



East and Central Africa

# ROADS

Regional Outreach Addressing AIDS through Development Strategies

# Food for Thought: Nutrition as a Strategy for AIDS Care . . . *and Prevention?*

## IMPROVING LIVES ALONG AFRICA'S NORTHERN TRANSPORT CORRIDOR

By Steve Taravella

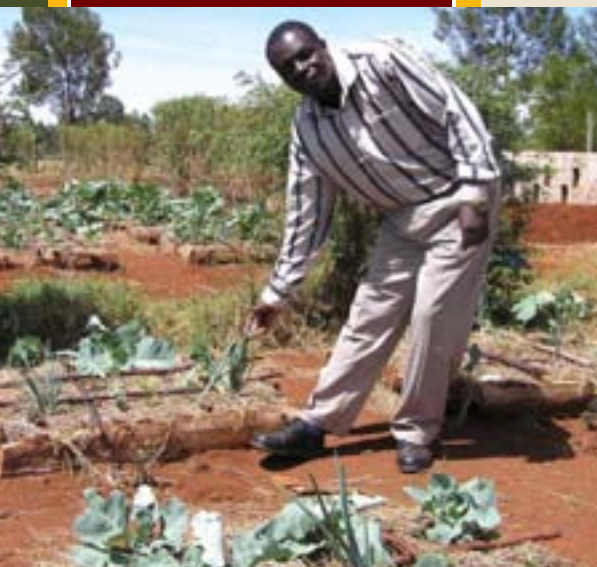
**MALABA, Kenya** — From the side of the road, this eight-acre parcel of land in Malaba doesn't look like much. Green in some patches and brown in others, framed by detritus from a recent corn harvest, this non-descript plot looks like almost any other along the busy Malaba-Bungoma Road near the border of Kenya and Uganda.

But this impression is deceptive because this piece of sun-drenched dirt holds the promise of new life for many residents here. The land will soon be transformed into a vibrant farm that will bring income-generating agricultural skills to the area's poor residents, as well as fresh fruit and vegetables to HIV-infected and -affected families, many of whom suffer from poor nutrition.

The farm is part of the broader, regional "SafeTStop" initiative to reduce HIV infection and improve the health and well-being of communities along the major transport corridors of East and Central Africa. This includes Malaba's dusty section of the Northern Transport Corridor, along which thousands of truckers each day carry goods and petroleum from Mombasa, on Kenya's eastern coast, through Uganda to the Sudan, the Democratic Republic of Congo, Rwanda, Burundi and elsewhere. By creating better economic conditions for the families along this corridor, SafeTStop hopes to help these communities better prevent HIV.

"We have to address poverty if we are ever going to effectively address HIV and AIDS in Africa. If people can feed themselves, it will have an enormous impact," says Gail Goodridge, who directs Regional Outreach Addressing AIDS through Development Strategies (ROADS). ROADS is implementing the SafeTStop Program for the East and Central Africa (ECA) arm of the U.S. Agency for International Development. The SafeTStop community farm is a strong, public-private collaboration whose partners include:

- **The Malaba Town Council**, which donated the land for a seven-year period.
- **Appropriate Grassroots Interventions (AGRI)**, the non-governmental organization (NGO) that will develop the SafeTStop community farm based on its successful model in Eldoret, Rift Valley Province, about 100 kilometers west. AGRI implements sites there for the Academic Model for the Prevention and Treatment of HIV/AIDS (AMPATH), which provides some of the most comprehensive HIV services in East Africa. Under AMPATH's HAART and Harvest Initiative, four food distribution sites serve 8,000 HIV-positive people plus their family members.



Anthony Wekesa, who will manage construction of the SafeTStop community farm, with the "starter garden" square plots that help farmers learn to produce vegetables for their families.



