How many farmers will we "need'?

As recently as last year, mainline newspapers were still editorializing about the United States having "too many farmers." Their case, as usual, was based on the simplistic notion that if one or two farmers can produce all of the raw materials for the food and fiber we need, then it must be inefficient to have more than that in the farm economy. It is usually inferred that this is the reason farmers are going broke. It's just like over-employment at a factory. When you have too many people in one enterprise, you must downsize.

Steven Blank at the University of California has taken this logic to its rational conclusion: the United States should get out of farming altogether. If farmers in developing countries can produce raw materials cheaper than we can, we should import these products and concentrate our energies on higher value enterprises. "It's not a bad thing," he suggests. "This is life in a competitive world."

Using the farmer/eater ratio

We can't blame the news media for coming to similar conclusions. The U.S. Department of Agriculture and mainstream farm organizations have, for almost a century, used the farmer/eater ratio to gauge the success of industrial agriculture. In the 1930s, one farmer "fed" only himself and three other eaters. The same farmer now "feeds" well over a hundred people. As the argument goes, this demonstrates the efficiency of our industrial farm/food system.

This equation ignores the fact that most farmers don't feed themselves anymore and many rely on food stamps just to feed their families. More importantly, this argument disregards increased energy and capital needed to fuel modern agriculture. It also fails to recognize labor needed to process, package and transport food to eaters, which was not part of the 1930s food system. When these costs are added to the equation, other efficiencies disappear. Our food system may be efficient, but using the old farmer/eater ratio to judge the efficiency of our farms is flawed.

Using a calorie formula

These flaws have been recognized. For more than a decade, David Pimentel at Cornell University has used a calorie formula to determine overall food system efficiency. He consistently has found that when we calculate all of the energy required to get food from the soil to the table, industrial agriculture doesn't fare very well. Most of industrial agriculture uses about 10 calories of energy to produce every calorie of food that we eat. Local food systems that use less processing and packaging fare much better.

Every credible study of on-farm performance that I have seen shows that mid-sized farms, not mega-farms, are the most efficient. But even those studies don't give us a good picture because they measure efficiency only in terms of production; they do not consider other contributions that farmers make to our common good.

The upshot of all this is that we haven't had a serious discussion about how many farmers we really will need to meet our overall national goals. It's easier to take the simplistic view that farms are food factories. Then we can determine farm size and population from the single perspective of how much raw material, food and fiber are being produced.

Farms as food factories or communities?

In the most recent issue of *World Watch* magazine, Brian Halweil gives us a comprehensive view of the role that farmers play in our society. The farm, Halweil argues, "is still the one link in the agrifood chain accounting for the largest share of agriculture's public goods—including half the world's jobs, many of its most vital communities, and many of its most diverse landscapes. And in providing many of these goods, small farms clearly have the advantage." The reason local farmers play such a crucial role in providing these additional benefits—which are hardly ever calculated in our economic efficiency models—is that farmers "are professionals with extensive knowledge of their local soils, weather, native plants, sources of fertilizer or mulch, native pollinators, ecology and community."

Contributing to community

With respect to the contributions that smaller farms make to local economic and social stability, Halweil points to the well-known William Goldschmidt study. He surveyed two communities in California and found that smaller farms in a community made a much more positive contribution than did larger farms.

Halweil also asserts that modest-sized farms are critical for local ecological stability. Smaller farms, whose operators may have fewer time

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Contact the Leopold Center for a copy of Brian Halweil's essay, "Where have all the farmers gone?" For more information, write the World Watch Institute, 1776 Massachusetts Ave. NW, Washington D.C. 20036, or visit their web site, <http://www.worthwatch.org>.

Study: Full-time prisoners outnumber farmers

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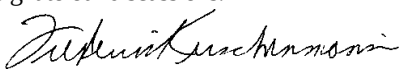
constraints, tend to maintain greater diversity than larger operations, which makes them more resilient and productive. We know that sound ecological management cannot be carried out through centralized planning. Every ecological neighborhood is unique. People need to live on the land long enough and intimately enough to learn how to manage each neighborhood in an appropriate way.

