

Plow Sharing

January-February 2003

A bi-monthly newsletter promoting awareness, understanding, and practice of sustainable agriculture

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I hope you find this newsletter helpful and informative. If you have ideas or suggestions for future issues, call or stop by the office. I always welcome your feedback!

Debbie Roos

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February 27, 2003 Sustainable Soils Conference Pittsboro, NC

The Chatham County Center of the North Carolina Cooperative Extension Service will offer an all-day soil management conference as part of its *Enhancing Sustainability Series* on Thursday, February 27, from 8:00 a.m. - 5:00 p.m. in the auditorium of the Agricultural Building in Pittsboro. The program is described in the enclosed color flyer. We have an impressive line-up of speakers coming to Pittsboro, so this is an event you won't want to miss! Participants will receive a comprehensive resource notebook.

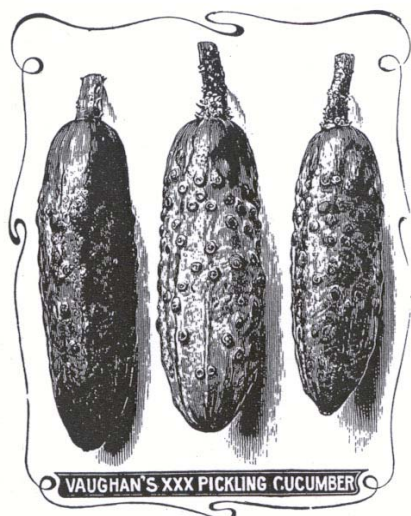
The cost of the conference will be \$18 and includes a hot lunch and a resource notebook. Pre-registration is required by February 24. Contact Debbie Roos at 919-542-8202 for more information. Mail your check payable to Chatham County Cooperative Extension to Debbie Roos, PO Box 279, Pittsboro, NC 27312.

March 24, 2003 Tax Workshop for Farmers and Other Small Business Owners Pittsboro, NC

The Chatham County Center of the North Carolina Cooperative Extension Service will offer a tax workshop as part of its *Enhancing Sustainability Series* on Monday, March 24, from 7:00-9:00 p.m. in the auditorium of the Extension Agricultural Building in Pittsboro. North Carolina State University Agricultural Economist Guido van der Hoeven will present a variety of topics pertinent to farmers and other small business entrepreneurs, including Schedule F forms, record-keeping, collecting/paying sales taxes, deductions, depreciation, and much more. There will also be an open question and answer period to give you an opportunity to ask the expert.

The cost of the workshop will be \$10 to cover material costs. Pre-registration is required by March 21. Contact Debbie Roos at 919-542-8202 for more information.

**June 9-10, 2003
Acidified Foods School
Pittsboro, NC**



Here's a good story about how your feedback matters. Last year we conducted a Food Policy Council Conference here in Pittsboro. One of the sessions was on value-added products and the talk turned to the barriers to production for small farmers, including the high cost of the required acidified foods school that all entrepreneurs must attend to be able to produce and sell their acidified food products (pickles, pickled peppers, salsa, pickled eggs, etc.). Normally the cost is around \$450. Dr. John Rushing, the NCSU Food Science Professor who conducts the training, was at that conference and heard your feedback and later told me he could do a special school at a reduced rate so that small farmers and entrepreneurs would be able to attend. I recently sent out an email to farmers asking for input on what time of year they wanted me to schedule the school, and the overwhelming majority said as soon as possible. The FDA requires 4 months' advance notice, and we chose the earliest possible date. So...

On June 9-10, the Chatham County Center of the North Carolina Cooperative Extension Service will host an Acidified Foods School at the Extension Agricultural Building Auditorium here in Pittsboro. This program is intended for those persons with an interest in acidified foods processing and packaging. It will emphasize the technology associated with acidified foods packaged in glass or rigid plastic containers.

This will be a very intense, two-day school with a packed program. Class begins at 8:00 a.m. and will end around 9:00 p.m. on the first day (help sessions and demonstrations may be scheduled for evening hours the first night, depending on need, so students

should make themselves available). The school will adjourn at 5:00 p.m. on the second day.

Examinations will be given after each session. Students must pass with 70% correct. Make-up exams will be allowed for all sections the following morning. Any student who has failed three exams may not participate in make-ups. To be certified, students must attend ALL sessions and pass ALL exams.

