NOFA Summer Conference to Focus on Energy
August 11-14, 2005 Event Features Pre-Conference on Biodiesel and Recycled Grease, Debate on “What Price Renewable Energy?” as well as Keynote Speaker Satish Kumar, Country & Western Dancing, Saturday Night Local Meal, Evening Campfire and Workshops to Inspire the Young and Old

by Kathy Litchfield

The pre-conference will include panel discussions, break-out sessions and hands-on sharing with several experts in the field:

- **Ricky Baruc**, co-owner of Seeds of Solidarity Farm and Education Center in Orange, Mass., who believes that as our markets continue to be flooded with west coast “organ-ics” and we struggle with watered down organic standards, our marketing and economic advantage in the Northeast will be renewable energy,
- **Larry Union**, vice president and chief financial officer of Northeast Biodiesel Company of Greenfield, Mass., who will review government biodiesel policies and regulations, discuss the fuel’s chemistry, features and benefits, the economics of its usage in the Northeast and “where we go from here.”
- **Erik Hoffman** of Ashfield, Mass., who is the chair of the Pioneer Valley Biodiesel Cooperative in Greenfield, Mass., will serve as the pre-conference moderator. He was trained as an environmental educator and organic farmer and is on the staff of Orion Magazine.
- **Joseph Lambert** an educator, inventor and product development engineer for Global E Industries, a biodiesel distribution company, who feels we need to examine how to make biodiesel in a sustainable fashion and dreams of building a “green hotrod.”
- **Ralph Turner**, co-owner of Laughing Stock Farm in Freeport, Maine, who will talk about equipment installed through a Maine Department of Agriculture grant to demonstrate using fryolator oil to heat a 7,500-square-foot greenhouse. He will discuss handling, cleaning, storage, costs and use of the waste oil, review vegetable oil chemistry as it pertains to the practical difficulties of complete vegetable oil combustion and the practical limitations of using waste oil burning equipment.

The pre-conference will run from 1 to 5 p.m. on Thursday, August 11 and from 8 a.m. to noon on Friday, August 12. Registration is limited to the first 250 participants, so register now!

For many years, the NOFA Summer Conference has drawn attendees on Saturday night to hear strongly-held views on a topic of interest. This year, in light of the wind tower proposed in the Berkshires and the conference’s theme of renewable energy sources, the Saturday evening debate is titled “What Price Renewable Energy?” It will feature Sally Wright and Eleanor Tillinghast as speakers respectively for and against the Berkshire proposal, MIT professor Stephen Conners to speak on the current state of renewable energy and Jim Merkel, author of Radical Simplicity to discuss reducing our energy footprint. Don’t miss this exciting NOFA tradition that raises questions as well as eyebrows and gets people talking!

Following the debate, Country & Western Dancing will debut at this year’s conference, in lieu of the traditional Contra dancing. The popular band, “Almost Cowboyz” will get boots stompin’ and people hollerin’ inside the Robert Crown Center.

Another great place to meet people at the conference will be under the stars outside of the Red Barn on Saturday night. The conference’s first-ever campfire will entice the young and old to share camaraderie, stories and the day’s many inspirations. All are welcome. The fire will be start at 9 p.m.

continued on page 37
Letters to the Editor:

To the editor:
The spring issue of The Natural Farmer contained a reader’s Letter to the Editor inquiring about chemical use to prolong the shelf life of UHT milk. Some organic milk handlers use hydrogen peroxide on milk cartons before filling them, which may be what she was thinking of.

The Natural Farmer

The Natural Farmer is the newspaper of the Northeast Organic Farming Association (NOFA). Regular members receive a subscription as part of their dues, and others may subscribe for $10 (in the US) or $18 (outside the US). It is published four times a year at 411 Sheldon Rd., Barre, MA 01005. The editors are Jack Kittredge and Julie Rawson, but most of the material is either written by members or summarized by us from information people send us.

Upcoming Issue Topics - We plan a year in advance so that folks who want to write on a topic can have a lot of lead time. The next 3 issues will be:

- Fall 2005: Alternative On-Farm Energy
- Winter 2005-06: Organic Fine Dining
- Spring 2006: Agriculture & Globalization

Movers or missed an issue? The Natural Farmer will not be forwarded by the post office, so you need to make sure your address is up-to-date if you move. You get your subscription to this paper in one of two ways. Direct subscribers who send us $10 are put on our database here. These folks should send address changes to us. Most of you, however, get this paper as a NOFA member benefit for paying your chapter dues. Each quarter every NOFA chapter sends us address labels for their paid members, which we use to mail out the issue. If you moved or didn’t get the paper, your beef is with your state chapter, not us. Every issue we print an updated list of “NOFA Contact People” on the last page, for a handy reference to all the chapter names and addresses.

As a membership paper, we count on you for articles, art and graphics, news and interviews, photos on rural or organic themes, ads, letters, etc. Almost everybody has a special talent or knows someone who does. If you can’t write, find someone who can to interview you. We’d like to keep the paper lively and interesting to members, and we need your help to do it.

We appreciate a submission in any form, but are less likely to make mistakes with something typed than hand-written. To be a real gem, send it via electronic mail (Jack@mhof.net). Also, any graphics, photos, charts, etc. you can provide will almost certainly make your submission more readable and informative. If you have any ideas or questions, one of us is usually near the phone - (978) 355-2853, fax (978) 355-4046. The NOFA Interstate Council website is www.nofa.org.

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Acorn squash from “The Compleat Squash” by Amy Goldman

If Joyce Kilmer never got around to writing that he’d never seen a poem as lovely as a cucurbit, I’m sure it was only through lack of appropriate rhymes, not inspiration. The forms of this vegetable/fruit are prolific: the lowly cucumber, the majestic pumpkin, the many, many faces of the various squashes, melons beyond description and gourds beyond imagination. Practically every farmer or gardener has a favorite variety, one that fruits predictably and prolifically without that much energy.

In this issue of The Natural Farmer we pay homage to this lovely family. We discuss varieties, seed saving, diseases, nutritional needs, cultural methods, marketing, and a little about some of the farmers who raise them. This year, whether you’re enjoying a cool summer slicer in a salad, baking a hearty Hubbard for Thanksgiving, diving into a ripe cantaloupe in the field, or arranging Jack-be-Little pumpkins in a display, reflect upon how diverse, delicious, and delightful this family can be. We hope the following articles contribute to your appreciation of this wonderful family of plants.

Dwell for a Moment on Cucurbits

Pam & Rob Moore

What really piqued my curiosity about this letter was the writer’s “not knowing” the answer to this question about the processing of UHT milk was how she rationalized her switch to drinking soy milk, and her apparent faith in the benevolence of the soy industry (without answers to the same questions as they apply to soy milk production). The manager of a multi-national soy processing plant recently described to us the operations at his facility, which include using hexane in soy oil extraction, and chemical baths to “detoxify” the resulting human food grade soy oil byproducts. My husband and I wondered how anyone could view such products as “food” for man or beast. The plant manager agreed, as it was one of the reasons he sought a career change and was visiting our organic farm as a prospective apprentice.

Advertise in or Sponsor The Natural Farmer

Frequency discounts: if you buy space in several issues you can qualify for substantial discounts off these rates. Pay for two consecutive issues and get 10% off each, pay for 3 and get 20% off, or pay for 4 and get 25% off. An ad in the NOFA Summer Conference Program Book counts as a TNF ad for purposes of this discount.

Deadlines: We need your ad copy one month before the publication date of each issue: The deadlines are:

- January 31 for the Spring issue (mails Mar. 1)
- April 30 for the Summer issue (mails Jun. 1)
- July 31 for the Fall issue (mails Sep. 1)
- October 31 for the Winter issue (mails Dec. 1)

Disclaimer: Advertisers are helping support the paper so please support them. We cannot investigate the claims of advertisers, of course, so please exercise due caution when considering any product or service. If you learn of any misrepresentation in one of our ads please inform us and we will take appropriate action. We don’t want ads that mislead.

Sponsorships: Individuals or organizations wishing to sponsor The Natural Farmer may do so with a payment of $200 for one year (4 issues). In return, we will thank the sponsor in a special area of page 3 of each issue, and feature the sponsor’s logo or other small insignia.

Contact for Display Ads or Sponsors: Send display ads or sponsorships with payment to our advertising manager Dan Rosenberg, PO Box 40, Montague, MA 01351. If you have questions, or want to reserve space, contact Dan at (413) 863-9063 or dan@realpickles.com.

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The Natural Farmer needs you!

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Please help us thank these Friends of Organic Farming for their generous support!

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In the long run men hit only what they aim at. Henry David Thoreau
Blow Your Own Horn!

Procedures from the Growing Together Conference for Community Supported Agriculture in Michigan, November 2004 now available. Transcripts of Elizabeth Henderson’s keynote address, CR Lawn’s closing remarks, and notes from many of the workshops. Printed booklet is 32 pages, $8 postpaid. A CD includes a PDF file of the Procedures and pictures from the conference, $3.50 postpaid. $10 for both. CSA-MI, 3480 Potter Rd, Bear Lake, MI 49614. Info at 231-839-2216. No credit cards.

For sale: 21 acre farm and business in Exeter, Rhode Island. Route 4 off Route 102, 4 Bd. rms, 2 Baths, plus separate 3.200 S.F. office / warehouse with septic and parking, two artesian wells, 8,600 S.F. of chemical-free greenhouse space, ponds and horse pastures. Twelve-year old business grows salad greens, herbs and tomatoes year-round for Rhode Island restaurants, farmers’ markets and home delivery by subscription. Extremely loyal customer base. Annual income $60,000 – 70,000. Great potential for family business, small farming/horse boarding, artisan enterprise, school/day care. Asking $1.2 million. For more information, call 401-294-7834.

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The Natural Farmer Summer, 2005

Organic Orcharding Articles - Check www.HerbsAndApples.com often to explore the latest insights into how to grow healthy apples. Here’s where you’ll find in-depth looks at holistic techniques that make a difference in orchard diversity and successful fruit production. All apple growers are invited to join in this bioregional effort by sharing innovative research and bouncing around unconventional ideas. ‘Tis an honor to journey with our tree friends down the path to a more sustainable tomorrow, don’t you think? Contact: Michael Phillips, Lost Nation Orchard at Heartsong Farm, 603-636-2286 or michael@herbsandapples.com by May 1, 2005.

Natick Community Organic Farm caretaker position vacancy. Live-in caretaker needed immediately at the Natick Community Organic Farm in Natick, MA. One bedroom apartment on 22-acre working, educational organic farm. Individual or couple welcome to apply. Re- duced rent in exchange for weekend chores and night security. Must be able to interact with the public, help with farm maintenance and work with staff and board of directors. Send cover letter and resume with references to NCOF, 117 Elliot Street, Natick, MA 01760 or email us at norganic@aol.com by May 1, 2005.

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The City of Northampton, Massachusetts is looking for a responsible farmer to lease approximately sixteen acres of prime agricultural land in the floodplain of the Connecticut River. The land is part of the James H. Elwell Conservation Area between Damon Road and the Connecticut River. Contact Bruce Young, Land Use and Conservation Planner, 413-587-1263.

Many Hands Organic Farm Workshops. Sunday June 12 is “Everything you need for Mid-Summer Growing of Vegetables”. Topics covered will be Rotations, Spacing, Weeding, Mulching, Understory, Marketing, Budgeting and Harvesting for Optimum Quality. On Sunday July 24 is “Chicken for Meat and Eggs”. Topics covered will include Variety/Breed Selection, Feed, Brooding, Marketing, Slaughter, Pasturing and Rotation, Housing for Summer and Winter, Disease Prevention & Health Care, and Animal/vegetable Rotations. Courses are from 9am - 4pm. Fresh organic lunch and thorough course packet included for $65. Call farm at (978) 355-2853 for info and to register. Info also up at www.mhof.net

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Is the status quo our only alternative? Why is it so hard to discuss the economic and ecological ramifications of our accepted social structure? Is something fundamentally different possible? And have human beings ever lived radically differently than the way we are living now? Check out our thoughts on some possible answers and for our proposal for a rural, food self sufficient and farmer friendly community at, www.everything-is-related.info

The Organic Seed Partnership (formerly Public Seed Initiative) is back for its 4th year at the NOFA Summer Conference. We will be demonstrating seed cleaning using small scale seed cleaning equipment (mechanical and manual). Please bring seed to be cleaned during the fair on Saturday. There will be formal demonstrations at 11:00 am and 2:00 PM on Friday & Saturday. We look forward to seeing you there! If you have any questions, please contact Teri Ferrin at 315-787-2396 or e-mail at tferrin@pgru.ars.usda.gov

Certified Organic Starter Pullets (22-weeks old, ready-to-lay). These are certified by Pennsylvania Certified Organic. Certification papers provided. 3,000 birds must go! The Amish farm had excellent hatching numbers and must find homes immediately. The breed is “Hyline Brown” (cross between RI Red and White Rock). These are very hardy, prolific brown egg layers and extremely gentle. See breed information at http://www.hyline.co.uk/ $9.75 per pullet, Minimum order: 5, Price break starts at 250 birds. Must be able to pickup your pullets when they arrive. Transportation available on large orders for a mileage rate. Call Litchfield Organics, Janine@LitchfieldOrganics.com, (860) 361-9181.
Soda pop industry kills Oregon junk-food ban. Oregon’s Senate Education Committee has voted ten to one to ban the sale of soda pop and other sugary snacks in Oregon schools. It turns out, however, that most of the members of the committee received donations from the Oregon Soft Drink Association. Kathy Kaiser, area manager of the Coca-Cola Bottling Co. of Oregon, said the state “should not legislate eating habits.” Margo Wootan of the Center for Science in the Public Interest, said it appears lawmakers in Oregon “did cave in to the soft drink manufacturers.” A California health care advocate notes that Governor Arnold Schwarzenegger, who voted in favor of a bill to ban soft drinks in all public schools and that the soda pop industry “is the only major opposition to this bill.”

source: Associated Press, May 7, 2005

European patent office upholds decision to revoke Neem patent. In a landmark decision, on March 6 the European Patent Office upheld a decision to revoke in its entirety a patent on a fungicial product derived from seeds of the Neem, a tree indigenous to the Indian subcontinent. The action resulted from a legal challenge mounted ten years ago by the National Environmentalist Vandana Shiva, Magda Aveloet, then MEP and President of the Greens in the European Parliament, and the International Federation of Organic Agriculture Movements. They claimed that the fungicial properties of the Neem tree had been public knowledge in India for many centuries and that this patent exemplified how international law was being misused to transfer biological wealth from the South into the hands of a few corporations, scientists, and countries of the North. The EPO’s Technical Board of Appeals has dismissed an Appeal by the would-be proprietors (the United States of America and the company Thermo Tril- ogy) and maintained the decision of its Opposition Division five years ago to revoke the Neem patent in its entirety. At the same time the world’s first legal challenge to a biopiracy patent.

source: IFOM, press release, March 8, 2005

Roundup hurts babies. New research from the University of Caen, France, shows that Monsanto’s Roundup herbicide harms babies. A team of researchers led by Dr. Gilles-Eric Seralini found that the rats fed organically were measurably healthier, slept better, had stronger immune systems and were less obese.

source: In Good Tulip, April 15, 2005

Organic Catnip Higher in Lycopene. USDA researchers tested several brands of catnip for lycopene, a carotenoid thought to help prevent some cancers and cardiovascular disease. Organic varieties contained, on average, 50% more lycopene than conventional varieties.

source: Growing for Market, April, 2005

Report Warns that World Resources Disappear. In a report by the Millennium Ecosystem Assessment project, 1360 scientists from 95 countries report that two-thirds of the natural machinery supporting life on Earth — the wetlands, forests, fisheries and grasslands — have been degraded. The report, titled “Living Beyond Our Means” is available online at www.millenniumassessment.org/en/

products/standards.aspx

source: Acres USA, May, 2005

Rats Thrive on Organic Diet. Scientists from the Danish Institute of Agriculture and Food Research sponsored by the British Soil Association, has found it contains up to 71% more the important antioxidants zeaxanthine and lutein. Also, the antioxidants were found to be as much as three times higher in organic milk than in conventionally produced milk. Researchers at Aberdeen University, in Scotland, found that rats fed organically were measurably healthier, slept better, had stronger immune systems and were less obese.

source: In Good Tulip, April 15, 2005

Monsoons Acquire Strong Bedfellows with Seminis Purchase. With its purchase of Seminis, Monsanto surpasses rival DuPont (Pioneer Seed) to become the world’s largest fruit and vegetable seed company. Many Seminis (now Monsanto) varieties, however, have been popular with seed companies which serve regional or organic markets such as the Territorial, Newton, ConAgra, and were less obese.

source: The Organic Broadcaster, March — April, 2005

Organic Delivers on Yields, Nitrogen Retention. A 5-year Agricultural Research Service (ARS) study reports that an organic crop rotation is at least as sustainable as no-till farming or chisel tillage when it comes to corn yields and nitrogen loss. The study showed that corn yields, soybeans, and then wheat plus a legume cover crop relied on poultry litter the first year, then the soy and then a hairy vetch cover for N.

