



# Organic

I S S U E

# 36

This newsletter is published by the Organic Trade Association, the North American trade association committed to the promotion of organic products in the marketplace, and the protection of the integrity of organic standards. Its membership includes more than 1,500 producers, processors, distributors and retailers of organic foods, fibers, farm and garden supplies, and health and beauty products. OTA is your leading resource for information about this industry.

PHONE:  
413-774-7511

FAX:  
413-774-6432

E-MAIL:  
info@ota.com

WEB SITES:  
www.ota.com  
www.theorganicreport.com

OR WRITE:  
P.O. Box 547  
Greenfield, MA  
01302



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## Can organic farming feed us all?

By Brian Halweil

The only people who think organic farming can feed the world are delusional hippies, hysterical moms, and self-righteous organic farmers. Right?

Actually, no. A fair number of agribusiness executives, agricultural and ecological scientists, and international agriculture experts believe that a large-scale shift to organic farming would not only increase the world's food supply, but might be the only way to eradicate hunger. This probably comes as a surprise, even to the readers of this newsletter.

But last year—inspired by a field trip to a nearby organic farm where the farmer reported that he raised an amazing 27 tons of vegetables on six-tenths of a hectare in a relatively short growing season—a team of scientists from the University of Michigan tried to estimate how much food could be raised following a global shift to organic farming. The team combed through the literature for any and all studies comparing crop yields on organic farms with those on non-organic farms. Based on 293 examples, they came up with a global dataset of yield ratios for the world's major crops for the developed and the developing world. As expected, organic farming yielded less than conventional farming in the developed world (where farmers use copious amounts of synthetic fertilizers and pesticides in a



Photo by Tessa Young

perennial attempt to maximize yields), while studies from the developing world showed organic farming boosting yields. (Examples from growing areas as diverse as India, Guatemala, and Kenya found that the sophisticated combination of old wisdom and modern ecological innovations that help harness the yield-boosting effects of cover crops, compost, manure, beneficial insects, and crop synergies in organic farming were particularly useful in dry areas with poor soils where farmers aren't likely to afford agrochemicals any time soon.)

The team then ran two models. The first was conservative, and the second was optimistic, based on yield gaps between organic and non-organic practices in developed and developing countries.

The first model yielded 2,641 kilocalories (“calories”) per person per day, just under the world's current production of 2,786 calories but significantly higher than the average caloric requirement for a healthy person of between 2,200

and 2,500. The second model yielded 4,381 calories per person per day, 75 percent greater than current availability—and a quantity that could theoretically sustain a much larger human population than is currently supported on the world's farmland.

Skeptics may doubt the team's conclusions—as ecologists, they are likely to be sympathetic to organic farming—but a second recent study of the potential of a global shift to organic farming, led by Niels Halberg of the Danish Institute of Agricultural Sciences, came to very similar conclusions, even though the authors were economists, agronomists, and international development experts.

Like the Michigan team, Halberg's group made an assumption about the differences in yields with organic farming for a range of crops, and then plugged those numbers into a model developed by the World Bank's International Food Policy Research Institute

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(IFPRI). This model is considered the definitive algorithm for predicting food output, farm income, and the number of hungry people throughout the world.

Given the growing interest in organic farming among consumers, government officials, and agricultural scientists, the researchers wanted to assess whether a large-scale conversion to organic farming in Europe and North America (the world's primary food exporting regions) would reduce yields, increase world food prices, or worsen hunger in poorer nations that depend on imports, particularly those people living in the Third World's swelling mega-cities.

Although the group found that total food production declined in Europe and North America, the model didn't show a substantial impact on world food prices. And because the model assumed, like the Michigan study, that organic farming would boost yields in Africa, Asia, and Latin America, the most optimistic scenario even had hunger-plagued sub-Saharan Africa exporting food surpluses. In other words, studies from the field show that the yield increases from shifting to organic farming are highest and most consistent in exactly those poor, dry, remote areas where hunger is most severe.

Still, these conclusions won't come as a surprise to many organic farmers. But even some supporters of organic farming shy away from even asking whether it can feed the world, simply because they don't think it's the most useful question.

First, even if a mass conversion over, say, the next two decades, dramatically increased food production, there's little guarantee it would eradicate hunger. The global food system can be a complex and unpredictable beast. It's hard to anticipate how China's rise as a major importer of soybeans for its feedlots, for instance, might affect food supplies elsewhere. (It's likely to drive up food prices.) Or how elimination of agricultural subsidies in wealthy nations might affect poorer countries. (It's likely to boost farm incomes and reduce hunger.) And would less meat eating around the world free up food for the hungry? (It would, but could the hungry afford it?)

What is clear is that organic farming will yield other benefits that are too numerous to name. Studies have shown, for example, that the "external" costs of organic farming—erosion, chemical pollution to drinking water, death of birds and other wildlife—are just one-third those of conventional farming. Surveys from every continent show that organic farms support many more species of birds, wild plants, insects, and other wildlife than conventional farms.

