



SUBSIDIES AND THE CONSEQUENCES OF DROUGHT: A FIELD REPORT

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Subsidies and sustainability

PROVIDING FARMERS WITH FERTILIZER or improved seed varieties can increase yields, leading to higher incomes and a stable or growing asset portfolio for the household. Many countries are subsidizing the provision of such inputs as a way to improve food security and alleviate poverty among rural populations. At the request of the Food and Agriculture Organisation (FAO) and Mozambique's Ministry of Agriculture, IFDC is implementing such a subsidy program in Mozambique. Funded by the European Union, the program provides vouchers to targeted smallholder farmers, who are then entitled to receive a package of inputs at subsidized rates sufficient for half a hectare of land. Farmers also are provided technical knowledge on proper use of the inputs. The goal is to promote the use of fertilizer and improved seed varieties.

To gauge program impacts, a BASIS project in the province of Manica will examine whether a temporary provision of subsidized fertilizer can set households on a long-run positive growth path, or whether use of inputs (and farm output) eventually return to previous levels after subsidies are phased out. Furthermore, BASIS hopes to identify strategies, such as a savings program, that enable farmers to save a portion of the increased income to reinvest in inputs in subsequent crop years, leading to higher incomes, improved household wellbeing and sustained food security. For details about the BASIS project, see *BASIS Brief* 2010-02.



Fertilizer was used on the left side of this field in Mozambique, but not on the right side. Because of drought in the region, fertilizer made no noticeable difference in growth. Photo by Rachid Laajaj.

During the first year of the project, however, the four districts in the province of Manica where the voucher project takes place received between 0-20% of normal rainfall during the first half of January 2010, marking the persistence of a drought that started in December 2009. This signal that the project sites were undergoing a potentially severe drought delayed full rollout of the project and motivated our field visits. This brief assesses the impact of the drought on farms and the implications for the BASIS project.



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Publication made possible by support in part from the US Agency for International Development Cooperative Agreement AEG-A-00-08-00008 through the Assets and Market Access CRSP.



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All views, interpretations, recommendations, and conclusions expressed in this paper are those of the authors and not necessarily those of the supporting or cooperating organizations.

Edited and layout by
BASIS CRSP

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Conditions in the field

In most fields we visited in February 2010, the drought had a profound effect on production. In areas where there had been no rain for two consecutive months, production was virtually nonexistent and fertilizer usually had no effect. Even in a typically very productive area, due to the quality of its soil, the expected production in most fields was as little as 10% of an average year. Where farmers use irrigation, the maize seemed vigorous; however, use of irrigation is uncommon in the study areas. An exception is a mountainous area close to the Zimbabwe border. Many farmers there used to work on the other side of the border, where practices are much more modern than the average Mozambican farmer is used to. Overall, in this region where fertilizer use and gravitation irrigation are widespread, this year will be almost as productive as last year, and the fertilizer helped farmers produce considerably more than average. In fact, thanks to irrigation, many farmers planned to harvest in March and plant again to get a second harvest by June or July.

In another region, a non-profit organization helped farmers afford the 30% of the value of the input package that farmers must pay by offering credit to be paid back after harvest. Overall production there seemed to be around 60% of an average year, with production slightly higher in fields where fertilizer was used. Right after planting and again when the plant is knee high, most farmers in this area used their fertilizer package *without* using the urea—a wise practice when there is very little rain. This knowledge was available to farmers after the non-profit organization brought in a technical assistant from Brazil.

Implications for the project

Implementation of the project went smoothly at the beginning. Targeted farmers received their vouchers, and most then purchased the fertilizer to use on their farms. During a drought, however, fertilizer can burn the plant, and thus fertilizer did not significantly

increase production on rain-fed farms. In general, without irrigation, the expected production seemed to be 20-60% of an average year. Lowlands tended to perform better, and the few fields with proper irrigation remained almost unaffected. Where feasible, combining an agro-input program with an irrigation project increases the chance that both programs will succeed.

Some farmers who purchased inputs using the voucher will have enough of a yield to get back their investment. Yet most farmers will have barely enough to survive and little or no surplus maize production to sell. This experience may discourage farmers from investing again in agro-inputs. The situation improved a bit from late January to the end of March, when there was at least one good day of rain per week. While that is enough to feed the plant, it cannot undo the stress and lack of growth and flowering that occurred during the extreme drought period. The result is that BASIS delayed the full project until next year. This year, we are focusing on a pilot project using a smaller sample of farmers who have access to irrigation.

Purchasing agro inputs, but then getting a poor yield because of a climate shock, is a major impediment to smallfarmer willingness to take the risks associated with modernizing. Formal insurance has potential to reduce the risk to farmers and encourage the use of fertilizer and higher-yield seeds. Weather insurance based on an area yield index shows promising results in projects carried out in Peru and Kenya. (See *BASIS Briefs* 2008-07 and 2008-08.) Access to insurance makes purchasing agro-inputs more attractive, while use of fertilizer increases yields, making insurance more affordable. This complementarity makes the case for increasing efforts to bond technological and financial innovations. In the future, it is a good idea to link a subsidy project with risk-reducing strategies, such as irrigation or formal insurance.

NOTE: *BASIS Briefs* mentioned in this report available at: http://www.basis.wisc.edu/live/ama_publications.html