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AgBiotech News

Hundreds of Tons of GE Corn Illegally Released. The Swiss biotechnology company Syngenta admitted last week that, between 2001 and 2004, it had accidentally released large quantities of a variety of corn called Bt10. Like other crops with the name Bt, this corn had been genetically modified to produce a protective pesticide. But Bt10 has not been approved for sale by regulatory agencies. The corn has been planted on as much as 150 square kilometers in the US. A week after announcing the mistake, Syngenta confirmed that a marker gene that confers resistance to ampicillin, a commonly used antibiotic, was present in the Bt10 seeds. In a ruling published last April the European Food Safety Authority, which advises European Union governments on food issues, said that marker genes conferring resistance to ampicillin “should be restricted to field trials and not be present in genetically modified plants placed on the market”. Even the Codex Alimentarius Commission, the international food-standards body, has urged the agricultural biotechnology industry to use alternative methods to refine genetically modified strains in the future. Critics have expressed surprise that neither Syngenta nor the US Environmental Protection Agency (EPA) announced the presence of the marker when they admitted that the release of Bt10 had taken place. “It is quite scandalous,” says Greg Jaffe, head of the biotechnology project at the Center for Science in the Public Interest, a pressure group in Washington DC. “This shows that the government and the company are not being forthright.”


Concern Grows Over New Indian Bt Cotton Approvals. Environmentalists are alarmed that the Indian government has given approval for more areas to be planted with new varieties of genetically modified Bt cotton, despite farmers suffering huge losses from growing the transgenic crop. Since the middle of April, the Genetic Engineering Approval Agency (GEAC), of the Ministry of Environment, has approved a total of six new Bt cotton hybrids for commercial cultivation in northern India, with more varieties in the pipeline. But the GEAC is still undecided about granting extensions for several varieties already under cultivation because of crop failures that have destroyed the livelihoods of thousands of farmers across the country — most particularly in southern Andhra Pradesh. The main idea behind approving genetically engineered Bt cotton as a commercial crop has been that this would increase farmers’ income by reducing expenditure on chemical pesticides. However, studies indicate that in the past few years the amounts spent on pesticides by Indian farmers growing the crop have actually increased by two to three fold, because of the growing resistance of pests - especially the bollworm - to chemical pesticides. The studies also point out that Bt cotton crops have failed in five of the six states - Andhra Pradesh, Karnataka and Tamil Nadu. Ironically, the GEAC has chosen to ignore these findings and have gone ahead with approvals for large swathes of farmland to be planted with new varieties of Bt cotton - angering environmental activists as well as farmers’ groups.

source: April 22, Inter Press Service News Agency

The United States government is forcing Indian farmers to grow genetically modified (GM) crops onto countries around the world. A new report by GRAIN shows how the US agency for international development (USAID) is a central part of its multi-pronged strategy. The United States government uses financial incentives and agricultural support to steer governments into opening their countries to GM crops. And USAID in particular has been using a number of different strategies to ensure that this happens as quickly as possible. Within target countries, GM projects are quickly set up with the support of a barrage of workshops. USAID is not the neutral international aid agency looking to help countries assess the implications of GM crops. Instead, they’re out to spread GM crops for the benefit of US corporations - pure and simple,” said GRAIN.

source: Apr 25, 2005, GRAIN.org

2005 Genetically Modified Seed Law Preemption Tracker. In late 2004, the American Farm Bureau Federation in association with the industries promoting agricultural biotechnology began a preemptive march through the state legislatures. On the below website is an updated list of states which have pending or passed legislation removing local governments rights to make decisions regarding seeds.

source: http://www.environmentalcommons.org/gmo-tracker.html

USADA: Making the World Hungry for GM Crops. The United States government is forcing governments around the world to accept genetically modified (GM) crops onto countries around the world. A new report by GRAIN shows how the US agency for international development (USAID) is the central part of its multi-pronged strategy. The United States government is using financial incentives and agricultural support to steer governments into opening their countries to GM crops. And USAID is in particular has been using a number of different strategies to ensure that this happens as quickly as possible. Within target countries, GM projects are quickly set up with the support of a barrage of workshops.

source: http://www.environmentalcommons.org/gmo-tracker.html

Bio-Democracy Mobilization in Philadelphia, June 18-21. Mobilize to resist the corporate agendas of GE agriculture, health care for profit, and bio-weapons proliferation, and to challenge BIO 2005, this year’s largest convention of biotech and pharmaceutical executives. Give voice to a different vision of local food sovereignty, fair trade, health care for all, community power, biodiversity and honest science.


OTA publishes “Store Wars.” “The Organic Trade Association (OTA) has published a wonderful table on Star Wars which describes the struggle between the evil “dark side” of industrial agriculture and the mystic power of the “farm”. Catch it before it too is too late at: www.storewars.org

source: www.storewars.org

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Founded in 1972, CSLD's ten-month program stresses self-direction and team learning, and prepares graduates for a rich and diverse range of jobs in such fields as community planning, conservation, site design, land stewardship, and site management.

INFORMATION SESSIONS: December 3, 2005; February 11, 2006

GMO Seeds Burnt by More Than 3000 Tribal Women in India. Demanding Orissa be declared an Organic State, more than 3000 tribal women on March 23 made a bonfire of hybrid and GM seeds of cotton and hybrid crops. Walking through the streets of the city, the tribal women shouted slogans damning the GM seeds and the hybrid crops that had pushed them into a cycle of poverty, indebtedness and hunger. The tribals announced that they have already destroyed 200 villages in the tribal belt of the State as “organic villages” and are presently cultivating indigenous seeds in more than 17,000 acres in Orissa.

source: http://www.gmwatch.org/archive2.asp?arcid=5032

New Searchable Database on the Revolving Door and Biotech. The Edmonds Institute has announced its “New Revolving Door”, a searchable database about people who have worked in/for both government and industry, with emphasis on those connected to the biotechnology industry. You can check by name, or look at all the names of people who have been involved in both the industry and the industry’s regulatory agencies.


The Natural Farmer
Big Changes at NOP. The January 26 federal court decision in Harvey vs. Veneman and Cornucopia Institute’s challenge regarding organic certification of Aurora and other dairies that lack pasture are making big waves in the organic industry. We detail some of them below.

Organic Processors Scramble Over Harvey Impact. The large processors who dominate the organic industry are making big waves in the organic industry. We detail some of them below.

Dairy Farms Struggle with Losing 80/20. The NOP had been requiring full organic management for only the last 3 months. For the previous 9 months, it had permitted a blend of 80% organic and 20% conventional feed. Harvey objected to this, arguing that if the 80% were hay and the 20% grain, then up to half of that cow’s nutrients could be from conventional sources. Even worse, he felt, was the fact that the grain could be genetically modified. Thus a cow could be fed 50% GM feed until 3 months before producing organic milk.

Organic pasture requirement mobilizes dairies. The NOSB is developing “guidance pasture requirements” to help dairies decide how much pasture is required to make a cow’s milk organic. Spurred by a formal complaint against large confinement dairies in Colorado, Idaho and California, the board has heard testimony from farmers across the country. Most voiced their support for traditional pasture-based management, and against defining lactation as a “stage of production” which would automatically allow confinement, or against relaxing the pasture requirement because of a farm’s location in an arid climate. So far more than 8000 comments have been delivered in support of strong pasture requirements. The NOSB received comments until May 20.

Matthews Out at NOP. On April 4, Richard Matthews, controversial head of the NOP, was given a “lateral” promotion to another USDA position. On April 4, Richard Matthews was given a “lateral” promotion to another USDA position. Matthews, controversial head of the NOP, was given a “lateral” promotion to another USDA position. Since coming to the program in 1997 Matthews has been under fire from the National Organic Standards Board (NOSB), the OTA, and many organic farming groups for arbitrary decision-making and poor communication. Perhaps his most controversial decision was to order MICI, the Massachusetts organic certification program, to certify egg producer The Country Hen, MICI refused, sued, and is still in litigation. Three years ago Rich Carter, NOP chair, had to gavel Matthews out of order for his angry outbursts. Matthews position will be filled temporarily by his boss, Barbara Robinson.

NOSB Bows on Methionine. The NOSB voted 11 to 2 for a three-year variance to allow synthetic methionine as an ingredient in organic poultry feed. The amino acid methionine is supplied in nature from fresh pasture via insects, earthworms, and other soil organisms. It is also available in small amounts in vegetable proteins. Large confinement poultry operations have long relied on a synthetic version of this key amino acid since their birds had no access to pasture. Its use in organic operations has been controversial and the NOSB had planned to remove it from the National List of allowed synthetic substances in October. Apparently the confinement poultry operations are still calling the shots. The amino acid methionine is supplied in nature from fresh pasture via insects, earthworms, and other soil organisms. It is also available in small amounts in vegetable proteins. Large confinement poultry operations have long relied on a synthetic version of this key amino acid since their birds had no access to pasture. Its use in organic operations has been controversial and the NOSB had planned to remove it from the National List of allowed synthetic substances in October. Apparently the confinement poultry operations are still calling the shots.

NOSB chair, had to gavel Matthews out of order for his angry outbursts. Matthews position will be filled temporarily by his boss, Barbara Robinson.

source: Organic Business News, April, 2005

Judge Forces NOP to Release Documents. US District Judge Ricardo Urbina ruled that the USDA can waive copying fees on documents requested by the Center for Food Safety to evaluate the integrity of dozens of unknown certifying agents. The USDA had stalled for over two years on releasing the documents, requested under the Freedom of Information Act, saying copying costs would run in excess of $50,000. The agency can waive the fees if the disclosure is in the public interest and, the judge ruled, and is not primarily in the commercial interest of the requester.

source: Organic Business News, February, 2005

Chicken Council: “No Outdoor Access.” The National Chicken Council, concerned by the spread of avian influenza, has urged the NOSB to suspend outdoor access requirements for birds for up to three years. The NOSB response, however, was cool. Member Nancy Ostiguy noted that the existing outbreaks have been connected to confinement poultry operations.

source: Organic Business News, March, 2005

NOSB Bows on Methionine. The NOSB voted 11 to 2 for a three-year variance to allow synthetic methionine as an ingredient in organic poultry feed. The amino acid methionine is supplied in nature from fresh pasture via insects, earthworms, and other soil organisms. It is also available in small amounts in vegetable proteins. Large confinement poultry operations have long relied on a synthetic version of this key amino acid since their birds had no access to pasture. Its use in organic operations has been controversial and the NOSB had planned to remove it from the National List of allowed synthetic substances in October. Apparently the confinement poultry operations are still calling the shots. The amino acid methionine is supplied in nature from fresh pasture via insects, earthworms, and other soil organisms. It is also available in small amounts in vegetable proteins. Large confinement poultry operations have long relied on a synthetic version of this key amino acid since their birds had no access to pasture. Its use in organic operations has been controversial and the NOSB had planned to remove it from the National List of allowed synthetic substances in October. Apparently the confinement poultry operations are still calling the shots.

source: Organic Business News, March, 2005

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The Natural Farmer Summer, 2005
Organic agriculture in South America: an interview with researchers Carolina Leoni and Andre Goncalve

Interview by Steve Vanek, Dept. of Horticulture, Cornell University

Last fall I interviewed two visitors to Cornell who work with organic agriculture in subtropical areas South America. Carolina Leoni is a plant pathologist from Uruguay who has worked extensively with organic vegetable and fruit producers. Just to the north, Andre Goncalve has worked for many years to support organic agriculture among smallholder farmers with the non-governmental organization Centro Ecologico (Ecological Center) in Brazil’s southernmost state. Carolina and Andre know not only the practices of organic farmers in their part of the world but also the social aspects of the organic movement. Speaking with them was a window into the worldwide development of the organic sector. The interviews were held separately, and are here composed as if they were a single interview. During the interviews we had several contributions from Brian Caldwell who works with extension education for organic farmers.

Andre, which products are produced organically in your region?

AG All products! Although some people imagine Brazil as a tropical country, Rio Grande do Sul is in the transition between the temperate and tropical regions. Where I work we can produce banana, cassava, and pineapple, with the main product being banana. With Centro Ecologico (CE) we work in two areas of the state, the highlands, and also in the northeast region on the Atlantic coast. Working with farmers near the Atlantic coast, our interest is to convert banana systems into agroforestry systems. This region was originally occupied by a tropical humid forest called the Atlantic forest. With only 7% of this forest left, it’s a very threatened ecosystem, so we work to combine banana plantations with natural forest areas. The agroforestry project is based on managing natural regrowth in combination with the banana plantations. We work with 300-400 families and around 500 hectares (1250 acres) of bananas.

SV Are people also growing other crops organically?

AG Yes, they also grow vegetables. Farmers mostly sell through street markets, and you can’t go to a street market just with bananas. So, they grow tomatoes, and all sorts of other vegetables.

Carolina, which products are produced organically in Uruguay?

CL Beef is probably the most common organically produced farm product in Uruguay. In the northeast region of the country, soils are not very good and the land is adapted for livestock production. Because of land suitability, organic agriculture mirrors the types of conventional agriculture that is practiced: meat, grains, some fruits, and in the southern part of the country, vegetables.

SV Is that also linked to where there are markets for fruits and vegetables?

CL Yes, Montevideo, the main city, is in the south, so many fruits and vegetables are grown and sold there. However in northern Uruguay there are warmer growing conditions and you can get early harvests of vegetables like tomato and pepper. There is even citrus, of which about 1200 acres is organic. Organic citrus goes mainly to Europe, mostly oranges. Organic honey is also important in Uruguay, mostly exported to Germany. Nationwide we have about 500 small-scale organic honey producers, most of whom operate at a small to very small scale, and many of whom are women. Most of these small producers process and sell honey together in larger batches via cooperatives.

That brings us to the markets for all these crops. Citrus is exported from Uruguay?

CL Yes. But mostly fruits and vegetables are consumed internally. Beef is mainly for export, and the same for rice. There was one experience we had of selling squash to the Italian market. Italian buyers of organic beef from northern Uruguay wanted squash for baby food. So the ranchers raising organic beef made an arrangement with vegetable growers from southern Uruguay on already-certified ranch land.

SV Are most of the export relationships with Europe?

CL Yes, that’s correct. Also, we have similar soils to those you might have in North Carolina—a acidic, sandy soils. Elsewhere in Uruguay we have some heavy clay soils where root growth and water infiltration are difficult.

Andre, in Rio Grande do Sul, is organic production for domestic consumption or export?

