 non-associated farmers to observe preliminary differences in farmer experience and spoke with key partners of NUCAFE to assess the core components of NUCAFE's business model.

Our findings indicate that farmers are receiving better prices for their coffee as they are selling at higher levels of the coffee value chain. Farmers also attribute their improved livelihoods to trainings, learning a variety of topics from optimal growing conditions to the economic value of coffee.

Despite these promising results, NUCAFE's limited resources create a challenge for increasing the number of trainings for its members.

NUCAFE has secured higher prices for its product due to its diverse range of partnerships, including exporters, roasting companies, and development organizations. Some other outcomes from partnerships include the creation of the centralized processing facility, a coffee shop, youth employment, and access to technology.

Overall, the Farmer Ownership Model creates a positive socioeconomic impact on NUCAFE farmers. NUCAFE must continue to create new partnerships to assist with scaling.

This business case study provide a delineated outline of NUCAFE, its impact, and opportunities for scaling.

BACKGROUND

One summer day in 2018, Joseph Nkandu considered the preliminary results presented by a research team from Miller Center for Social Entrepreneurship at Santa Clara University assessing the impact of his social enterprise, NUCAFE. With over 1.2 million associated farmers, NUCAFE was the largest coffee farmer organization in Uganda. It had won prestigious awards like the AGRA Africa Farmer Organization of the Year Award (2013) and the Rural Association of the Year (2015) for its success in helping alleviate poverty in coffee farmers.

However, as a social entrepreneur in relentless pursuit of social change, Joseph understood that this was only the beginning. He had received interest from producer cooperatives and other stakeholders around the globe desiring to learn about and adopt his business model: the Farmer Ownership Model. As a result, NUCAFE was considering expanding into different commodity sectors both inside and outside of Uganda.

Joseph knew that the Farmer Ownership Model had to be flexible to reproduce its impact globally. Yet the preliminary results from the research team left him pondering how NUCAFE could meet the growing demand within Uganda while simultaneously attempting to expand into new markets and commodities.



1. Coffee Growing Environment

Uganda is the birthplace of Robusta, one of the two main coffee species. Robusta is Uganda's main export crop in terms of quantity. However, non-native Arabica coffee commands 40% of coffee export value, as Robusta is considered to be lower quality on world markets and thus commands lower prices than Arabica.

Arabica typically grows in higher altitudes, such as in the Rwenzori Mountains of Uganda, where the weather is cool and the nutrients in the soil are rich. However, climate change has made it more difficult to grow Arabica coffee due to rising temperatures and changing weather patterns.

Moreover, the majority of coffee farmers still depend on rainfall to water their crops. Irrigation tools are currently too expensive to be widely used in Uganda, and farmers lack institutional support such as subsidies for technology. In effect, coffee farmers face a shrinkage of arable land and face fewer yields due to irregular rainfall patterns and increasingly longer droughts.

Uganda has also been affected by coffee wilt disease. Although the Ugandan Coffee Development Authority (UCDA) provides wilt resistant clones to some farmers, most farmers continue to be affected by significant losses. To cope with these risks, farmers intercrop coffee with other plants including beans and Irish potatoes. Plantain—locally known as matooke—is another popular crop because it provides shading for coffee trees and another source of income and food.



2. The History of Coffee in Uganda

Coffee has always played a central role in Uganda's history. Long before it was considered a cash crop, it was a key element in Omukago, a ritual that made two individuals from different families brothers by swapping coffee beans bathed in the blood of the participants.

Coffee soon became an important factor for the growth of Uganda's economy. Until the late 1980's the government oversaw the marketing, pricing, and exportation of coffee through the Cooperative Marketing Boards. By the early 1990s, however, Uganda faced pressure from international partners, like the World Bank, to deregulate the coffee market. These partners believed that deregulation would lead to higher productivity and more foreign investment.

Thus, policies were passed that removed all government involvement to liberalize the coffee market. Cooperatives were dismantled and those that survived were not ready to compete in the newly freed market.

At first, the policy reforms appeared to have positive effects. Transnational corporations began businesses in Uganda and coffee growers benefitted from unusually high world market prices during the mid-1990's.

Yet coffee prices soon fell to pre-1990's levels and without government support, coffee growers found themselves in more poverty than before the liberalization. The global surplus supply of coffee exacerbated the situation by further lowering the price of coffee. Buyers gained greater power over coffee growers and were able to buy at the lowest prices from the abundant base of farmers.

Since then, Uganda has experienced an increase in the production of coffee. In 2017, the Uganda Coffee Development Authority reported that coffee exports had increased from 3.3 million kilogram bags to 4.6 million— a 38% increase. As of 2018, Uganda stood as the second largest coffee exporter in Africa only behind Ethiopia. Despite these accomplishments, the majority of coffee farmers continue to live in poverty

Nonetheless, the Ugandan government planned to export 20 million bags by 2025, but this seemed an impossible feat without strong institutional support of subsidies for agricultural inputs and seedlings.

How could Uganda capitalize on its rising coffee industry to improve coffee farmer livelihoods?

THE SOLUTION: THE FARMER OWNERSHIP MODEL

As the son of coffee growers, Joseph Nkandu noticed that his parents consistently received low, volatile prices for their product from traditional middlemen. In light of the struggles his parents and other coffee growers faced, Joseph set out to create the National Union of Coffee Agribusinesses and Farmer Enterprises (NUCAFE) in 2003 centered around a framework, the Farmer Ownership Model.

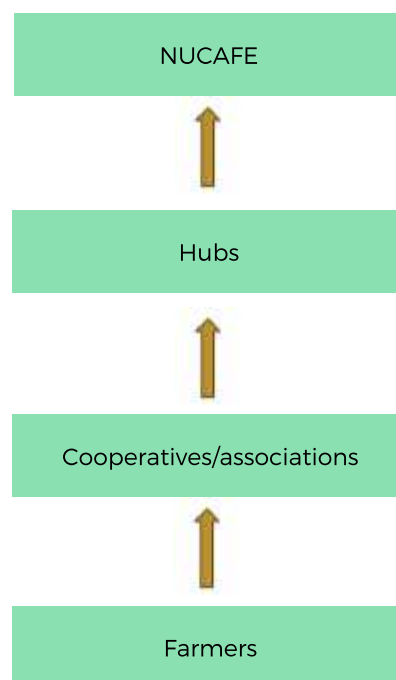
The Farmer Ownership Model advances the opportunities and knowledge of coffee farmers and adds value to their product. The model seeks to transform the way coffee farmers approach coffee production. Farmers learn how to be proactive rather than reactive, become businessmen and women, unified on a community level by collaborating in cooperatives, and adapting sustainability. This involves being agile and quickly adapting to one's surrounding environment and competition. NUCAFE works to achieve these goals through value-addition services and training sessions that address the needs of the farmers.