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- **The U.S. Agency for International Development**, which is supporting the activities through USAID/ECA, its Nairobi-based, regional program of multi-sectoral activities across East and Central Africa. ECA is funding the project with about US\$700,000 over five years.
- **Family Health International (FHI)**, the NGO that operates HIV prevention, care and treatment programs in more than 60 developing countries. FHI manages ROADS for USAID/ECA.
- **People living with HIV or AIDS (PLHA)**, who will be active participants on the farm, through the HIV and nutrition education component and through food production. PLHA who eventually grow surplus food at home will sell it to the farm, which will in turn distribute it free to new entrants into the program
- **Community-based organizations**, which will provide a pool of paid workers for the farm and assist in food distribution. Many local organizations addressing Malaba's HIV needs — youth organizations, religious groups, organizations of low-income women, societies that assist orphans, and even “boda-boda” (bicycle taxi) drivers — will participate in the farm's development and operations.
- **The United Nations World Food Programme (WFP)**, which will provide grain and cooking oil to the farm's food recipients, much as it does in Eldoret.
- **The Japan International Cooperation Agency**, which is providing 5,000 bags of fertilizer through the Kenya government for distribution to families learning to farm through this program.

## The Land

The town of Malaba purchased this property in 1997, intending to construct rental housing on it. When those plans did not materialize, town staff began using it to plant personal gardens; their efforts attest to the soil's fertility. After FHI conducted a sensitization meeting in November 2005 to update stakeholders on SafeTStop activities along the transport roadways, then-Town Clerk Lesley A. Khayadi thought, “Why can't we also contribute, since it's helping the people? It will do some good.” Khayadi, the first woman to hold this position in Malaba's 12-year history, proposed the town donate this parcel. She was motivated partly by her social science background and partly by the HIV losses her office has experienced: In just two years in this position, she saw three staff members

among 84 die of AIDS, and is aware of one seriously ill with the disease now.

Khayadi secured support from the appropriate municipal committee, which presented the proposal to the seven-member Town Council, where it was approved unanimously. For Malaba, the donation makes complete sense, Khayadi explains. “Local government is closest to the people, so this is the right body for this project to really reach the grass roots. By making Malaba a safer place, we all benefit. This is an agricultural community, but the type of climate and soils here are problematic for an ordinary farmer. We'll get some skills on how to better farm the land. And this will have a big impact on those infected and affected (by HIV). If you boost this person's nutrition, he will live longer, be more valuable to family, and won't be perceived as a drain on resources.”

“The whole community should work toward making Malaba a safer place for truckers, and for everyone working with truckers — street girls, people cleaning trucks — by giving them a more conducive environment to avoid getting infected,” she says. “But we should not think of it as just for the truckers. Our changes in attitude should spread to wherever we come from. It means all of us pulling in one direction to ensure we don't add to HIV infection.”

Digging of the land began Feb. 4 in preparation for an official launch in May. One ancillary benefit of the farm is employment: In this chronically underemployed region, the SafeTStop community farm will hire approximately 110 people for its first four months of operation. After eight months of operation, AGRI's Gatonye farm in Eldoret employs 25 people on an ongoing basis, making it a significant local employer.



Ana Jeptanui, employed at AGRI's Gatonye farm since March 2005, prepares freshly harvested carrots for washing and weighing before they are distributed to people with HIV.



The U.N. World Food Programme (WFP) will provide grain and oil for the SafeTStop Community Farm. Here, workers repair the roof of WFP's storage facility at an AGRI farm in Eldoret.

**“A plant is like a human. If you’re healthy and you have all the food and water you need, then pesticides and disease aren’t a problem.”**

## The Need

One of the major risks of HIV infection along the transport corridor is sex work. Sex workers gather at key stops along the transport route, knowing that when truckers stop, they have little else to do but drink. At border towns like Malaba and Busia, truckers sometimes sit for days waiting for their passage to be cleared, their permits approved or their goods to be unloaded. During this period, away from wives and girlfriends, many seek sex from local women — and since the truckers are employed, they have money to pay for it. The farm can mitigate this dynamic: If local women are less concerned about getting enough to eat, fewer may be forced to engage in these activities to support their families, ultimately putting fewer people at risk.