The registration fee is \$150 and includes luncheons, refreshment breaks, and manuals. Enrollment will be limited for maximum effectiveness, and registrations will be accepted in the order they are received. Registrations will not be refunded. To register, call me at 919-542-8202 and request a registration form. This form must accompany your registration fee to be accepted. You may also email me at debbie_roos@ncsu.edu to request a registration form electronically. The deadline for registration is May 9. Course manuals will be mailed to participants for study upon receipt of registration. This will be the only school offered in North Carolina this year at this price, so send in your registration early to guarantee your spot!



New on the Growing Small Farms Website
www.ces.ncsu.edu/chatham/ag/SustAg/index.html

We had over 14,500 visits to Chatham County Cooperative Extension's sustainable agriculture website last year! I will continue to expand this site this year. Thanks to everyone who took the time to fill out the on-line feedback form. I appreciate your comments and suggestions and will take them into consideration when designing new pages in 2003.

Sustainable Agriculture Web Resources

- New sections: Women in Agriculture, Youth and Agriculture, Permaculture, Miscellaneous, plus many new links in other sections

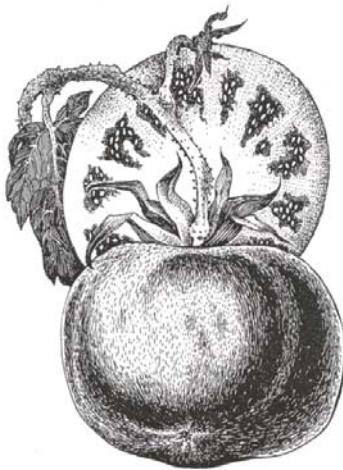
Grower Resource List

- Totally overhauled and reorganized plus added new sections on fertilizers/soil amendments and livestock supplies. Use this list to discover suppliers for seeds, plants, equipment, greenhouse supplies, fertilizers, row covers, irrigation, machinery, beneficial insects, pest management, and much more! Also includes a section on books and other publications. This list is updated regularly.

Join Email Mailing List

I maintain an email list of farmers that I use to send out announcements about grant opportunities, educational programs (local, state, regional), and other issues of a timely nature that don't always make it into the newsletter due to time constraints. If you would like to join this list, email me at debbie_roos@ncsu.edu. This list is separate from the small farms listserv. You can learn more about the listserv at the Growing Small Farms website.

Tomato Spotted Wilt Virus Resistant Tomatoes



Notes from Dr. Randy Gardner
Dept. of Horticultural Science, NC State University

Following are the hybrids I am aware of that are commercially available for seed sales:

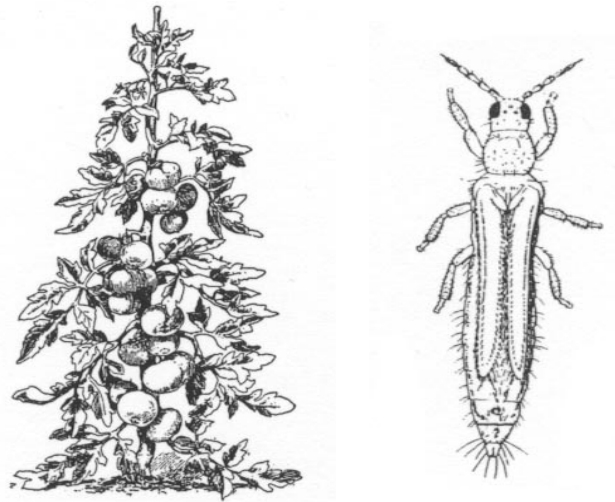
Amelia (formerly HMX-0800) sold by Harris Moran Seed Co., large fruited, fairly early maturity, resistant to TSWV, nematodes, and race 3 fusarium wilt, has been trialed at Fletcher over the last 3 years and has given good results (available from seed distributors for Harris Moran seeds).

EX 1405037 sold by Seminis Seeds, large-fruited, fairly late in maturity, did not perform as well as Amelia at Fletcher in 2002 because of its lateness.

BHN 444 and BNN 640 produced by BHN Research and sold primarily by Seigers and Seedway seed companies, BHN 444 is large fruited but can be somewhat rough in fruit shape under some growing conditions, has been used quite widely over the last 2 to 3 years in some southern states, BHN 640 has fusarium wilt race 3 resistance in addition to TSWV resistance and is smaller fruited but smoother than BHN 444.

There may also be some other new commercial hybrids of which I am not aware. As far as I know, all of these hybrids have resistance based on the SW-5 gene, which provides a high level of resistance to current strains of the virus in the U.S. I am working on resistant hybrids with the SW-5 gene also and have promising advanced hybrids which I will be testing this spring throughout NC.