1. Value Addition

On a structural level, the Farmer Ownership Model requires farmers to be organized in groups. At a village level, 20-35 farmers on average come together to form a group. Then, 10-15 farmer groups form an association at the sub-county level and about 10-20 sub-counties in a district form a “hub”. These groups are crucial for Ugandan coffee farmers, as most are smallholder farmers unable to afford the high transportation and processing costs on their own.

Exhibit 1
Diagram of NUCAFE structure



On an individual level, coffee farmers dry their coffee cherries, bulk their product with other farmers in the region, and deliver it to their cooperative. Some cooperatives have the capacity to conduct further processing such as milling, sorting, grading and even roasting at their hubs. Other cooperatives deliver the coffee to NUCAFE’s centralized processing facility for secondary processing and exportation.

While the majority of coffee is sold at the stage before roasting, NUCAFE does have options for roasting and selling under the NUCAFE and Omukago brand for the highest value.

Along the process, coffee farmers maintain ownership of their product. They pay a monthly subscription fee to the cooperative for its services and transportation of coffee, and the cooperative pays an annual subscription fee to NUCAFE.

Since farmers do not sell their product to the cooperative or NUCAFE, they are able to sell their product at higher stages of the value chain and subsequently receive higher prices. Farmers also benefit from fully transparent, well-documented processes and agreed upon prices.



2. Trainings

In addition, NUCAFE trains cooperative leaders to host training sessions for farmers in their communities. These trainings cover a variety of topics as demonstrated in Exhibit 2.

Exhibit 2
Training Session List

Training topic	Description
Sustainability	Includes agroforestry, sustainable input management, (i.e., limiting herbicides and pesticides) nutrient management, soil conservation, and waste management.
Gender equity	Communicates the importance of equal decision making on the farm between the husband and wife leading the farm.
Family Succession	Helps coffee farmers plan for who will take over the farm once the lead farmer passes away. Often includes a delineated plan.
Coffee value chain	Teaches coffee farmers about the coffee value chain, often allowing farmers to taste the coffee they produce for the first time.
Financial management	Assists farmers with bankable business plans and savings and credits.
Risk management	Introduces ways to mediate risk in farming, such as insurance for their crops in case of drought.



A large number of coffee farmers attest their improvement in economic status to these training sessions [see Appendix B for income impact]. However, with such a large scope of farmers in different geographic regions, farmers reported attending anywhere from 2-15 training sessions per year.

Joseph considered how he could deepen his impact among his current base of farmers by creating more trainings. Yet the limited capacity and finances could create a challenge: how would Joseph finance further trainings?

Financial Model of the Farmer Ownership Model

As a non-profit organization that doesn't own or buy coffee, the business model for NUCAFE requires a unique financial model to reflect farmer ownership. In order to finance their initiatives, they rely on two main revenue streams: their membership base and external partners.

1. Membership

As a process facilitator, NUCAFE does not gain revenue from buying coffee from its members. Instead, it charges service fees for the value-addition benefits it provides.

One source of income for NUCAFE comes through the use of the centralized facility. For each batch of processed coffee, farmers pay a small fee allowing them to climb up the value chain without losing ownership of the product. The cost is \$100 per ton; highly affordable for associated farmers. In addition, NUCAFE charges a market linkage fee for connecting farmers to international social impact buyers who pay higher prices to support the social mission.

By 2026, NUCAFE predicted that \$14,890,942 would come as revenue from service fees of all forms. The revenue projection for the farmers also looked bright, with a combined total revenue of \$87,660,850. Most of the increased farmer revenue was explained by the transition from selling primary processed coffee (i.e. dried coffee) to secondary processed coffee (i.e. graded). However, the model assumed that some primary processed coffee would always be sold to account for farmers who sold early in the value chain to pay off expenses.

2. Partnerships

NUCAFE always sought after new opportunities to increase the incomes of farmer members. This often involved key partnerships at the local and international level to fund projects.

Joseph was particularly proud of the centralized facility and the Omukago coffee shop which were two successful outcomes from collaborating with partners. The Agricultural Business Initiative Trust (aBi) was one of the key partners in funding these projects. Founded by the Danish and Ugandan governments, aBi aimed to provide financing and technical support to develop value chains in Uganda. With the financial and strategy assistance of aBi Trust, Trademark East Africa, and other partners, NUCAFE was able to finance the machinery needed to create a state-of-the-art centralized processing facility.

However, the processing facility did not directly reach the end of the coffee value chain to end consumers. To fill the gap, NUCAFE launched its own coffee shop in Kampala, Uganda with the support of Italian roasting company Caffè River. Named Omukago after the coffee ritual, the coffee shop served high-quality Robusta and Arabica coffee. While coffee shops were not as common or popular in Uganda, NUCAFE desired to create a higher local demand for coffee.

Given the successful list of projects, Joseph and his team began to consider how to add more value to the farmer's coffee. By mid-2018, NUCAFE had launched Graphic Indicators (GI) for the Rwenzori region where fine Arabica coffee grew. This meant that coffee could be sold with a GI that highlighted the distinguishing characteristics of the region, and would command a premium price. More regions were to follow, translating into higher incomes for thousands of farmers.

NUCAFE was determined to reach more farmers, but it was clear that partnerships with local and foreign stakeholders were needed to secure more support and funding.



Benefits of the Farmer Ownership Model

1. Economic Benefits

On average, NUCAFE farmers received an increase of 250% in prices compared to non-NUCAFE affiliated farmers.

