



CATALYTIC INNOVATIONS IN AFRICAN AGRICULTURE CENTENNIAL SERIES

DAIRY HUBS

EAST AFRICA DAIRY DEVELOPMENT ■ KENYA

The Catalytic Innovations in African Agriculture Centennial Series was developed as part of The Rockefeller Foundation's Centennial publications. The Rockefeller Foundation, as an institution with a long history in agricultural innovation, commissioned this series to highlight promising developments in African agriculture, agricultural markets, and value chains on the continent. The projects and programs featured were selected from a review of nearly 150 such initiatives based on criteria that included a focus on smallholder farmers.

THE ISSUE The East Africa Dairy Development (EADD) combats extreme poverty among farmers in rural Kenya. Before EADD, smallholder farmers were selling only three to five liters of milk a day. This low amount trapped farming families in cycles of poverty with devastating consequences. Families had difficulty feeding themselves and paying for school fees and uniforms, and they didn't earn enough to save and invest in feeds and breeding to boost milk yields. Farmers were forced to sell cows and land to pay medical bills. Nearly 80 percent sold their milk to traders in informal markets, where prices were weak and they endured not

being paid on time (or at all). Farmers also lacked access to information on husbandry, markets, and prices, and banks and insurance companies considered them too risky for loans and coverage.

THE INNOVATIVE RESPONSE As a solution to the economic vulnerability of dairy farmers, EADD is working to double the incomes of 110,000 Kenyan farmers. It's reaching this goal by improving livestock health to increase milk production; organizing farmers into business collectives; and developing social insurance and credit access.



The Catalytic Innovations in African Agriculture Centennial Series recognizes innovations across the continent and includes projects not funded by The Rockefeller Foundation.

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PROJECT BACKGROUND

THE STAKEHOLDERS

Throughout the Central and Rift Valley provinces, EADD helps farmers organize into dairy farmer business associations (DFBAs), including the Kabyet and Tanykina dairy plants. EADD began in 2008 as a decade-long program, with a pilot phase until 2012 and a second phase planned for 2013–2017. The project is funded by the Bill & Melinda Gates Foundation and implemented by Heifer International and a consortium of partners, including the International Livestock Research Institute (ILRI), TechnoServe, Africa Breeders Services (ABS), and World Agroforestry Center (ICRAF). Heifer International is the lead agency and provides financial and programmatic guidance for improving farmers' productivity and efficiency.

The ... vision is transforming the lives of 110,000 Kenyan farmers by doubling household income.

OVERVIEW

The EADD supports farmers to increase their incomes through multiple interventions in the dairy value chain. Its aim is to remedy inherent issues trapping dairy farmers in extreme poverty. Farmers were largely fragmented and unorganized, with weak bargaining power, and were vulnerable to exploitation by informal milk traders. Moreover, because farmers lacked information and inputs, the quality of their cows' milk was generally poor.

Heifer International and its partners are remedying these pitfalls through an innovative approach leading to farmer-owned, cooperative-like business models centered on a chilling plant and dairy hub. Through training and by linking farmers to high-quality feeds, genetics, and veterinary care, these organizations are helping farmers increase volumes and improve quality. The primary intervention is building milk chilling plants. The DFBAs also secure favorable prices with milk processors. The DFBAs

allow members to borrow against their monthly milk profits to access livestock insurance and medical insurance, vet care and feed, and loans through the DFBAs' own banks. These interventions are improving the value chain and raising farmers' incomes.

GOALS

Reaching farmers in extreme poverty

The EADD's vision is transforming the lives of 110,000 Kenyan farmers by doubling household income through greater market share and participation of smallholders. During the pilot phase, the main objective was establishing 13 chilling plants, and working with four existing ones. Through the formation of 22 DFBAs, more than 125,000 farmers became registered by December 2012, and 33 percent of shareholders are women. More than 85,000 farmers are supplying milk to chilling plants.

Increasing incomes

Heifer International emphasizes that EADD is a poverty-reduction strategy. Its purpose is not to increase the number or capacity of dairy farmers; instead, milk production is a means toward reducing extreme poverty. Since 2008, farmers have earned US\$71.6 million, taking in US\$22.2 million in 2012 alone. Average milk production has increased from five liters per cow to 8.6. Today, farmers are earning an average of US\$0.38 per liter, whereas the average was US\$0.09 before EADD.

WHAT IS INNOVATIVE ABOUT THIS PROJECT?