Editor's Note: For more information on tomato spotted wilt virus, see the June 2002 issue of *Plow Sharing*, also on the web at www.ces.ncsu.edu/chatham/ag/SustAg/index.html.



U.S. Organic Farming: A Decade of Expansion

A report by the Economic Research Service, USDA

American farmland under organic management has grown steadily over the last decade, with acreage for major crops (e.g., corn and soybeans) more than doubling between 1992 and 1997, and again between 1997 and 2001. Certified organic pasture (including ranchland) also doubled between 1997 and 2001, following USDA's lifting of restrictions on organic meat labeling in the late 1990s.

The rapid increase kept pace with consumer demand for organically produced food, which grew rapidly throughout the 1990s--20 percent or more annually. According to industry data, retail sales of organic products more than doubled between 1992 and 1996 to \$3.5 billion, mirroring the growth in acreage during this period. The growth in demand has continued. By 2001, U.S. organic sales exceeded \$9 billion, according to estimates from the International Trade Centre, and accounted for approximately 2 percent of total food sales. USDA's national organic standards and labeling rules, which went into effect in October, may potentially act as a marketing tool, generating further interest in organic products among farmers and consumers.



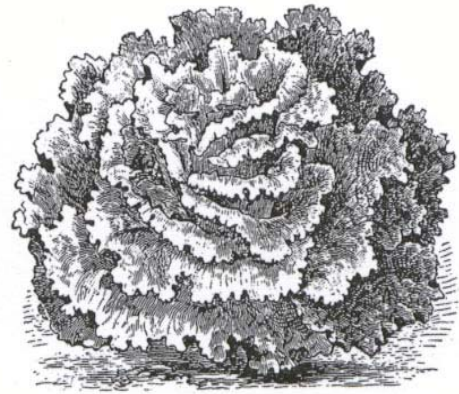
A decade in the making, USDA's new organic standards incorporate an ecological approach to farming that fosters cycling of resources and protection of biodiversity. Behind each organic label is a system of agricultural production and processing that meets a comprehensive system of national standards. The standards apply to the entire production system, not just individual practices such as use of specific inputs.

Producers who shift to organic farming systems from chemical-intensive systems must make changes across the broad spectrum of their production inputs and practices. An increasing number of farmers in the U.S. have taken on that challenge in recent years, meeting production and processing standards set by state and private organizations that have now been codified and expanded in the national standards.



Other Countries Ahead

U.S. farmers and ranchers have added a million acres of certified organic cropland and pasture since 1997 (certified by state or private organizations), bringing the total to 2.35 million acres in 48 states in 2001. According to USDA's Economic Research Service (ERS), farmers and ranchers certified about 1.3 million acres of cropland and 1 million acres of pasture and rangeland in 2001. Overall, certified organic cropland and pasture accounted for 0.3 percent of U.S. cropland and pasture in 2002, although for some crop sectors, particularly fruits and vegetables, the proportions were much higher. Examples include organic apples (3 percent of that crop's acreage), organic carrots (4 percent), and organic lettuce (5 percent).



Even so, the U.S. trails other countries in organic numbers. According to a worldwide survey in 2001 by a private research firm in Germany, the U.S. ranked fourth in land area managed under organic farming systems, behind Australia (with 19 million acres), Argentina (6.9 million acres), and Italy (2.6 million acres). Brazil, Germany, the United Kingdom (UK), Spain, France, and Canada also ranked among the top 10 countries in total organic area. In percentage of total farmland managed organically, the U.S. did not make the top 10. The leaders here were Switzerland (9 percent of total land area under organic management), Austria (8.6 percent), Italy (6.8 percent), Sweden (5.2 percent), the Czech Republic (3.9 percent), and the UK (3.3 percent).

While government intervention in the U.S. has focused primarily on market facilitation, at least two states--Iowa and Minnesota--have begun subsidizing conversion to organic farming systems as a way to capture the environmental benefits of these systems. Also, a number of universities have begun multidisciplinary organic research trials in recent years. One nonprofit group, the Organic

Farming Research Foundation in Santa Cruz, California, started a grant program in 1990 for scientist-farmer teams to study organic production and marketing systems.