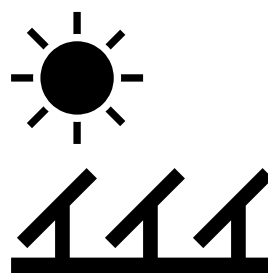
As seen in Appendix 2, the majority of NUCAFE member farmers are able to experience significant increases in their standard of living, pay off debts, and invest in other areas of their lives including paying their children's education and buying more livestock.

However, coffee farmers also faced rising costs of living. When farmers need money immediately to pay for school fees or medicine, they often sold their coffee to traditional middlemen at a lower price than what NUCAFE would offer. While NUCAFE offered advance payment options of up to 80% the expected total amount to farmers, NUCAFE had to charge interest. The advance payment came from loans withdrawn from local banks that carried interest rates from 25-27%. There were few alternative options, such as international banks that offered lower interest rates or KIVA, a crowd-funded microfinance company that offered loans with zero percent interest rate. While this provides a challenge for the organization, NUCAFE moves forward in hopes of partnering with more organizations offering affordable interest rates.

2. Environmental Benefits

NUCAFE recognized that teaching farmers sustainable agricultural practices was important for ensuring high-quality coffee to ultimately secure the highest prices. All cooperatives and associations received the Smart Agricultural Practices package—a set of comprehensive guidelines for mitigating environmental impact, including:

- Agroforestry
- Soil erosion prevention
- Waste management
- Water treatment
- Nutrient management
- Input management



The sustainable farming practice trainings provided to be successful. Most farmers had been taught that using excessive inputs like fertilizers and pesticides could degrade their soil and lead to pollution of water sources. They were also certified Organic and Fairtrade, which discouraged the use of other harmful or prohibited inputs. Appendix 2 demonstrates more metrics on sustainability at the farm.

In addition, many farmers received soil testing to understand what inputs would be useful for their crops and irrigation materials for combatting months of drought. This was especially critical for farmers who lived in the central regions of Uganda where drought was more common. Farmers who could not afford irrigation materials were forced to wait for the rains and those who lost their coffee plants had to wait up to 5 years before harvesting again.

In recognizing this need, NUCAFE provided farmers with an option to purchase solar and manual pumps on affordable monthly installments. Since irrigation was a new concept to most farmers, NUCAFE also provided trainings on how to set up the pumps. Farmers were also taught how to store water during the rainy season in deep trenches.

NUCAFE's partnership with Agricultural Consultancy Company had led to the creation of drought insurance. Farmers were eager to adopt the insurance as it protected them from massive losses and prevented moving away from coffee to other crops in times of drought.

Joseph and his team wanted to instill the importance of conservation at every stage of the coffee value chain. When farmers arrived for a tour of the centralized processing plant, the sustainability elements were always highlighted. It was located in Namanve, the industrial area of Kampala where other big companies like Coca-Cola also ran processing plants. NUCAFE distinguished itself by implementing initiatives to mitigate their impact on the nearby environment. Trees were planted for carbon sequestration, dangerous coffee dust was contained from reaching the nearby community, and plans to power the office buildings with solar panels were formalized; more energy was conserved by drying high-moisture coffee with the sun's heat before using the machinery. Farmers who were unconvinced about sustainability could also visit Joseph's demonstration farm where they could learn and observe.



3. Social Benefits

NUCAFE worked to unite communities and families through cooperatives and trainings. Interviews with non-NUCAFE farmers revealed a lack of trust in the concept of cooperative systems. For instance, farmers often found that people in their community would not pay back the loans they borrowed. Thus, they were wary of forming cooperatives in applying NUCAFE membership.

However, the nature of cooperatives within NUCAFE ensures that farmers collaborate, whether in borrowing loans or bulking their product together for further processing. If one farmer does not pay back loans or offers a poor-quality batch of coffee cherries, the whole cooperative must bear the brunt. Thus there can be strong accountability, help from one another, and social pressure to provide the best. A list of coffee farmers is also offered per shipment of coffee.

Cooperatives also extend beyond just working together; some farmers also use their premiums from a higher processed coffee bean to invest back in the community. Regardless of whether coffee farmers had Fair Trade certification, many sought to meet regularly to discuss subjects like improving local schools and roads. In general, they sought to tackle the issues in their community together.



NUCAFE also supports gender equality through training sessions. Often times, the husband was in charge of the financial decisions of the farm, such as how to handle the finances or where to sell crops. Husbands often disappeared for weeks with the money from selling their crops, spending it on alcohol or other women. Seeing this as a large issue, NUCAFE began to implement trainings to improve equality on the farms. By asking couples to sit down and make financial decisions together or through testimonies of successes from other farmers who allowed their wives to be equal business partners, NUCAFE worked to remove stigmas.

Many youths were also leaving the farming industry to pursue careers in the cities after being discouraged by the economic hardships of coffee farmers (i.e., boda driver: a form of motorcycle taxi). These jobs provided a greater payoff and less risk for failure, but it threatened the collapse of the coffee industry. Thus, NUCAFE worked to engage current youth, providing them with trainings to work at different stages of the coffee value chain. Its involvement in the SKY (Skilling Youth in Agri-business) program by the AVSI Foundation advanced more opportunities for the youth. Additionally, the Omukago coffee shop allowed NUCAFE to train young people to be equipped with new skills and be entrepreneurial minded.



Seasons Ahead: Road to Growth

Looking at the success of the Farmer Ownership Model, Joseph and his team considered how he could take impact even further. Within the current base of farmers across Uganda, Joseph had to plan how he would fund more trainings. Would he wait on partnerships for funding? Or would he raise the annual fees for cooperatives to pay for additional trainings?

Moreover, Joseph faced several requests from other coffee growing countries and universities desiring to learn of the Farmer Ownership Model and its mechanics. Would his first initiative to scale involve expanding his current area of expertise, coffee, to different geographic regions? Or would he try to distribute the model to other crops within Uganda? Joseph understood that decisions at this critical point in time could not only determine the future of NUCAFE, but provide the framework for future opportunities across the globe.



