WHAT'S NEWS IN CANADA Organic

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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 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.)

Photo by Tessa Young

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 (IFPRI). This model is considered the definitive algorithm for

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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 in Canada"

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

New OTA Canada Division

In 1985, visionaries from Canada and the United States founded what later became the Organic Trade Association (OTA). In 2006, OTA's Board of Directors created OTA in Canada as an operating division. A managing director will be hired by March to expand OTA's focus on Canadian policy and standards, consumer education, marketing, networking opportunities, public relations, and links with organic research organizations.

In July 2006, OTA's Canadian members elected an advisory committee. Committee members include Hélène Bouvier (Organic Ranchers/MOMA Trade Pool Inc.), OTA's Vice President-Canada and committee chair; Debra Boyle (SunOpta, Inc.), Nancy Ciancibello (Plen Organics, Inc.), Hermann Grauer (Nature's Farm), Kelly A. Monaghan (Ash Street Enterprises), Billy Potash (Cawston Cold Storage Ltd./Nature's First Fruit), Jason Freeman (Farmer Direct Co-Operative Ltd.), Donna Youngdahl (Canadian Wheat Board), and Caren Wilcox (OTA), ex-officio. ❖

A World of News

OTA works on Canada's Organic Regulation

After four active years on the sector's ad hoc Organic Regulatory Committee (ORC) working towards an effective and affordable federal system, the Organic Trade Association (OTA) is pleased Canada's new organic regulation is moving towards implementation. Go to www.ota.com/standards/canadian.html to see OTA's comments on the regulation.

OTA formed a task force to compile comments and conduct an ongoing review of the regulation. The OTA Task Force on Regulation is also commenting on the Organic Quality Management System Manual (QMS Manual), which outlines the regulations' policies and procedures, which will affect every organic farm and business in Canada. OTA hopes the changes it recommends for the QMS Manual will be adopted—and will lower overall program costs significantly.

For two years, the federal government will cover the regulation costs, expected to be at least $2.7 million per year. Industry consultations must be conducted before a cost recovery scheme can be set up later. OTA will be involved, with the aim of keeping costs as low as possible.

Standard and Permitted Substances List

Many organic farmers and processors are realizing they use ingredients or processing materials that are allowed in the United States, but are not included on the Canadian Permitted Substances List (PSL). OTA has created a PSL Task Force to identify substances that should be submitted for review as soon as possible. There are links to the Canada's regulation, standard and PSL at www.ota.com.

OTA will work with the Canadian General Standards Board on amendments to the Canada Organic Standard and PSL. For questions about your product formulation, the standard or PSL, contact otacanada@ota.com.

Representation for organic

Canada's ad hoc Organic Regulatory Committee has evolved into an interim council to give counsel and feedback on the regulation to the Canadian Food Inspection Agency's (CFIA's) Canada Organic Office. The new Canadian Organic Regulation Council/Conseil canadien pour la réglementation biologique (CORC/CCRB) is composed of one representative from each province and territory and one revolving seat to represent national trade. The provincial representation structure has nurtured more organization at the grassroots level and with provincial and territorial agriculture ministries.

OTA holds the CORC/CCRB trade seat, and is involved with a larger food industry network through an ad hoc organic working group that includes the Canadian Council of Grocery Distributors, Canadian Federation of Independent Grocers, Canadian Health Food Association, Canadian Meat Council, Canadian Poultry and Egg Processors Council, Canadian Produce Marketing Association, Coffee Association of Canada, and Import/Export Canada. These interactions have been beneficial for all involved, with the associations learning more about the organic perspective while informing CORC/CCRB on the regulation's implications for business.

