Unlocking the Market

Fertilizer and maize in Kenya

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From the early-1990s to 2007, maize farming and marketing in Kenya underwent a major transformation. The government reduced its role in markets for fertilizer and maize while also dedicating significant resources to constructing roads, building other types of rural infrastructure, developing improved maize varieties, and promoting improved agronomic practices. These moves, along with other favorable changes in the wider economy, set off a chain of positive events—major private investment in fertilizer and maize marketing, more fertilizer consumption, higher maize yields, and lower maize prices—that have improved the welfare of both maize farmers and maize consumers in Kenya.

Overall, the government's reforms worked together to make it easier for farmers to get access to and afford fertilizer for their crops, and for some of these farmers to sell surplus maize above household requirements. Although government action catalyzed the changes, actions by farmers and private fertilizer importers and dealers went a long way to make this possible. Small farmers have increased their use of fertilizer per cultivated hectare of maize by 33 percent in the past 10 years, contributing to higher maize yields, increased farm incomes, and improved national food security.

Still, this success story is a fragile one. Widespread post-election violence in 2008, drought, unstable world markets in 2008 and 2009, and policy changes have threatened the positive developments in Kenya's maize and fertilizer sectors as well as the country's overall agricultural outlook. Continued success will depend on the return to greater political stability, renewed clarity and transparency regarding the operations of the state in input markets, and sustained public investments in support of market development and the welfare of small farmers.

Facing the Food Price Dilemma

In the early-1990s in Kenya, policymakers were struggling with the problem posed by the classic food price dilemma: how can a country keep food prices at tolerable levels for consumers while at the same time giving farmers adequate incentives to feed the nation and raise farm incomes? For many years, the solution pursued by Kenyan policymakers was to strike a balance between these two competing objectives by controlling the prices of maize and maize meal. The state-run National Cereals and Produce Board (NCPB) generally bought maize from farmers at higher-than-market prices and sold maize to industrial maize millers at below-market prices.

The government was also heavily involved in the fertilizer market. It assigned the Kenya Farmers Association the task of importing fertilizer, over half of which was financed by foreign aid donors by the late-1980s. It designated a state-run corporation, the Kenya National Trading Corporation, to distribute fertilizer donated by foreign governments. Import quotas kept fertilizer imports from rising too high. The Kenyan government also set the price of fertilizer to make it affordable for small-scale and poor farmers.

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Farmer applies fertilizer to maize, Kenya

By the early-1990s, it was becoming clear that Kenya's system of state-controlled maize and fertilizer markets was unsustainable. Because the NCPB had to cover the gap between the prices at which it bought and sold maize, it incurred massive deficits during the 1980s. At the same time, the state system of buying and selling maize was becoming increasingly inefficient and corrupt, driving sellers and buyers to illegal markets outside of the state's control. Fertilizer dealers found it unprofitable to supply fertilizer to remote areas at the prices set by the government. Designed to improve farmers' access to fertilizer, the controlled fertilizer pricing structure thus had the opposite effect in distant and hard-to-reach areas of Kenya. At the same time, a tide of worldwide support for market liberalization was rising, based on the belief that greater reliance on markets would encourage competition and lower marketing costs to the benefit of both farmers and consumers.

Reforming Markets for Fertilizer and Maize

In the early-1990s, the Kenyan government launched a series of reforms designed to spur agricultural productivity by encouraging private investment in fertilizer distribution. It removed fertilizer import restrictions, allowed private actors to participate in importing, trading, and distributing fertilizer, eliminated controls on access to foreign exchange, and removed customs duties and taxes imposed on fertilizer imports. By 1996, donor-financed imports had dwindled to 5 percent of total consumption, and small-scale farmers relied exclusively on the private sector and cooperatives for fertilizer.

Reforms, however, went even further. In late 1993, under pressure from international lenders, the government eliminated controls on the movement and price of maize and eliminated subsidies on maize sold to registered millers. By 1995, private traders were officially allowed to transport maize across districts. Starting in 1995/96, and under pressure from external donors, the government dramatically reduced NCPB's operating budget. By the early-2000s, less than 4 percent of small farm households sold maize directly to the NCPB.[1]

Currently, most of the maize purchased by the NCPB comes from large-scale farmers in the maize-surplus parts of the country. Although the NCPB's purchases now account for less than one-third of the maize sold by all Kenyan farmers, its operations still significantly affect market prices. NCPB purchase and sale operations tend to raise market prices, particularly during good harvest years, and therefore protect against downward price risk.

Although the liberalization process, especially in its early years, was marked by unpredictability, vacillation, and perceptions that state resources were being channeled to particular firms, it generated a dramatic response from the private sector and was largely satisfactory to small farmers.

