

Global Agricultural Development Initiative

Commentary



Doubling Down on the Challenge of Feeding the World at Mid-Century

by Gebisa Ejeta and Joachim von Braun

December 15, 2011 - Just a few weeks ago the global community welcomed the arrival of its seven billionth citizen. Despite gains in agricultural research and development over the past half-century, the odds are not favorable that this child will have enough to eat as she grows up.

And what will the outlook be for the world's eighth billionth citizen? And the ninth?

By the year 2050, the world's population will grow by more than two billion more people. To feed them, we will need to increase global food production by 70 percent. And we'll have to do it with only a small amount of additional arable land and amid tightening water supplies, rising temperatures, and concerns about the fragility of our ecosystems.

This is an immense challenge, especially considering that there are nearly a billion hungry people in the world already. On top of that, current food insecurity and food price instability threaten to push even more people into the ranks of the world's poor and hungry, particularly in the rural communities that we'll be counting on to increase future agricultural production.

Still, there is reason for optimism. You can find it in the stories of farmers around the world every day. Like those in India whose rice crops spring back to life after a devastating flood. Or the potato farmers in Rwanda who have increased their yields six-fold after adopting a new method of terracing their land. And

those in Mexico who are using new drought-tolerant strains of wheat to cope with the effects of climate change.

What do these stories have in common? They are all small scale demonstrations of the very large potential of agricultural science to vastly expand the productivity and profitability of the developing world's 500 million small farms. Meeting our food security challenges for the 21st century will require an advancement of scientific initiatives to improve crop varieties, to create more environmentally sustainable fertilizers and pesticides, to reduce pre- and post-harvest losses, and to develop new and more productive farming methods. Equally important is making sure that new technologies reach the world's poorest farmers.

We know this approach will succeed and thereby vastly increase global agricultural output, because we have seen it work before. Yes, the challenges today are much greater, but so is the arsenal of science available to solve these problems.

In the 1960s, when global population growth was far outpacing food production and famine stalked many parts of the developing world, wealthier nations joined forces with poor countries to improve crop yields. Countries like India, Pakistan and China embraced new plant varieties, irrigation projects and fertilizer programs in a vast effort that came to be known as the Green Revolution. Yields soared, and

by the 1980s, the threat of widespread starvation had receded in most of the world.

Despite this track record of success – and the enormity of the food security challenge before us – our progress has stalled. Global assistance to agriculture decreased by nearly two-thirds between 1980 and the early 2000s, while in the United States, long a leader in agricultural R&D funding, support for national agricultural research institutions declined by 75 percent.

And yet the demand for food has kept growing. Insects and plant diseases are forever adapting, overcoming efforts to thwart them. Farmers are constantly in need of new and improved methods and techniques for overcoming the ever-changing environmental, climate, land-use and water-availability challenges they face.

We can overcome these challenges – first, by stepping up our public support for universities and research centers, particularly those that focus on applied sciences like plant and animal breeding, genetics,

crop physiology, and plant pathology. To reap the benefits of this research, we then need to focus on building the human and institutional capacity of agricultural scientists located in the countries where farmers need the most help.

From there, we need to devise ways to deliver agricultural technologies into farmers' hands – particularly small farmers – so that they can increase their production in an environmentally sustainable way. And on the policy level, we need to ensure that small farmers have the infrastructure and favorable business climate to use these technology gains to increase their output and bring their crops to market.

But let us begin by following the science. It is an essential key to progress in reducing poverty and hunger, and responding to the immense global food security challenges of this century. Investing in agricultural research and development is our best hope for creating a healthy food system – and a healthy planet – for the next billion.

About the Authors

Dr. Gebisa Ejeta is a distinguished professor of Plant Breeding and Genetics, Purdue University, and a World Food Prize Laureate (2009). Dr. Joachim von Braun is the director of the Center for Development Research, University of Bonn, and former director general for the International Food Policy Research Institute (2002 – 2009). They are members of the Advisory Group for The Chicago Council on Global Affairs' Global Agricultural Development Initiative.

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Global Agricultural Development Initiative

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