And tests by several governments have shown that organic foods carry just a tiny fraction of the pesticide residues of their non-organic alternatives, while completely banning growth hormones, antibiotics, and many additives allowed in many conventional foods. There is even some evidence that crops grown organically have considerably higher levels of health-promoting antioxidants. A recent study by the

International Fund for Agricultural Development found that the higher labor requirements often mean that "organic agriculture can prove particularly effective in bringing redistribution of resources in areas where the labor force is underemployed. This can help contribute to rural stability."

These benefits will come even without a complete conversion to a sort of organic utopia. In fact, some experts think that a more hopeful, and reasonable, way forward is a sort of middle ground, where more and more farmers adopt the principles of organic farming even if they don't follow the approach religiously. In this scenario, both poor farmers and the environment come out way ahead. And it's likely that the greatest short-term benefits will come as the principles of organic farming rub off on non-organic farmers, who will come to depend on just a small fraction of the chemicals that are currently used.

Anywhere this middle path is adopted, pollution will go down, and yields will go up. And, since it will cost farmers less than the full-blown conversion, many more regions will likely adopt it.

So, the myth of low-yielding organic farming may be fading, but without a massive change of conscience from the world's agricultural researchers and officials, we still won't be pointed in the organic direction. And that could be the real problem for the world's poor and hungry.

*Brian Halweil is a Senior Researcher at Worldwatch and the author of Eat Here: Reclaiming Homegrown Pleasures in a Global Supermarket, which recently entered its second printing. The original version of this article appeared in WorldWatch Magazine (May-June 2006).*

## Quote of Note

"We should pay attention to keeping healthy people healthy, instead of focusing on treating illness after it sets in. Preventing pollutants and toxins from entering our air, water and food would have a profound effect on public health..."

—Dr. David Suzuki, in the Foreword to "The food we eat: an international comparison of pesticide regulations," October 2006 ([www.davidsuzuki.org/WOL/Publications.asp](http://www.davidsuzuki.org/WOL/Publications.asp)).

## OTA seeks equity for organic producers



The Organic Trade Association (OTA) is encouraging Congress to strengthen and support organic agriculture by incorporating provisions in the 2007 Farm Bill for this burgeoning sector. Although U.S. retail sales of organic products now total nearly \$15 billion a year, the industry and its organic agriculture base need to keep up with growing consumer demand and overcome hurdles that face organic producers. Currently, the sector receives only a tiny fraction of the U.S. Department of Agriculture (USDA) budget.

"Because U.S. farm bills, unlike appropriations bills, only come around every few years, we cannot expect to advance the growth and economic health of organic unless we obtain recognition in the 2007

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## Organic news

- New York State has awarded a \$4.9 million grant to help establish the Center for Organic and Sustainable Agriculture at Alfred State College. The new facility will house New York's first on-campus organic dairy herd. The college also intends to develop New York's first degree program in organic agriculture.
- The University of New Hampshire's Burley-Demerritt Farm is the nation's first organic dairy farm at a major land grant college. OTA members Stonyfield Farm and Aurora Organic Dairy have each donated \$200,000 to the project.
- The U.S. Department of Agriculture has awarded slightly more than \$4.6 million in fiscal year 2006 research grants administered through its Integrated Organic Program and Cooperative State Research, Education and Extension Service to address organic agricultural issues and priorities.
- The University of Florida at Gainesville has established a new organic agriculture undergraduate degree program beginning with the fall 2006 term. Colorado State University and Washington State University both began offering similar programs this fall.
- Michigan State University will start a one-year certificate program in organic farming in January 2007.
- In the Spring 2007 semester, Delaware Valley College, Doylestown, PA, will offer a course entitled "Organic Crop Science."
- One of the University of Nebraska at Lincoln's four research plots to study production challenges on organic farms has been certified by the Organic Crop Improvement Association International. The certified land at the High Plains Agricultural Lab near Sidney will be used to grow organic wheat, proso millet, peas, forage and other crops.
- The Cherokee County Board of Supervisors in Cherokee, IA, has voted to offer farmers property tax incentives to convert to organic farming practices. The county's Organics Conversion Policy will provide up to 100 percent county tax relief a year for up to five years for growers converting from conventional to organic farming practices and becoming certified organic farmers. The policy is similar to one enacted in Woodbury County, IA, in 2005.
- A 24-page dossier from The Research Institute of Organic Agriculture in Switzerland entitled "Quality and Safety of Organic Products—Food Systems Compared" highlights what is known about the quality of organic products, and how they differ from non-organic products in terms of quality and safety. Benefits cited include: more beneficial nutrients and less nitrates and pesticide residues; higher sensory quality; functional suitability; more careful processing; and environmental benefits to the soil, water, climate, air, biodiversity, and energy consumption.
- OTA member company Sambazon in November received the U.S. State Department's 2006 Award for Corporate Excellence for the work it has done to sustain the Brazilian rainforest and its inhabitants. Sambazon, headquartered in San Clemente, CA, manufactures and sells organic açai products.
- More than 250 of the world's leading organic livestock experts took part in the 1st IFOAM International Conference on Animals in Organic Production held at the University of Minnesota in August. The presentations arrived at many conclusions that demonstrate that organic livestock systems improve both animal and human health while protecting the environment. Go to [http://shop.ifoam.org/bookstore/index.php?cPath=64\\_65](http://shop.ifoam.org/bookstore/index.php?cPath=64_65) for conference proceedings.
- The Organic Materials Review Institute has designed an interactive searchable organic seed database to be used by growers and certifiers to encourage the use of organic seed in organic production. See [www.omri.org/OMRI\\_SEED\\_list.html](http://www.omri.org/OMRI_SEED_list.html).
- The Vermont Agricultural Credit Corp. is providing \$1 million in interest-free loans in its Organic Transition Program to Vermont farmers to offset some of their costs in converting to organic dairy production. In addition, Vermont's Agency of Agriculture, Food and Markets allocated \$275,000 in emergency funding for its organic transition and buy-local programs, of which \$175,000 was for NOFA-VT to help farmers transition to organic.
- In 2006, Washington State University's Center for Sustaining Agriculture & Natural Resources received \$400,000 in seed money from the Washington State Legislature for its Biological Intensive Agriculture and Organic Farming Program. As a result, the program is funding 13 research projects.