A HAND UP—NOT A HANDOUT—CREATES OWNERSHIP

Under the program, farmers must raise 10 percent of the US\$125,000 initial capital needed to purchase a chilling station and a building. An additional 30 percent of the financing comes from Heifer International and the Bill & Melinda Gates Foundation as an interest-free loan (allocating 15 percent each). The remaining 60 percent is financed by a commercial loan carrying interest. Each DFBA has about 2,000



shareholders and operates like a collective, whereby members purchase shares and become owners of the dairy, and full members earn dividends based on milk sales. A small levy is charged to members for every liter of milk they sell to the dairy for paying back the loans. Women play an important role in the governance and operations of the DFBA. Some women are responsible for managing the daily operations of an entire hub, and others serve on the board of directors for their DFBA.

USING A SUSTAINABLE BUSINESS MODEL MAKES EXTRAORDINARY SERVICES POSSIBLE

Farmers and transporters deliver fresh milk to the chilling stations each morning. Milk is then weighed; farmers receive a digital receipt that reflects the liters they've delivered that month. The receipt also indicates services offered through the dairy that members have used. When farmers are paid monthly, the services they've used are deducted from their wages under a scheme called the "checkoff" system. These services are improving the health of livestock and the lives of farmers.

Women are also beneficiaries of the checkoff system. They can use it to access financial services for economic expansion (e.g., borrow money to diversify their farming by purchasing goats or chickens). The system also allows women to borrow money to pay school fees for their children.

Village banks and debit cards

Because farmers were deemed too risky to receive commercial loans, the dairies created their own village banks for members. Monthly pay is deposited into accounts, where members can access cash and apply for loans that are borrowed against their monthly checkoff. At least one village bank has partnered with a larger commercial bank to issue Visa debit cards for its dairy's members.

Access to insurance

Among the services available are access to livestock and medical insurance for members and their families.

High-quality agricultural inputs

Supplying members with access to high-quality feed, immediate veterinary care, and superior genetics through artificial insemination (AI) is a fundamental service augmenting the entire project. EADD's vision is for smallholder farmers (who own one or two cows) to utilize best practices to increase milk volume. To achieve this goal, farmers receive training from extension agents and gain access to agro-vet supplies and veterinarians. Therefore, an agro-vet store operates at each hub where farmers can purchase feed and medicine. Most hubs also practice AI on a daily basis. As with other services, farmers can access these resources anytime, and the costs are deducted from their checkoff.

ABOVE: "Washing here is a continuous process," says Belinda Kosgei, plant manager of the Kabiye Dairy. She's standing in front of milk cans that have just been cleaned.

COVER: Outside the Kabiye Dairy in Kenya, a truck with the capacity to carry 10,000 liters of milk—all collected from local farmers—gets ready to deliver it to a creamery about 40 kilometers away.



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THE FUTURE: OPPORTUNITIES AND CHALLENGES

OPPORTUNITIES

REPLICATION EADD is operating in Kenya, Uganda, and Rwanda. It plans to cease operations in Rwanda while expanding into Ethiopia and Tanzania during the second phase. One of the primary reasons for EADD's success in Kenya is the presence of an established milk-consuming society. Further, dairy farming has been a way of life for farmers for many decades. The rise in urbanization, and the concurrent rise in incomes, is also creating more demand for milk in Kenya. It's less clear whether EADD's success can be replicated in countries where these conditions are less robust. For instance, per capita milk consumption in Kenya is about 90 kilograms annually, compared to an average of 25 kilograms per capita across sub-Saharan Africa. Chilling milk also requires electricity. Therefore, replication depends upon whether areas possess the appropriate infrastructure.

SUSTAINABILITY EADD appears to offer a highly sustainable economic model. A major challenge to the financial sustainability of the dairies in Kenya is whether farmers can produce enough milk during the dry season, where feed can be difficult to procure unless farmers plan accordingly. To overcome this obstacle, the dairies are actively training farmers and creating livestock feed reserves that farmers can purchase during the dry season. Aside from this hurdle, the growing demand for milk in Kenya appears promising for the financial health of the dairies.

CHALLENGES

INFRASTRUCTURE The dairy hubs are in rural areas, and chilled milk must traverse largely dirt roads to reach milk processing plants. One dairy indicated that on a dry day this journey takes about an hour. On a rainy day, mud and potholes can turn the trip into a daylong affair. National and local government recognize the value of the dairy hubs, and by all accounts are supportive. However, the government will need to allocate greater resources toward paving and repairing roads. Failing to do so can mean lost profits for farmers.

RESISTANCE TO NEW FARMING PRACTICES Members of the DFBA also note the challenge of demonstrating the value of new, scientifically based practices to dairy farmers. While young people exhibit an openness to receive and experiment with new practices, elderly dairy farmers are often reluctant. Heifer International and its partners are faced with finding innovative ways to show the value of adapting or adopting different practices. Given the power of farmer-to-farmer learning in agricultural replication, building stronger connections among young and elder farmers may help promote new practices.