AG It’s not for export, it serves the internal market. There is a large market for organic products in the Southeast state (about 5% of Brazil’s nearly 9 million square km land area, and 6% of Brazil’s 170 million inhabitants.) 40% of the state’s population lives in the capital, Porto Alegre, which you may know as the past site of the World Social Forum. Interestingly, even though Brazil is one of the world’s principal producers of bananas, we don’t export very much — maybe just to Argentina — but it’s not Costa Rica or Ecuador, which are the world’s largest exporters.

Is the organic sector growing in Rio Grande do Sul, and what contributes to the trends that you see?

AG Yes, it’s growing. As far as the trends go, I should note that with CE we don’t work only in terms of technological shifts or innovations with farmers. Our message is not only that organic technology is better than conventional management. We also work with other issues like farmer organizing and marketing. Sometimes farmers don’t have any problems with production. Their main problem may be how to sell — which is a problem in many parts of the world—so, what we try to do is find fairer routes of commercialization. And that’s a major trend in organics in the region. One way to find fairer routes of commercialization is by matching the necessities of cities with those of farmers. We became aware that there were many people who are a part of the organic movement and these consumers’ cooperatives?

SV Is there an explicit connection between farmers and these consumers’ cooperatives?

AG Yes, there is a cooperative shop in these cities, where we try to match the interests of farmers and consumers. CE helps to mediate that relationship. At the beginning, we set up meetings of farmers and consumers, and after that the system largely runs itself.

SV What percentage of the production in the area is organic?

AG In the area, we have about 10% of farmers that are explicitly organic. It’s a tricky number though, because there are a lot of conventional farmers using organic practices, such as spraying biofertilizers (aerobically fermented manure teas — see below) on their bananas. But they are not counted as organic farms.

SV Is that because they just haven’t been certified, or are other of their practices not what we would call organic?
they didn’t like. Both have things that need improvement on the part of a movement. There are farmers who are producing organically, but since they are not linked to an organization, they continue to sell on the conventional market. The impact of organic agriculture on the region is bigger than we might realize, and I believe this creates an opening towards engaging the whole region in a project of sustainable development, with organic agriculture supporting the preservation of national parks and other elements of a sustainable economy.

Those sound like very promising conditions, very positive…how about in Uruguay, is the organic sector also growing there?

CL Yes. One study that was done last year showed that the market could grow 20% in the next five years. That could happen if prices of organic products did not increase greatly, with a threshold at about a 10% premium over conventional products. Sometimes only middle and upper class people can afford organic products, which becomes an issue, since poorer people should also be able to eat organic. However, in the small cities and countryside, the price difference between organic and conventional is less, since conventional products generally are imported from southern Uruguay, while the organic producers are local and save on transport costs. Sometimes in smaller cities or rural areas you see something like the CSA described here, where agreements are made for delivery of cassava or “baskets” of vegetables. Instead of paying in advance like with CSAs you pay when you receive the basket. There are basket schemes even in the capital, Montevideo.

What issues are emerging in the organic sector in Uruguay?

CL Well, there are definitely issues, for instance GMOs. A debate started last year when big enter-prises wanted to bring in GMO corn with the Bt gene. Organic farmers, as well as some conven-tional farmers, don’t want that. But if you ask them what their position is, which strengthens the whole move-ment, they also produce the same crops, and others argue we should take advantage of a good opportunity for export marketing. In the last year we have been working hard on founding a national organic movement called the MEO, the Uruguayan Organic Movement. People along this spectrum are in favor of organic practices and are worried that you should not only make use of organic practices. Also, when certification costs are prohibitive, small producers can rely on trust with the buyer rather than on a certifying organization.

Are other crops sold this way?

CL No, that is one of the drawbacks thus far. However, banana is logical for this project because there is year round production, so every week there is product to sell. Also, remember that banana is not an “accessory” food crop but an important staple in the Brazilian diet.

Are other issues emerging in the organic sector in Brazil?

AG I think certification is an issue. One thing we’ve been promoting is an alternative scheme of group certification. Elizabeth Henderson, who readers may know, was in Rio Grande do Sul, and we promoted this idea both with IFOAM (International Federa-tion of Organic Agriculture Movements) and with the Agroecological Movement of Latin America and the Caribbean (MAELA) in a conference on certifi-cation. In group certification there are several levels: the first is the farmer himself or herself. If the farmer is in the organic agriculture movement, we believe that they are organic – it’s a pledge. The second level that is certified is the smallholder association. If the farmer is part of a smallholder association, then their goal is to produce organically, so the farmer is going to “follow the rules” so to speak, and the other members of the association are likely to make him or her accept these rules. The third level that is certified is the agroecological movement, which is a network of about 2000 families across the southern part of Brazil for promoting organic certification. Of course we have rules, regulations, etc., and we have a label, and a webpage which we can share (www.centroecologico.org.br)
SV If you went to a small market, would you see a label there?
AG They can if they want, but it’s not necessary. It’s more based on trust at that local level, between the consumer and the farmer. In Brazil we still don’t have any legislation regarding organic products.
Recently there has been a proposal from the government, and we are saying we want something that was promoted from farmers, not something that is coming from the top.
SV Is that part of why it is an issue, because there is disagreement about certification?
AG Yes, there are some people who say we are just adventuring very naïvely, and we need some external oversight to say what is certified. What we are trying to do is build up confidence, rather than someone coming from outside the process and saying this is organic, this is not organic.
BC Is the third regional level of certification more export?
AG No, all for within-country. These farmers are smallholders who produce for the internal and usually the local market. Some products, for instance grape and orange juice, are exported to other areas of Brazil.

It seems that there are many interesting and positive things going on. Carolina, what other “success stories” do you have from your work in Uruguay?

CL Well earlier I touched on an agreement between vegetable farmers and beef cattle producers to produce squash as part of a forage/pasture rotation. That never worked before under conventional production. It is remarkable because these producers are about 500 km (310 miles) apart, so I think it is very interesting. I also think that our current efforts to build a national organic movement (the MOU) are very good, especially because it means we can promote the Uruguayan organic products nationally and internationally. For instance, last year we were able to have a presentation at BioFach, the organic food trade fair in Nuremberg, Germany. This year it will be in Rio de Janeiro, Brazil for Latin America. These are opportunities to have a unified window on Uruguayan products, and exchange experiences with other organic producers around the world.

SV That is very interesting, a sort of combined trade fair and conference.
CL Yes, and my personal take is that as a small country we do need to export our products. There is not a lot of Uruguayan manufacturing, and historically much of our income has come from agriculture. Organic production is a very good niche to have to improve the welfare of our farmers. The MOU allows us to pool resources to go to these trade fairs and other events and promote Uruguayan organic products. Sometimes you can even join products like honey, jams and gift markets that were not available before.

As a researcher, what is your approach to the relationship between researchers and farm producers?
AG Well, it’s well proved at this point that we have a technological “package” to produce banana yields with the same quality and productivity as conventional. One of the challenges in the future is to spread this model. As I said before, it’s interesting that we have organic producers who just sell into a conventional market, with the same quality standards, and the same productivity. It’s funny because there is a huge demand for organic produce, but sometimes you cannot match supply with demand in specific circumstances, so organic bananas end up getting sold into the conventional market.

SV Doesn’t this present an economic limitation? I think for some organic fruit producers here that would be the challenging, to only receive a conventional price. A common view is that the cost of production is higher...
AG In fact, many farmers in our region are turning to organic agriculture because it is cheaper to produce organically. Also, since the average farm size is relatively small, at least for Brazil (about 10-15 acres) you cannot spray pesticides without contaminating the neighbors, and the local water, etc. In summary, our main challenge as researchers is to scale up the cooperative work we have already done with farmers.
SV Do you have a research station where you do trials?
AG No, we (CE) always use farmers’ plots. We go stepwise—we never say to a farmer, “you have to shift right now”. We say “let’s take a little piece of your land, let’s make some experiments here, let’s see how it works”. That builds the confidence of the farmer in producing organically. That’s basically the methodology we use. We also have two or three farmers exposed to a subsidy from the government, on farmers fields.

BC It’s amazing that the productivity of bananas is as good organically as non-organically.
AG It can be as good as it. It all depends very much on the skills of the farmer (more than on the difference between organic and conventional). It also depends on location, soils, protection against winds etc.

BC Many organic fruit crops in the northeast U.S. are dramatically lower in yield than conventional fruit crops. That’s not as true for organic grain crops, for instance. And strawberries can often yield equally well under organic management, and other physical properties which are especially important in our heavy soils.

SV You have some interesting ideas about differences in disease pressure between organic and conventional a disease like head blight of cereals (caused by Fusarium graminearum)?

CL Yes, head blight on cereals is a challenge for all farmers in Uruguay, not just organic. Head blight attacks the grain plants in the flowering stage, so if you have rain at that stage of grain growth then it’s dangerous. In our climate we have rain all year round, so it’s a problem. But proper soil management might decrease the pressure from head blight. Generally the fungus survives on grass crop residues (corn, wheat, grass forages), but if you have an active biological soil, then residues decompose faster. Maybe in a conventional system, the crop residues persist a longer time and can thus infect the crop more, whereas in an organic or other system residues are broken down more quickly and this reduces risk. So that is an open and interesting question for research.

SV What are technical challenges for organic livestock producers?

CL In organic agriculture, the main challenge is to increase reproductive indices. Livestock is often raised in areas with poor soils, and the forage resources are not adequate for breeding females. That is why we are trying to incorporate legumes in the native grass pastures, as overseedings or “extension improvement” in native pastures, without tillage. The other challenge we have in sheep is internal parasites, which are difficult to manage in an organic system, especially in our humid climate. We’re trying to manage that with rotational grazing, figuring out the amount of time you have to wait before bringing a herd back to the same pasture – like crop rotation but with animals. We are all also looking for legumes for pasture improvement that have higher levels of tannins, a kind of “herbal medicine” approach. The challenge there is that you have to find a combination of...
A grower in Uruguay with a planting of organic gala apples near harvest.

Carolina, I’m ending with some of these techniques of crop management because I think readers could learn a lot from that. I’d like you to describe the rotation for organic strawberries that you have worked with as practiced by Uruguayan farmers…

CL. Yes, what is done is that farmers have the crops in strips in the field, and you have one third annual strawberries (mainly day neutral, more appropriate in Uruguay), one third pasture with legumes like birdsfoot trefol, and one third with garlic. The crops move from one strip to the other. The pasture might stay for two years, and then you move the crop from one to other. People apply it diluted with this system, and what they have found is that there is very low disease and pest pressure for the strawberries. The strawberries and garlic are grown on raised beds, which also help in disease management. Farmers have found that the quality and production in this system is really good, and that when the birdsfoot trefol is flowering it is a good reservoir for beneficials. Also, the garlic has some repellent compounds for pests.

SV. Do you manage the strip that is in the forage legume as pasture, or is it cut for hay?

CL. Birdsfoot trefol doesn’t grow very high. Generally you don’t cut it, or if you cut it, you just leave it. If you have really good production of the legume you can cut it and take off as forage. You have options based on what is going on that year, whether you want to emphasize soil fertility from the legume versus the need for forage.

Andre, what practices among farmers in your region could farmers here in the United States learn from?

AG. Well, I definitely think that biofertilizers or aerated manure and compost teas are great. I don’t know why more isn’t being done with that here.

SV. How does that work?

AG. You mix water, dung, fresh dung… sugar, to stimulate fermentation, and whatever you want. You can chop leaves for instance. Then you take it and spray it on the crop, diluted down. Five percent, for example.

SV. You let it ferment for days? Weeks?

AG. Ferment for 30 days, say. In Brazil it’s warmer so it can be shorter. Here, 30 days would be good.

SV. Do you agitate it, aerate it in any way?

AG. Yes, you can do that. But it’s great. Please recommend it. You will see a huge impact.

SV. Are you Uruguayan farmers using biofertilizers as in Brazil?

CL. Yes, growers are using these sorts of preparations. Most people apply it diluted as a foliar fertilizer on crops, or in an irrigation system. You get some disease protective effects, because there are many beneficial bacteria. And also you get a fertility effect.

Often people add native herbs, which have other effects. This work has been evaluated in Brazil, and they found that there are bacteria with some antibiotic effects, and that there is some stimulation of the defense systems of the plant, so that is where some of the potential comes from. It is commonly used in organic apple production, sometimes in combination with copper and sulfur fungicides for apple scab. You use things you have available on-farm, so it is very accessible. In Uruguay, it is not like here in the United States where many things are available commercially. People depend much more on their own resources, because they have to. We use diluted milkt to control powdery mildew on cucurbit crops. There is a big company in Brazil that uses it to control powdery mildew on organic roses, which is a challenging disease. There is a great deal of interesting knowledge in this area that is emerging. We would like to put this all together as a set of resources for people in Brazil, Uruguay, Argentina, Bolivia, Chile, and other countries.

SV. At the moment it’s important for readers here in the U.S. to take into account that the use of compost teas with manure is not legal or organically certifiable except under a 120-day application to harvest interval and with a number of other restrictions, due to concerns about human pathogens in manure.

AG. Of course, you won’t spray this on lettuce. But you could spray it on apples, or corn. If there is concern over manure, you can make it only from vegetative materials, or with milk or whey. There is a whole range of preparations.

SV. On behalf of readers, I want to thank you both so much for sharing all your experiences and insights about organic agriculture in your region of South America.

Recipe for fermented biofertilizer, adapted from the Brazilian website www.aboaterra.com.br

1. Organic Base
50 kg cow manure
50 liters water

2. Activators
2 liters milk
1.5 liters molasses

Optional:
100 ml blood
100 g fish meal
1 liter whey
100 g chopped liver

3. Nutrients and additives:
2 kg bone meal
2 kg egg shells
Other materials (herbs, borax etc., present on the farm)

Other mixtures can be made according plant needs, determined using leaf tissue and soil analyses.

Preparation:
Put manure in a 55-gallon drum and add 50 liters water, mixing well. Mix all the micronutrients and divide in 10 equal portions. Every three days, add one of these portions combining with a tenth part of the activator and optional ingredients, and mixing the water/manure/added ingredients together. The rest of the mixture. After adding all the mixed ingredients over 30 days, fill the drum the rest of the way with water, and wait an additional 20 days before applying.

Dosing:
Dilute mixture to 2 or 3% : 2 or 3 gallons of manure tea for every 97 to 98 gallons of water.

something that the sheep like to eat, but also with high tannins.

SV. What about in vegetable production?

CL. In vegetable production, where management is more intensive, we are trying to find biological or botanical solutions for things like whiteflies in peppers and tomatoes. In fruit production, we work on resistant varieties for apple scab. The scab-resistant varieties you have here wouldn’t get enough chilling hours in Uruguay to be successful, so we are looking for new varieties. Brazil has a good breeding program for low-chillling apple varieties, so we are developing collaborations with those programs.

Andre, can I ask how fertility and pests are managed in the banana systems in Rio Grande do Sul?

AG. Farmers buy poultry manure and compost it, as well as using green manures. They also use rock powders that provide minerals like potassium, from the production of basalt paving stones. Farmers use mucuna (velvet bean, a legume) and native vegetation (unmanaged fallows). Trees are also part of this. They spray biofertilizers, made from manure, water, ash, sugar.

SV. This is a sort of manure tea, no?

AG. Yes, we have a very successful program with this and we will continue to share this biofertilizer approach among farmers.

SV. What about pest management – it is not a big problem with bananas?

AG. Well, banana I would say is a very simple crop.

SV. Hmm, maybe if you grow it in small areas… I think in large plantations banana has severe pest problems.

AG. OK, but that management is completely crazy… yes, there are problems with disease, and farmers live with that. In our area, the banana disease, we work with two premises. The first is that it’s impossible to exterminate pests, and that is not our purpose; we work with the idea of living with the pests. The other is that we work on improving soil conditions, so that the plant is healthier and can better resist insect and disease pests.

SV. With regards to that, do farmers rotate an area into and out of bananas, so that soil fertility and pathogens don’t become a problem?

AG. No, some plantations have been there 50 years.