Easing the Way for Fertilizer Use

The reforms to maize and fertilizer markets, coupled with the freeing of the foreign exchange regime in 1992, created a new policy environment in Kenya. Private firms surged into fertilizer importing, wholesaling, distribution, and retailing. By 1996, Kenya had 12 major importers, 500 wholesalers, and roughly 5,000 retailers distributing fertilizer in the country.[2] The number of retailers was estimated to rise to between 7,000 and 8,000 by 2000.[3] Some of the largest importers were cooperatives and estate firms supplying their members, most of whom were small-scale farmers participating in contract-farming arrangements for tea, coffee, and sugarcane.

Thanks to the increase in the number of fertilizer retailers, the average distance small farmers had to travel to get to the nearest fertilizer retailer fell from 8.1 to 3.4 kilometers between 1997 and 2007. Over the same period, the average distance they had to travel to get to the nearest hybrid maize seed stockist declined from 5.6 to 3.4 kilometers. The rise in the number of rural fertilizer and hybrid seed retailers, as well as accelerated public investment in road infrastructure since 2003, expanded small farmers' access to fertilizer, reduced their transaction costs, and helped raise the demand for modern inputs and the productivity of smallholder maize production.

A key factor in increasing fertilizer use has been cost and price. The cost added on to the price of fertilizer between offloading at Mombasa port and delivery to the farm has decreased substantially since the liberalization of fertilizer marketing, with much of the cost savings passed on to the farmer through lower retail prices.

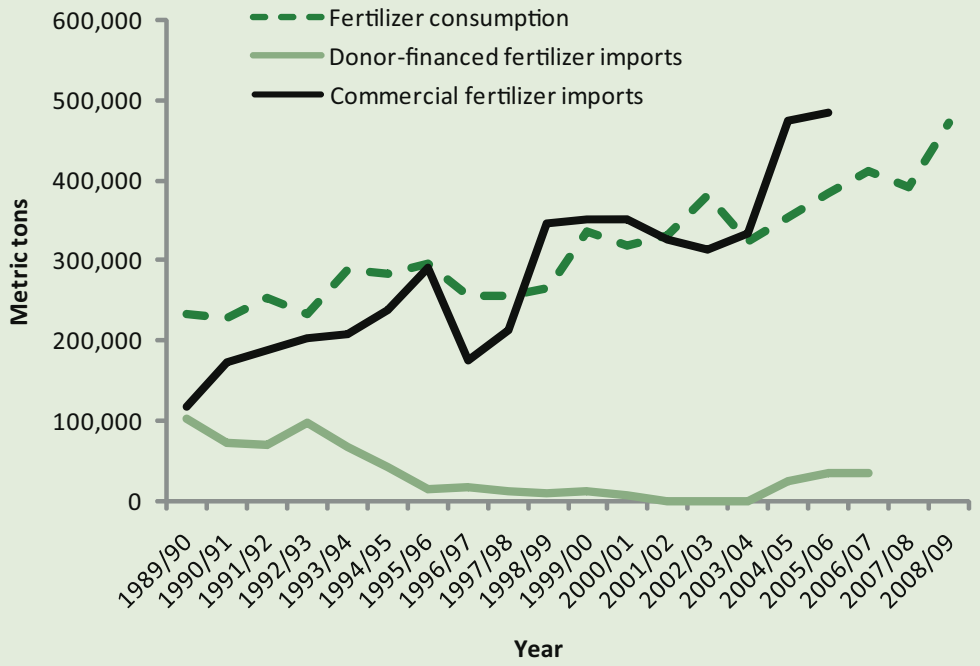
Another important factor in keeping fertilizer prices low is increased competition among local importers and wholesalers. Competition has led importers and wholesalers to exploit cheaper ways of transporting fertilizer and use cheaper international sources of credit while also pursuing more efficient business practices by merging local firms with more established international fertilizer firms. If inflation is taken into account, fertilizer prices in Kenya are currently about equal to what they were in the mid-1990s even though world fertilizer prices are substantially higher than they were in the mid-1990s.

With increased availability and competitive prices, many more farmers are using fertilizer. The proportion of small-scale farmers using fertilizer on maize during the main growing season rose from 56 percent in 1996 to 70 percent in 2007, although these rates vary considerably throughout the country. The highest proportion of smallholders using fertilizer occurs in the highlands of central and western Kenya, where more than 80 percent of all maize-growing smallholders apply fertilizer on maize. Fertilizer application rates rose from 84 kilograms per hectare of land in 1997 to 111 kilograms per hectare in 2007, a 34 percent increase. Overall, total national fertilizer use doubled between the mid-1990s and late-2000s (see Figure 14.1).

Maize Yields Rise and Prices Fall

Between 1997 and 2007, maize yields increased by roughly 18 percent. This yield improvement is not reflected in official government maize production statistics, which do not take into account the increasingly large number of farmers who are growing maize on the same fields as other crops, or the shift over time in the proportion of maize area grown in relatively semi-arid regions. This shift was facilitated by the release of improved maize

Figure 14.1—Trends in fertilizer consumption, commercial imports, and donor-financed imports, 1989–90 to 2008–09



Source: Kenyan Ministry of Agriculture for data on fertilizer consumption and donor-financed imports; author interviews with fertilizer importers for fertilizer import data.

cultivars well suited to mid- and low-altitude areas of the country.

