Part V
Socio-Economic Empowerment and Innovation

Chapter 37

Tools2Thrive: A Scalable Tool Rental Model for Smallholder Farmers in Kenya

John Gershenson*, Gwenna Keckler, Liam Cassidy, Lila Mathias, and Riya Shah

Penn State Humanitarian Engineering and Social Entrepreneurship Program, Penn State University, State College, Pennsylvania, USA

Abstract

Subsistence farmers often struggle with productivity. The intervention of common hand tools significantly increases a farmer's resilience and is essential for tasks like soil preparation, planting, weeding, and harvesting, forming the foundation of many smallholder farming practices. While not nearly as good as mechanization, they are a first step to food security for many families. However, such tools remain out of reach for many farmers due to upfront costs. This paper details a year-long program to trial and scale a tool rental program through a community-based organization in western Kenya. Through a series of scaled experiments, we identified success characteristics for farmer renters, tool identification, rental agreements, data collection tools, organizational infrastructure, and field agent training and participation. We also identified several important failure points. Each of these elements were designed and trialled as part of a program called Tools2Thrive. Starting with $110 and 20 tools, in just twelve months, the organization was able to grow itself from 549 farmer members to nearly 6000 members, 300 tools, eleven tool rental agents, and an organizational data collection tool that allows for real-time financial and impact tracking. The Tools2Thrive program and the software tool behind it will now be expanded into a second-year trial that involve nearly 20 community-based organizations, nearly 20,000 farmers, an expanded tool that will allow the organizations to track all the services they offer, and an expected revenue of nearly $100,000 across the organizations.

Keywords: *Tool sharing, community-based organizations, smallholder farmers*

Introduction

Upfront costs to new and reliable hand tools limit the productivity and success of smallholder farmers. Local community-based organizations (CBOs) address community needs on a variety of issues, including gender, health, education, food security, clean water, and agriculture. With a large portion of the community practicing subsistence farming, agriculture programs provided by CBOs are vital to assisting farmers, helping them acquire inputs, tools, and knowledge of sustainable farming habits. Widespread demand for tools with limited structured access and/or rental systems remains a major

problem for CBOs to help their farmers. The idea of renting or hiring equipment to smallholder farmers is not a new idea, but sustainability has always been an issue[1,2,3,4].

In connecting with Kisumu West Aid (KIWA), a local community-based organization (CBO) in Kisumu, Kenya, we realized that smallholder subsistence farmers approach their local CBOs to address their needs and acquire resources, inputs, equipment, and training. Running their own agricultural initiatives, KIWA has served farmers in Kisumu West County and surrounding areas. In collaboration with KIWA, our team sought to better understand what makes CBO-led tool sharing programs successful and what are the key barriers to sustainability. The program run by KIWA was called Tools2Thrive.

Methods and Implementation

The trial program was run in two phases. Phase I from May 2024 to May 2025, Phase II started in June 2025 and is ongoing. This section of the paper will discuss the methods used to research this idea and then to track the program, as well as explain the implementation of Phase I with KIWA, and Phase II with eleven other organizations.

Data-Collection Methods

Data on farmer participation, rental practices, and revenue generation were collected through a combination of qualitative and quantitative methods. Structured interviews and focus group discussions captured farmer perspectives on tool accessibility, affordability, and challenges. Multiple question surveys were generated for both farmers and organizations to understand needs and impact. Organizational assessments measured CBO capacity, accountability systems, and integration of tool rentals into broader programming. Operational data on tool use, rental frequency, and income were tracked by CBOs using a range of record-keeping systems. These included informal memory-based tracking, paper-based ledgers, Excel spreadsheets, and, in select cases, KoboToolbox digital forms. This variation provided insights into both the adaptability of CBOs and the challenges of ensuring consistent, reliable data across diverse organizational contexts.

Phase I

Phase I of Tools2Thrive started with KIWA. In partnership with Penn State University (PSU), KIWA began a tool rental trial of hand-held jembes for the farmers in their community. Phase I of Tools2Thrive began testing the impact and sustainability of a CBO-run tool rental program. For a year,

[1]Agrishare, Accessed on September 6, 2025 https://www.agrishare.app

[2]Kazibwe, Kenneth, "Innovators come up with Agrishare App to help solve farming challenges," *Nile Post* May 8, 2022, Accessed on September 6, 2025 https://nilepost.co.ug/news/133361/innovators-come-up-with-agrishare-app-to-help-solve-farming-challenges.

[3]Maschinenring, Accessed on September 6, 2025 https://www.maschinenring.de/.

[4]Schlick, Katharina, "Machinery Rings," Accessed on September 6, 2025 https://entwicklungszusammenarbeit.maschinenring.de/kenia/en/

the project tracked rentals, farmer income, CBO income, and farmer impact. Using a simplified and informal record-keeping system, KIWA and PSU monitored the growth of the program.

Phase II

Following a year of Tools2Thrive, several gaps in data collection for the CBOs and tool use prompted a reevaluation focusing on how to create a sustainable and repeatable model. Phase II of the project expanded to eleven other CBOs, including surrounding counties within a 200 km radius. These new organizations varied in size, number of farmers, and capacity but all had a want for a new program to address the agricultural needs of their community. Across the twelve organizations, approximately 70 CBO staff members were directly involved in the program, while over 300 farmers participated in focus group discussions and structured interviews conducted as part of program evaluation.

Results and Discussion

After collecting data to assess both the farmers' experience and the organizations' experiences in Phases I and II, we were able to discern some key learnings.

Key Learnings from Phase I

The initial pilot of Tools2Thrive with KIWA provided proof of concept and revealed several critical insights about farmer behavior, tool demand, and operational feasibility.