During the last several years, a number of USDA agencies have launched new programs and pilot projects to help organic producers address production and marketing problems and risks. And the Farm Security and Rural Investment Act of 2002 (Farm Act) includes several small but groundbreaking initiatives on research and technical assistance for organic farmers. For example, the Act authorizes \$5 million for a national cost-share assistance program to help organic farmers with small operations cover a substantial portion of the costs of certification. European countries with high levels of conversion to organic farming have been providing direct financial support for conversion since the late 1980s.

California Leads in Cropland, Colorado in Pasture

California, with mostly fruits and vegetables, and North Dakota, with wheat, soybeans, and other field crops, were the top two states in 2001 for certified organic cropland. Farmers in California had nearly 150,000 acres under certified organic management, and North Dakota producers followed closely with nearly 145,000 acres. Minnesota, Wisconsin, Iowa, and Montana were other leading states in terms of total certified organic cropland. Every state but Mississippi and Delaware had some certified cropland. Certified organic cropland increased significantly in most states in the U.S. between 1997 and 2001, more than doubling in 12 states. Pasture more than doubled in 24 states.

The organic farm sector differs substantially from the conventional farm sector in having a higher proportion of cropland devoted to vegetable production. While total vegetable acreage in the U.S. accounts for under 1 percent of total U.S. cropland, certified organic

vegetable acreage accounts for nearly 5 percent of the total cropland under certified organic management. Certified organic vegetables were grown in more states than any other organic crop.

The top three states for certified organic pasture in 2001 each had over 100,000 acres—Colorado (514,000 acres), Texas (221,000 acres), and Montana (137,000 acres). Forty other states also had certified pasture in 2001, most with less than 20,000 acres. Organic animal production systems were certified in 37 states in 2001, up from 23 states in 1997.

The number of certified organic beef cattle, milk cows, hogs, pigs, sheep, and lambs was about 72,000 in 2001, up nearly 4-fold since 1997. Dairy has been one of the fastest growing segments of the organic foods industry during this period, and milk cows accounted for over half of the certified animals. Poultry raised under certified organic management showed even higher levels of growth during this period. Certified organic layer hens, broilers and other poultry increased over 6-fold between 1997 and 2001. In 1999, USDA eased organic labeling restrictions for broilers. As a result, farmers rapidly expanded certified broiler production, increasing from 38,000 birds in 1997 to nearly 2 million birds in 2000, and over 3 million in 2001.

Organic expansion has not been uniform in the U.S. Between 1997 and 2001, nine states, over half in the South—Georgia, Louisiana, South Carolina, Tennessee and West Virginia—showed an overall decline in certified organic farmland. In general, the South has had less certified organic farmland than other regions, and small, local nonprofit enterprises have performed most of the certification in these states. A number of these certifying enterprises dropped their certification programs when national rules were implemented, likely causing some dislocation among certified growers in the region. However, several new certification programs have recently emerged in the South—including a state program in



South Carolina and a local private program (Florida Certified Organic Growers and Consumers) that has expanded to other states—to fill in for services lost during the transition.

Organic farmland also receded in Florida and Idaho between 1997 and 2001 because large organic wild-crop operations for St. John's wort and saw palmetto berries (harvested from land not maintained under cultivation) discontinued their certification in those states. Idaho experienced severe drought conditions between 1997 and 2001, which lowered planted acreage in both conventional and organic farm sectors. Organic acreage also fell substantially in Alaska because the large ranches that had experimented with organic livestock production during the late 1990s decided to pursue other activities.

Small Farms Still Reign

Recent ERS research provides the first-ever estimates of the number of certified organic operations by state. California has the most, with slightly over 1,000 operations in 2001, up 12 percent from the previous year. Following California are Washington (548 operations), Wisconsin (469), Minnesota (421), Iowa (384), Pennsylvania (281), Ohio (265), New York (264), Vermont (251) and Maine (244). Only 3 of the top 10 states in number of certified operations—California, Minnesota, and Iowa—are also in the top 10 for certified cropland acreage.



