

Have they lost their minds?

Let's Feed the World with Gardens

by *Wes Ishmael*

High-yield agriculture has enabled more people to live without hunger while using less land.

High-yield agriculture, according to its critics, is also responsible for everything from Amazon deforestation to increased global warming to an untenable breakdown of societal relationships.

The need for a realistic answer is obvious — one in six people around the world go hungry, more than 1 billion of them, according to the World Food Programme.

“The world faces the largest humanitarian food challenge in its history,” said Alex Avery, Director of Research and Education with the Center for Global Food Issues at Hudson Institute. At the 2008 Beef Quality Summit he explained, “Over the next 40 years world food demand will at least double, and we have little new farm lands with which to meet that demand. We really have only more productive farming methods to use on our existing farm lands.”

Technological success

To this point in history, modern high-yield agricultural production has offered an unparalleled example of making more from less.

According to statistics from the U.S. Department of Agriculture (USDA) Economic Research Service (ERS), between 1950 and 2000 average corn yield grew from 39 bushels (bu.) to 153 bu. per acre; the average amount of milk produced per cow increased from 5,314 pounds (lb.) to 18,201 lb.; each farmer in 2000 produced on average 12 times as much farm output per hour worked as a farmer did in 1950. Development of new technology was a primary factor in this progress.

“It took some 10,000 years to expand food production to the current level of about 5 billion gross tons per year. By 2025, we will have to nearly double this amount again. This cannot be done unless farmers across the world have access to current high-yielding crop-production methods as well as new biotechnological breakthroughs that can increase the yields, dependability, and nutritional quality of our basic food crops,” explained Nobel Prize winner Norman Borlaug in a 2001 speech at Tuskegee University.

During that speech, Borlaug, who passed away last year at age 95 — he was still an active professor emeritus at Texas A&M University — credited Fritz Haber and Carl Bosch for what many consider the primary enabler of such dramatic increases in crop yields. They demonstrated and developed the industrial synthesis of nitrogen from its elements.

“It is only since WWII that fertilizer use, and especially the application of low-cost nitrogen derived from synthetic ammonia, has become an indispensable component of modern agricultural production,” Borlaug explained.

Buy local or die

As with many activist debates, the one surrounding modern high-yield sustainable agriculture often gets wrapped up with other ones.

For instance, critics of high-yield agriculture are often the same ones decrying corporate farming and globalization. As

for the former, the implication is that large is equivalent to corporate and that a corporate business structure disallows family farming.

The opposite, of course, is true. There's been some consolidation of farms, with the total land in farms declining from 948.4 million acres in 1999 to 919.8 million acres today, according to *Farms, Land in Farms and Livestock Operations 2009 Summary* from the National Agricultural Statistics Service (NASS). Yet, by the USDA definition of a farm — one returning \$1,000 or more in annual gross revenue — there are actually more farms today than there were a decade ago — 2.187 million in 1999; 2.200 million in 2009.

Incidentally, the number of operations with beef cattle declined 4,000 last year to 753,000.

In terms of business structure, according to the U.S. Agriculture Census, about 97% of these farms are owned and run by private individuals, families and partnerships.

As for local vs. global, the fact is that the United States exists in a global economy today, not one where the U.S. dictates the cost of goods around the world like it did previously. Now, emerging economies like China's mean the United States must compete for commodities it used to set the price for.

The popular argument is that if the agriculture in one area were marketed in that same area — buy local — everyone would surely be better off. Why import what you can grow right here at home?

Ignore the fact that, according to the USDA ERS, non-metro areas account for 17% of the U.S. population but extend across 80% of the land where most agricultural production takes place. Forget the standard of living possible because U.S. citizens spend less than 10% of their disposable income for food.

Besides the extraordinary way U.S. producers have harnessed technology to produce more with less, eating well on such a small portion of disposable income stems from the comparative advantages associated with particular regions and nations. If regions of this nation or the world grew crops other than those most suited to their production potential, agricultural production would decline while consumer prices increased. That would seem to run counter to feeding the hungry and increasing the standard of living of more of the world's citizens.

In an insightful policy primer from the Mercatus Center at George Mason University, authors Pierre Desrochers, associate professor of geography at the University of Toronto and Hiroko Shimizu, an economic consultant, provide a logical discussion of the argument. They say it revolves around a concept called food miles — how far food travels from origin to consumption — and



the notion that food grown and marketed locally corrects the ills some folks associate with commercial agriculture.

