



Malawi as Microcosm

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Organisms from Molecules to the Environment

American Institute of Biological Sciences

Malawi as Microcosm

One talk at the AIBS meeting in May on sustainable agriculture stood out both for its immediacy and for the challenge it represents to established wisdom. Pedro A. Sanchez, recipient of the 2002 World Food Prize and director of the Tropical Agriculture and the Rural Environment Program at Columbia University's Earth Institute, told rapt attendees about the latest results from an initiative that is being called the "Malawi miracle."

Malawi, a landlocked country of poor farmers, faced a food crisis in 2005, the result of drought, floods, and a disastrous maize harvest. Huge amounts of food aid, costing more than \$100 million, barely averted widespread starvation. President Bingu wa Mutharika, whom Sanchez advises, decided to ignore the consensus advice of the World Bank, the US Agency for International Development, and others. Rather than rely on incentives to boost market efficiencies, he provided smallholders with subsidized inorganic fertilizer (two 50-kilogram bags per household) and a few kilograms of subsidized seeds. Most farmers opted for hybrid seed.

The increase in national maize production was immediate: the country's maize deficit of a half-million metric tons turned into a maize surplus a year later. By 2007, production had tripled, and Malawi broke its maize harvest record. Production fell back in 2008, when drought struck again, but still met national requirements, and estimates are that this year's maize crop will beat the 2007 record. The cost of the program is less than half the cost of food aid in 2005.

A dozen African countries are now looking to replicate Malawi's success. International donors have pledged \$2 billion euros toward similar schemes, and the "Washington Consensus" on development, which discouraged subsidies, is fading. Even the World Bank has reversed course. In his talk, Sanchez encouraged comparisons with the "green revolution" that multiplied yields of wheat, rice, and maize in Asia and Mexico during the second half of the 20th century.

Yet the Malawi program is not without critics. Proponents of traditional and organic farming fear that providing farmers with inorganic fertilizer will encourage dependency. It could also leave them vulnerable to increases in the price of natural gas, which is consumed in large amounts to make the component chemicals. Inorganic fertilizer promotes emissions of nitrous oxide, a potent greenhouse gas, and it can encourage soil erosion. What's more, crops grown from hybrid seeds, which are supplied by corporations, may be less resilient than traditional landraces to pests and changes in rainfall patterns. For such reasons, the proliferation of look-alike schemes in Africa is not universally hailed as progress.

Sanchez acknowledges some drawbacks and cautions that reliance on inorganic fertilizer should be seen as a stopgap measure. But organic farming, in his view, is not suited to the nutrient-depleted soils common in Africa. The Malawi solution could buy time for vulnerable populations while infrastructure for more sustainable agriculture is developed.

Malawi is a parable for global development. Its story emphasizes, above all, that while scientists and politicians should stay informed about the quantitative insights science can offer, they should also stay open-minded. One-size policies will never fit all.

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