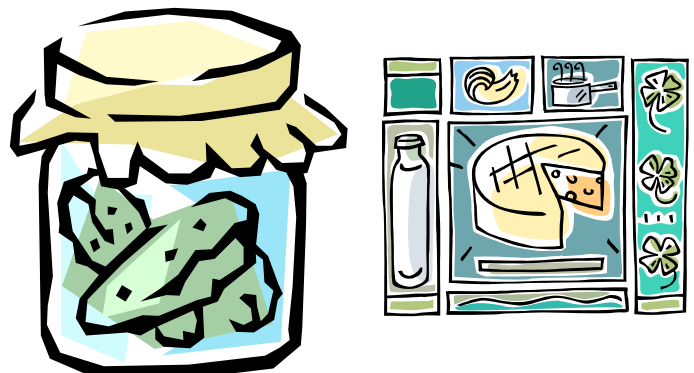
Many of the top states in number of certified operations—particularly in the Northeast and Mid-Atlantic regions—are states with a high proportion of small farms that grow

fruits and vegetables for direct marketing to consumers. Even in California, where the majority of very large organic fruit and vegetable operations are located, most of the organic farms are small. Recent analysis of organic farm trends by the University of California indicates that the state's organic farms remained small (under 5 acres on average) throughout the late 1990s. Average size of certified organic farms is up in California and the U.S. as a whole, as existing organic farmers expand and new large-scale operations become certified. Small-scale farms remain prevalent.



Producers capture a much higher share of the consumer food dollar when they market their produce directly to consumers, and USDA and other producer surveys indicate that organic farmers market directly much more frequently than do conventional farmers. States and municipalities, along with private conservation groups and others, have been fostering the development of local markets for the last decade, and the number of these outlets has jumped substantially. In the Northeast, mid-Atlantic and other regions, the majority of certified organic operations are small-scale farms that produce a variety of vegetable crops, fruits, herbs, and flowers for marketing directly to local consumers.

Small-scale organic farmers are also enhancing the viability of their operations by producing a large array of "value-added" products—foods processed on their farm or in farm-owned plants or farm-based cooperatives—to sell directly to the consumer in addition to fresh fruits and vegetables. According to the Organic Farming Research Foundation's most recent organic producer survey, 31 percent of respondents produced value-added products in 1997. The products included salsa, syrup, cider, pickles, preserves, dried and canned fruits and vegetables, butter, yogurt, cheese, milled flours, meat products, and wine.



Research Has Shown...

A limited but growing number of studies in the U.S. have examined yields, input costs, profitability, managerial requirements, and other economic characteristics of organic farming. A 1990 review of the U.S. literature by researchers at Cornell University concluded that "variation within organic and conventional farming systems is likely as large as the differences between the two systems." More recent U.S. studies at several universities and USDA Agricultural Experiment Stations have indicated that price premiums on organic products may provide organic farming systems comparable or higher whole-farm profits than conventional systems, particularly for crops like processed tomatoes and cotton.



Under certain circumstances, organic systems may be more profitable than conventional systems, even without price premiums. For example, university studies of Midwestern organic grain and soybean production have found some organic

systems to be more profitable than conventional systems due to higher yields in drier areas or periods, lower input costs, or higher revenue from the mix of crops used in the system. Recent studies by Washington State University and the University of California, comparing organic and conventional systems for apple production, have also shown higher returns under the organic systems.

Net returns to various organic production systems will vary with biophysical and economic factors—such as soil type, climate, proximity to markets, and other farm-specific factors—and a system that is optimal in one location may not be optimal in another. Also, factors not captured in standard profit calculations, such as convenience, longer term planning horizons, and environmental ethics can motivate adoption of a particular organic practice or farming system. Further research is needed to enhance understanding of the factors influencing returns to organic farming systems.



National Campaign for Sustainable Agriculture Offers Federal Sustainable Agriculture Program Primer

As a service to its partners, the National Campaign for Sustainable Agriculture is pleased to offer the Federal Sustainable Agriculture Program Primer. This resource compiles basic information on a wide range of the programs and policies that the National Campaign and its partner organizations have helped to conceive, develop, promote and/or get funded over the years.

In a simple, user-friendly format, the Primer provides:

- a short description of each program
- who administers it
- how people can access the program (including application deadlines and criteria for eligibility)
- how the program is funded
- the program's status, including various stages of administrative action (rulemaking, implementation, etc.)
- where to go for more information

The Federal Sustainable Agriculture Program Primer is available at www.sustainableagriculture.net/primer.php.

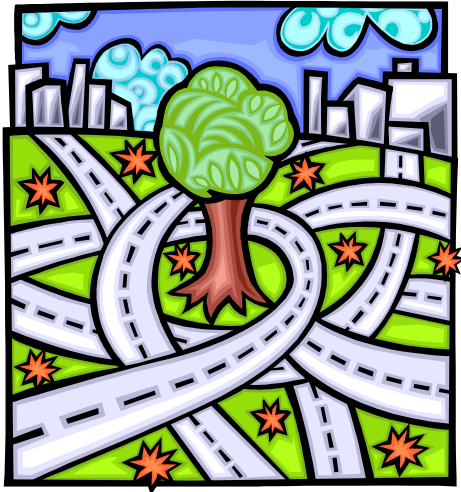
"This is only the beginning," explains Kathy Lawrence, National Campaign Executive Director. "We're looking to refine and regularly update this federal program primer, and will be adding more programs in the coming weeks. We'll also be developing more in-depth fact sheets for selected programs."