The farm’s income-generation component is critical for building longer-term solutions. Developing an income from private land here is more possible than it may seem because, unlike in most parts of the United States, many otherwise desperately poor people in Kenya are land-rich. A family that may not have food to feed itself might easily have 10 acres of farmable land, but may not have learned to convert them to income. Dr. Melsa Lutomia, the Teso District Medical Officer of Health, says the farm’s real value is “to show people how to grow food, so they can do it on their own. Most patients here are of low income, so even if food is available, they couldn’t buy it.”

The most immediate need the farm can meet is providing access to a safe, healthy food source. Along the Malaba stretch of the Northern Transport Corridor, many people have no income of any kind for long periods, and many more do not earn enough to support themselves and their families, so food is always in short supply. This situation is especially acute for people with HIV infection, because the powerful antiretroviral drugs (ARVs) that are saving lives cannot be absorbed on an empty stomach. The point is simple: “For the drug to work, you must have eaten,” declares Amos Atulo, a program officer for Western Regional Christian Community Services, a ROADS implementing partner, who recently moved from Kakamega to Malaba to help advocate for people living with HIV along the transport corridor.

“Doctors realized these people aren’t dying of HIV in the initial stages. They’re dying from lack of food. Food distribution is not a solution, but at this time, it’s the only way for us to find proper treatment for these people,” says AGRI Secretary Anthony Wekesa, who is managing development of the SafeTStop community farm. “If this was not here, we could count so many deaths. The U.S. government is doing a lot to bring ARVs to patients, even making them available free, but without this supplement, it would not count here.”

Indeed, proper nutrition is absolutely critical for HIV-infected persons, especially if they are taking ARVs. Some experts estimate that people with HIV need to absorb 15 percent more resources — such as energy, proteins and micro-nutrients — just to hold their own against the virus. “From the moment an individual gets infected, they begin to require additional nutrients compared to someone not infected. HIV infection itself increases the need for nutrients in the body. The virus takes advantage of the metabolites, the energy and the proteins in the body,” says Dr. John Adungosi, FHI’s Nairobi-based senior technical officer for comprehensive care and ART. As the disease progresses, the HIV-positive person’s metabolism breaks

down more rapidly, so the body requires more fuel. “Ordinarily, for an individual who is able to access adequate amounts of food to eat, this means they take greater care to ingest sufficient quantities to cover the range of nutritional requirements. But for those who are unable to access adequate food, the rate at which (the disease) will progress will be further exacerbated,” he says. Additionally, because certain minerals and water-soluble vitamins cannot be stored in the body, such as zinc and magnesium, they must be obtained externally. “The moment you don’t have those, you adversely affect the enzymatic processes that are required for metabolism,” he says.

Nutrition also becomes relevant because some major opportunistic infections — like loss of appetite, vomiting and diarrhea — deprive the body of nutrients already ingested. If they are hard to replace, perhaps because the individual cannot afford to buy additional food, the body suffers.

## What the Program Will Do

The SafeTStop community farm will both teach income-generating agricultural skills and bring an additional, reliable food source into the area. In the process, it will establish food as nothing less than an HIV prevention strategy, since it will make food available to:

- HIV-positive persons who are taking ARVs and who receive a nutritionist’s prescription for food to help them absorb the drugs.
- HIV-positive people who are not taking ARVs. Eating regularly, especially nutritious foods, can help them continue delaying ART.
- Vulnerable HIV-negative people, such as children orphaned by AIDS or women who have lost their husbands to AIDS and might otherwise resort to sex work to feed their families.

