

FIPS Promotion of Improved Technology in Kenya through Small Seed- and Fertilizer-Packs

The main objective of this program is to increase farmers' access to and knowledge of proper use of agricultural inputs. The main strategy is to stimulate demand for farm inputs by increasing farmers' awareness while increasing availability of inputs through stockists and private sector partnerships. Key lessons include:

- Empowering farmers in basic principles of crop nutrition and management underpins product promotions and availability.
- The transaction costs of repackaging, distribution, and promotions are effectively a donor subsidy, however, by maintaining realistic prices, and never giving away fertilizers, farmers have been able to assess the cost/benefits of investment.
- Experience has shown the difficulty of matching supply with demand. The experience with this program emphasizes the importance of generating demand with supply and vice-versa.

Name of project or program: Farm Inputs Promotions Africa, Ltd. (FIPS)

Initiation date: January 2003

Completion date: Ongoing

1. Description of project, program, or approach

Millions of smallholder farmers in Africa suffer poverty and hunger because not only are they unable to obtain appropriate fertilizers and improved seed varieties, but also many farmers are unaware of the correct inputs required to achieve subsistence yields from increasingly depleted soils. Fertilizers are key to alleviating these constraints but must be integrated with other inputs and proper soil management for their economic potential to be realized. Farm Input Promotions Africa (FIPS-Africa) has achieved widespread impact in Kenya through the dual approach of stimulating the demand for farm inputs by increasing farmer awareness, while improving the availability of inputs through stockists and private sector partnerships to meet the increased demands. This strategy has reduced four main constraints to fertilizer usage: (a) availability of appropriate fertilizers, (b) unit cost of standard bags of fertilizers; (c) inefficient fertilizer use, and (d) private sector unwillingness to invest in development of markets for small-scale farmers.

To address these four constraints, FIPS-Africa, with the support of the Rockefeller Foundation, DFID and USAID, and in collaboration with private sector fertilizer and seed companies, and the Ministry of Agriculture, has developed and implemented an approach to make the appropriate fertilizers, and improved seed varieties, more accessible to small farmers. The approach is based on the mass promotion of improved technology through small affordable packs of seeds and fertilizers. Operations in some of the poorest areas have shown that farmers, who are empowered to try out new technology using small affordable packages, return to

their local stockists to purchase larger quantities of inputs with each incremental gain in their livelihoods over a few seasons, and so improve their food security independently of the need for credit or free handouts.

2. Implementation details

FIPS-Africa developed private sector partnerships with fertilizer and seed companies to make improved fertilizers and seed varieties more accessible to small-scale farmers. The maize streak virus (MSV) is widespread in Kenya and can result in crop failure. Hence, promoting fertilizers and seeds are closely linked with maximizing value for the farmers.

Improving supply: Since June 2003, Athi River Mining (ARM), a Kenyan mineral company, has collaborated with FIPS-Africa in the development of two new multi-nutrient fertilizers called *Mavuno*-a planting formulation containing N, P, K, S, Ca, Mg, and traces of B, Zn, Mo, Cu, and Mn, and a top-dressing fertilizer supplemented with additional N. *Mavuno* is packaged by ARM in attractively branded 1 kg bags that retail for as little as US\$ 0.4-0.5 per kg. This encouraged farmers to experiment with the new fertilizers and see the benefits. Athi River Mining assisted in the distribution of the fertilizers to wholesalers and stockists in rural areas to ensure supply.

FIPS-Africa also solicited 150g mini-packs of seed and improved maize varieties from commercial seed companies. Three companies, Kenya Seed Co., Western Seed Co., and Monsanto donated a total of 150,000 small packs of seed for FIPS-Africa's promotion campaigns. These small packs, worth US\$ 0.25, were given away free of charge, because government legislation currently prohibits the repackaging of seeds into small packs for sale. Because the package was small, it has not reduced the incentive to purchase larger quantities.

Stimulating demand: Demand for inputs is stimulated through two main approaches in which FIPS-Africa acts as an "honest broker" empowering farmers to select the most appropriate products for local usage: These two approaches are:

1. **Small plot demonstrations:** These demonstrations highlighted fertilizer use, improved seed, and appropriate crop and soil management, that enable farmers to choose the appropriate fertilizer and variety for their farms. Seed companies are requested to contribute seed of their recommended variety for the particular agro-ecological zone. In this way, up to eight varieties are demonstrated alongside each other on small plots. New fertilizers are also demonstrated alongside conventional fertilizers. Other demonstrations address other aspects of crop nutrition and management including the importance of organic resource management, the use of the chisel plough to break plough pans, and the introduction of pre-emergence and post-emergence herbicides as components of conservation agriculture. Demonstrations form the foci of farmer field days in which neighboring communities are invited to learn about improved crop management. At the end of the field day, farmers receive small packs of seed to assess variety performance on their own land.