SV. Are there managed forests next to these plantations?

AG. No, we don’t have many forests left in our region, only in areas protected as parks. As I said, the Brazilian Atlantic forest has been severely reduced in size. That’s one reason we are trying to promote an agroforestry system. But we have farmers who adopt that system completely, with diverse vegetation of managed regrowth, and we have farmers who mainly have a banana monocrop with organic inputs, and everything in between. We have the idea of imitating nature, but that’s the theory, and it’s not possible to adopt it 100%. We are pleased that in some cases animals that had been quite rare in the agroforestry systems, such as armadillos, a native badger, and some birds. Because of those sorts of results, the government funds from our work to promote the conservation of the Atlantic forest. We work close to some national parks, and we make the link that we are mitigating farming impacts at the park margins.

RC. Don’t some of the conventional farmers just have disdain for organic methods? I think we have farmers here who say, I would never give up my herbicides…

AG. Well, it is true to a small extent, but I see potential for change. I think it is important not to promote differences among farmers, because there is a larger fight for the survival of smallholder farmers. And so it is not helpful to promote differences. It’s much more interesting from a strategic point of view to promote similarities among farmers.

We also use diluted milk to control powdery mildew on organic gala apples near harvest.
Cucurbits and Pumpkin Species

There are five domesticated species of squash, Cucurbita pepo, C. maxima, C. moschata, C. argyrosperma (a.k.a. mixta) and C. ficifolia. All of these species originated in the Americas. In general, C. ficifolia is not grown in our area and will not be covered. The different species can be identified using leaf, pedicel (stem of the fruit), fruit, and seed characteristics. Most seed companies identify which species the squash belong to, but there I have seen occasional errors. The Squash and Pumpkin Species

There are five domesticated species of squash, Cucurbita pepo, C. maxima, C. moschata, C. argyrosperma (a.k.a. mixta) and C. ficifolia. All of these species originated in the Americas. In general, C. ficifolia is not grown in our area and will not be covered. The different species can be identified using leaf, pedicel (stem of the fruit), fruit, and seed characteristics. Most seed companies identify which species the squash belong to, but there I have seen occasional errors.

Cucurbits are appropriate as seed crop in our area; they are “wet seeded” crops which do not generally have fungal problems in the Northeast. Many “dry seeded” crops, such as carrots, wheat, cabbage, and lettuce, are difficult to grow, molding in our humid and wet weather. Furthermore, a sizable seed crop can be grown on a few acres or less—again making squashes good choices for small northeastern fields.

So, how do we grow cucurbits for seed? Many of us have heard awful tales of gourds crossing into squashes, resulting in bizarre and freaky “Franken-gourds”. How do we prevent these monstrosities? How do we prevent these monstrosities? In short, plant only one variety of each squash species the squash belong to, but your seed variety 1/4 mile or greater away from other varieties of the same species, and keep your seed variety 1/4 mile or greater away from other varieties of the same species. In general, varieties of squashes of this species. The bitterness is dominant and the crop can turn out bitter the next season after pollination has occurred. If edible squashes are pollinated by a gourd, the fruit of that year is not affected, but the seeds within that fruit, when planted, will produce intensely bitter squash/gourd crosses. High levels of cucurbitacins are poisonous to humans. Be sure to keep your edible squashes as far as possible from any C. pepo gourds. All varieties of C. pepo mature well in New England and I have never had a failure in Connecticut when they are planted on time with proper fertilization and pest control.

Cucurbita pepo displays amazing diversity

Cucurbita pepo leaves are rough and generally pointed at the tips of leaf lobes. The pedicel (stem of the fruit) is 5-angled and hard often retaining the green color in storage or bleaching out to a “straw color”. Fruits can be orange, yellow, white, green and striped. Seeds are light beige (or green in hulless types) with a smooth margin.

Cucurbita pepo is the most commonly-grown species of squash. This species includes jack `o lantern pumpkin, acorn, spaghetti, zucchini, straight necks, crooknecks, sweet dumpling, delicata and patty pan squashes, as well as small ornamental gourds such as Birdhouse, Caveman’s club, and Dipper belong to the species Lagenaria siceraria and do not cross with ornamental gourds or squashes. Some ornamental gourds and all wild gourds (which are weeds in the Midwest and Southern United States) contain cucurbitacin, an intensely bitter substance. These gourds belong to C. pepo and freely hybridize with cultivated squashes of this species. The bitterness is dominant and the crop can turn out bitter the next season after pollination has occurred. If edible squashes are pollinated by a gourd, the fruit of that year is not affected, but the seeds within that fruit, when planted, will produce intensely bitter squash/gourd crosses. High levels of cucurbitacins are poisonous to humans. Be sure to keep your edible squashes as far as possible from any C. pepo gourds. All varieties of C. pepo mature well in New England and I have never had a failure in Connecticut when they are planted on time with proper fertilization and pest control.

Cucurbita moschata has fuzzy leaves with rounded lobes and a hard 5 angled pedicel (often flared at the base) which dries to a golden color. Fruits can be tan, orange-tan, green, or mottled green and tan. Seeds are beige or rarely dark tan with a pitted seed coat and a scalloped margin. The butternut squash is the best-known Cucurbita moschata. Most of the Central American, Southwestern U.S. and Southern U.S. types may take 120 days or more to mature. Many of these are a gamble to grow in New England, but I have been successful with some and they are often more interesting in appearance and sometimes sweeter than regular Butternut types. Waltham Butternut, Ponca, Burpee Butterbush (one of the few bush types) and Long Island Cheese (Milk) Pumpkin generally mature in our climate. Canada Crookneck is a relatively unknown heirloom C. moschata offered by Eastern Native Seed Conservancy that matured well for them in the Massachusetts Berkshires. It is a butternut type with a curved neck, and the flesh is deep orange and sweet. C. moschata squashes are very resistant to insects and diseases and have a very long storage life. They are especially noted for their ability to withstand squash vine borer.

Cucurbita maxima leaves are rough but rounded. The pedicel is soft and spongy when dry. This species varies greatly. Fruits can be green, blue, white, pink, or orange; they can be extremely large. The seeds are beige or tan, generally very thick with .
The pedicel is semi-spongy with rounded angles and has pointed, lobed leaves. *Cucurbita argyrosperma* mildew problems. This species is fairly resistant to powdery beetle and squash vine borer being especially severe prone to insect damage, with striped cucumber New England. These squashes are very sweet and have good texture. Most varieties of this type will mature in these squashes are very sweet and have good texture. Most varieties of this type will mature in New England. *Cucurbita maxima* squashes are very prone to insect damage, with striped cucumber beetle and squash vine borer being especially severe problems. This species is fairly resistant to powdery mildew.

*Cucurbita argyrosperma* has pointed, lobed leaves. The pedicel is semi-spongy with rounded angles and can be very enlarged. The fruits are generally white, green, or white and green striped; seeds are light beige and the flat sides can have a cracked appearance. Seed margins are scalloped and in some varieties are extremely large and silver. Very few varieties of this species are grown in the northeast. White Jonathan, Tennessee Sweet Potato, and Striped Cushaw are generally the most common. This species is pest resistant, decorative, has large seeds that are good to eat, but has poor fruit quality.

**Squash and Pollination**

This may be flogging a dead horse but I want to reiterate that crossing of varieties within each species is very frequent so make sure you know what species your varieties are if you are growing them together and saving seed. Isolation distance of one-quarter mile or more is needed to keep seed pure. Most of the species keep to themselves though there are a few exceptions. I have seen an occasional cross between *C. maxima* and *C. moschata* but the resulting plants have been sterile. *Cucurbita argyrosperma* and *C. moschata* are also reported to cross occasionally with a high percentage of seed set when *C. argyrosperma* is the maternal parent; these hybrids are fertile. *Cucurbita pepo* will not cross with *C. maxima* or *C. moschata* under normal conditions. I have intentionally attempted to cross *pepo* and *moschata* many times without any resulting seeds. In short, if you are isolated by 1/4 mile from any other squash you can grow one *pepo*, one *moschata* or *argyrosperma*, and one *maxima* and keep your seed pure. Additionally, you can grow one melon, one watermelon, and one cucumber without any crossing.

Squashes and pumpkins have male and female reproductive structures on the same plant, but in different flowers. They are insect-pollinated primarily by bumblebees, squash bees, carpenter bees and honeybees. Cucurbits are not especially prone to inbreeding depression, but the larger and more diverse the open-pollinated population, the more likely there will be a good seed crop. If you cannot isolate squash varieties, hand pollination of squashes is easy and rewarding if you have the time and patience. A seed crop of a few pounds could easily be produced by hand pollination. Hand pollinating enables you to grow several varieties of the same species in close proximity and produce multiple small seed crops. If hand pollinating, give yourself ample space so that vines do not grow into one another and you don’t have to waste time following them to find the correct flowers.

Hand-pollination of squashes begins when the flower buds have grown to full size and have turned bright orange. Inspect the plant in the evening when it is most obvious what flowers will open the next day. Male flowers have longer stems; female flowers have short stems with a miniature squash under the flower. Tape the orange flower buds around the top with masking tape or close them with a twist tie. Taping prevents the flowers from opening and being pollinated by bees carrying pollen from another variety. The next morning the flowers will have puffed out if they are ready. (If taped too soon they will not be enlarged). Clip the male flowers with a short section of stem and bring them to the plant that will act as the female parent. Remove tape and petal the petals of the male flowers, remove tape from the female flower but leave the petals. “Paint” the pollen of the males onto the central interior surface of the female flower. Close and securely shut the petals of the female flower with more tape so no insects can enter the flower. Ideally, pollinate each female flower with more tape of the female flower with more tape so no insects can enter the flower. Close and securely shut the petals of the female flower with more tape so no insects can enter the flower. Ideally, pollinate each female flower with male flowers from three or more plants of the same variety for genetic diversity. Watch out for bees: they often zip in when you are trying to pollinate and can contaminant the flower with unwanted pollen. The female flower should be marked after pollination. I tie orange survey flagging tape around the pedicel and write the date pollinated on it with a permanent marker, but
anything that will stay visible and attached for the season will work. Sixty days after pollination is generally adequate for the seeds to mature within the fruit. It is best to keep the fruit on the vine for this amount of time but in case of a hard frost less time may work with after ripening in storage.

The fruits are mature when the rind is hard and cannot be easily injured with a fingernail. Most varieties will turn orange or develop some sort of orange blush when ready for seed harvest. Pink, blue and bright yellow squashes may be the exceptions. For *C. maxima* varieties the stem will be completely dry and brown at full maturity. If the maturity of the fruit and seeds is in question, leave the fruit until a later date. It is generally beneficial to leave the seeds in the fruit for longer than sixty days. The only dangers to the seeds are that a fruit will rot and the seeds will be damaged. Additionally, if left for several months, some varieties have seeds that sprout within the fruit; when removed and dried these sprouts die. Premature sprouting often occurs in *C. pepo* summer squashes. Occasionally premature sprouting occurs in *C. moschata* types and *C. maxima* varieties after four months in storage.

Seeds can be extracted in the field, or the fruits harvested and placed in storage. Seeds can be extracted by hand when you cut the squash in half to cook. If processing a large amount of winter squash, you may want to use the squash meat for canning, freezing, or livestock. Mechanical seed extractors that crush the fruit and separate the seed from the pulp would be appropriate for seed crops of 100 lbs. (which would be a couple thousand pounds of squash or more). High Mowing Seed of Vermont currently rents out such a machine and may have some available for sale in the future. After the seeds are removed place them in a bowl or bucket and add enough water to cover. Let them ferment. Fermentation makes the unwanted debris softer and more likely to be screened out. Light fermentation also reduces seed-borne disease. Fermenting should be done only for 48 hours. If allowed to continue too long, fermentation causes the seeds to look unsightly and decreases germination.

After fermentation wash the seed and separate out the strings. For small amounts use a colander. For larger amounts I use a 1/8-in. hardware cloth screen mounted on a wooden frame 2’ x 4’. The strings and leftover flesh fall through the screen, leaving the seeds. Place the seeds on screens to dry (near a wood stove is a good environment) but be sure the seeds do not get above 95°F. I usually leave seed out to dry for at least a week. To test for seed dryness try to break a seed. If it bends it is not dry, if it snaps clearly it is ready for the next step. After the seed is dry it may need a light rubbing to remove extra bits of squash. Rub the seeds briskly between your hands removing chaff made up of the clear flaky covering and dried on debris. The chaff is removed by winnowing, which is done by pouring the seeds back and forth between bowls or buckets in front of a fan. When dry and clean, seeds can be stored in any airtight rodent proof container such as glass jars. Squash seeds will store for six years under conditions of low humidity and cool temperatures.

If you want to grow seeds commercially, be sure to have a contract before you grow the seed to ensure you have a market for your crop. Most small seed companies are looking for good experienced cucumber growers. Premature seed saving and seed production are important. Feel proud no matter if you are being self-sufficient, helping to conserve a rare variety, or providing seeds of farmer grown organic seeds. Have fun and enjoy the cucurbits!

The Melon King: New Jersey’s Bob Muth

by Jack Kittredge

Driving through southern New Jersey in July is a mouthwatering experience for someone from flinty New England. Miles of flat, sandy loam stretch to the horizon. There is nary a rock in sight. On the back roads one sees the hallmarks of active truck farming – cultivation equipment, field wagons, farm stands, long rows of crops.

But there is a tired look to it all. Many fields are unplanted and have been covered with weeds. Much of the infrastructure seems abandoned – rusted, sunken, overgrown. It is almost as if, gradually, people are losing interest in farming.

I am visiting Bob Muth, of Muth Farm in Williamstown, NJ. It has been in the family since 1956, when his father started off with vegetables, then went into steers, then horse hay. Although Bob and his 6 siblings grew up there, Bob was the only one interested in keeping the farm going. After studying agriculture and spending some time as a county agent in South Carolina, Bob took over the farm in 1987. Now it is the last farm in the township.

“We’re a half hour from Philadelphia,” he sighs. “If you look out the window past our fields you can see the tops of houses. That’s the neighboring township and it has 50,000 people! Next door to us is going to be an age-restricted development, and developers are pounding on our door.”

Bob is not interested in selling, however. He explains: “My mother is dead and my father has had 2 strokes. Now he’s taken care of by family in the farmhouse. Before my mother died she said she didn’t want the place sold to developers, at least not for awhile. There are 7 of us kids, though, and when she went some wanted to sell right away. But I said ‘no.’ Land values being what they are here, and all the spouses getting involved, it was downright messy for awhile.”

Ultimately Bob was able to get the family onboard, however, and now the farm is in a family trust. Part of what enabled Bob to persuade the rest was his argument that if they sold suddenly, they wouldn’t get full value: “I said: ‘They’re not making any more land. This will only go up in value.’ I was right. Five years ago land was $10,000 an acre around here. Now it’s anywhere from $50,000 to $100,000.”

Besides pulling land out of farming, development pressure is also impacting local water supplies. Over the last few years the area’s water table has fallen significantly. The farm well used to produce $100 a minute. Now it is lucky to produce twenty. The state won’t let Bob dig deeper so he’s going to put a bigger casing in and hope to get more water out of the bigger hole.

“But they keep putting in more houses,” he complains, “and drawing more water from the aquifer. It’s all a one-way system. They pump the water out of the well, use it and flush it down the commodity, it ends up 25 miles from here at the treatment plant, where it’s dumped into the Delaware River. Nothing comes back. It’s not like it is in California. There they have a closed system. In a lot of developments they treat it on site, and then pump it back underground right there. You get recharge!”

The Muth Farm is 45 acres. Thirteen on one side of the road are certified organic, and the rest, across the road, is grown ‘sustainably’. Going organic was Bob’s decision. He says it wasn’t hard to do. He just looked at the standards to see what would be expected and found that a lot of the things in the standards he already practiced – like cover cropping and rotations.