Appendix A: FAQ

1. How does the Farmer Ownership Model differ from Fair Trade?

Fair Trade is a certification issued by fair trade certifiers. Similar to NUCAFE, Fair Trade can only be obtained by cooperatives, not individual farmers. The certification promotes transparency, fair prices, and respect between producer and trading partner. It also guarantees a floor price for producers whereas NUCAFE does not, but it does help producers obtain other certifications.

2. What are the primary benefits of joining NUCAFE?

Joining NUCAFE will allow individual coffee farmers to access processing facilities that can add significant value to their product. By paying small processing fees, farmers can expect to add value to their product, sell to impact buyers who are willing to pay more, and receive higher incomes.

3. What are the expectations of NUCAFE for cooperatives and associations?

NUCAFE expects cooperatives and associations to follow the framework of the farmer ownership model to increase the value of the member's product. It also expects farmers to follow all guidelines for environmental, economic, and social impact.

4. Is NUCAFE a certification?

No. NUCAFE is the umbrella organization representing over 1.2 million coffee farmers organized in cooperatives in Uganda. NUCAFE provides a membership which is funded by fees collected from member cooperatives or associations.

Appendix B: Impact Metrics

I. FINANCIAL BACKGROUND

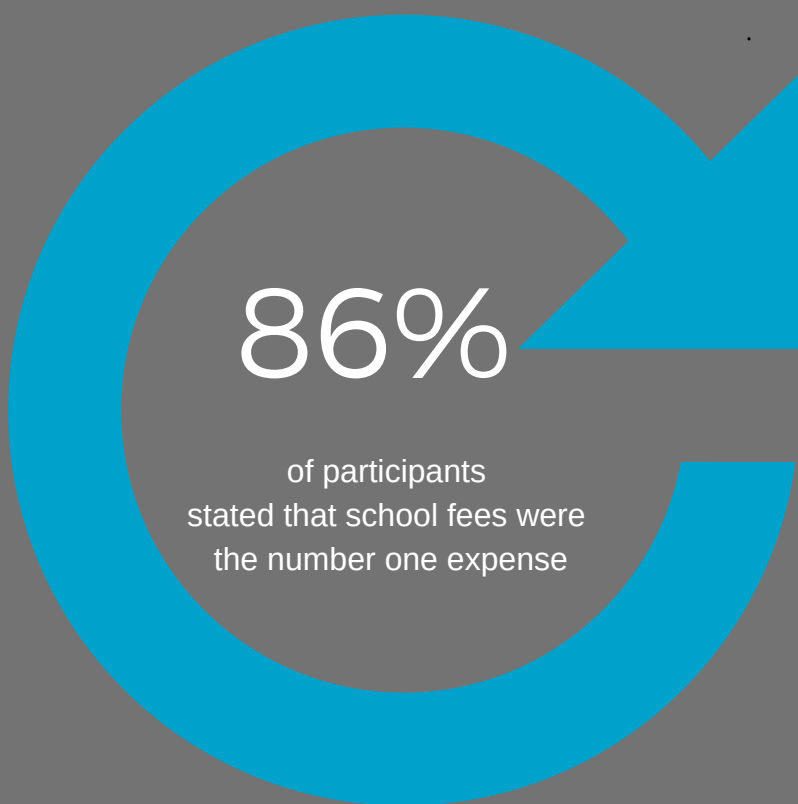
93%

of farmers reported coffee as their
number one source of income

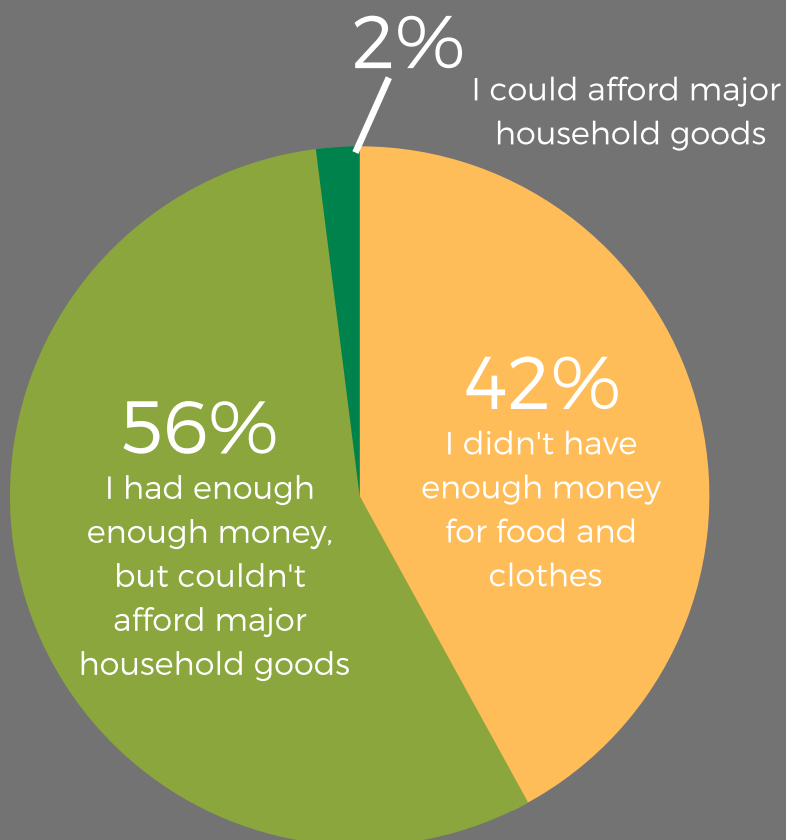


86%

of participants
stated that school fees were
the number one expense



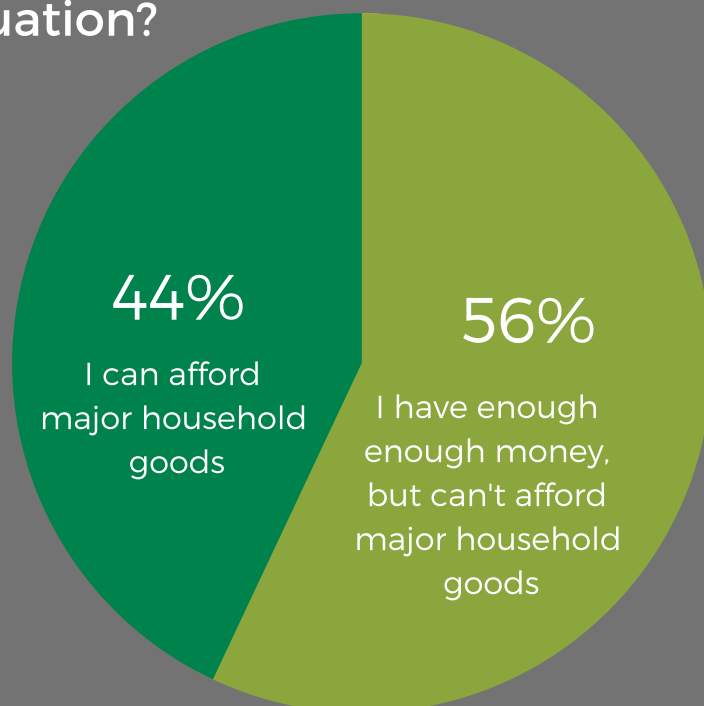
Before joining NUCAFE, which category best reflects your financial situation?



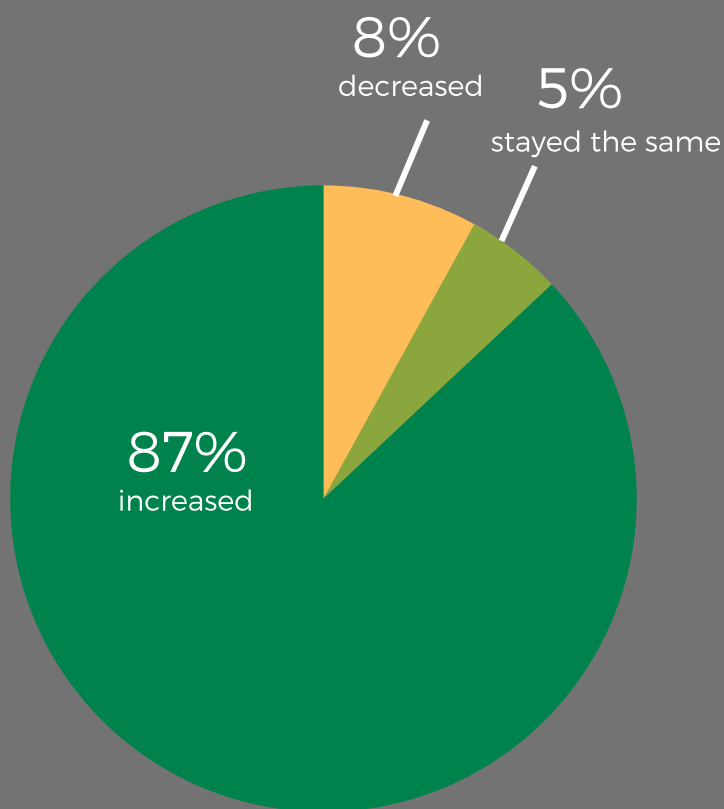