2. **Promotions through stockists:** Demonstrations reach a relatively small number of people, and diffusion of technology from within farmer groups to surrounding

communities is often limited. FIPS-Africa complements its demonstration program with promotions through stockists in village markets. FIPS-Africa developed a promotion method through which any farmer purchasing a 1kg pack of improved Mavuno fertilizer receives a small introductory pack of improved seed for free. Megaphones are used on market days to attract maximum attention and up to 300 farmers purchase the promotion package on a busy market day.

The program's approach is implemented by teams of 2-3 FIPS-Africa staff working at a district level with local university graduates recruited on a casual basis to assist with establishing demonstrations and promotional campaigns during peak periods. All activities are implemented in close cooperation with the Ministry of Agriculture to ensure that the same extension message is disseminated and to reach farmers on a larger scale.

3. Results/Impact

Promotion of Mavuno fertilizer was successful throughout Kenya. As a result, farmers were empowered to make informed choices regarding fertilizer purchases, and demand for Mavuno fertilizer soon surpassed supply as cooperating companies quickly sold out of stock. As a result of the rapid increase in demand for the Mavuno fertilizers from farmers, ARM invested US\$ 8 million in scaling-up production from a current capacity of about 3,000 tons per year to 50,000 tons per year. By using locally available minerals, ARM will deliver more balanced fertilizers at reduced cost to farmers. Farmers will benefit from reduced cost of production, harvesting higher yields with lower costs of inputs. Also, as a result of its success, another company has imported a similar multi-nutrient fertilizer and also packages 1 kg bags with the brand name "Chapa Simba."

A detailed impact assessment study is yet to be carried out on the effects of the adoption of the improved inputs and improved maize crop management on farmers' livelihoods. However, members of cooperating farmer groups in Trans-Nzioia district have increased their maize yields from 8 to 22 bags per acre. In Embu and Kirinyaga districts, farmers have increased their yields from 5 to 20 bags per acre. Approximately 10 bags on average are required to achieve household food security.

It is possible to infer larger-scale outcomes from yield gains in Embu and Kirinyaga districts and data from sales of improved seed and fertilizers. Sales of western seed increased from 0 to 60 tons of seed sold through stockists by the fourth season with the majority of farmers purchasing a 2 kg bag, the smallest bag size available. Assuming that the 60 tons of improved seed was used effectively to yield an extra 1.3 tons of maize grain/acre over 6,000 acres, then an extra yield of maize grain worth US\$ 1.75 million was produced. This is equivalent to an extra 630 kg maize produced by each of 12,000 farmers, each growing an improved variety with fertilizer, and is sufficient for a family of 4.6 members for one year. As adoption is still increasing exponentially, it is expected that demand for these improved varieties will increase from 100 tons per year to 500 tons per year over the next two years.

4. Lessons learned

1. This project has demonstrated that demand for new improved fertilizers and other inputs can be stimulated among small farmers in close collaboration with the private sector using the “small bag approach.” The provision of small bags of fertilizers and seeds enabled even the poorest farmers to achieve incremental gains in food and income over a few seasons. Many farmers purchasing 1kg bags quickly graduate to larger amounts.
2. The transaction costs of repackaging, distribution, and promotions are effectively a donor subsidy, however, by maintaining realistic prices and never giving away fertilizers, farmers have been able to assess the cost/benefits of investment.
3. It is critical that empowering farmers in basic principles of crop nutrition and management underpins product promotions and availability. Simply improving planting techniques and fertilizer placement can double yields while reducing inputs of seed and fertilizers by 50 percent. Maintenance of soil health is vital to achieving the economic returns from inputs and the integration of inorganic fertilizers and organic matter management is essential for sustainable development. Many poor farmers, with small farms and depleted soils, have limited organic resources even if fertilizer availability is improved. FIPS-Africa is, therefore, developing a “food security” package to enable farmers to concentrate resources on small plots which integrates soil, water, organic matter, and nutrient management to achieve moderate and reliable yield increments within their resource constraints.
4. The approach is highly cost-effective. Current cost of FIPS-Africa’s operations is only US\$ 500,000/year with a team of 35 field extension workers supported by an administrative unit of only four persons.
5. Experience has shown the difficulty of matching supply with demand. The experience with this program emphasizes the importance of generating demand with supply and vice-versa.

Information for this case study was provided by P. Seward (FIPS) and J.M. Anderson (Exeter, UK).