National Campaign Board Member Loni Kemp of Minnesota Project, says, "It is impossible for any individual to stay up to speed on every sustainable agriculture program we care about, but now we have our own on-call expert available around the clock. Just bookmark this page and click it whenever you need to know current information about any program."



Report Makes Case for Local Food

Press release from the Worldwatch Institute



A new study by the Worldwatch Institute, an environmental and social policy research organization based in Washington, D.C., found that in the United States, food now travels between 1,500 and 2,500 miles from farm to table, as much as 25 percent farther than two decades ago.

One Iowa study found that the ingredients for a meal made from local sources traveled an average of 45 miles to reach their destination, compared with 1,550 miles if the same ingredients had been bought from the usual distant sources nationwide.

"The farther we ship food, the more vulnerable our food system becomes," says Worldwatch Research Associate Brian Halweil, author of *Home Grown: The Case for Local Food in a Global Market*. "Many major cities in the U.S. have a limited supply of food on hand. That makes those cities highly vulnerable to anything that suddenly restricts transportation, such as oil shortages or acts of terrorism."

This vulnerability is not limited to the United States. The tonnage of food shipped between countries has grown fourfold over the last four decades. In the United Kingdom, for example, food travels 50 percent farther than it did two decades ago.

This reliance on long-distance food damages rural economies, as farmers and small food businesses become the most marginal link in the sprawling food chain. This trend also creates numerous opportunities along the way for contamination, while contributing to global warming, because of the huge quantities of fuel used for transportation.

"We are spending far more energy to get food to the table than the energy we get from eating the food. A head of lettuce grown in the Salinas Valley of California and shipped nearly 3,000 miles to Washington, D.C., requires about 36 times as much fossil fuel energy in transport as it provides in food energy when it arrives," Halweil says.

Surveys have shown that a typical meal—some meat, grain, fruits, and vegetables—using local ingredients entails four to 17 times less petroleum consumption in transport than the same meal bought from the conventional food chain.

While most economists believe that long-distance food trade is efficient because communities and nations can buy their food from the lowest-cost provider, studies from North America, Asia, and Africa show farm communities reap little benefit, and often suffer as a result of freer trade in agricultural goods.

"The economic benefits of food trade are a myth. The big winners are agribusiness monopolies that ship, trade, and process food. Agricultural policies tend to favor long-distance trade, and cheap, subsidized fossil fuels encourage long-distance shipping. The big losers are the world's poor."

Farmers producing for export often go hungry as they sacrifice the use of their land to feed foreign mouths, Halweil says. Poor urbanites in both the First and Third Worlds find themselves living in neighborhoods without supermarkets, green grocers, and healthy food choices.

Halweil points to a vigorous, emerging local food movement that is challenging both the wisdom and practice of long-distance food shipping. "Massive meat recalls, the advent of genetically engineered food, and other food safety crises have built interest in local food," he says. "Rebuilding local food economies is the first genuine profit-making opportunity in farm country in years."



In the United States, the number of registered farmers' markets has jumped from 300 in the mid-1970s and 1,755 in 1994 to more than 3,100 today. Approximately three million people visit these markets each week and spend over \$1 billion each year. Innovative restaurants, school cafeterias, caterers, hospitals, and even supermarkets are beginning to offer fresh, seasonal foods from local farmers and food businesses.



"Locally grown food served fresh and in season has a definite taste advantage," says Halweil, "It's harvested at the peak of ripeness and doesn't have to be fumigated, refrigerated, or packaged for long-distance hauling and long shelf-life." In the United States, more than half of all tomatoes are harvested and shipped green, and then artificially ripened upon arrival at their final destination.

"Of course, a certain amount of food trade is natural and beneficial. But money spent on locally produced foods stays in the community longer, creating jobs, supporting farmers, and preserving local cuisines and crop varieties against the steamroller of culinary imperialism. And developing nations that emphasize greater food self-reliance can retain precious foreign exchange and avoid the instability of international markets."

