Feed the Future: Uganda Commodity Production and Marketing Activity (CPM)

Project Overview

The majority of Ugandans rely on farming for their incomes, but the country's agriculture sector, dominated by smallholder farmers, has historically had low economic support and output. The purpose of the Feed the Future Uganda Commodity Production and Marketing Activity (CPM) is to reduce poverty and promote the long-term prosperity of rural Ugandan families by increasing the quality and quantity of farmers' crops in the maize, bean, and coffee value chains. The activity works with exporters and other buyers to extend genuine agricultural inputs and productivity-enhancing services down the value chain. By building trust between value chain actors, the activity promotes an inclusive market system in Uganda.

The Challenge

Smallholder farmers in Uganda face numerous challenges that hinder them from increasing the quantity and quality of their crop yields to optimal levels. Lack of transparent market information and limited access to agricultural financing are the most significant obstacles to obtaining the high-quality inputs and working capital required to improve productivity and resilience to shocks. Without access to formal financial services, smallholder farmers struggle to mitigate the impact of these risks. They are additionally unable to make investments in productivity-enhancing agricultural technologies that would enable them to increase their incomes and improve their livelihoods. A key constraint to farmers' access to finance is the absence of historical and current data on their sales and transaction history to demonstrate their bankability to financial institutions. To overcome this, CPM has leveraged technology to capture and aggregate information on smallholders' agricultural activities, sales, and payments, creating a digital footprint to enable them to access financial products and services.

The Process

CPM expected Ezy-Agric to significantly decrease smallholder farmers' marginal cost of production, increase the value of their incremental sales, and improve their access to finance. By bringing data-driven production support services directly to the farm, Ezy-Agric helps farmers improve the process and accuracy of decision-making, reduce operating costs, and build a digital sales and transaction history to demonstrate bankability. When farmers are able to access reliable information, it reduces the risk of adopting new agronomic practices and agricultural technologies and maximizes their profit potential. For example, after empowering farmers to purchase genuine improved seed varieties and apply the best fertilizer for their soil type, village agents capture their inputs, land use, and production results and use the information to forecast and refine the farmers' needs during the next crop cycle.

CPM also anticipated that aggregating farmers' production volumes and vetting farmers' improved crop quality in the Ezy-Agric platform would serve to connect farmers to more competitive and transparent market opportunities while reducing their transaction costs and maximizing their sale price. Further, CPM expected that digitized production records would lead to more buyer contracts, which could then be used to obtain input loans and asset financing. The typical smallholder farmer

does not keep such records and faces liquidity constraints that incentivize side-selling, which inhibits their access to buyers that offer better prices and reliable contracts. With Ezy-Agric, farmers would be able to borrow based on payments owed to them by buyers. CPM also recognized that crop insurance would be integral to reducing the risk of lending to smallholders for financial institutions. Through a multi-peril insurance plan, farmers would be eligible to receive payout based on the expected yield of their crop, enabling them to repay a loan even in the event of partial or total crop failure.

Finally, CPM expected Ezy-Agric to create jobs for youth. As it is primarily used on a smart phone and offers commission-based income, CPM believed the model would be attractive to youth who may hold a negative view of employment in agriculture and want a reliable means of making quick cash. When setting targets for this technology-driven intervention, CPM planned to profile 40,000 farmers, assist 60,000 farmers to access crop insurance, enable farmers to access $2.3 million in loans, and create jobs for 350 youth.

