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The Irrational Fear of GM Food

Billions of people have eaten genetically modified food over the past two decades. Not one problem has been found.

By MARC VAN MONTAGU

FARMERS can now produce more crops in an environmentally sustainable way at a lower cost thanks to the efforts of hundreds of scientists over the past half-century. Seeds are developed in a laboratory and then field tested to enhance nutritional value or resistance to drought, disease and herbicides. Genetically modified crops are now planted on nearly a quarter of the world's farm land by some 17.3 million farmers. More than 90% of those farmers are smallholders who harvest a few acres in developing countries.

Society, the economy and the environment have benefited enormously from GM crops. India has flipped from cotton importer to exporter because of insect-resistant cotton. Herbicide-tolerant GM crops have stimulated no-tillage farming, reducing soil erosion and greenhouse gas emissions. Insect-resistant GM crops have cut insecticide sprayings by more than 25%—and as much as sevenfold in some parts of India. In developing countries, GM crops have helped ensure food security and bolster incomes for farmers, allowing parents to focus more resources on other priorities, such as educating their children.

Such remarkable achievements are only the beginning. Dozens of better GM crops are in the pipeline from companies, universities and public agencies around the world. Crops in development include virus-resistant cassava, a starchy root otherwise known as tapioca; nutritionally enriched rice that can help prevent blindness and early death among children; nitrogen-efficient crops that reduce fertilizer runoff; and many more.

These crops will continue to reduce hunger by bringing more bountiful and nutritious harvests. They will also help the environment by mitigating the impact of agriculture by conserving our precious, finite supply of fresh water; freeing up land for other uses, like carbon-absorbing forests; preserving topsoil; and reducing the use of insecticides and herbicides, thereby enhancing biodiversity.

These advancements are particularly timely given the environmental and demographic state of the 21st century. Between now and 2050, global population will rise by about one-third, to 9.6 billion from 7.2 billion, reducing arable land per capita. Almost all of that population growth will occur in the developing world, where about 870 million people are already suffering from hunger and malnutrition, according to the United Nations Food and Agriculture Organization. And 100% of it will happen during a period of greater climate volatility, which may place dramatic new stresses on agriculture.

The question of how to nourish two billion more people in a changing climate will prove one of the greatest challenges in human history. To meet it, we should embrace an agricultural

approach that combines the best features of traditional farming with the latest technology.

Biotechnology offers an unparalleled safety record and demonstrated commercial success. Remarkably, however, biotechnology might not reach its full potential. In part, that's because outspoken opponents of GM crops in the U.S. have spearheaded a "labeling" movement that would distinguish modified food from other food on grocery store shelves. Never mind that 60%-70% of processed food on the market contains genetically modified ingredients. In much of Europe, farmers are barred from growing genetically modified crops. Even in Africa, anti-biotechnology sentiment has blocked its application. In Zambia, for example, the government refused donations of GM corn in 2002, even as its people starved.

Opponents of GM crops have been extremely effective at spreading misinformation. GM crops don't, as one discredited study claimed recently, cause cancer or other diseases. GM cotton isn't responsible for suicides among Indian farmers—a 2008 study by an alliance of 64 governments and nongovernmental organizations debunked that myth completely. And GM crops don't harm bees or monarch butterflies.

In fact, people have consumed billions of meals containing GM foods in the 17 years since they were first commercialized, and not one problem has been documented. This comes as no surprise. Every respected scientific organization that has studied GM crops—the American Medical Association, the National Academy of Sciences and the World Health Organization, among others—has found GM crops both safe for humans and positive for the environment.

As a plant scientist, neither I nor my fellow 2013 World Food Prize laureates, Dr. Mary-Dell Chilton and Dr. Robert T. Fraley, anticipated the resistance to genetic modification and biotechnology. After all, nearly everything humans have eaten though the millennia has been genetically altered by human intervention. Mankind has been breeding crops—and thereby genetically altering them—since the dawn of agriculture. Today's techniques for modifying plants are simply new, high-precision methods for doing the same.

Resistance to biotechnology seems all the more unbelievable considering that much of it comes from the same thoughtful people who tend to dismiss climate-change skeptics as "anti-science." It seems to me that much of the resistance to GM foods isn't based on science, but may be ideological and political, based on fears of "corporate profiteering" and "Western colonialism."

To note one irony: The extreme opposition to genetic modification has led to hyper-regulation of GM crops, which has raised the cost of bringing them to market. Now only multinational

companies and large research entities can afford to comply with the rules. Smaller enterprises in developing countries are ultimately hurt much more than large conglomerates.

Anyone who cares about alleviating hunger and protecting the environment should work quickly to remove the bias against GM crops. A good first step is for educated, scientifically literate people to avoid being taken in by the myths about genetically modified food. These innovations have too much potential to empower individuals and feed the world to be thwarted by falsehoods and fear-mongering.

Dr. Van Montagu is founder and chairman of the Institute of Plant Biotechnology Outreach at Ghent University in Belgium. He is the co-recipient of the 2013 World Food Prize, along with Dr. Mary-Dell Chilton of Syngenta Biotechnology and Dr. Robert T. Fraley of Monsanto.