Because of USAID/ECA’s regional nature, the farm and its programs will serve residents on the Uganda side of the Malaba border as well as the Kenya side, and the yield will make a big difference to both communities. In Eldoret, AGRI’s Gatonye farm alone produces 30 tons of edible green material per hectare, per crop, and each crop is produced twice yearly. The Mosoriot farm in Eldoret has provided nutrition to 4,000 HIV-positive residents since 2003. The SafeTStop community farm will produce mostly vegetables but also fruit. By illustration, of 92 beds at Gatonye, 73 are devoted to vegetables and 19 to fruit. AGRI’s Eldoret farms grow kale, spinach, cabbage, carrots,



Because rotating crop beds can strengthen crop yield, these farm workers are converting vegetable beds that had produced carrots into beds that will grow garlic.

onions, sweet peppers, garlic, beans (red and Egyptian), as well as avocado, guava, oranges, lemons and limes. As in Eldoret, the SafeTStop farm will feature local indigenous foods, such as amaranth, a high-protein leaf that reduces malaria symptoms (and has twice the calcium of milk), and black nightshade leaves (locally known as managu), often cooked with salt and cream.

The farm is more than a source of food for people with HIV. Because the SafeTStop program views nutrition as an issue larger than the individual, the farm will provide food for the entire family of an eligible HIV-positive person. This means it will benefit youth, older people, low-income women and others now served in other ways by other USAID programs. Each client may collect food once a week, in quantities determined at their initial assessment based on family size. In addition to what is grown, clients may also collect donations from the World Food Programme (WFP), such as vegetable oil and wheat grain. A large WFP storage facility will be part of the farm. If experience at other AGRI farms is any indication, most clients will pick up their food in the morning hours because women — the majority of food clients — wish to be home when their children return from school in the afternoon.

The SafeTStop community farm will provide eligible clients with food for up to six months, reasoning that in most cases, this is adequate time to reconstitute someone’s immune system if treatment is accompanied by stable, varied nutrition. At this point, those strong enough to consider working again will be directed to opportunities on either the business side or the field-work side of agricultural production. If a client’s clinical indicators and energy level have not sufficiently improved, exceptions can be arranged for extending food support. Conversely, some have voluntarily left the distribution program when their strength has returned in less than six months. The farm strives to ensure that clients are, in fact, using the nutrients it gives them: Before they can receive a 500ml container of yogurt made

from the farm's cows, clients must present an empty container from yogurt received on a prior visit.

At first, clients may experience anxiety at being seen leaving a site known to serve people with HIV, but this fear passes over time, observes Caroline Rutto, a distribution worker at Mosoriot. In fact, the program may also help reduce HIV stigma. The Eldoret farms have helped clients feel so much more comfortable about their condition that many have started talking openly about their status, says Wekesa. Some people who fear health workers' reaction to their HIV questions have begun asking about HIV at the farm before going to a clinic. The SafeTStop community farm will have an HIV educational component. This will address HIV testing, opportunistic infections and treatments — as well as how to prepare foods in nutritious ways, create balanced meals and make healthy foods more appealing, since people with HIV often lose their appetites. Free food demonstrations by nutritionists from the Academic Model for the Prevention and Treatment of HIV/AIDS (AMPATH) program draw about 80 people to Gatonye each week. "They love it. When they come back, they tell us if they have used (the recipes) at home and if they liked the taste. If they mix foods for good taste, they'll (consume) more food," says Fridah Kambayi, who manages the Gatonye farm. She knows this from personal experience: She dislikes the taste of garlic but believes it will help keep her blood strong, so she prepares it with coriander, rosemary and ginger (also grown at Gatonye) to mask what she finds unpleasant.

So as not to discourage new clients who have not farmed before — or who may be too weak to do much work — SafeTStop will start them off small. Each new client will be



To improve lives along the transport corridor, this land will soon produce food for people with HIV, generate income for families in the area, and provide jobs for the community.

given access to a tiny garden plot at the farm, about three feet square, in which to plant, nurture and harvest a week's or month's worth of produce for their family. With this plot, they can learn the techniques for seeding, composting, watering and protecting soil and plants before harvest. To encourage clients to implement these activities on their own land, the program will give families some tree seedlings; like all other program benefits, these are provided at no cost.