Organic news

- Canada's organic imports are now being tracked. OTA and Canadian Organic Growers worked with Agriculture & AgriFood Canada (AAFC) and StatsCan to design a new set of Harmonized System Codes for organic imports, the first such program in the world. As a result, an initial list of 41 organic agricultural commodities will be coded in 2007, making Canada the first country in the world to track organic imports. Most of the import products on the list can be grown in Canada, with the exception of a few citrus and tropical fruits. The objective is to help some sectors of organic producers with crop plans. It is hoped that by tracking organic imports, Canadian producers will be able to target marketing opportunities.
- The number of certified organic farms in Canada decreased during 2005, but acreage in organic production grew by about five percent over 2004 acreage, according to the 38-page report, *Certified Organic Production in Canada 2005*, prepared by Anne Macey for the Canadian Organic Growers (COG). Certified organic farms in Canada totaled 3,618, down from 3,670 recorded in 2004. Primary reasons cited for the decline included a loss in the number of certified maple syrup producers in Quebec and fewer organic grain growers in Saskatchewan and Alberta due to continuing drought and low commodity prices. Meanwhile, in 2005 there were at least 530,919 hectares (1,311,929 acres) in organic production in Canada, with an additional 47,955 hectares (118,500 acres) of land in transition. See www.cog.ca for the full report.
- In March 2006, the Prince Edward Island Department of Agriculture, Fisheries, and Aquaculture began reimbursing organic growers, processors, and handlers for 75 percent of their certification costs, up to a maximum of $500 per year. To qualify, growers must complete an Environmental Farm Plan and must practice a minimum three-year crop rotation. Organic operations must have been inspected and certified in the current year by a recognized certification body, and farm inspections must be conducted by a member of the Independent Organic Inspectors Association.
- Prince Edward Island recently announced $5 million in funding over five years for organic market development. The funds will support the exchange of information among growers and specialized educational events, and will provide improved access to environmental programming. The initiative will also offer bridging incentives for new market development, enhance the crop insurance program and assist producers in value-added product planning. For additional information, contact Reduced

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Input/Organic Development Officer, PEI Department of Agriculture, Fisheries and Aquaculture (phone: 1-866-734-3276, or 902-368-5657).

➢ Responding to growing demand, the University of Guelph in Guelph, Ontario, Canada, is the first Canadian university to offer a major in Organic Agriculture within its B.Sc. (Agriculture) degree. Included are five specially designed new courses that integrate the social and biophysical dimensions of organic agriculture.

➢ 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.

➢ 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.

➢ 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. For conference proceedings, go to http://shop.ifoam.org/bookstore/index.php?cPath=64_65.

➢ 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.

➢ On Feb. 17 in Toronto, Canadian Organic Growers (COG) is hosting Growing Up Organic, a conference for policy-makers, nutritionists, agriculture and children's environmental health experts to share their views about organic food as a healthier alternative for children. Speakers include Wendy Mesley (CBC), Thomas Pawlick (author of *The End of Food*), and Rick Smith (Executive Director of Environmental Defence Canada). Contact office@cog.ca or 1-888-375-7383.

➢ Keynote speakers at OTA's All Things Organic™ Conference and Trade Show May 5-8 at McCormick Place, Chicago, IL, will include former U.S. Vice President Al Gore and award-winning author Claire Raines (who will talk about building effective work cultures and marketing). Register online at www.organicexpo.com. Register before March 30 to receive an early-bird discount.

Research findings

➢ A report entitled "The food we eat: an international comparison of pesticide regulations" prepared by David R. Boyd for the David Suzuki Foundation looks at Canada's pesticide regulations and compares them to those of the United States, Australia, the European Union, and the Codex Alimentarius Commission. Studied are governmental actions related to registering pesticides for specific uses, setting maximum residue limits for pesticides on food, and monitoring the food supply for pesticide residues. See www.davidsuzuki.org/WOL/Publications.asp.

➢ 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, 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*.

➢ Research conducted in central India by the Swiss Agency for Development and Cooperation (SDC) 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.

➢ 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) 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. According to Cummins and Ho, the 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. ❖

To view this issue electronically, go to http:www.ota.com/news/whatsnews.html

OTA and its Mission

The Organic Trade Association (OTA) is the membership-based business association for the organic industry in North America. OTA's mission is to promote and protect organic trade to benefit the environment, farmers, the public, and the economy. OTA envisions organic products becoming a significant part of everyday life. Visit www.ota.com.