Most farmers reported that they had enough money for basic necessities (i.e., food, clothes), but couldn't afford major household goods before joining NUCAFE. The next largest category reported not having enough money for food and clothes. Only 2% of the sample reported being able to afford major households (i.e. TV or fridge) before joining NUCAFE.

After joining NUCAFE, which category best reflects your financial situation?

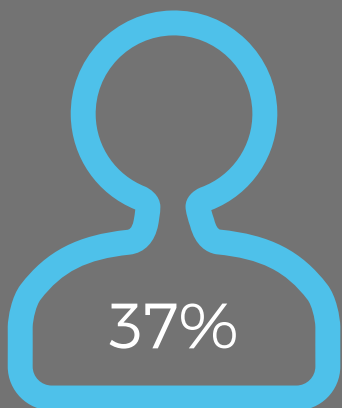
After joining NUCAFE, none of the farmers surveyed reported not having enough money for food and clothes. While most farmers were not able to afford major household goods, a much larger percentage reported being able to afford major household goods after joining NUCAFE.



Has your income increased, decreased or stayed the same within the last five years?



Poverty Probability Index



The Uganda National Household Survey is conducted by the Uganda Bureau of Statistics. It collects data on socio-economic factors for households and communities. The Poverty Probability Index (PPI) relies on 10 indicators from this survey to provide a probability that a household is living under a certain poverty line. Each response is assigned a score and scores are added at the end. Scores are finally converted into likelihoods. For this assessment, we measured the likelihood of a household living under \$2 a day.

NUCAFE farmers (N=51), on average, have a 37% probability of living below \$2 a day.

II. FARMER OUTPUTS



on average farmers
reported selling

211.44 kg

before joining
NUCAFE



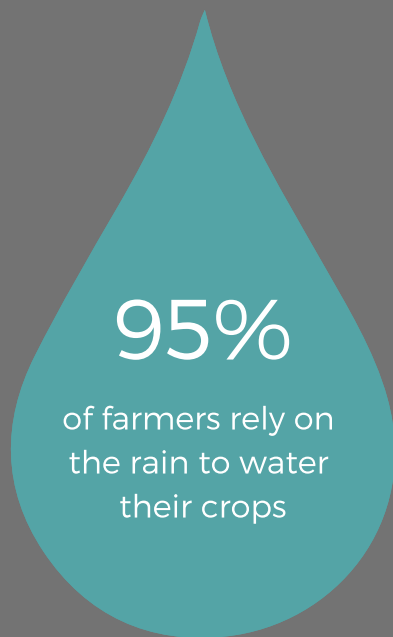
and

239.31 kg

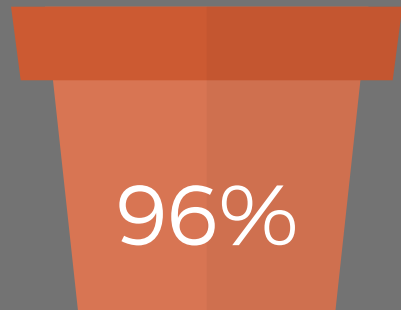
after joining
NUCAFE

It is important to note that farmers are now selling at a more processed stage of the value chain (Fair Average Quality and graded coffee), which weighs less than the form of coffee they used to sell before joining NUCAFE (green cherries or dried coffee still in husks). Thus, the increase in output is even understated.