His soil is a gravelly, sandy loam which is well drained but still holds onto moisture because of a small amount of clay. It’s also one of the highest places in the township, so he gets good air drainage and avoids early and late frosts.

In any one year only 4 of the 13 organic acres are cropped. The rest are in cover crops. Bob also raises 12 acres of sustainable crops – basically tomatoes and red bell peppers – and has other land in hay and cover crops. Most of the work is tractor based, with everything planted in raised beds, using irrigation and plastic mulch. He and three hired workers do all the work on the 16 acres of vegetables.

Another way Muth keeps his turnover rate low is by keeping the members satisfied with the food. He has found that melons do a great job of that. While melons are not easy to raise organically, Bob is well known for the quality of his. “Canary melons are very popular with the CSA,” he says. “The outside turns bright yellow when they’re ready and they’re sickeningly sweet! The flesh is white. If you have a canary and a watermelon and a cantaloupe you tell your CSA members to take one of each and make a great fruit salad. You have white, orange and red in the bowl!”

“When the CSA gets Charentais,” he continues, “are they happy! They’re ugly as sin but they’re incredibly sweet. They make for great member satisfaction. I didn’t grow many of those, though – they split in half very easily.”

“Our turnover rate is a lot lower now,” he explains. “People who come to the farm will take time out of their schedules. They’ve made the connection to good food, they’re more committed. Someone who goes to a drop point, they may be professional, they don’t have a lot of time, they may not even cook. The turnover rate for them might be 50%.”

The Organic Farmer

Bob Muth shows off one of his melons in mid July
Bacterial wilt is vectored by cucumber beetles. It causes an area of the melon patch to wither.

Yellow Doll don’t get big, but they fruit early. That is important to Bob. He interplants two hills of seedless melon with one hill of seeded because the pollen on seedless melons isn’t viable. That way the Yellow Doll, which flowers early, has pollen ready when the flowers on the seedless one begin to open.

The melons grow in 200 foot raised beds with one line of drop irrigation and under plastic mulch — early fruits under black plastic to warm the soil, later crops under silverized or reflective mulch to keep the soil from getting too hot. In the valley between beds he tries to lay down straw so that when the melons form they will be up off the soil. Sometimes, he says, he has to dig drainage channels away from these beds to give torrential rains a place to run off.

Muth also raises early melons in 200 foot tunnels, transplanting them into it in May and harvesting the crop in early July. He says honeydews are particularly suitable for tunnel growing because they tend to split easily if the weather is too wet. They have a very thin skin and just keep sucking up water. In a tunnel you can control how much water they get.

“Hardly anyone in the state is growing organic melons,” says Bob. “I can see why. They’re tough to grow with the weather we have around here, especially some of the specialty melons like Galia. But there’s a strong demand for them.”

If there is hot, wet weather right after setting out the plants, there is a danger of pythium, a soil-borne fungus that feeds on dead plant material. It loves monsoon kind of weather.

There are also diseases brought in by insects that attack young melon plants. Aphids, which can vector in Cucumber Mosaic Virus and other viruses, are a problem. Muth did his masters thesis on CMV, so he knows all about it.

“People love Yellow Doll!” he says. “They have to get used to it being yellow, but once they start eating it and realize how good they taste, they’ll come back for more!”

Cucumber beetles are also a problem with melons. Not so much for what they do themselves as for the diseases they carry in their mouth parts. One is bacterial wilt. They’ll feed on young melon plants and transmit the bacteria. Then, after an incubation period, the bacteria shut the plant down.

“Y ou always find them on the underside of leaves, the reason being they don’t like sunlight. The vector has CMV in its mouth parts. It’ll come to a plant and probe that leaf 5 or 10 times to see if it’s good eats or not. In the process of probing, those viroms will be transmitted quickly to the plant. You’ll have symptoms develop 2 to 3 weeks later.

“Basically, aphids are your vector,” he explains. “You always find them on the underside of leaves, the reason being they don’t like sunlight. The vector has CMV in its mouth parts. It’ll come to a plant and probe that leaf 5 or 10 times to see if it’s good eats or not. In the process of probing, those viroms will be transmitted quickly to the plant. You’ll have symptoms develop 2 to 3 weeks later.

“The key is to keep those aphids out,” he continues. “We use row cover when we can. But we like the metalized, reflective plastic even better. When the aphid comes in and the plant is small, the coating is throwing a lot of light up into its face. It gets disoriented, says: ‘this is not good,’ and flies out. So it’s really a repellent. The metalized stuff is like looking at aluminum foil. It’s very, very bright. When we work around it we have to use sunglasses. We plant right into it with a waterwheel and if we don’t protect our eyes, we get headaches. But you get outstanding growth from it! It also keeps the ground a little cooler, which helps prevent pythium.”

Flowers from Yellow Doll watermelons are just open in this bed, interplanted with seedless melons whose flowers are not open yet. Note the drip line, plastic mulch, and straw in the bed valleys.
Bob was one of the first growers in the state to use cover crops so extensively. He says people used to tell him that to take prime ground out of production and grow a cover crop is crazy. But now they're realizing that you just can’t continue to crop ground year after year after year. If organic growers continue to do that year after year, he says, they’re going to get whacked!

“We grow a lot of tomatoes here,” he illustrates. “We used to use the Rutgers fertigation program. With that program you’re looking at a prime picking season of three weeks. You can pick a little beyond that but your quality is going to drop off and you’re not going to be efficient with your crew. With rye/ vetch you’re typically looking at an extra 2 weeks of production. It’s continuing to feed that plant. The plant keeps setting and growing. I’ve seen the same thing with peppers. We grow a lot of red bell here. You get a bigger fruit size, a bigger quantity, because of this source of fertility.

“When I was a county agent in South Carolina,” he continues “I’d work with tobacco growers. This was a time when drip irrigation and fertigation was just starting to catch on — the mid 1980s. I remember one farmer was telling me: ‘Soil is nothing but a medium. You can do what you want with it. I want my crop addicted to that liquid fertilizer like a junkie to cocaine!’ But I found out the soil isn’t a medium. If you feed the ground, it’ll take care of the crop.”

Between the leaves and the rye/vetch, Muth gets all the nitrogen he needs. If he needs potassium he will use sul-po-mag. There is plenty of phosphorus in the ground already.

Overall, Bob farms 80 acres. The home place is 45 acres, he bought 15 acres a mile west of the farm 5 years ago, and rents 22 acres from a friend. But each year, because of fallowing, he crops only 15 or 16 acres.

In 1999, when he bought the 15 acre piece, people...
said he was crazy, paying $10,500 an acre for agricultural land. But that was before the most recent housing boom and the land has appreciated rapidly. He says it’s a good investment and that he’s been offered $60,000 an acre for it already.

By his calculations, paying such a price for farmland is not unreasonable. Muth shoots to gross $20,000 on an acre of crops, or between $250,000 and $300,000 for his 15 or 16 productive acres in any one year. (When he gets his bills paid, of course, that looks more like a net of $35,000 or $40,000.) Even so, an acre during its first year of production can bring in almost twice its purchase price. That doesn’t seem unreasonable, especially since the value of the land itself continues to rise.

He is a little concerned about the pace of development freezing him out of the market, nevertheless. The 22 acres that he was renting from a family friend have just been pulled out from under him. “He said I didn’t have to worry about houses for 8 to 10 years,” Bob recounts. “But he wanted the farmland tax assessment, so would I farm it? It was in orchard, but they just snapped off the trees and left the roots in. So I would have to wait for several years to crop it. But I put in cover crops and shaped it up. Just as I was finally getting it to where I could crop it, he got an offer of $75,000 an acre for it and the guy sold it. I said: ‘Damn, you told me I wouldn’t have to worry about houses for 8 to 10 years. What’s going on?’ He said: ‘They throw so much money at you it goes to your head.’ So I ended up shaping up a piece of ground for houses!”

Muth says he’s not planning on retiring. He didn’t get into this business to make money — it’s a labor of love. But he would like to replace that rented land with something that’s surer. Right now the family is happy with things as they are and there’s no reason to sell. But they might want to at some point, and if Bob had his own place he’d be a little more in control. Although he’s in a good position here with the trust, and it’s very well structured for him, he has a son and if he should want to joint he business the trust agreement wouldn’t cover him.

“So I’m in negotiation for 57 acres right now,” he smiles. “They want a half a million dollars. There’s only 40 I can use, with the rest in wetland, but it makes sense to me.”
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**Plectosporium Blight**

an important, emerging disease of pumpkins and summer squash

by Robert L. Wick,  
Dept. of Plant Soil and Insect Sciences,  
University of Massachusetts, Amherst, MA 01003

Plectosporium blight is a new fungal disease of pumpkin and zucchini in the Northeastern United States. The fungus, *Plectosporium tabacinum*, was previously known as *Microdochium tabacinum* and you may see it referred to in the older literature by that name. The disease is relatively new to North America. It was first described in Tennessee in 1988. Over the next ten years it became more common and recognized in the Mid-Atlantic States and farther west. In 2000, Plectosporium blight occurred in Massachusetts on zucchini and was not recognized at the time, but diagnosed the following year from pictures taken of diseased fruit and vines. The 2003 growing season revealed at least three cases of the disease in Connecticut and an additional three in Massachusetts. During 2004, the number of confirmed outbreaks more than doubled.

*Plectosporium tabacinum* has been reported throughout the world as a plant pathogen on a wide range of plants but it is believed that the isolates that occur on cucurbits are restricted to cucurbits. Plectosporium blight of cucurbits has long been known in Europe as a pathogen of cucurbits but genetic studies show little similarity between European and U.S. isolates. In Canada, a strain of *Plectosporium* has been used experimentally as a biological control agent against the weed *Galium*. The *Galium* strain was only weakly pathogenic to zucchini. A strain of *Plectosporium tabacinum* was also found to be pathogenic to the aquatic weed *Hydrilla* in Florida.

The life cycle of this pathogen as it relates to cucurbits has not been thoroughly researched. Field observations in the southern U.S. indicate that disease is most severe under cool and wet conditions. However, in southern New England it has been moderately warm during disease outbreaks. Research by my graduate student Stephanie Slinski indicates that local isolates have an optimum growth temperature of approximately 77 F. If spores are moist, they begin to germinate within about 4.5 hours at this temperature. *Plectosporium* has not been shown to be seed-borne but has been reported to survive in the soil as a saprophyte (consuming dead organic matter).

Plectosporium blight symptoms are relatively distinctive; although if only a few lesions are present, it would be difficult to distinguish from arrested lesions caused by scab or black rot. Vines, petioles and fruit become peppered with white scabby lesions. (See accompanying pictures.) Typically, the disease is intensive where it occurs in the field and may occur throughout many acres.

When Plectosporium blight occurs, rotate away from summer squash and pumpkins for at least two years. While conventional fungicides can effectively

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**A pumpkin infected with Plectosporium**

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**A zucchini infected with Plectosporium**

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**Photo courtesy Rob Wick**
control this disease, I am not aware of any alterna-
tives acceptable to organic growers that could be
applied in a similar manner. Expect to see the
disease first develop in shady parts of the field
where foliage remains wetter longer. Similarly, sites
that tend to promote a longer period of leaf wetness
duration would be expected to have the disease
earlier than drier sites. We cannot predict what to
expect this year but the trend in the U.S. has been an
expanding geographical range for this disease.

We are collecting cultures of this fungus for re-
search and would be very interested in receiving
diseased plants from growers. Please call in advance
to sending specimens, 413-545-1045, or email:
rvick@pltpath.umass.edu. Packages should be sent
by next day mail, Monday through Wednesday
(avoid Thursday) to: Robert Wick, Department of
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Hurricane Flats is a 37 acre organic farm on the banks of the White River in Royalton, Vermont. The name of the farm comes from local folklore, in which the original settlers may have called it hurricane flats because of the persistent spring winds that blow down the valley. It is located in the banana belt of central Vermont, with a growing season that is a couple weeks longer than some of the hill locations surrounding it. Being in the flood plain, the land is flat and the soils are a sandy loam with nary a rock in sight.

I feel strongly that no discussion of farming can take place without looking at the business side of the operation. The growing methods that I use on Hurricane Flats are designed around my marketing style and business strategy, not around some book I read. I grow the way it makes sense to sell, not the way some book tells me to.

My business strategy at Hurricane Flats is to sell 95% of my produce directly to the consumer through a farmers market and a small road-side stand. I work hard to build and maintain a loyal customer base. Making them happy is more important than any growing method that I use in the field. The farm is a lean, efficient operation that runs almost totally off my back. I only hire people during peak season or to help me sell at the farmers market. I buy equipment when I can see that it will increase my profit margin. I forego the fun equipment that would be cool to use but never pay for itself on the small scale operation that I have developed. Because my business plan dovetails with my methods, the farm is profitable.

I love growing melons but I would never call myself an expert on them. I only grow “Early Queen” cantaloupe since I’ve never found a melon that beats their taste (my customers rave about them) and earliness. Other melons are better looking, and probably work better for wholesale, but because I sell directly to my people I want the best tasting melon I can grow profitably. I have four different plantings:

1. Started in trays in mid-April, and then planted into a hoop house in early May.
2. The biggest planting is seeded in early May and transplanted in the field in the 3rd week of May.
3. Timed to ripen in the field about two weeks after the second planting, thus it often is planted about 18 days behind the second. It grows faster than the first because it has warmer weather when it is transplanted.
4. The smallest planting is planted about two weeks after the third.
I also grow “Passport”, a green-fleshed melon that my customers call honey dew. I’m not very impressed with their taste, and they tend to crack, but I haven’t found a better variety. I also grow watermelon, but writing about them would require a second article.

The field work is pretty straightforward. I either spread compost or manure, till it in, then culti-pack the beds. My soil is so light and powdery that it is impossible to work with after tilling and needs to be packed down. I then run a strip of black plastic down with drip tape under it. The plastic is key to growing melons in Vermont; they’ve got to have the heat.

I transplant about 3 weeks after planting the melons into trays. They have 2 – 4 true leaves by then. I hand transplant because at my scale it would not be cost-effective to own a transplanter. Each transplant gets a shot of fish emulsion (that’s for fertilization, I never side dress anything). I space them about a foot apart with 18 feet between rows. I like the 18 foot row spacing because it helps to isolate my different plantings from the disease that the early plantings always develop. That spacing also allows me to have 2 foot walkway between rows to give me room to push a wheelbarrow when picking. I then cover them with row cover placed over hoops, usually using the heavier fabric as it holds up longer.

Row cover is another key in my operation as it provides frost protection, heat, and insect control. Since my melons are out in the field in the 3rd week of May, and we often get frost up till the end of May, frost protection is critical. I have found, against my will and during a long and sleepless night, that three layers of the stuff can protect melons at 24 degrees. As long as you don’t place the covers over plants during the middle of a warm, sunny day, I’ve found that it never gets too hot for them under the cover. As for bug protection, I never have had an insect problem. The cucumber beetles are around but they can’t get in. When I remove the covers, the beetles are on the plants but the melons are so strong that I never see any signs of damage.

I remove the row cover when I spot the first blossoms, usually around three weeks after planting. This lets our bees do their thing, and also marks the start of my spraying season. I have no idea what the disease(s) are called that affect my plants, but I know they come every year, and faster in the wet seasons. I also know that if I don’t spray copper about once a week, the life expectancy of the plant is reduced. This isn’t really important with the fourth planting, but keeping the first and second plantings healthy makes a big difference in yield and profit.