To order a copy of Home Grown: The Case for Local Food in a Global Market, contact the Worldwatch Institute at 1-888-544-2303 or visit their website at www.worldwatch.org.

Are You in Agriculture? Make Sure Your Farm Is Counted

Your agriculture census report form wouldn't be hiding, would it? If so, Agriculture Secretary Ann M. Veneman urges farmers and ranchers to complete and return their forms today to make it known – agriculture counts!

"The Nation's agricultural sector has a critical stake in this census of agriculture," said Veneman. "Whether a large feedlot or a very small fruit and vegetable farm, every response is important because it helps in the development of future farm programs. We encourage participants to return completed forms as soon as possible to ensure that Agriculture counts."

Veneman points out that an accurate report of the farm operations in every state and county will help put together a complete, detailed picture of the Nation's agriculture. Everyone receiving a report form across the Nation's 3,000 plus counties must report by law (Title 7, U.S. Code). Snapshots of U.S. agriculture dating back to 1840 are a valuable resource to farmers, farm organizations, agribusiness, farm media, and county, state and federal governments.

Census data are used to:

- Examine long-term trends and anticipate the future direction of agriculture.
- Allocate Cooperative Extension funding, services, and research at the local level.
- Allocate local and national funds for farm programs.
- Help agribusiness develop sales territories and marketing plans for fertilizer, seed, processing, storage, transportation, and equipment.
- Help State and Federal government agencies evaluate effects of changes in farm legislation.
- Assess patterns in water use and irrigation to determine resource and management needs.

If you can answer yes to ANY of the following questions, you should have received, completed and returned your 2002 Census of Agriculture report form.

- Did you have day-to-day control of an agricultural operation from which agricultural products were sold in 2002?
- Did you grow any crops or raise livestock for other than home use in 2002?
- Did you own or rent land and operate this land for agricultural purposes in 2002?

If you have not received a report form, please call 1-888-4AG-STAT (424-7828) and one will be sent to you. If you have not returned your form, please do so today! Anyone needing help completing their report form may call 1-888-4AG-STAT.

Results from the 2002 Census of Agriculture will be published on Feb. 3, 2004. They will be available on www.usda.gov/nass/, through your local NASS State office, as well as from many libraries and land grant universities.



Beneficial Fungi Boost Pepper Growth

Beneficial fungi that live on plant roots increased green bell pepper yields by as much as one-third in studies by Agricultural Research Service scientists.

Arbuscular mycorrhizal (AM) fungi colonize the roots of most crop plants and help plants take in phosphorus and other nutrients from the soil. AM fungi have been diminished by modern agricultural practices such as tillage, but in many instances can still make important contributions to productivity, particularly in organic farming and other systems where little if any chemical fertilizers and pesticides are used.

David D. Douds, a microbiologist at the ARS Eastern Regional Research Center in Wyndmoor, Pa., studied four different types of AM fungi in three plantings from 1997 to 1999. He collaborated with Carolyn Reider, a horticulturist at the Rodale Institute Experimental Farm in Kutztown, Pa., to measure the fungi's effects on pepper yield.

They inoculated seedlings before transplanting them into field plots. One treatment group contained only the AM fungus, *Glomus intraradices*; another treatment comprised a mixture of three other types of AM fungi; and a third, uninoculated group served as the control. Plants were transferred into high-phosphorus-soil field plots receiving either composted dairy cow manure or conventional chemical fertilizer.

Results showed that inoculating peppers with AM fungi boosted fruit yield. The best results were with the fungus mixture, which increased yields each year by 14 to 23 percent in plots with added compost, and up to 34 percent one year in plots with chemical fertilizers.

Proper selection of an AM inoculum is essential, according to Douds, and a mixture of fungi increases the chance of having the right fungus present for a given plant.

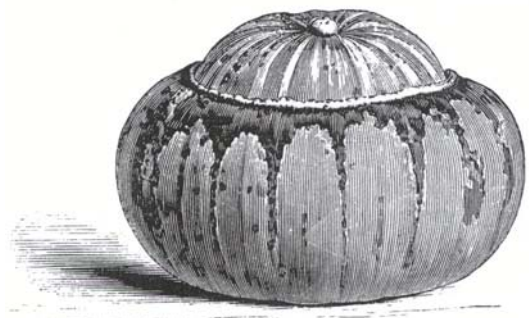
Past studies have shown that AM fungi benefit plants grown in low-phosphorus soil, and that high-phosphorus soils make it harder for the fungi to grow on plant roots. However, this study's results suggest that using AM fungi in high-phosphorus soils is a management option that shouldn't be ignored.