Farmer demand exists at scale. Even with a small starting inventory of ten tools, farmers were willing to participate and pay modest rental fees. Within six months, 549 members accessed tools, validating that affordability and accessibility were more significant barriers than willingness to pay.

High demand for basic hand tools. Low-value tools, especially *jembes*, *pangas*, and slashers, were consistently rented out. Starting with simple, affordable tools was an effective entry point for building trust and participation. It is an entry point for CBOs without the need of expensive machinery like tractors, ox-plows, or generators.

Need for structured record-keeping. KIWA initially relied on memory and paper-based tracking of tool rentals, which quickly became unsustainable and incorrect and led to misuse of the program. This underscored the importance of a basic and consistent formal tracking for accountability and growth.

Revenue generation potential. From the initial tool investment, KIWA was able to grow its inventory through the income generated. The model can be financially viable if scaled with structured reinvestment practices.

The first phase of the Tools2Thrive program not only expanded access to essential hand tools but also had a measurable impact on participating farmers' productivity and efficiency. A survey of 211 farmers revealed that prior to the program, tool ownership was low, averaging 1.7 tools per farmer, and most farmers relied on borrowing (70%) or sporadic purchases (12%) to meet their agricultural needs. Among those who rented in Phase I, the impact was significant: 75% reported increased productivity, 70% experienced a reduction in workload, and 60% observed an improvement in the quality of their

produce. Overall, 72% of all respondents indicated improved agricultural productivity, with an estimated average increase of 32%. Additionally, 78% of farmers reported a reduction in time and effort, saving on average four hours of labor per week. The demand for rental tools remains strong, with 85% of surveyed farmers expressing interest in renting more tools in the future.

The initial phase of the Tools2Thrive program began with a modest inventory of 10 jembes and served 487 farmer members. Over the course of the project, the initiative successfully reached an additional 5,743 farmers, bringing the cumulative total to 6,230 members. Of these, 3,812 farmers directly accessed and utilized the rented tools to support their agricultural activities. Through tool rental operations, the program generated a total revenue of Ksh. 245,000, the majority of which was reinvested to expand the tool inventory. This expansion grew the inventory from 10 jembes at inception to a total of 178 tools, comprising 133 jembes, 25 pangas, 10 mattocks, and 10 slashers. These achievements significantly enhanced smallholder farmers' capacity to cultivate their land more effectively, contributing to improved food security and strengthening household resilience in the target regions.

Key Learnings from Phase II

We had now realized that there was consistent demand for basic hand tools and growth potential for CBOs to not only help their communities but also generate income that could sustain projects. However, there was a question of was this replicable across different organizations (small vs large, semi-urban vs. rural, more-structured capacity vs. low capacity).

Variation in Record-Keeping Systems. CBOs adopted a wide range of tracking methods—from memory-based to paper ledgers, Excel spreadsheets, and KoboToolbox digital forms. This diversity highlighted both the adaptability of the model and the challenge of ensuring consistent, reliable data collection.

Role of Community Trust Systems. Local trust structures—including lead farmers, volunteers, and village administrators—proved essential in enforcing rental agreements and ensuring tool returns. These mechanisms extended the reach of CBOs but also raised questions about long-term reliability if leadership turnover occurs.

CBO Capacity as a Determinant of Success. Organizational maturity strongly influenced outcomes. Well-structured CBOs integrated existing rentals smoothly, while younger groups required significant support, particularly in financial management and accountability. Formal Memoranda of Understanding helped address this gap.

Financial Outcomes Highlight Both Promise and Risk. While KIWA did well, we do not know whether other CBOs will be able to generate enough income to reinvest into their program. A clear reinvestment framework is needed to ensure sustainable growth. The sustainability of this program is based on income generation by the CBOs. For KIWA, rental revenue (Ksh. 245,000) was primarily reinvested into tool acquisition (Ksh. 155,500), expanding tool capacity by 1,680%. Ksh. 10,000 was used on transportation and tool fixing. Remaining funds (Ksh. 89,500) supported office rent, utilities, and staff logistics, demonstrating early-stage operational reinvestment.

Conclusions

The Tools2Thrive trial has demonstrated that tool rental programs, when facilitated through trusted CBOs, can significantly increase access to essential hand tools, improve farmer productivity, and generate sustainable revenue streams for local organizations. Beginning with a modest inventory and limited financial investment, KIWA and the subsequent eleven partner CBOs proved that even basic tools meet impactful farmer demands. The trial highlighted both the successes (scaling membership, generating revenue, and expanding tool inventories) and the challenges (record-keeping, financial sustainability, and varying organizational capacity).

The broader impact of this trial shows that CBOs, when supported with structured systems and reinvestment strategies, can serve as effective intermediaries in bridging the gap between subsistence farmers and affordable, reliable agricultural tools. By empowering smallholder farmers with access to the tools they need, the model strengthens food security, supports household resilience, and creates pathways for CBOs to become financially independent and self-sustaining. With over 33 million smallholder farmers across sub-Saharan Africa, the replication potential is significant, offering a scalable solution to one of the region's most persistent agricultural challenges.

The next phase of Tools2Thrive will focus on key priorities including strengthening CBO financial management to ensure self-sufficiency, investing in capacity building to support organizations at different stages of development, and expanding the program to reach new communities. We will work with the twelve participating CBOs to implement a digital software platform that enables real-time tracking of rentals, revenues, and farmer impact and also support data-driven decision-making and scalability. Ultimately, the goal is to expand beyond western Kenya and establish Tools2Thrive as a replicable, community-centered model that equips millions of smallholder farmers across Africa with the tools they need to thrive.

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