Maize farmers have also found it easier to sell their increased production of maize. More private maize assemblers—that is, traders who buy directly from farmers and assemble maize for bulk distribution—are now spread across rural areas where maize surpluses are expected. More than 90 percent of Kenya's maize sales are now made to private traders, who are more accessible than they were in the past. In the lowlands of Eastern Province, for example, the average distance between farm and private buyer declined from 6.55 to 1.62 kilometers between 1997 and 2007, and in the high-potential areas of western Kenya this distance declined from 1.80 to 0.40 kilometers. This improved penetration of maize assemblers in rural areas has likely reduced farmers' costs and resulted in tangible benefits.

Since the mid-1990s, maize meal, a staple in Kenyan diets, has become more affordable. The average daily wage for an urban Kenyan consumer employed in the formal sector bought three times more staple foods in 2006/07 than it did in 1995/96. Although the recent food price crisis partially reversed this trend, the quantities of staple foods affordable per daily wage in urban Kenya during the 2008/09 marketing season were still roughly double their levels of the mid-1990s. And in rural Kenya, because of the removal of bans on the movement of maize between districts, grain is now easier and cheaper to purchase in drier lowlands and marginal zones where food deficits are more common. Many farmers in these marginal areas are net consumers, who must buy food because they do not produce enough for their own subsistence.

More Improvements Are Possible

The case of fertilizer and maize markets in Kenya shows how public policy changes and investments can be a catalyst for greatly expanded private markets for agricultural inputs like fertilizer and outputs like maize. Nonetheless, Kenya could improve the well-being of small farmers and consumers even more by pursuing a number of other reforms, which can serve as useful lessons for other countries as well.

Preparing maize for consumption, Kenya

First, well-managed and efficient transport and storage arrangements can further reduce the cost of distributing grain and fertilizers. At Kenya's port of Mombasa, the offloading of commodities from ships is frequently delayed, and the regional railway system is deteriorating. The limited transport capacity requires fertilizer importers to rent storage facilities near the port, thereby raising costs. Improving Kenya's railway system, in particular, could greatly reduce the cost of fertilizer to farmers in the upland production region.

Second, the government should reduce the cost and complexity of port operations. In Kenya, port fees, levies, and other charges should be rationalized and aggregated. In addition, documentation procedures need to be reduced, and some services should be provided electronically.

Third, fertilizer packages should be tailored to local demand from small farmers, who require and are able to purchase only small packets. In addition, fertilizer quality control needs to be more actively enforced.

Fourth, fertilizer use could be made more profitable for farmers if it were combined with training on cultivation practices, soil fertility, water management, and efficient use of fertilizer and improved seed technologies that are responsive to fertilizers.

Fifth, by offering farmers credit, inputs, and know-how, farmer organizations can provide an important resource to help small farmers make use of higher levels of inputs like fertilizer and achieve better production and marketing practices.

Conclusion

When Kenya liberalized markets for fertilizer and maize and invested in various types of public goods to support small-scale agriculture, thousands of private actors plunged into these markets, encouraging both an impressive rise in fertilizer use and significantly increased maize yields on the plots of small farmers. A recent nationwide survey revealed farmers' satisfaction with the reformed maize markets: more than 65 percent of farmers reported that they prefer the current liberalized maize marketing system over the previous state-controlled system.[4]

In 2008, however, the positive developments in Kenya's maize and fertilizer markets were threatened by civil disruption, drought, and the unprecedented surge in world fertilizer prices. Early-2008 witnessed the destruction of physical infrastructure in western Kenya (such as grain storage facilities) and the closing of many fertilizer supply stores. Moreover, the incentives to use fertilizer in Kenya have been adversely affected both by drought and by world events, as the price of fertilizer in relation to that of maize in Kenya reached its highest level in at least 18 years. Sustaining the success of the past two decades will require a return to political stability, a commitment to a clearly defined and relatively limited state role in fertilizer markets, and continued public investments in market development and the welfare of small farmers. ■

NOTES

1. Tegemeo Institute/Egerton University. Various years. Household surveys. Nairobi.
2. Allgood, J. H., and J. Kilungo. 1996. *An appraisal of the fertilizer market in Kenya and recommendations for improving fertilizer use practices by smallholder farmers: A field report.* Muscle Shoals: International Fertilizer Development Center.
3. International Fertilizer Development Center. 2001. An assessment of fertilizer prices in Kenya and Uganda: Domestic prices vis-à-vis international market prices. Muscle Shoals.
4. Tegemeo Institute/Egerton University. Various years.