The Solution

CPM supported Akorion, an ICT for agriculture company, to develop an ICT platform known as Ezy-Agric, a mobile software suite that bundles up-to-date agricultural information and best practices, monitoring of real-time information on farmer's activities, and a virtual trading center to connect farmers with buyers, sellers, input suppliers, exporters, soil labs, crop insurance companies, and financial institutions. CPM recognized that an ICT-driven solution offered a cost-effective approach for rapid and timely data collection, analysis, and dissemination that would optimize farmers' operations, reduce transaction costs, facilitate farmer linkages to markets, and ultimately help farmers overcome barriers to financial services. CPM offered a grant to Akorion to develop the software, and helped train and mentor Akorion's team of youth entrepreneurs in refining and scaling their business model. Ezy-Agric is an input/output application implemented and delivered by a village agent (VA) network via smartphone. The village agents (VAs) build a digital profile for each farmer (consisting of bio and demographic data, production data, inputs demand, and product supply) and map their cultivated land using GPS. VAs also provide tailored e-extension information and advisory services on good agronomic practices, weather forecasts, market prices, and digital financial products and services. For example, VAs trained in soil sampling test the farmers' soil to identify what nutrients and treatment it needs. The farmer's profile is linked to genuine input suppliers and soil labs, relevant financial institutions and insurance companies, and buyers/exporters, creating a virtual trading center. Ezy-Agric aggregates farmers' demands for inputs, enabling them to generate economies of scale and negotiate better prices from vetted input suppliers. The platform also works behind the scenes to aggregate buyer demand and match it to a farmer's digital profile, while simultaneously managing distribution and logistics. Mobile money payments are enabled on the platform. With assistance from VAs, farmers are able to place orders, pay for services, and receive payment through cashless transactions. Crucially, crop insurance is also available — by connecting insurance companies with farmer data on productive history, acreage, and other indicators, Ezy-Agric reduces risk to the insurance company and improves a farmer's eligibility for insurance. VAs ensure farmers adhere to the conditions for coverage, such as timely planting and application of genuine fertilizer, and submit real-time information to the insurance company. Comprehensively, Ezy-Agric's services enable farmers to

access credit for investments in productivity-enhancing technologies by reducing information asymmetries and capturing the contractual and production-level data required to prove bankability.

Targeting the End User

The targeted end user of this technology is the village agent service provider, whereas the farmer is the ultimate beneficiary. Ezy-Agric aims to bridge the gap between service providers (i.e., input suppliers, financial institutions, buyers, extension service providers) and smallholder farmers. As a business tool, it facilitates and optimizes existing market relationships to enable all actors to accrue benefits. Ezy-Agric, combined with other components of CPM's market facilitation approach, brings transparency and accountability into the equation. As a tool for VAs, Ezy-Agric aligns market incentives with trust-worthy service provision through a commission-based and quality-driven model. It has enabled VAs to earn a minimum income of $400 per month, with the potential for growth as they reinvest earnings and add additional services over time. With VA success tied to increasing the quantity and quality of farmer crops, farmers are the ultimate beneficiaries, accessing better markets, realizing greater gross margins, and increasing the value of incremental sales.

Outcome & Results

Since first piloting the technology in 2014, CPM has greatly exceeded most of its outcome targets. 130,253 farmers have been profiled through this platform, and financial institutions have disbursed more than $45 million in loans for crop production. 792 youth are employed through the platform, providing services such as profiling, planting, shelling, spraying and marketing to farmers, and capturing and reporting real-time data. Crop insurance was added to the platform in 2016, and as of today 30,561 farmers have registered for crop insurance. CPM expects to hit its target of 60,000 farmers enrolled in crop insurance by the end of 2017.

To assess and document these outcomes, CPM deploys a monitoring and evaluation (M&E) team to carry out bi-annual surveys that evaluate the adoption of Ezy-Agric services and to undertake outcome mapping to assess the rate of behavior change resulting from the intervention. CPM's data collection strategy involves several layers of verification – data is first collected in real-time by the VAs through the Ezy-Agric platform, and is then checked by lead VAs and verified by traders when relevant. Next, the data is submitted and reviewed by CPM's regional implementation team. Finally, the data is submitted to CPM's M&E team, who cross-check the data to ensure completeness, timeliness, and correctness before entering the data in CPM's management information system, which is shared with and accessed by authorized donors and other implementing partners. All data collectors and evaluators are re-orientated to the data collection tools and process on an annual basis.