Piedmont Organic Gardening School March 8, 2003

The 2003 Piedmont Organic Gardening School is the seventh in a series which began in 1996. The goal is to provide information, resources, and hands-on experiences to help you develop a productive organic garden. The workshops are designed to meet the needs of the home gardener on a wide range of topics. Local experts from across the region will make this event both fun and educational. This year we will be featuring exhibitors offering organic plants and garden supplies and a local seed exchange. Please come join us on Saturday, March 8, at Central Carolina Community College in Pittsboro, North Carolina, for a day of learning, networking and enjoying rich conversation and great food. The school is sponsored by Carolina Farm Stewardship Association (CFSA), North Carolina Botanical Garden (NCBG), Central Carolina Community College's Sustainable Farming Program, Chatham County Center of North Carolina Cooperative Extension, and Southeastern Efforts Developing Sustainable Spaces (SEEDS).

Topics include Composting, Heirloom Vegetables and Seed Saving, Soil Biology, Grow Your Own Salad Bar, Beneficial Insects, Starting Seeds, Water Gardens, Rotations and Cover Crops, and much more! For more information contact CFSA at 919-542-2402.

Consult the Calendar of Events on Page 11 of this issue for dates and locations of other Organic Growers' Schools in North Carolina.



Calendar of Events (updated weekly on the website!)

February 14-16: North Carolina Herb Association Conference in Sherrill's Ford, NC. For more information contact Guy Ross.

February 19-20: The North Carolina Tomato Growers Association will present the annual Winter Vegetable Conference in Asheville, NC. There will be presentations on a wide range of topics including agritourism, niche greenhouse crops, cover crops, value-added products, and updates on tomato varieties, disease management, and insect control. For more information contact Jeanine Davis at 828-684-3562.

February 27: The Chatham County Center of North Carolina Cooperative Extension will present a Sustainable Soils Conference from 8:00 a.m. until 5:00 p.m. as part of its *Enhancing Sustainability Series* at the Extension Agricultural Building auditorium in Pittsboro, NC. For more information contact Debbie Roos at 919-542-8202.

February 28: Northern Piedmont Specialty Crops School in Oxford, NC. Hosted by North Carolina Cooperative Extension, Granville County Center. For more information contact Carl Cantaluppi at 919-603-1350.

February 28: Coastal Organic Growers' School in Wilmington, NC. For more information contact CFSA at 919-542-2402.

March 1: Triad Organic Growers' School in Greensboro, NC. For more information contact CFSA at 919-542-2402.

March 8: Piedmont Organic Gardening School in Pittsboro, NC. Topics include Composting, Heirloom Vegetables and Seed Saving, Soil Biology, Grow Your Own Salad Bar, Beneficial Insects, Starting Seeds, Water Gardens, Rotations and Cover Crops, and much more! For more information contact CFSA at 919-542-2402.

March 15: 10th Annual Organic Growers' School in Flat Rock, NC. There will be 36 sessions to choose from with topics ranging from farmscaping for insect management to raising the family cow to permaculture. For more information, contact Elly Wells at 828-258-3387.

March 22: High Country Organic Growers' School in Boone, NC. For more information contact Rob Danford at 828-262-0415 or North Carolina Cooperative Extension, Watauga County Center, at 828-264-3061.

March 24: The Chatham County Center of North Carolina Cooperative Extension will present a workshop on Tax Issues for Small Farmers as part of its *Enhancing Sustainability Series* from 7:00-9:00 pm at the Agricultural Building auditorium in Pittsboro, NC. This workshop will include an open forum to allow for questions from participants. For more information contact Debbie Roos at 919-542-8202.

March 31: The Chatham County Center of North Carolina Cooperative Extension and the Chatham County Health Department will present a Homeowner Septic System Maintenance workshop from 7:00-9:00 pm in the Agricultural Building in Pittsboro, NC. For more information contact Glenn Woolard at 919-542-8202.

June 9-10: The Chatham County Center of North Carolina Cooperative Extension will host an Acidified Foods Processing and Packaging School as part of its *Enhancing Sustainability Series* at the Extension Agricultural Building auditorium in Pittsboro, NC. This is an FDA-approved course taught by NCSU's Dr. John Rushing. This school is required for entrepreneurs who want to produce and market acidified food products such as pickles, pickled peppers, salsa, etc. For more information contact Debbie Roos at 919-542-8202.



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