III. FARMING PRACTICES & SUSTAINABILITY

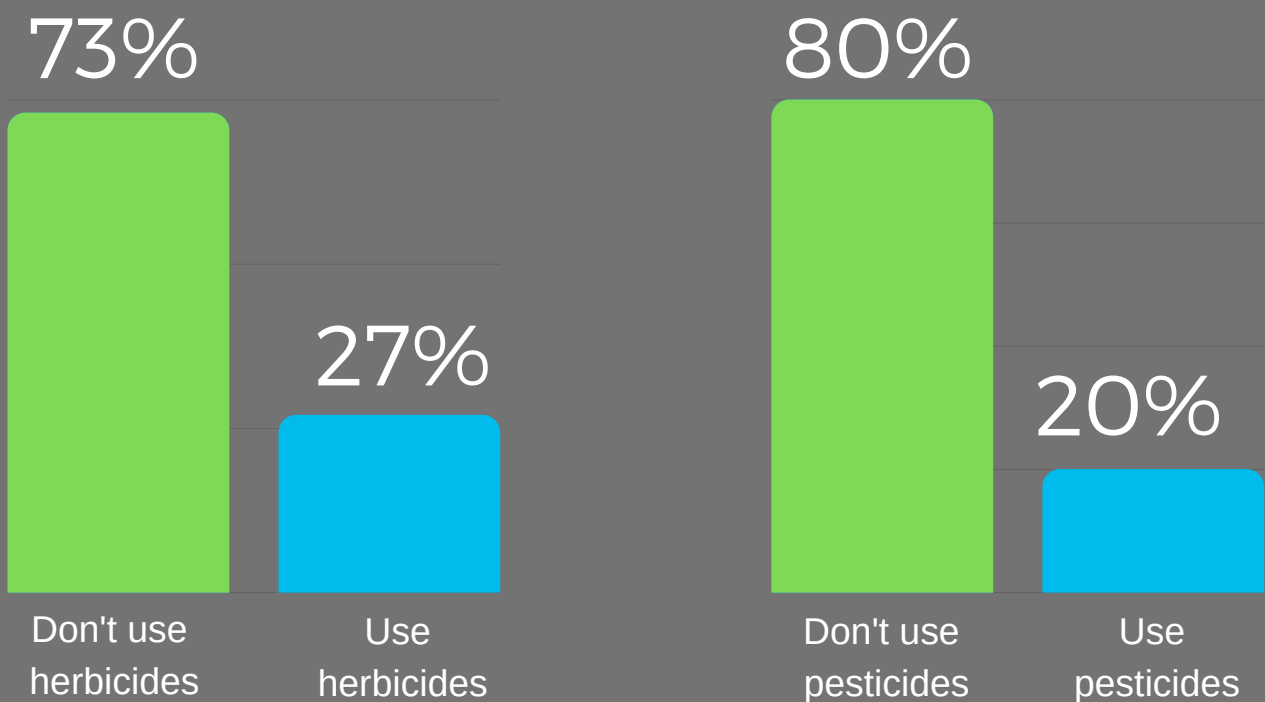


5% of farmers used irrigation means other than rain. NUCAFE hopes to change this by increasing the number of manual and solar water pumps that farmers can purchase on monthly installments.



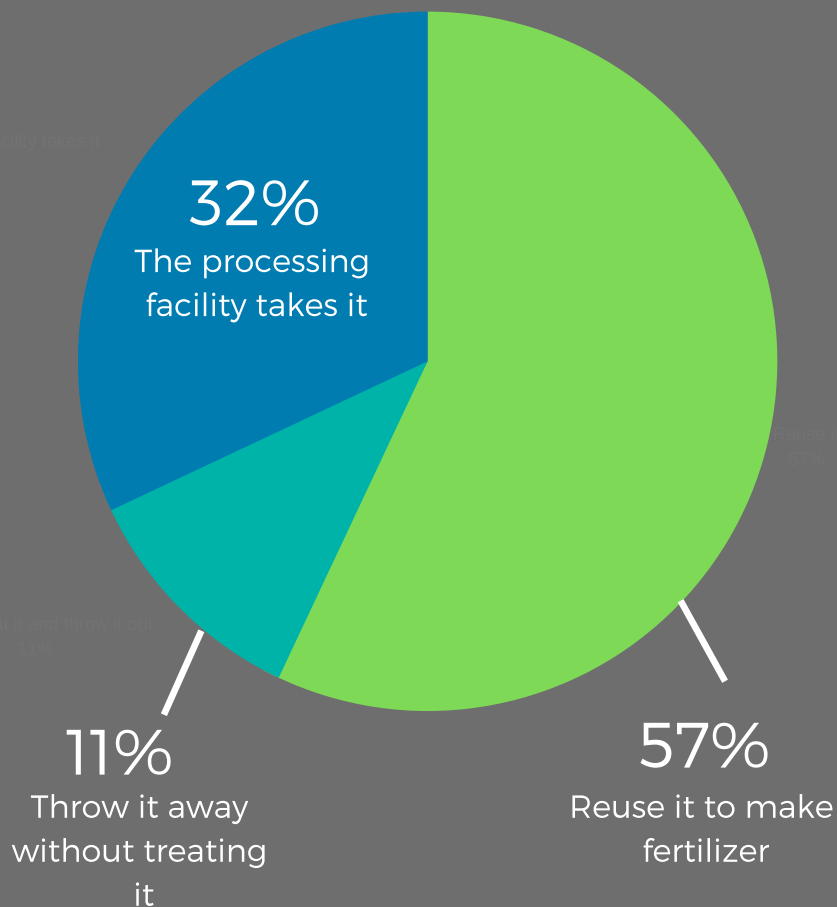
of farmers received assistance from NUCAFE to get certification from major programs like Organic and Fair Trade.

Do you use pesticides or herbicides?



Farmers have been taught that chemical inputs like herbicides or pesticides damage the soil and affect the product. As a result, they are reluctant to use them; however, the cost of such inputs may also deter farmers from using them. Some farmers also do not use these inputs because they belong to certifications that prevent the use of herbicides and pesticides (e.g. Organic).