## Research findings

- The Organic Center has posted a State of the Science Review entitled "Impacts of Organic Farming on the Efficiency of Energy Use in Agriculture." One of the factoids contained in the report: "On organic farms, it takes about 30 percent less energy to produce a bushel of corn." See [www.organic-center.org](http://www.organic-center.org), under "State of Science."
- A three-year study in the United Kingdom, sponsored by the Organic Milk Suppliers' Co-operative, found organic milk contained 68 percent more omega-3 fatty acids, on average, than conventional milk. Findings from the study have been published in the *Journal of Dairy Science*.
- Scientists at the University of California at San Diego and Yale University have discovered that a natural protein produced by *Bacillus thuringiensis*, a bacterium sprayed on crops by organic farmers to reduce insect damage, is highly effective at treating hookworm infections in laboratory animals. Their findings were

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posted on the online edition of the *Proceedings of the National Academy of Sciences* the week of Sept. 25.

- Research conducted in central India by the Swiss Agency for Development and Cooperation and The Research Institute of Organic Agriculture has shown that growing cotton organically could offer hope to cotton farmers in India. According to an account in the Sept. 28, 2006, issue of *The Hindu*, an Indo-Swiss research team collected and compared agronomic data from 60 organic and conventional farms. Variable production costs were 13 to 20 percent lower for the organic cotton, and average cotton yields were 4-6 percent higher in the organic fields.
- A report, “Organic Dairy Farms in Wisconsin: Prosperous, Modern, and Expansive,” conducted by the University of Wisconsin’s Program on Agricultural Technology Studies provides a descriptive picture of organic dairy farming in Wisconsin, where 306 of the 15,300 dairy farms are certified organic. Visit [www.pats.wisc.edu](http://www.pats.wisc.edu) to access the report.
- An article by Professor Joe Cummins and Dr. Mae-Wan Ho posted on the member web site of the Institute of Science in Society ([www.i-sis.org.uk/osscc/php](http://www.i-sis.org.uk/osscc/php)) explores the latest evidence showing that organic strawberries stop cancer cells. Cited is research by Swedish researchers at the Swedish University of Agricultural Sciences in Alnarp and Lund University that compared the extracts of five organic and conventional cultivars for their ability to inhibit the proliferation of human colon and breast cancer cells. Researchers found that extracts from organically grown strawberries inhibited cell proliferation more effectively than extracts from the conventionally grown ones, and in both types of cancer cells. ❖

### Farm Bill — Continued from Page 2

Farm Bill of critical infrastructure needs of organic agriculture. We cannot wait another five to six years to move realistically toward a fair share of government resources,” according to OTA’s Executive Director Caren Wilcox.

In its comprehensive plan, OTA seeks to ensure that organic farmers have access to all resources available to farmers through USDA, according to Wilcox. For example, there currently is little federal data or market research available about organic farms.

“Organic farmers need access to the same resources USDA provides to conventional farmers—research, market data, risk management tools, and import/export information,” Wilcox said.

OTA is recommending that Congress provide USDA with funds to:

- 1) **Foster transition to organic agriculture and trade** by providing technical assistance to aid in the conversion of farmland from conventional to organic.
- 2) **Eliminate hurdles to organic agriculture and trade** by creating appropriate risk management tools and developing an organic export policy and strategy.
- 3) **Initiate and fund organic agriculture and economic research** as privately funded research is limited, and there is much to be learned about the fundamentals of organic production.
- 4) **Maintain and enhance current agency programs** so that the National Organic Program (NOP) and other parts of USDA can keep pace with the growing organic sector. Credibility of the organic standard is critical to organic farmers, handlers, and all others in the organic trade, and that credibility is tied to the capabilities and funding of NOP.

To read OTA’s comprehensive plan, go to <http://www.ota.com/DraftFarmBillOutline.html>. ❖