Halweil points out that we now have more full-time prisoners than full-time farmers in this country. Farmers over 65 outnumber those under 35 by three to one, and Nebraska and Iowa are expected to lose an additional one-third to one-fifth of their remaining farmers within the next two years. Surely, it is time to reexamine the prevailing notion that all we need to do to make farming profitable is to get rid of a few more farmers, fuse the remaining producers into corporate value chains through contracts, increase the U.S. share of the export market, and further enhance our production technologies.

It is time for us to reassess the impacts of our industrial agriculture model. If we decide, as a society, that we do not need the additional common "goods"that farmers produce, and that all we expect from farms is as much corn, soybeans, wheat, rice, cotton and meat as possible regardless of the social and environmental costs, then we can reduce the number of farms and farmers, and we can reasonably entertain the possibility of getting this country out of the farming business altogether.

At the Leopold Center, we want to make these issues part of our discussion to fashion a new vision for agriculture for the 21st century. We don't have the answers but we want to raise the questions. We have been fortunate to receive a grant from the Cavaliere Foundation to take these and other agriculture-related concerns into Iowa communities. Together we hope to envision a more resilient and robust agriculture that will better serve Iowa's farmers, rural communities and economy.

We invite you to read Brian Halweil's essay, "Where have all the farmers gone?". We believe Halweil's piece can bring fresh insight to our discussions.



NEWS & NOTES

ISU animal scientist **Palmer Holden** presented results of a Leopold Center-funded research project during a two-day Alternative and Herbal Livestock Health Conference in October at the University of Connecticut. Holden studied the effects of various levels of peppermint, echinicea and garlic used in rations fed to 12-week-old pigs. The feeding trials ended this year.

* * *

Agriculture can enrich anyone's education, according to teachers who completed a one-week **Teachers' Academy on Ag Awareness** at Iowa State University last summer. The course is offered by the ISU Department of Agricultural Education and Studies with Center staff leading some sessions. "I am very much committed to the concept of getting people on the land and getting away from the giant companies' influence," wrote one longtime sixth-grade teacher. "I was impressed by the materials from the Leopold Center and the ideas about using local products in school lunch programs. That will be worth sticking my neck out to try and get something going."

This debate needs all voices

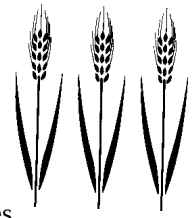
BIOTECHNOLOGY *(continued from page 1)*

universities could play is important, a golden opportunity to engage constituents. We need to work together for ways to bring the public into the discussion thoughtfully and respectfully, and to establish a much needed "safe" place for debate.

The time has come to talk – and in a manner which we've seldom seen or tackled in this country. Dismissing the general public because we may think they lack scientific background or because they do not subscribe to "proper" protocols is not engagement. All voices should be heard and issues thoughtfully debated.

Here are some questions to open the discussion:

- Where can markets provide sufficient guidance for the use of biotechnology? Or can we only ensure the technology's best use (the most public gain with least public risk) through regulatory control?
- Who owns the technologies and products in question? What are the implications for further technological advances?
- What problems is biotechnology best suited to address?
- How do the proposed technologies rate on a scale of minimal to extreme, both good and bad, in their geographic, social, biological, and magnitude of potential impact? Are there less risky alternatives?



Finally, with respect to the role of science in this debate, science is not limited to the sole pursuit of proving things step by step. Science can embrace the search for a universal explanation or theory, a description of the nature of things that seems to be missing in current conversations.

Let's not wait for hindsight to decide if this technology—biotechnology—is the next revolution, the next problem or simply another substitution for the last overused toy. We have the tools to assess and guide this new technology, and we all have a voice. All the voices need to be heard. *—Jeri Neal, Grants coordinator*