CLOCKWISE FROM TOP LEFT: A collection of empty milk cans stands outside the Kabiyet Dairy. During the morning delivery, cans like this one arrive by truck or, often, roped to the back of farmers' bicycles. ▪ Reuben Bett pours milk at the Kabiyet Dairy in Kenya. ▪ Prized dairy cows like this one are a source of pride—and income—for small-scale farmers in Kenya.



The lives of people here have changed a lot. People are very happy. There are those who are taking their kids to school, who have bought land, who have built houses to rent out.

JOINA CHEPKALUM MURREY
KIPKAREN SALIENT, KENYA



Accompanied by two of her grandchildren, Joina Chepkalum Murrey, a widow and mother of seven children, sells her cow milk to the Tanykina Dairy, a short walk from her home.

PROFILE: JOINA CHEPKALUM MURREY

Farmers who have become members of the Tanykina Dairy not only have a sure market for their milk but easy access to a range of services, from health insurance for their children to veterinary care for their cows.

It's barely 7:30 a.m. and already the dirt road, red and rutted, that leads to the Tanykina Dairy plant, about an hour-and-a-half drive from Eldoret in Kenya, streams with farmers and their children. They come by foot, by bike, and by motorcycle to deliver the creamy white commodity on which their lives depend: milk—drawn from the cow udders that have given this place its name. Among the early risers is Joina Chepkalum Murrey, a stout woman with a warm smile and a multitude of responsibilities that stretch across three generations.

"If I didn't have all the responsibilities I do I would have been a rich woman," says Murrey, a longtime widow, sitting in the hot stillness of the mud-walled home she built for one of her sons. Instead, she is devoting her senior years to ensuring her grandchildren get an education, that medical bills for an epileptic son are covered, and that there is food on the table for everyone. Milk, now marketed through the Tanykina Dairy, has helped to make all of this possible.

Member benefits

Murrey is one of the 5,116 women members of the dairy—making up roughly 40 percent of the total 11,812 shareholders. Each morning, when they cart their milk to the dairy, members receive a receipt for that day's delivery, now going for 30 Kenyan shillings (US\$ 0.35) per kilogram. At the end of the month, they get paid. But in the meantime, if farmers need to buy things like feed for their cows or veterinary services, or if they need to pay for school fees for their children, the dairy offers a "checkoff" system that allows members to charge those necessities against their monthly earnings.

For Murrey, who has had trouble with a goiter and remains concerned about the

seizures her son may have, the best thing of all about the dairy hub is the health insurance she is now able to buy via her membership. This opportunity is helping poor farmers hold onto their assets and survive sicknesses that could have plunged their families deeper into poverty.

"They pay for my son's and my bills. And my grandkids are also insured through their dad, Julius," says Murrey. Costs for the insurance range from 375 shillings (US\$4.50) for one person to 1,499 shillings (US\$18) for a family of seven or more. The fees are deducted from each member's monthly milk account.

Typically, says Jeremiah Rutto, the dairy manager, farmers don't go to the doctor until it's too late. "By the time somebody reaches the clinic for medical treatment, the disease has progressed so far," he says. And the costs can be staggering for a poor family.

"They would sell a production unit—or even land—to settle their medical bills," adds Janet Yiamoi, an investment adviser for Heifer International, a partner in this East Africa Dairy Development project. Access to health insurance has helped relieve families of that terrible burden.

But that's not all the dairy hub has done for people.

Community bank

On a hill a short hike from the cooling station sits the Kipkaren community bank. It provides farmers not only with options for savings and loans but with a modern service long absent in rural areas: ATM cards, a program started in 2012 with support from a larger bank and Visa. About 1,000 farmers in the area now have cards, including Murrey.

"I like it because I can just go and withdraw my money and no one will know how much I withdrew. It's not like the [bank] counter," says Murrey. "Regardless of where I am, I can access my money."

That cash, earned by farmers on a more regular basis thanks to the milk market the dairy has created, has helped strengthen families and boost local enterprise. Prior to the establishment of the dairy hub, Murrey says she would sell her milk—she gets five to 10 liters a day—to anyone she could find willing to buy it.

"The price they were paying me for my milk was very low," she recalls. "Sometimes they would buy and sometimes they wouldn't."

Now, like other farmers in the region, she has a reliable market and a steady flow of income because of it.

"The lives of people here have changed a lot," says Murrey. "People are very happy. There are those who are taking their kids to school, who have bought land, who have built houses to rent out."



RIGHT: Joina Chepkalum Murrey says the money she gets from selling milk allows her to pay school fees for her children and grandchildren.