Cultivating is my pride and joy. I don’t do weeds. I hit them early and often and never let any of the buggers go to seed. Before the vines start running I make a biweekly pass with an old spring toothed cultivator. After they’ve run enough to prevent the tractor from fitting in, I switch to hand tools and wheel hoes. My weed control has proven so successful that every year I grow a bigger area and weed less. I will often plant a short season crop like spinach or lettuce in between the melon rows. They are harvested before the melons can over run them and weeding them keeps my melons weeded.
I don’t think irrigation is critical to grow melons. In a dry year I irrigate them as much as any other vegetable that I grow. Last year was the first year that I grew melons in a hoop house and I stopped watering them for six weeks and they kept right on producing. I kept waiting for signs of stress but they showed none. I found that the hoop house melons didn’t have quite as good a taste as the field ones, but the plant had less disease problems and the fruit looked better. In all cases I stop irrigating about 10 days before harvesting, which tends to lead to better taste.

Picking is the best part of the operation. Not only does it mean money, but also that I get to eat all of the split or damaged melons. I start picking in the hoop house in mid-July and late July in the field. Typically by mid-September the vines have had it and it’s time to till it up and cover crop. I pick everything vine-ripe, and will not sell a melon that I know is not at its best. A vine-ripe melon will slip pick. A slight tug between the melon and the vine makes the ripe melon fall off. Early Queen is an easy melon to pick vine-ripe as it will change from a light green color to a more yellowish one. The change is subtle and rookie pickers have trouble seeing it. Noticing the color of a ripe Early Queen prevents me from bending and checking thousands of melons per day that are big enough to be ripe but are still green. I walk through the patch with a flat wheelbarrow with a couple of plastic tubs. When I bend down to test one for ripeness and to pick it, I rarely make a mistake. I pick almost everyday as they ripen so quickly that many would be over-ripe if left for even a day. Rainy, cool weather does slow them down and thus daily picking can be shrugged off.

A variety of melon that I think is better tasting than Early Queen is called “Charentais”. It is a pain to pick; I bend repeatedly to the same melon for days, thinking it’s ripe but not quite. That fact alone makes them much less profitable to grow; bending down a thousand times a day to find 60 ripe melons does not make money. I have learned, by eating hundreds of melons over the years, that the netting around the melon is an indicator of taste. A bald spot in the netting means a substandard melon, one that should be included in “melon season”, a one-day affair in which reject melons are hurled into the air in plain view of a shotgun. A direct hit on a melon at 30 feet makes quite a show (and shower).

From the field, the melons get a quick wash, are sorted by ripeness (softness) and cracking, then stored in the cooler. A cooler is a must if you intend to store a vine-ripe melon for even a couple of days. The firmer ones will store around 10 days, the others 2 to 5 days. I sell probably 96% of all the Saturdays at the farmers’ market: over 250 melons sold

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Other activities will include demonstrations of a stirring machine, several compost tea brewers and an Italian spading machine; tours of the gardens and nearby biodynamic farms; and pony rides, goat-milking, art and other activities for all the kids. Rounding out the weekend’s festivities will be a talent show, bonfire and “biodynamic music” on Saturday evening.

For attendees who choose to stay on the farm, there are plenty of beautiful camping spaces and also a barn loft. Historic hotels in Red Boiling Springs offer accommodations at reasonable rates.

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melons I pick, including selling almost all of the cracked ones for $1 at my small farm stand. I never sell melons at my stand or at the farmers market by the pound. Weighing and figuring out the price of 300 melons per market would slow us down. I usually charge $2.25 per melon regardless of its size. That price comes from me figuring out what it cost me in time and inputs to grow each melon, then adding some profit on top. I do sell some melons to a few local coops by the pound, but I always make sure that price is the same as my price in the market.

The bottom line with my operation is that I am making money, and I find melons to be a definite money maker. My expenses run around $1400, and it takes 51 hours of my time @ $15 per hour ($765), for a total cost of $2165. Sales are around $2800 per year, for a net profit of $635. Adding profit to my labor rate brings my hourly total to around $27.50 per hour to grow melons. Clearly, even in Vermont, melons are the place to be.

**Hurricane Flats itself**

**photo credit: Tom Honigford**

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Silicon (Si) has recently been recognized as a quasiessential element in plant nutrition. Some plant species, such as diatoms and equisetum, can not grow without silicon. Other plants benefit from silicon nutrition to various degrees depending on the environmental conditions. Rice, wheat, cucurbits, and sugarcane are examples of crops that often benefit from enhanced levels of silicon nutrition. In crop production the benefits from silicon may include increased yield, disease and insect resistance, and tolerance to stresses such as cold, drought, and toxic metals. In addition to plants, the value of silicon is gaining attention in animal nutrition where silicon has been shown to play a role in the health of bone, joints, skin, hair, and other connective tissues.

Monocot plant species generally take up more silicon than dicots. Crops may be roughly classified as accumulators, intermediate, or non-accumulators with respect to their tendency to take up silicon. Rice, wheat, and sugarcane are examples of silicon accumulators; cucurbits are intermediate; tomato is a non-accumulator. In accumulators the amount of silicon up take is large and can easily exceed the levels of uptake for other major plant nutrients such as nitrogen or potassium.

Because silicon is the second most abundant element in mineral soils it may come as a surprise that silicon can be a limiting nutrient. Most of the silicon is held in the crystalline structure of sand, silt, and clay size particles. Silicon can be taken up by plants from the soil solution as silicic acid (H₄SiO₄) as soil particles weather and release silicon into the solution. Thus, while the total soil silicon content may be very large, the amount of soluble Si available for plant up take is limited. Plant residues, depending on the original species and composition, can be an agronomically useful source of silicon that is cycled in the soil crop system.

Soils vary significantly in their ability to supply available silicon for plant uptake. In general, less weathered, geologically younger soils have a better supply of silicon than highly weathered or older soils. Ultisols and Spodosols are soil orders that are common in the Eastern USA, that have been extensively weathered and tend to be somewhat silicon depleted. Ultisols that are common in the tropics are the most highly weathered soils and they are the most silicon depleted. In contrast, Mollisols, common to the USA Great Plains, are less weathered, and contain more silicon. Histosols, also known as peat or muck soils, contain little mineral material and are often Si deficient.

Soil and plant testing can be performed to determine the silicon status but so far there has been too little research to support interpretations for most soils and crops grown in temperate regions. Most of the soil fertility research in relation to silicon has focused on soils and crops of tropical regions where large responses to silicon fertilization are common in rice and sugarcane.

About five years ago I began to focus some of my soil fertility research and Extension efforts on silicon because it appeared that this nutrient had not received much attention for crops grown on temperate region soils. My first experiment was conducted on pumpkin because cucurbits are known to take up silicon. In two seasons on Quakertown silt loam soil that had an initial soil pH of 5.7. Plots were established in 2000 by amending the soil with either CaCO₃ (calcium carbonate or common agricultural limestone) or CaSiO₃ (calcium silicate, an alternative liming material) at the rate of 3.5 tons/acre of calcium carbonate equivalent (CCE). Tillage was performed to incorporate the liming materials with soil. Half of the pumpkin plots received an application of fungicide weekly throughout the summer as is the typical practice for powdery mildew control. In late September, the pumpkin foliage was visually rated for percent of leaf surface area covered with powdery mildew. Marketable pumpkins were harvested, counted, and weighed from each plot. This experiment showed that the silicon amendment significantly increased pumpkin yield in the first season but not in the second (Table 1). In both years the pumpkin grown on the silicon amended soil exhibited a delayed on-set of powdery mildew disease and better late season leaf retention (Figure 1). The silicon treatment also enhanced the effectiveness of fungicides for powdery mildew control.

In a subsequent experiment with field corn grown in 2002 and 2003 on the previously established plots we observed a decrease in European Corn Borer tunneling in the corn stalks (unpublished data). There was, however, no significant difference in corn yield between silicon amended and non-amended soil. Plant tissue analysis revealed that in samples of pumpkin and corn plant tissues, the silicon concentrations were approximately doubled.
by the silicon amendment. This indicated that a single application of silicon to soil can have potentially long-term benefits.

In recent greenhouse experiments using 3 different soils from New Jersey, amending soil with silicon was found to suppress powdery mildew on Kentucky bluegrass (Table 2). Thus, although research in our region is limited to a few crops and soils it appears that silicon fertilization of soils has the potential to benefit crops both in terms of yield and resistance to pests.

Soil fertility research with silicon is needed on a wider range of soils and crops. Plant and soil test calibration research needs to be done so that plant and soil test reports can be interpreted as a basis for silicon fertility recommendations. The potential dietary influence on animals from increased silicon in plants also needs to be examined.

Research is also needed on different types and sources of silicon for use as soil amendments (i.e. silicon fertilizers). This is a particularly important research question for organic farming. In my research trials I have been using a calcium silicate material, which is a by-product of the stainless steel industry (sold as Reclime, Recmix Inc, Pa), as the source of silicon. When calcium silicate is applied to soil it has an ability to neutralize soil acidity that is similar to calcium carbonate. Thus, both calcium silicate and calcium carbonate are liming materials and they are marketed as such. But I do not know if calcium silicate is an approved material for use in organic farming. The answer to this question may depend on the source of the material. In organic farming, use of industrial by-products typically throws up a red flag. There is, however, a naturally occurring mineral source of calcium silicate known as Wollastonite. It might be satisfactory for organic production but be sure to check this out with your organic farm certifier.

Another option for the organic grower wanting to improve the availability of silicon in soil is the use

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Figure 1. Plot with calcium carbonate amendment on top versus plot with calcium silicate amendment on bottom illustrate the influence of silicon on leaf health and retention.

**Table 1.** Yield of pumpkin in response to silicon amendment of soil and fungicide application in 2000 and 2001.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Pumpkin Yield 2000</th>
<th>Pumpkin Yield 2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>CaCO₃</td>
<td>6.7</td>
<td>3.1</td>
</tr>
<tr>
<td>CaSiO₃</td>
<td>11.9</td>
<td>3.3</td>
</tr>
<tr>
<td>CaCO₃+Fungicide</td>
<td>7.8</td>
<td>4.8</td>
</tr>
<tr>
<td>CaSiO₃+Fungicide</td>
<td>11.5</td>
<td>4.3</td>
</tr>
</tbody>
</table>

**Table 2.** Effect of liming material (calcium carbonate vs. Calcium silicate) on powdery mildew disease ratings on Kentucky bluegrass grown on three soil types. Powdery mildew disease ratings: 0 = no disease; 10 = total disease.

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Adelphia Woods</th>
<th>Adelphia Farm</th>
<th>Quakertown Farm</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>---------</td>
</tr>
<tr>
<td>------Powdery Mildew Disease Rating------</td>
<td></td>
<td></td>
<td></td>
<td>---------</td>
</tr>
<tr>
<td>CaCO₃</td>
<td>4.1</td>
<td>5.6</td>
<td>5.7</td>
<td>5.1</td>
</tr>
<tr>
<td>CaSiO₃</td>
<td>1.7</td>
<td>3.9</td>
<td>5.0</td>
<td>3.5</td>
</tr>
</tbody>
</table>
of certain composts, plant residues, or crop rotations. Wheat and rice are crops that take up consid-
erable amounts of silicon from soil that can become available to subsequent crops. Composts made
from rice straw or rice hulls have been shown to also improve silicon availability to subsequent crops. Burning of wheat straw, how-
ever, decreases the plant availability of the silicon. Using wheat straw as a silicon source may have
possibilities for benefiting organic production of cucurbits but be prepared for counteracting nitrogen
deficiency that it associated with this high carbon to nitrogen ratio material.

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Parts of the Granite State aren’t. In fact David and Andrea Craxton, of Dalton, NH, have to look hard to find a rock at all. They live about a mile from the Connecticut River, up north where it flows more west than south, separating the Northeast Kingdom from the White Mountains. But their piece of paradise, although at 1000 feet, is all sand deposited by the river over many ages.

David grew up in the midwest, son of a systems analyst for Standard Oil of Ohio. He was a chemistry major in college, and worked for a while in industry. But a part of him wasn’t happy. As a child Craxton’s librarian mother had given him a book called “The First Time Farmer’s Guide” which he loved.

“I guess farming was in me, maybe out of my control,” he muses. “I met a New England girl who convinced me to come here. She said if I did, I’d never leave. She was right.”

David moved east in 1972, right when NOFA was getting organized. Supporting himself as a carpenter, he went to workshops to learn about farming. At one of them he met Andrea, who had grown up 25 miles from where they live now. Although a 32-year old career grade school teacher, she kept a garden and loved growing. In 1980 they made the big move, buying 22 acres on which sat an old railroad station.

Careful readers of this journal will by now be scratching their heads, wondering where they have seen Craxton’s name before. In fact it was here, back in December of 1992, when I wrote a feature about his work with Michael Phillips at the Lost Nation Cider Mill, turning organic apples into delicious cider, vinegar, and other apple products.

The orchard is closed now, it being too much work for too little return. As David puts it: “We each had our own farms, as well as the orchard, so it was two guys with three farms. It was too much. It is hard enough to do it non-organically, but to do it organically! Too much!”

So David focused on his own farm. He converted the railway station into a farmhouse with attached greenhouse and started a CSA, even though the nearby population is sparse and conservative, and began dealing with the practical problems he encountered.

“We get our last frost in early June,” he sighs, “then the first one in the fall is in late August. Also, there is usually a period during July when the nights are in the 30s.”

Although Craxton’s sandy soil is rock-free, it also drains rapidly. Two days after a rainfall, he says, and everything is dry. He has planted several windbreaks to reduce the force of the prevailing dry westerly winds, and uses drip irrigation for everything he plants.

“I think we have a mile or so of it,” David says. “My well gives only 6 gallons a minute, so I have set up a number of zones. Each one covers about 600 to 700 feet. The water is metered on a timer, and after one zone has gotten enough I switch to another. I have to be careful, though. If I don’t cover my driptape the sun will trash it.

“Springtime is nice,” he laughs, “because I’m out here on my land long before anyone else can get onto theirs.”

Craxton’s organic matter was originally 2 or 3 percent, tops. But over the years he has built it up in his various gardens and now it is 5% to 10%. To build it up he buys in a lot of compost made by a local dairy farmer, and uses some North Country Organics fertilizer blends.

“This is high metabolism soil,” he explains, “If I can keep putting nutrients and moisture into it, the plants like this soil! Of course, so do the weeds. They grow where the water is. Drip helps control that, but it’s hard to cultivate around the tubes. I bought in crabgrass with a load of compost. I never had it before. It’s awful! It got away from me one year and now it’s everywhere.”

David had enough weed pressure in one garden that he took it out of production and has it in oats for two years to try to get the weed seed bed down to manageable proportions.

Craxton grows in various gardens which total one and a half to two acres, some of which is currently fallow. He also has two hoop houses, which he
rotates between peppers and tomatoes. He rolls the sides and ends up and down every day to keep the plants from overheating during the day or getting too cold at night. At first he had a 14-foot tunnel, but he no longer uses that. “It was just too small,” he states. “The temperature would spike up and down. My 19-foot ones have a nice volume of air – they’re taller and have probably 4 times the volume, which buffers the temperature.”

One of David’s passions is growing a large selection of vegetables, and trialing different varieties of each. He likes to try out green, yellow and purple tomatoes and grows over a dozen heirloom and plum varieties as well as his mainstays – Sun Gold for cherries, Red Agate for paste and the hybrid Ultra Sweet for large reds. “The heirlooms defin- itely get a blight late in the season,” he shrugs, “but that’s okay since I don’t have a late season!”

He grows both hot and sweet peppers, starting them in March in the attached greenhouse and putting them out in the tunnel in May. They need to be covered with Remay on cold nights into the second week of June. Beets and carrots sell well at the market, but insects sometimes go after them in his sandy soil, so he surrounds the carrots with radishes. When the radishes start getting chewed up, he sprays the soil with nematodes and that deals with the problem.

“Whiteout, a white corn from Johnny’s, is the sweetest corn I’ve ever grown,” he says. “But it’s interesting about varieties. What works well for me won’t work well for you. Different soils, climates. You have to do trials to see what works.”