How do you dispose of the coffee husks?

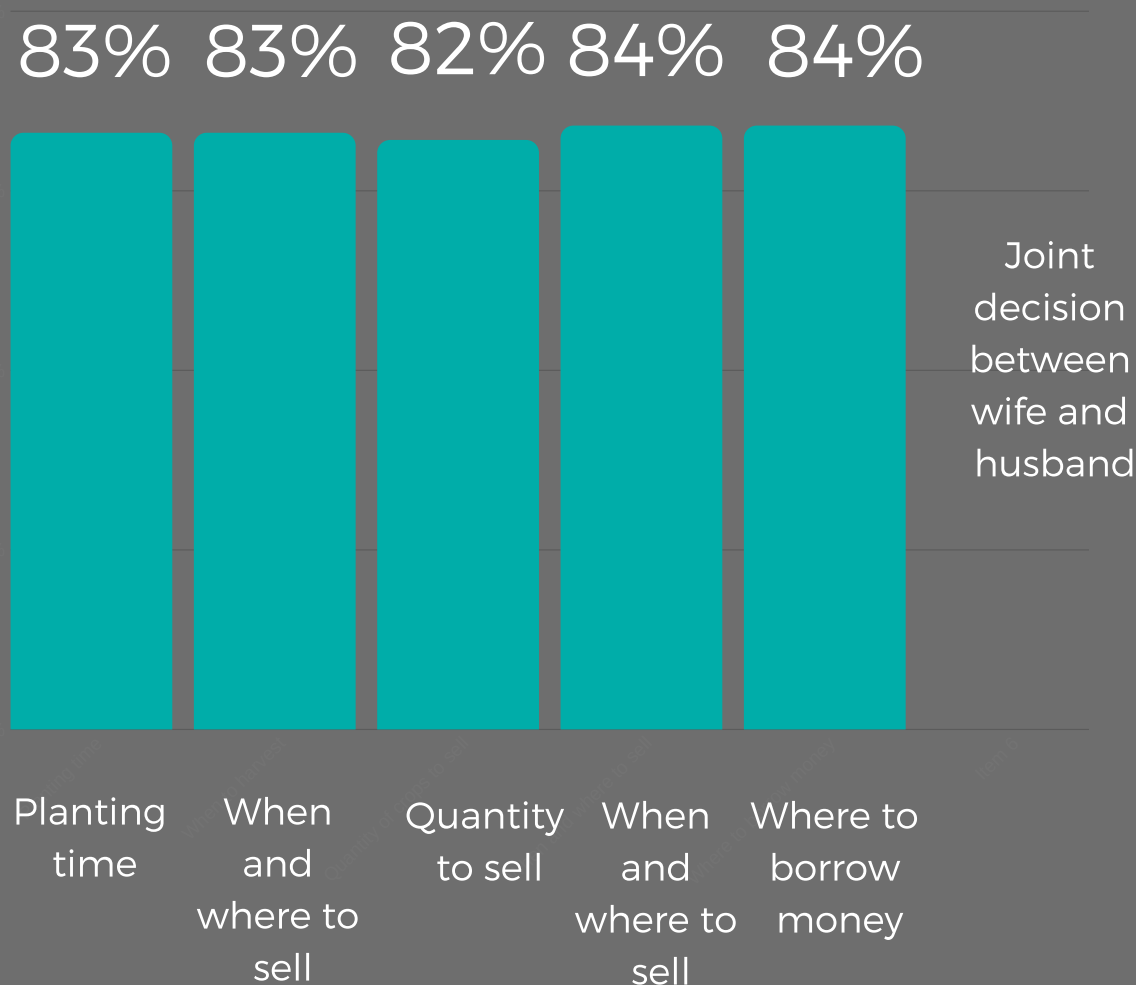


Farmers were taught to treat the wastewater during the depulping (husk removal) process due to the high acidity levels which could affect the soil if not treated. As shown in the pie chart, 57% of farmers prefer to reuse the husks as fertilizers while 32% must leave it at their processing facility. Only 11% reported throwing out the husks without treating it for acidity levels.



IV. SOCIAL IMPACT

Who makes the decisions on the following agricultural activities for coffee?



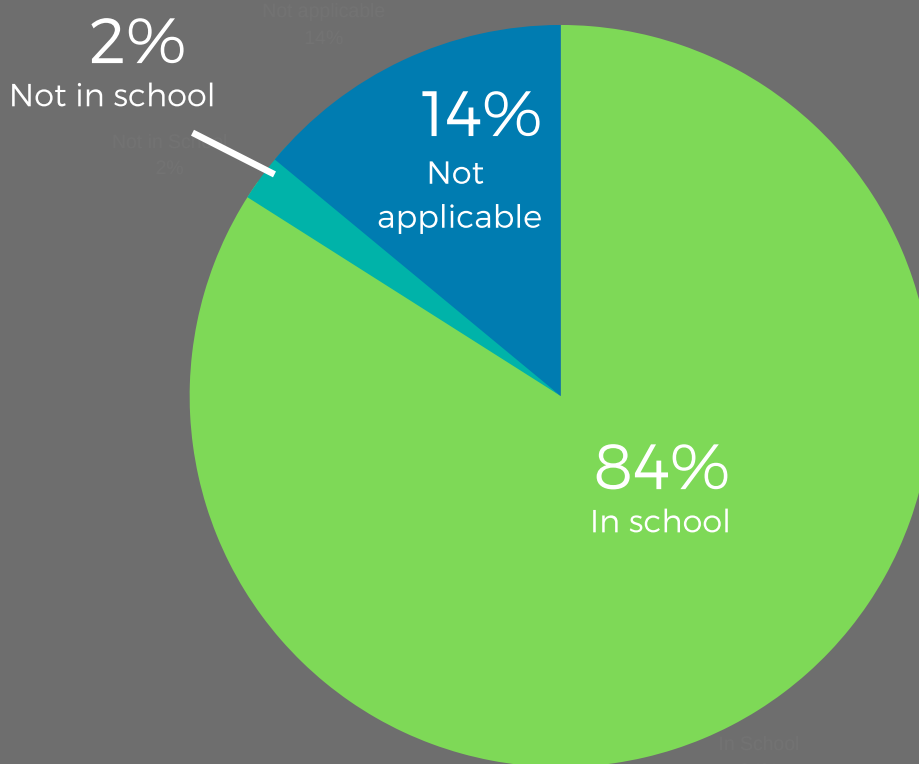
Most farmers (>80%) stated that decisions were made jointly by husband and wife. This is important because traditionally, growing coffee in Uganda is primarily considered a man's job. Women are typically excluded from decision making, especially regarding financial decisions. However, the results suggest that NUCAFE's trainings on gender equity are yielding successful results.