## How it Will Operate

A high-quality compost is key to producing a nutrient-rich yield. The Eldoret farms prepare their own natural compost, mixing ash, cow dung, top soil, garden waste and household food waste. Farm workers turn and layer the soil in large cement bins, ensuring the components are commingled well. Strong compost boosts the health and fertility of the soil, enabling the plants "to fight a lot of battles for you," says Robin Bacon, who is serving a two-year period as AGRI's horticultural advisor through the U.K.'s Voluntary Service Overseas. "A plant is like a human. If you're healthy and you have all the food and water you need, then pesticides and disease aren't a problem."

Small trees are planted along the farm perimeter and at strategic points in the plant beds to protect the plants from strong winds. Growth is managed with minimal insecticides and poisons. Relying on a strategy called Integrated Pest Management or Integrated Crop Management, Bacon says the more organic the material, the better the soil's structure, moisture retention and water efficiency. Using the least toxic substances possible helps maintain a healthy environment for local residents and for the animals that populate the area. The naturally occurring bacillus thuringiensis, or "BT," is used because it kills caterpillars and little else. Marigolds are planted near some vegetables because they kill aphids, predator mites are introduced to tackle spiders, and mild sulphur is sometimes used as a pesticide.



In vegetable bed 22 of 79, Robin Bacon, a horticultural advisor to AGRI, identifies spinach to be "thinned out," so that remaining plants can better thrive. The removed greens are added to that day's food distribution.



Former Malaba Town Clerk Lesley A. Khayadi

At AGRI farms, once a crop is harvested, the dirt is dug up and prepared for another kind of crop altogether, or “rotated.” Crop rotation adds nitrogen to the soil, minimizes pests, avoids pesticide build-up and is less likely to deplete the soil of nutrients. Once plants have sprouted, they are “thinned out,” meaning growth is removed if plants start to grow closer than about 20 centimeters apart, explains

Kambayi. The removed leaves are added to the harvest that is distributed as edible food — just one example of the farm’s waste-nothing philosophy.

Collecting manure from the farm’s cows to use as compost for plants is another example, so that soil can be enriched without chemical fertilizers. Emptied yogurt containers are filled with dirt and used to grow tree saplings. And sesbania plants raised for the specific purpose of improving soil for other, more nutritious plants (sesbanias’ deep roots draw nitrogen from below the crop root zone) are re-used as animal feed when removed from the ground.

“Maximizing available resources is good stewardship of the land,” says AGRI Director Steve Lewis. The amaranth plant perhaps offers the best example of how this philosophy is put into action. When it reaches about six feet, its top leaves are removed for food distribution (when added to stews or made into a tea, they can help reduce malaria symptoms). About a week after the leaves are picked, the remaining stem produces what might be called a “seed head.” This part of the plant is now harvested from many plants at once. Farm workers place the seed heads into a large sack, which they then beat with a stick, breaking them apart. They then shake out the contents, letting natural air movement separate the seeds from the housing around them, Kambayi explains. The seeds are then ground into baking flour and mixed with corn flour to make ugali, a staple of the Kenyan diet, or with wheat flour to make chapati, the unleavened flatbread, while the seed heads are fed to the farm’s chickens. In this process, no part of the plant has gone unused.

In Malaba’s hot climate — and especially in the current period of drought — ensuring a resilient crop is difficult. To address this, the SafeTStop community farm will use a sophisticated drip irrigation system similar to that at Gatonye, which receives its water from the River Sosiana, Eldoret’s main water source. Six days a week, 40,000 liters of water are pumped from the river to four 10,000 liter tanks secured on a platform high above the farm’s surface. Narrow pipes, or “drip lines,” run the length of the farm’s beds to deliver controlled amounts of water. It’s not the technology that has made this system so rare in Kenya, but its cost, Bacon explains. Whereas most farmers struggle simply to pay for fertilizer, AGRI paid about US\$3,500 to install the pipe-work and drip lines at Mosoriot, excluding the pump.