“Organic, fair trade, slow, and local describe food activist movements whose stated goals are to allow consumers to express their preferences or opinions against the offerings of large multinational corporations and conventional retailers,” say Desrochers and Shimizu. They explain the alleged benefits of local subsistence agriculture vs. non-local commercial agriculture usually revolve around these arguments:

► **Environmental** — Because locally grown food items travel shorter distances than those produced in more remote locations, they are said to generate less carbon dioxide (CO₂) and other greenhouse gas emissions. More diversified local food production systems are also viewed as more environmentally sustainable than large, export-oriented systems where only one variety of crops is planted.

► **Social** — The globalization of the food-supply chain is said to have eroded the community ties that once existed between geographically proximate food producers and consumers. Rebuilding these ties would generate significant social benefits.

► **Health** — There is much concern over the safety and quality of conventionally produced food grown or raised in countries with lower health, safety and environmental standards. Food produced in closer proximity to consumers in more developed economies is also often viewed as fresher and therefore more nutritious and better tasting.

► **Economic** — Locally produced food items improve the economic circumstances of (mostly small-scale) farmers who otherwise struggle in the face of international competition, along with the fortunes of smaller stores who cannot access the international food market as easily as large food

retail chains, thereby improving the economic viability of rural communities and independent retailers in advanced economies.”

“While intriguing, the food-miles perspective fails to question the rationale behind the development of our modern agricultural production and distribution systems,” say Desrochers and Shimizu. “In other words, why is it that past consumers in advanced economies unambiguously rejected not only the rural lifestyle, by moving en masse out of farming-related activities, but also increasingly favored food items produced in ever more remote locations?”

Reasonable alternatives

Computer wunderkind, Bill Gates, of all people, brought a voice of reason to the sustainability debate last fall when he decried both those in favor of increased agriculture production at all costs, and those opposed to using technology to increase production.

Speaking at the World Food Prize Symposium in Des Moines, Iowa, Oct. 15, 2009, Gates cautioned that progress toward alleviating global hunger is, “endangered by an ideological wedge that threatens to split the movement in two.” On one side, he said, there are groups that support technological solutions to increase agricultural productivity without proper regard to environmental and sustainability concerns. On the other, there are those who react negatively to any emphasis on productivity.

“It’s a false choice, and it’s dangerous for the field,” Gates said. “It blocks important advances. It breeds hostility among people who need to work together. And it makes it hard to launch a comprehensive program to help poor farmers. The fact is, we need both productivity and sustainability — and there is no reason we can’t have both.”

Gates — through his Bill and Melinda Gates Foundation — has donated \$1.4 billion so far to global agricultural development efforts.

At the annual World Food Prize event — since 1986 honoring individuals for vital contributions to improving the quality, quantity or availability of food throughout the world — Gates urged governments, donors, researchers, farmer groups, environmentalists and others to set aside old divisions and join forces to help millions of the world’s poorest farming families boost their yields and incomes so they can lift themselves out of hunger and poverty. Gates said the effort must be guided by the farmers themselves, adapted to local circumstances, and sustainable for the economy and the environment.

“The appeal of the food-mile perspective, with its promise to reconnect people with food, neighboring producers, and seasonality while delivering environmental, economic, health and social benefits, is superficially obvious,” say Desrochers and Shimizu. “Unfortunately, these issues are generally discussed in an emotional context, based on activists’ distrust of large corporations and romanticization of subsistence agriculture rather than on scientific or reliable information based in fact ... the benefits claimed by food-miles proponents have little basis in fact while providing a new set of rhetorical tools to bolster protectionist interests that are fundamentally detrimental to most of humankind.

“Subsistence agriculture, which is ultimately what the food-miles concept boils down to, is of course feasible, but it implies significant tradeoffs that may not be readily apparent to most people who fail to understand that our modern food supply chain is a demonstrably superior alternative that has evolved through constant competition and ever more rigorous management efficiency.”

You can find the policy primer from Desrochers and Shimizu at http://mercatus.org/sites/default/files/publication/Yes_We_Have_No_Bananas_A_Critique_of_the_Food_Mile_Perspective.pdf.