Craxton likes Yukon Gold and Red Chief sweet potatoe, raises shiitake, oyster, and golden mushrooms, and does plenty of onions, brassicas, lettuce, asparagus, edamame soybeans and various greens. He has a chicken house on a trailer which he moves around, as well as beans, cukes, and potatoes.

When the garlic is ready summer squash is coming around, as well as beans, cukes, and potatoes.

Craxton has beautiful, multi-colored peppers in this hoop house in early August.

Another crop which Craxton grows well is cucumbers. He raises them all: cucumbers, melons, summer and winter squash, pumpkins, even gourds. He grows cuckes on black plastic mulch, which he tries to reuse – washing it in bleach water at the end as the season. Of course he has drip irrigation running down the bed, with plastic covering the soil and grass clippings between the beds.

Among his favorite cucumbers is Cool Breeze, which is a French Cornichon, for pickling. They have a nice flavor at about 3 or 4 inches, when they are ready for pickling. He also likes General Lee as a good long slicer. It’s reputed to be a Southern variety but works excellently for him.

For melons, David recommends Sweetie No. 6 — which is a short season, butterscotch melon — very highly. It has green flesh with swirls of orange and ripens reliably at his location. He was up at the Common Ground Fair in Maine when C. R. Lawn was going around testing the sweetness of melons with a brix test. Sweetie No. 6 came in about twice what other melons did. For watermelons he likes Yellow Doll. They are a short season melon and work well that far north. He will get some by the end of August, but mostly they’ll come in Septem- ber. He has to cover things up at night by then, with 14-foot wide row covers.

This year he transplanted the melons out, although he has planted them by seed in the past. “This year I transplanted all the cucumbers, squash and melons,” he explains. “I had problems with the cucumber beetle last year while the plants were little and I thought I needed better control. I started them around the first of June and transplanted them out when they were bigger. A lot of it all is in the timing.”

For summer squash Craxton likes Zephyr, from Johnny’s. He also grows Seneca, Costada Romanesco, crooknecks, an early Black Zucchini, and Sunburst for a Patty Pan squash. He has trialed a lot of winter squash over the years. Currently he is raising Sunshine, again from Johnny’s, as well as Blue Hubbards, Delicata, and Burgess Buttercup among others.

Normally David uses drip tapes with emitters every 8 inches. But with the squash he has an emitter every 3 feet. He transplanted to the wet spots to make sure the roots got water.

He also raises a lot of pumpkin varieties. “Some of the ones I like are Howden, New England Pie and Tom Fox,” he says. “Howden is kind of a standard variety, Tom Fox has a great handle, and New...
England Pie always sells out. I’m also doing Kakai, which has a naked seed – no hull – which is great for roasting and eating. You just crack it open. They trialed it at the Common Ground fair.”

Craxton hasn’t really sold many gourds, but Andrea likes to use them in art projects, birdhouses and so forth, along with her fabric arts. He has detailed maps to show where all of the varieties of his gourds – in fact all of his cucurbits — are!

The cucumber beetle problem has shown up only in the past three years. “I always had a low grade population,” he says. “They don’t damage much other than the early plants when they are really young. I hand picked for them until I couldn’t keep up with them. Finally, I didn’t have a winter squash crop. Last year and this year, I hit them with rotenone, early! It’s an approved spray, but I don’t like to use it because it kills everything. So long as I can I cover them with row cover to keep the beetles out. I’ll do that again with my winter squash. But eventually they need to flower and set fruit. Then you have to take the Reemay off!”

“I read the proceedings of the vegetable meeting,” he continues. “They talk about perimeter trap crops and they use Blue Hubbard, which attracts the cucumber beetle. What they do is surround the patch with Blue Hubbards and then they just spray the Blue Hubbards. Unfortunately I read it a little late. My Blue Hubbard is right in the middle. So I’m attracting all those beetles into the middle of my patch!”

Powdery mildew is also a problem for David’s cucurbits. When he tried growing cucumbers or melons in a tunnel they were just covered with it, no matter which of several different ventilation systems he tried. The weather at his farm appears to be just too humid.

For the previous 10 years Roots & Fruits has sponsored a 22-family CSA. “2004 was the first year I didn’t do CSA,” Craxton says. “It was too much work. They would come on a Friday, which also was harvest day for the Saturday farmers market. It was just too much. I knew I couldn’t keep up with weed control doing that amount of vegetables — it’s just Andrea and me.”

So they’re concentrating on marketing just at the farmers market in Lancaster. It runs from 9 to noon on Saturdays, and Roots & Fruits is the main vendor there.

“I take the most stuff,” David asserts. “There are some others who have been to markets for a couple of years, but I’ve gotten to know the customers and what they want. We bring home $600 to $800 per week. Nobody else brings home even $200. The customers are mostly local people, with a few here for the summer.

Financially, dropping the CSA meant losing that $4000 of income when it’s badly needed – in March. But the farmers market grosses $10,000 over the summer, including the value of the many WIC coupons they take in. The market lasts until early October, when the killing frost arrives.

Craxton says he could keep things going with season extension, but by then he’s tired of growing anyway!

One thing he liked about dropping the CSA was that he was always unsure about the issues of insurance and IRS regulations. They had a work requirement, for instance. Did that make his shareholders also employees? Did he have to withhold taxes and pay workman’s comp?

David used to work out winters as a carpenter, but now spends the off-season doing farm building and repairs. His only other job is sugaring in the late winter.

“Andrea is a retired teacher,” he explains, “so we get by. I think of this as subsidized by my wife’s retirement benefits. The farm pays for itself, but I wouldn’t be able to fund retirement or a health care plan. She is able to stay in her plan. It’s an HMO and we pay a portion of it, but we’re both pretty healthy!”

Roots & Fruits is certified organic by the State of New Hampshire. Because it’s a public program, the...
cost to the Craxtons is only $175 a year. “For awhile,” Andrea recalls, “we didn’t plug it that we were certified. People up here are conservative and a little suspicious of things they haven’t heard about before. Now, however, with the National Organic Program, there is a little more recognition of certification.”

David doesn’t get too involved in certification issues. “For me it’s a joy being outside,” he says. “For some people who buy from us it is important that we’re certified, but I’m not too involved in organic politics. I enjoy seeing little kids take a bite of something and really like it.

“There are certain things about the organic standards that are hard to follow,” he continues, “like the compost regs. I buy an approved compost from a dairy farmer to use on my root crops and use the compost I make on cucurbits and long season crops. Proper heating isn’t really possible for us, so we use the standards for raw manure.”

The Craxtons haven’t really gotten to take vacations, what with Andrea working during the school year and then David farming all summer. At best they have gotten to take one day getaways once in a while. But David doesn’t seem to mind.

“I enjoy it here,” he says. “I work at my pace. Farming is organized work — timing of the crop in relation to the weather and the market. There is a lot of thought and careful planning that goes into it if you want to be successful. Researching new varieties, studying what works in your conditions. It’s a challenge to visualize the whole season and the farm as a whole.

“Sometimes I can’t get to something which needs to be done,” he continues, “and that has ramifications for everything else. I have a cycle for picking. The things that can take storage I pick Thursday. On Friday I start with brassicas: cabbage, cauliflower, broccoli, then radishes, beets and carrots, later in the day kale and greens that can stay overnight in one of the refrigerators. On Saturday I pick the lettuce and other perishables because they have to be fresh.

“But,” he concludes, “farming is also an art form. You make these clean beds, raise vegetables in interesting shapes and colors, and then set up at the farmers market and make a beautiful displays. It’s hard to beat!”

Black zucchini is a good variety for northern New Hampshire.
Striped cucumber beetle

Ruth Hazzard
University of Massachusetts Extension Vegetable Program

Striped cucumber beetle (Acalyumpa vititata) is the most damaging insect pest of cucumber crops in the Northeast. It is high on the list of troublesome pests for organic growers. Able to appear seemingly out of nowhere and ravage young seedlings overnight, these beetles demand a planned, integrated approach. There are a variety of tactics that will work to reduce the population and protect the crop.

Cucumber Beetle in the Northeast

The 0.3 inch long striped cucumber beetles are conspicuously colored and familiar to anyone who has grown vine crops: black head and antennae, straw yellow thorax and yellow and black stripes that extend to the tips of the wing covers (Figure 1). It feeds exclusively on cucumber crops, including pumpkins, squash, melons, and cucumbers, although early in the season it can be found feeding in blossoms of other types of plants.

A closely related species that is less important in the Northeast is the spotted cucumber beetle (also called southern corn rootworm), which is yellowish green with black spots and appears 2-4 weeks later in the season. Two other beetles are also closely related but over-winter in the egg stage and feed mainly in corn: the northern corn rootworm, which is all green, and the western corn rootworm, which may be confused with striped cucumber beetles, because they are also yellow with black stripes, but the black stripes are wavy and do not reach the wing tips. Western corn rootworm adults feed in flowers of cucumber crops as well as in corn.

Crop Injury

Adult striped cucumber beetles cause direct damage by feeding on cotyledons, leaves and stems. The bitter component of cucurbit crops, cucurbitacin, acts as a feeding stimulant. Cotyledons tend to be high in cucurbitacin, first leaves somewhat lower, while large leaves of vine crops have a low cucurbitacin content. This explains the great attractiveness of cotyledons, where beetles gouge the underside. (Figure 2) Feeding damage to leaves and stems is particularly devastating when the plants are young, killing plants outright or delaying growth. Stem feeding near or below the soil line also delays growth and allows the entry of soil pathogens such as *Pythium*. Just as important is the fact that the striped cucumber beetle vectors *Erwinia tracheiphila*, the causal agent of bacterial wilt. This disease overwinters as adult beetle and is transmitted by contact of beetle feces with the open wounds caused by beetle feeding. Bacteria multiply and block the vascular system of the plant, causing wilt, leaf scorch, tip burn, and finally the collapse of individual vines or the whole plant (Figure 3, 4).

This disease can be effectively managed only by preventing feeding by the beetle. Plants are most susceptible to wilt at the cotyledon and 1-4 leaf stage, so this is the most critical time to control cucumber beetles.

Wilt development is influenced by the dose of the pathogen that the plants receive, which depends on the number of beetles, how long they feed, and what proportion of them are infected. Studies in by Shelby Fleischer in Pennsylvania found from 7% to 10% of overwintered beetles tested positive for the *Erwinia* bacteria; the proportion would depend in part on severity of the disease in the previous year. Groups of beetles feeding, wounding and defecating on same plant are more likely to transmit disease. They also acquire the pathogen and transmit it when they feed on other plants.

Most vine crops are, to varying degrees, susceptible to this disease. The most susceptible crops are cucumbers, muskmelons, summer squash and zucchini. Watermelon is not susceptible. Until the mid-1990’s, winter squash and pumpkins were considered to be not susceptible, but since then we have seen significant wilt in these crops as well. The gourd Turk’s Turban is extremely susceptible, and the powdery mildew tolerant pumpkins Merlin and Magic Lantern seem to be more susceptible than other pumpkins.

Once flowering begins, striped cucumber s congregate in flowers and feed on pollen. Generally this is not considered to be harmful to the crop or to pollination; however we don’t really know for sure. Fruit, especially pumpkins, can also be injured by late-season feeding.

A Year in the Life of the Striped Cucumber Beetle

Adults spend the winter primarily in plant debris in field edges. With the onset of warm days they feed in spring blossoms of weeds and trees, and foliage of wild cucumber. About the same time that cucurbit crops pop out of the ground in June — typically the first two weeks of June in central New England — beetles move rapidly into the field. Plant chemicals and volatile cues from fellow beetles help them locate tiny seedlings in a vast expanse of earth. When male beetles find a host plant, they release an aggregation pheromone to call male and female beetles to their spot. This helps explain the rapid appearance of a host of beetles!

Beetles deposit their eggs in the soil around the base of host plants, and larvae feed on roots. Crop injury from root feeding is more severe in young plants, and can reduce growth and delay maturity. Root feeding stops when larvae pupate in the soil. The summer generation of adult beetles emerges from mid-July to early August. Feeding in flowers is common at this time. It is not unusual to find beetles inside wilted flowers, or feeding alongside bees that are gathering pollen. There may be a partial second generation of beetles produced in southern New England or in warmer years. As days shorten and temperatures drop, beetles leave crop fields for shelter in the borders. A small portion may overwinter within the field.

Combining tactics to keep them under control

Managing cucumber beetles is best accomplished by using a combination of cultural practices, with organic insecticides or deterrents as a last resort:

**Crop rotation.** Because beetles spend the winter in field borders close to last year’s crop, planting into the same field encourages rapid invasion by high numbers of beetles. Rotating to a field at a distance from last year’s cucurbits reduces beetle numbers significantly. Of course, crop rotation has many other benefits as well — in vine crops, its critical for disease management. Any barriers between the fields — woods, buildings, fallow fields or other crops, roadways and waterways — help delay the arrival of beetles.

**Using Transplants.** Several studies in the Northeast have shown that three-week-old transplants, set out in the field at the same time as a direct-seeded crop, will produce not only earlier but higher yields. These studies were done with both summer and winter squashes. Transplants have multiple benefits. Germination of untreated seeds in cool soils can be spotty, while transplanting ensures a good stand. Transplants provide a jump on the weeds. Plants are bigger when cucumber beetles arrive so that they are less vulnerable to both feeding damage and wilt. An insecticide or repellent can be applied to flats before plants are set out, making it less costly. Planting dates are more flexible — for some crops, it may be possible to delay planting until late June and avoid the worst of the beetles. Plants can be held inside to avoid late frost or wait until fields are dry (or wet) enough to plant. Of course, it is not advisable to hold transplants too long. If they are already flowering or have been stressed when they are set out, they tend to develop into small plants with early but small fruit. Standard seedling production methods work well for vine crops, but large cell sizes (72, 36 or 24) or peat pots are recommended as roots should not be disturbed when transplanting. (Figure 5)

**Floating, or spun-bonded row covers** are very effective barriers that keep beetles off the crop during the critical early growth stage. They have the added benefit of enhancing growth and reducing wind damage in the early season, for an earlier yield. Studies have also shown an increase in yield with row covers. Covers must be removed at significant by of nowhere and ravage young seedlings overnight, these beetles demand a planned, integrated approach. There are a variety of tactics that will work to reduce the population and protect the crop.

**Perimeter Trap Cropping (PTC)** A technique that is gaining popularity in the Northeast is planting...
trap crops around the border of the field. A trap crop is any crop that is more preferred by the pest than the main crop. Perimeter trap cropping involves planting the attractive plant species so that it completely encircles the main crop and is encountered by the pest arriving from any direction. The trap crop holds and concentrates the pest in the border area, where it can be killed with border sprays, reducing pest numbers and disease spread on the unsprayed cash crop in the center. This system was developed by Jude Boucher of the University of Connecticut, first in pepper for pepper maggot fly, then in vine crops. PTC works best against pests that enter from outside the field and feed first on the crop along the edge of the field, like cucumber beetles. As soon as the beetles are observed in the border, sprays are applied to the border only. PTC often eliminates the need for insecticides on the main crop, which helps preserve natural enemies that hold other pests in check. It often results in improved crop quality with dramatic pesticide savings. For organic growers who have a limited choice of only moderately effective, very expensive materials, gaining better control while reducing the spray zone to a small percentage of the field can represent a large savings.

In the case of striped cucumber beetle, there are strong preferences from some cucurbit species and crops over others. Blue Hubbard squash is more attractive than cucumber or melon, and butternut squash (Figure 6). Based on variety trials at UMass and other locations, we can conclude that in general, Cucurbita maxima species are more attractive than C. pepo (pumpkins, summer squash, zucchini, cucumber) or C. moschata (butternut, calabaza). C. maxima includes buttercup type squashes (Ambercup, Red Kuri) and giant or specialty ‘pumpkins’ such as Cinderella, PrizeWinner or Big Max. In general, the C. maxima crops are not highly susceptible to wilt; hence they do not serve as a disease reservoir for the main crop. One major exception: Turk’s Turban is very susceptible and should NOT be used for PTC.