But the AGRI farm’s core functions rely on uncomplicated farming systems that will not pose barriers for low-income people. Seeds are still measured with pop bottle caps and, at Gatonye, there’s not a tractor in sight. Planting is done by hand, after farmers make furrows with a stick. “It’s about people extending what you can do here — principles of good agriculture and farming — out into the community. It was important that we did it in a way that was appropriate to the people, technology and things that are available,” says Bacon.

Food is harvested in the coolest part of the workday, from 7 a.m. to 9 a.m., Monday through Friday. To keep the produce as fresh as possible, the farm uses a banda, a traditional outdoor workspace covered with a grass roof and surrounded by dividers that minimize the wind and maximize shade. Once harvested, food is immediately moved to the shade of the banda, where it is weighed, dipped in clean water to maintain freshness, and stored for only two or three hours before transport. In this way, the banda relies on shade and water to keep the temperature down, so veg-



Homes made of mud and grass, with no electricity or indoor plumbing, are typical of the poor communities that serve the transport corridor in Malaba.

ables don't reach market in limp, unappealing condition. "You have an end customer, just like with any product, so you want it to be fresh and not bruised, and to look appetizing," says Bacon, who estimates the Gatonye banda cost about 25,000KSh (about US\$350) to construct.

The same principles hold for AGRI's dairy component. Sophisticated technologies are used, like impregnating cows via artificial insemination to control the quality of milk and meat the calf will produce, and giving cows a protein supplement during their milking period to increase the quality of milk. But cows are fed simple, cut-up grass, making it easier for them to eat, and they are given safe covered shelters in which to sleep. The farm's conditions mean a cow here can produce up to 25 liters of milk per day, Wekesa says, versus about nine per day from a cow in the village that is not treated as well. Since a farmer can sell a liter of fresh milk for 30KSh (or about 45 U.S. cents), this is a promising source of earnings.

## Selling it Back

After six months on treatment, many will be strong enough to begin earning their own income. But if new farmers are to sell what they grow, they need a buyer. To help those who remain in a vulnerable state after six months, the SafeTStop community farm will purchase half of their farm's yield at market rates for six months more, giving farmers an incentive to identify other market outlets for the remaining half. The farm must keep its payment rates competitive or the farmers will take their goods to outside ven-

dors, threatening the viability of the distribution program. It might sometimes go beyond competitive: At Gatonye, AGRI currently pays farmers 7KSh per egg, knowing it can sell them for only 5KSh each. Even though it loses money, the farm has decided this price is important because "it's empowering to them," Kambayi says.

Once a week, the new farmers will present their harvest for purchase at the farm. They will bring with them the ledgers the farm has issued them, one for produce and one for eggs, so the quantity, weight and price can be recorded. At the end of each month, the farm will transfer payment into the farmer's bank account electronically. If the family prefers payment by check, checks are usually made payable to the female head of household. The farm will purchase clients' produce this way for six months, to give families time to establish their business without the burden of start-up costs. After six months, the farmers should be ready to support themselves.

Because the need for food has been so urgent, the focus of the work has been on getting produce into the hands of those who need sustenance. "I used to just pick, pick, pick," Kambayi says. But AGRI's success — and the attention it has received from others who wish to replicate it — has increased its focus on documentation. On Jan. 1, Gatonye began keeping detailed records of its yields. "Now I need to know how much I've harvested and how much each bed has produced, so I'll know for the next two (crops)," Kambayi says. Among other things, by identifying a low yield, data collection will help the farms predict ways to improve future crop output.

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March 2006