83%

Of women stated that they received assistance from NUCAFE to have a greater say in farm decisions



Are all children between the ages 6-12 currently in school?



Appendix C: Methodology

Research Questions

1. How does the farmer ownership model impact farmer livelihood in comparison to traditional intermediaries in Uganda?
2. How can the farmer ownership model be replicated in other markets and what criteria must be followed to recreate its success?

Research Methods

To answer the research questions, a team of 2 students from Miller Center for Social Entrepreneurship at Santa Clara University traveled to 5 different regions of Uganda to interview 116 NUCAFE farmers. They conducted semi-structured interviews guided by a questionnaire that focused on measuring the impact of NUCAFE's business model. Farmers were interviewed in groups of 2 or 3 in addition to a translator. Attempts to answer all questions were always followed, yet some farmers were not able to answer all questions for a variety of reasons (i.e., not being able to remember or not having the information readily on hand). During their visits to cooperatives and associations, they also toured coffee farms and observed how farmers were applying what they had learned in NUCAFE trainings.

To observe preliminary differences in farmer experiences, the team interviewed 16 non-NUCAFE farmers who were not in a cooperative or association. These farmers were asked the same questions from the same questionnaire except ones related to NUCAFE. All data and farmer responses were recorded on a google spreadsheet. Questions pertaining to the data shown in Appendix 2 are found below.

The second question required the team to consider the findings of the interviews and to conduct discussions with important partners of NUCAFE including development agencies, government officials, exporters, roasters, and local representatives of certification programs like Rain Forest Alliance. These meetings gave the team deep insights into NUCAFE's operations and the factors that have contributed to its significant growth in the Ugandan coffee sector. Based on the field research and these discussions, they compiled notes, observations, pictures, and recordings to write the business case study and to report our findings.

Questions for results presented

1. Is growing coffee your main source of income?
 - A. Yes
 - B. No
2. What are your largest expenses? List them in order of largest to smallest.
3. How many kilograms of coffee, on average, were you selling per season before joining NUCAFE?
4. How many kilograms of coffee did you give to the association last season?
5. Before NUCAFE, which answer best reflects your financial situation?
 - A. We didn't have enough money for food and clothes
 - B. We had enough money for food and clothes and can save a bit, but not enough to buy expensive, major household goods like a TV or a fridge
 - C. We could afford to buy certain expensive, major household goods such as a TV or a refrigerator
6. After NUCAFE, which answer best reflects your current financial situation?
 - A. We don't have enough money for food and clothes
 - B. We have enough money for food and clothes and can save a bit, but not enough to buy expensive, major household goods like a TV or a fridge
 - C. We can afford to buy certain expensive, major household goods such as a TV or a refrigerator
7. How has your income changed within the past 5 years?
 - A. Increased
 - B. Decreased
 - C. Stayed the same

8. If under a certification program, did NUCAFE help you gain the certification?

- A. Yes
- B. No

9. Do you use herbicides?

- A. Yes
- B. No

10. Do you use pesticides?

- A. Yes
- B. No

11. How do you dispose of the coffee husks?

- A. Reuse for fertilizer
- B. Treat it, then I throw it out
- C. I don't treat it, and I throw it out
- D. Processing plant takes it

12. What is your current method of watering your coffee fields?

- A. Nature/rain
- B. Flexi/manual pump
- C. Solar pump
- D. Other

13. Do you use the coffee drought index insurance?

- A. Yes
- B. No

14. Who makes the decisions on the following agricultural activities for coffee?

- I. Planting time
- II. When to harvest
- III. Quantity of crops to sell
- IV. When and where to sell crops
- V. Where to borrow money to support agricultural production

- 1. Husband/boyfriend
- 2. Wife/girlfriend
- 3. Another family member
- 4. Another family member
- 5. Don't know

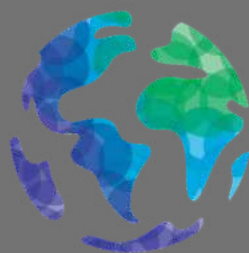
15. How has NUCAFE assisted you (women only) in having a greater role in management of the farm?

16. Are all household members ages 6 to 12 currently in school? (adapted from Poverty Probability Index Questionnaire).

- A. No
- B. Yes
- C. No one ages 6 to 12

For more information on the Poverty Probability Index, please go to <https://www.povertyindex.org/about-ppi>

Appendix D: About Miller Center for Social Entrepreneurship



Miller Center
for Social Entrepreneurship

Miller Center is the largest and most successful university-based social enterprise accelerator in the world. Founded in 1997, it is one of three Centers of Distinction at Santa Clara University, located in the heart of Silicon Valley. Miller Center leverages this entrepreneurial spirit in the Bay Area with the university's Jesuit heritage of service to the poor and protection of the planet.

More than half of the world's people live in poverty. Social entrepreneurship addresses the root problems of poverty through the power of business and innovation to provide sustainable economic and social impact.

Find more information about Miller Center for Social Entrepreneurship here: <https://www.scu-social-entrepreneurship.org/>



We are also thankful for the generous support from the Food & Agribusiness Institute.

The Food and Agribusiness Institute is an integral part of the Leavey School of Business., Santa Clara University. Since its inception in 1973, the Institute has graduated more than 650 MBA students, many of whom now hold important management positions in food and agribusiness firms as well as government agencies throughout the United States and the world.

One of the major objectives of the Institute is to provide students with an education in the functional areas of management with the application of modern business practices to food and agribusiness firms.