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EDITORIAL

Will Biotechnology Overcrowd the Planet?

Dennis T. Avery*

Center for Global Food Issues, PO Box 202 Churchville, VA 244421, USA

Genetic modification has gotten a hostile reception from activists who claim to be protecting the planet. But the most powerful underlying emotion for their unreasoned fear—rapid human population growth—is rapidly becoming irrelevant.

Will biotechnology overcrowd the planet by saving more sick people while producing more food to fuel more population growth? In a word, no.

The opposition of the eco-activists is ironic, at least. Without the Green Revolution's high-yield farming, the world would already have had to clear most or all of its 16 million square miles of forests to produce today's food supply.

Plant breeding, chemical fertilizers, irrigation pumps, and pesticides have been the key technologies to date in "growing more food per acre to leave more room for nature." But each of these advances in farming has been pilloried by activist groups who claim to fear insect-protected cotton (that helps prevent devastation of the textile-dependent economies in China and India), vitamin-A-enriched "golden" rice (to prevent blindness in poor Asian children), and blight-resistant potatoes (that could prevent a re-enactment of the Irish potato famine in potato-dependent Bangladesh).

Why are these people not joyful about the conservation benefits of high-yield farming?

Apparently because they fear growing more food will mean even larger human populations. Fearing overpopulation was understandable in the 1960s, when the Green Revolution was suddenly tripling Asian crop yields and DDT began preventing millions of malaria deaths. Today, however, the world is 40 years into the first era when bigger harvests mean better nutrition for children instead of more people.

The world's population surge is losing its steam, even though the number of people added each year is still near all-time highs. In a completely unexpected development, world birth rates per women have plummeted as radically as death rates in the era of modern medicine. Third world birth rates have come three-fourths of the way to stability, having dropped from 6.2 births per women in 1960 to 3.1 today. (Stability is 2.1.) This trend in birth rates is massive and unprecedented.

The UN Population Division has just—again—lowered its estimate of the peak human population, this time to between 8 and 9 billions. (We are at 6.3 billions now.) Poor farmers almost always have big families, but affluent urban couples almost always have two children or less. The entire world (except Africa) is now on the path to urban affluence. Africa, eventually, will find its way along the same path.

The eco-activists seem equally unaware that the UN Environmental Program's new *Atlas of Biodiversity* notes the world lost only half as many species (a combined 20 birds, mammals, and fish) to extinction in the last third of the 20th century as in the last third of the 19th century. Why the dramatic improvement? In the 19th century, man was clearing lots of forest to plant more low-yield crops. Today, we are raising yields and planting high-yield tree plantations for our lumber needs.

Meanwhile, the World Conservation Union (IUCN) worries most about the one billion poor people living in the world's biodiversity hot spots, and trying to feed their families by hunting bushmeat and slash-and-burn farming. Only biotechnology is likely to provide new answers to the needs of these third world peasant farmers.

But won't more (and more affluent) people inevitably take more resources away from nature? Again, no. Stone-age hunters had to exploit natural resources. That is why they eradicated dozens of mammal and bird species in North America, including our horses, camels, and ground sloths.

Today, biotechnology can create new resources. *Bacillus thuringiensis* varieties are producing 80 percent more cotton per acre in India and 80 percent more corn per acre in the Philippines because they deal more effectively with the potentially ruinous tropical pests. That effectively creates more cropland. Biotechnology tomatoes can grow in far saltier water, which effectively creates new water supplies.

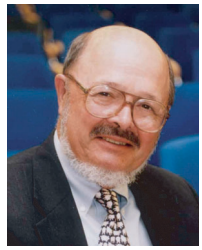
The eco-activists propose to "solve" the food problem by subtracting resources, most notably the 80 million

tons of natural nitrogen that conventional farmers take from the air each year to make "chemical" fertilizer for their crops. Organic farming, ardently promoted by the environmentalists, bans "synthetic" nitrogen. The world would need the manure from another 7 to 8 billion cattle (and 3 to 30 acres of forage per beast) to supply all-organic nitrogen today, and far more by 2050. The organic "solution" would immediately force us to clear virtually all the world's wildlands to grow clover—or doom one-third of the world's human population.

Apparently, the eco-activists would like to solve the competition for land between people and wildlife by eliminating people. But in the 21st century, with rising farm productivity and rapidly declining birth rates, setting the needs of people and wildlife needlessly against each other is both inhumane and environmentally irresponsible.

Genetic engineering, both in medicine and agriculture, is good for people and the planet.

Dennis T. Avery



Dennis T. Avery is the Director of Global Food Issues for the Hudson Institute, a nonprofit public policy "think-tank" headquartered in Indianapolis, IN, USA. He was raised in a US dairy farm and studied agricultural economics at Michigan State and Wisconsin. He has done agricultural policy analysis for the US Department of Agriculture and President Johnson's National Advisory Commission on Food and Fiber. He also served for nearly a decade as the Senior Agricultural Analyst for the US Department of State, where he won the National Intelligence Medal of Achievement in 1983. He is the author of Saving the Planet With Pesticides and Plastic: The Environmental Triumph of High-Yield Farming.

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* E-mail: cgfi@rica.net