Partnering to Achieve Success

The design and implementation of Ezy-Agric relied on the strengths and expertise of multiple stakeholders. As a youth-led private company, Akorion led the design and development of Ezy-Agric. Akorion was founded by a team of five entrepreneurs with experience in ICT product development for SMEs and user experience design. They championed the vision for Ezy-Agric and possessed a willingness to take risks in the emerging sector of ICT for agriculture in Uganda. As owners of the

platform, Akorion provides a sustainable exit strategy that ensures Ezy-Agric's suite of services will continue after the CPM Activity closes. Given the risks inherent to a start-up, CPM served to catalyze Akorion's vision. CPM facilitated and incubated Ezy-Agric's initial development by providing grant funding, business development advisory services, and mentorship to pilot, refine, and promote the application throughout the 34 districts in the Feed the Future zone of influence.

Each of these partners provides a market-based incentive for village agents to better serve the farmers (i.e., price differentiation for quality output), ensuring that supply is stimulated in response to demand. Ever vigilant for cost-effective and efficient means of doing business, each market actor plays a critical role in providing the data and feedback required to make Ezy-Agric a useful marketplace platform. The village agent network, as the representatives of Ezy-Agric and primary interface with farmers, contributed essential social capital to gain the trust and buy-in of smallholder farmers. Last but not least, the government of Uganda (GoU) proved to be a critical partner by offering a temporary subsidy for crop insurance to smallholder farmers to encourage uptake. Recognizing that crop insurance is an investment in the stability of Uganda's agricultural sector and food supply, the GoU is subsidizing premiums at 50 percent for smallholder farmers with one to five acres of land, and 30 percent for farmers with more than five acres. At this time, the GoU plans to continue to stimulate crop insurance uptake through the 2018/2019 fiscal year budget.

Sustainability

Uganda CPM aligned the implementation of their solution with the Principles for Digital Development and a focus on sustainability, to include:

- **Design with the user:** Ezy-Agric provides a context appropriate solution for broken market relationships by directly addressing challenges and incentives for suppliers, intermediaries, and buyers. We engaged all actors in testing and developing the platform in an iterative process to ensure the technology is relevant and user-centered. Through monitoring and evaluation, Akorion is able to quickly identify design flaws and adapt the technology as needed.
- **Understand the existing ecosystem**: We regularly undertake ecosystem and outcome mapping to better understand market linkages and interactions. The platform relies on interpersonal networks of trust and influence to achieve impact, while digital record-keeping creates an objective basis for trust in the market system over time. Data analysis and face-to-face interaction between VAs and farmers enables feedback loops that identify strengths and weaknesses in platform's utility.
- **Design for Scale:** Ezy-Agric is a simple, adaptable interface that can easily be replicated and customized in other countries and sectors. Data-sharing with authorized donors and implementing partners is intentional to encourage adoption elsewhere. Designed for Android-based smartphones, it will soon be extended to USSD to expand the potential for scale.
- **Build for Sustainability:** Ezy-Agric's value proposition is aligned with the financial incentives guiding market behavior. Central to the business model is a VA's ability to earn money based on the quality and variety of his/her services and number of farmers served. Profitability increases with the number of users, and it will pay for itself as it scales within and beyond the agricultural sector. It has already been adopted by solar companies to sell their products to rural customers.

- **Be Data Driven:** Data is collected in a survey-like function when building farmer profiles and as a by-product of user activities and transactions. Data informs current decision-making for participating market actors based on supply and demand and informs future service delivery – for example, a VA may adjust recommended inputs based on historical production data.
- **Address Privacy & Security:** User authorization is granted on a case-by-case basis to ensure confidentiality and avoid the misuse of information. Each VA enters a unique code to record a profile or enter transactions; access to viewing the data is restricted to the VA and the farmer or farmer group. Farmers sign a consent form before data is collected. Only metadata is shared with service providers. For financial services, personal data is only shared when a tripartite agreement exists between the farmer organization, Akorion, and provider.

The Team

Chief of Party - Robert Anyang
Deputy Chief of Party – Peter Nash

Additional Video:

ICT 4 Agriculture