If you are interested in trying PTC, here are some tips based on farmers’ experiences:

- Use a rotated field where cucumber beetle populations are low to moderate. With low populations, just the perimeter trap crop without sprays may be sufficient to keep numbers very low in the main crop. High populations may still need one main crop spray.
- Plant the trap crop earlier or at the same time as the main crop, in decent soil – not hard-packed roadway or weedy edges.
- Use the same in-row and between row spacing for the main crop and perimeter trap crop row. Plant trap plants in the ends of beds, or across the end of the rows, and plant one or two rows parallel to the edge rows. Avoid large gaps, and fill in the border where the field is an irregular shape.

However, don’t worry if trap plants don’t line up exactly with the main crop rows or are killed between rows by tractor tires. As long as most of the border plants survive on all sides of the field, without major gaps (>15 ft) the barrier should still function.

- Scout the trap crop at least twice weekly and spray the border with an insecticide (e.g., Pygar) as soon as beetles are found. Don’t wait for beetles to build up in the borders or chew them down. It is important to maintain healthy border plants. Scout again to determine if repeat sprays are needed in the border. 1 to 3 sprays may be needed as beetles continue to colonize.
- An alternative control, for those who don’t want to use sprays, is suction. A reverse leaf blower can be used (at least twice weekly) to suction beetles off the border plants. One grower who tried this last year was pleased with the results and noted that the blower chopped up the beetles nicely and though it did some damage to the border plants it kept beetles out of the main crop.

- A mix of crops can be grown inside the border, but watch out for relatively attractive crops that might need additional sprays. For example, zucchini is more attractive than summer squash and may need to be sprayed even if it is inside a blue Hubbard perimeter.

- Where heavy infestations might be expected, such as borders along woods where beetles may have overwintered, use a wider perimeter of 2-3 rows.

If you don’t want to grow a lot of blue Hubbard, you can use several C. maxima crops to create the perimeter border.

Scouting and thresholds. Sprays to the main crop—whether or not there is a perimeter trap crop—should be based on regular scouting. Get out into the field at least twice a week at the seedling stage when beetles are colonizing. Numbers change rapidly and beetles can build up in a day or two, especially when the weather turns warm and sunny. Focus especially on field borders where beetles may arrive first. At the seedling stage, scouting is fast and easy. Look for both beetles (count # per plant) and damage. Checking underneath the leaves is important. Checking 25 plants in groups of five across the field can be accomplished very quickly. Calculate an average of beetles per plant.

The more susceptible a crop is to wilt, the more critical it is to keep the percentage of beetles down at the seedling stage. If wilt were not a factor, many vine crops could outgrow this early damage without loss in yield. However, because of the risk of losses to wilt, the threshold for beetles is low. In Massachusetts, we recommend that beetles should not be allowed to exceed one beetle for every two plants in wilt-susceptible crops. Less wilt-susceptible crops will tolerate one to two beetles per plant without yield losses.

Organic insecticides. Insecticides available for organic growers include kaolin clay (Surround WP), pyrethrin (Pyganic Crop Spray 5.0 EC), and spinosad (Entrust). Pyrethrin is primarily a contact poison, while spinosad acts both as a contact and a stomach poison. None of these provides a highly effective ‘knockdown’ of beetle populations. No rotenone products are approved under the National Organic Program.

Surround WP should be applied before beetles arrive because it acts as a repellent and protectant—beetles do not “recognize” the plant and do not feed—not a contact poison. It can be tricky to mix and use. One approach is to mix a slurry in a bucket and then add the slurry to the tank, as the dry powder can cake if added directly to the tank mix. Another approach is to add the powder to water and allow it to settle slowly, then add the slurry to the tank mix. Although kaolin is very safe in terms of skin exposure or ingestion, handlers should take precautions to avoid breathing the powder.
Seed or soil treatments to enhance plant resistance.

A range of microbial products which can stimulate plant resistance are becoming available. One of these, Bioyield produced by Gustafson, is a mixture of several strains of plant growth-promoting bacteria (including Bacillus amyloliquifaciens and Paenobacillus macerans). As of this writing, Bioyield has received the OMRI stamp of approval for organic use (however, always check with your certifier to be sure of the status of any product!) It is marketed as a growth enhancing, biological seed or planting media treatment for many vegetable crops (not as a pesticide). Research has shown that this product can reduce feeding damage by cucumber beetle in cucurbits, as well as induce greater resistance to bacterial wilt. In UMass pumpkin trials in 2001 and 2002, Bioyield was applied as a seed dip or mixed into the potting media before seeding. Our results were mixed; in the first year, we saw significant reduction in cucumber beetle feeding damage and in incidence of bacterial wilt with the Bioyield seed treatments; in the second year, we did not see an effect. Further work on this is needed to explore strains, rates and response to different soil conditions. Seed treatments are an efficient application technique. While our studies did not provide consistent results, results in other studies have been positive, and I believe this is a promising component of a broad control strategy.
Attention local farmers! The Saturday evening meeting at the NOFA Summer Conference is made from all local organic produce, meat, dairy and even salt. The Local Meal is a great way to educate and raise awareness to the importance of supporting local organic agriculture, and a great way for local organic farmers to get their name and produce seen and sampled! If you are a certified farmer and interested in participating, please contact Abby Morgan, local meal coordinator, at (207) 856-2777 or email at abby-morgan@me.nacadnet.org.

Fair seeks Farmers, Crafters, Musicians and Animal People

Come display and sell your wares at the Country Fair on Saturday! We are also seeking musicians who want to play (just for the fun of it!) on our local stage. We are also seeking volunteers to help with setting up and breaking down the Fair. For more information contact Rick Fern, Fair Coordinator, at 617-555-3456 or email at rfern@thezine.com.

Conference Scholarship Funds

Help a low-income urban teen or an immigrant farmer attend the NOFA Summer Conference this year. We are soliciting special donations to our “People of Color” scholarship fund, as our coffers are presently empty for this special scholarship. Send donations to NOFA Summer Conference at 411 Sheldon Road, Barre, MA 01005. Note on your check it is for the “People of Color” Scholarship.

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The Natural Farmer  
Summer, 2005

Editor’s note: A number of developments, from farmer testimony concerning pasture before the National Organic Standards Board (NOSB) in Washington DC. Never before had so many farmers come to give public comment to that body. Seventeen testified, and many more attended. The message that was repeated over and over again that day, both by the farmers and the numerous consumer and animal welfare organizations who also testified, was that the pasture requirement must be strengthened so that all organic dairy operations will indeed have to provide significant pasture intake for their livestock.

The “let them eat grass” message was voiced by organic dairy producers from California, Wisconsin, Michigan, Maine, Vermont, New York, and Pennsylvania and represented farms milking from 45 to 23000 organic cows (the 23000 on 3 different sites). Most have been certified for several years around the country made an unprecedented appearance before the National Organic Standards Board (NOSB) in Washington DC. Never before had so many farmers come to give public comment to that body. Seventeen testified, and many more attended. The message that was repeated over and over again that day, both by the farmers and the numerous consumer and animal welfare organizations who also testified, was that the pasture requirement must be strengthened so that all organic dairy operations will indeed have to provide significant pasture intake for their livestock.

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The Rule changes will have to go through a lengthy process of review and public comment that will take a minimum of 18 months before they can actually become part of the Rule. But once they do, they will carry the weight of law.

The guidance document will be posted on the NOP website for public comment and will be on the NOSSB agenda for their fall meeting. A guidance document does not carry the weight of law as does the Rule itself, but rather provides assistance to certifiers in how to interpret the Rule. Even so, having a guidance document that provides clear minimum standards as well as stating the goal of maximizing pasture intake for ruminant livestock systems will provide an unmistakable message that there is no room in the organic fold for confinement animal feeding operations.

One farmer stated in his comments to the NOSSB that he “shouldn’t be here,” saying that if all certifiers were certifying to the Rule, there would be no need for further clarification of the pasture requirement for ruminants. Pasture is not an elective practice. From the Preamble to the many citations in the Rule itself, pasture is stipulated as a necessary component of an organic ruminant’s living conditions, health care practice, and feed supply. The experience of the past few years has shown, however, that unless wording is ironclad and totally clear, and the NOP accreditation program actively supports this interpretation, that some will disregard intent and twist ambiguous wording to suit their needs.

At this March meeting, the NOP made very positive moves forward to ensure that all organic dairy operations will indeed have to provide significant pasture intake for their livestock. Richard Mathews, speaking on behalf of the NOP, responded with words of full support. With the overwhelming support of many consumer, family farm, animal welfare, sustainable ag and organic advocacy groups as well as the support of organic dairy producers, there is little doubt but what “let them eat grass” will become a reality for ALL organic cows.

Kathie Arnold, along with her husband Rick and brother-in-law Bob, have an organic dairy farm in the central New York town of Truxton. A version of this article also appeared in Graze, a magazine about managed grazing and alternative livestock agriculture. For more information and a free sample copy, contact Graze at: 608-455-3311; PO Box 48, Belleville, WI 53508; graze@mtcnet; www.grazeonline.com

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Audit of NOP Accreditation Program Exposes Numerous Weaknesses

Note from Elizabeth Henderson: Although this is not light reading, it is a very important article. The ANSI report is an evaluation of the NOP accreditation procedures and of the NOP’s compliance with ISO 61. ANSI found 22 serious non-compliances. If a farm had that many non-compliances, it would not earn certification. Same for a certifier. So how does the NOP get off? The report highlights the practices the National Campaign for Sustainable Agriculture Organic Committee has been complaining about and pressuring to change since 2002.

by Lynn Coodly
First published in The Organic Standard, issue 47, March 2005

A recent audit of the NOP’s accreditation program documented 22 noncompliances with ISO Guide 61. NOP has released the results of this audit and published its own report responding to the noncompliances.

On 14 January, 2005, US Department of Agriculture’s National Organic Program (NOP) released a long-awaited report containing the results of an audit of its accreditation program against ISO Guide 61. The program will be assessed using the ISO/IEC Guide 61, General Requirements for Assessment and Accreditation of Certification Bodies, as criteria to verify the aptitude of the USDA in the management and coordination of the NOP accreditation program. "There will be two parts to this assessment; the first is to review the USDA NOP accreditation program in Washington, DC in accordance with ISO/IEC Guide 61. The second part of the assessment is to conduct witness assessment on evaluations conducted by USDA through the organic certification program."

About a month later, on 8 August, 2003, NOP published an announcement in the Federal Register seeking a Technical Expert to work as a contractor to ANSI during the audit. The NOP stated that its assessment team would consist of three individuals: a lead assessor and two assessor-technicians, ANSI, with the third member being a technical expert familiar with the assessment systems used within the organic industry. In the notice, NOP also explained its reasons for choosing ANSI to do the audit:

"The ANSI was selected by the NOP to perform this peer review assessment because of its world-wide credibility, knowledgeable and professional staff and performance of accreditation activities similar in size and scope to those undertaken by the NOP. ANSI has accredited 39 product certification programs for a variety of scopes and 2 personnel certification bodies in the U.S. and abroad. In addition, ANSI is the sole U.S. representative and dues-paying member of the International Organization for Standardization (ISO), and, via the U.S. National Committee (USNC), the International Electro-technical Commission (IEC). Further, ANSI is a member of the International Accreditation Forum (IAF), and the sole U.S. accreditation body for product and personnel certifiers in this international forum. Finally, at the regional level, ANSI is a member of Inter-American Accreditation Cooperation (IAAC) and also Pacific Accreditation Cooperation (PAC). The ANSI Registrar Accreditation Board (RAB) National Accreditation Program (NAP) is the U.S. signatory to the IAF Multilateral Recognition Arrangement for Quality and Environment Management Systems."

After reviewing the application materials submitted by several parties interested in serving as the Technical Expert, ANSI and NOP selected Ken Commings, Executive Director of International Organic Accreditation Services (IOAS) to fill the position.

Conducting the audit

The ANSI Assessment Team conducted an opening meeting at the NOP office in October, 2003. Their audit report conveys their initial finding that both NOP’s documentation and its procedures fell short of full compliance with ISO Guide 61. It also notes that NOP began a process of strengthening its quality system in anticipation of a follow up visit from ANSI scheduled two months later.

"During the October 2003 opening meeting the evaluation team noted that the NOP accreditation body does not have a number of documented policies and procedures in place, as required by ISO/IEC Guide 61. Current NOP regulations do not reflect conformance to ISO/IEC Guides 61 and 65 requirements. As a result, a majority of the discrepancies identified are due to the absence of complete and consistent requirements as defined in the regulations."

"Following the October meeting, the NOP Office developed a work plan to draft procedures to govern, within the purview of the NOP regulations, several functions of the accreditation body. The initial draft of the new procedural document was presented during the December 18, 2003 site visit."

Ansi was chosen by NOP to do the audit, and on 7 July 2003, circulated a press release announcing the completion of a contract, stating: "Ansi will conduct a peer assessment of the procedures and practices of the USDA’s National Organic Program. The program will be assessed using the ISO/IEC Guide 61, General Requirements for Assessment and Certification of Certification Bodies, as criteria to verify the aptitude of the USDA in the management and coordination of the NOP accreditation program. There will be two parts to this assessment; the first is to review the USDA NOP accreditation program in Washington, DC in accordance with ISO/IEC Guide 61. The second part of the assessment is to conduct witness assessment on evaluations conducted by USDA through the organic certification program."

The Natural Farmer
The accreditation body does not have a documented structure of the organization. (This was being drafted and was presented in preliminary form during the ANSI visit of December 18, 2003.)

The accreditation body does not have a documented quality system as outlined in section 2.1.4. The policies and procedures for the accreditation body are not available to all staff members or with responsibility for accreditation activities. The accreditation body is not never documented in a quality manual and related documentation. Activities include: structure of accreditation process; AMS administrator responsibility, NOP personnel responsibilities and ARC branch responsibilities; website update; review of documents by NOP personnel; internal audits; management review of all accreditation activities; organizational chart for accreditation body; and qualification requirements for all accreditation body personnel. It is noted that an MOU between the NOP office and the ARC Branch office has expired and indicates that ARC Branch is to provide audit reports for NOP. The ARC Branch can perform application review, assessment, evaluation, and recommendation activities for the accreditation body. The NOP office provides review of documentation from ARC personnel prior to the Administrator making the decision on accreditation. These activities are not documented as to the specific process followed.

The accreditation body does not have procedures and policies to distinguish between accreditation activities and other activities performed by the offices and personnel performing duties of the accreditation body.

The accreditation body does not have policies and procedures for resolution of complaints, appeals, and disputes received from bodies or other parties about the handling of accreditation matters.

The accreditation body does not have procedures to assure that current copies of all reference documents, as defined in ISO/IEC Guide 61, are maintained on file and available to all of its applicants and participants. The ARC Branch is developing a master document list of internal and external documents. This is the document control process for ARC Branch Activities and does not include all accreditation body personnel and activities. It is unclear if separate procedures are required to assure that NOP personnel and other accreditation body personnel have these documents available.

The accreditation body does not have procedures for granting, maintaining, with drawing, suspending or denying accreditation and for extending, withdrawing, or imitating accreditation. The ARC 1025 procedure has defined instructions. However, the personnel identified as responsible for these activities do not authorize these instructions. For example, the NOP Program Manager is responsible for denial of accreditation and the AMS Administrator for granting, maintaining, extending, withdrawing, suspending or denying accreditation. The ARC Branch Chief authorizes the ARC 1023 procedure. Due to the lack of an administrative structure or documentation of delegation of authority, it is not clear if the appropriate person within the accreditation body authorizes this instruction.

The accreditation body does not conduct an internal audit and management review of all accreditation body activities.

The accreditation body does not have procedures for controlling all documents and data related to the accreditation functions. It is not clear who is authorized to review and approve the documents posted to the website, used internally and authorized to amend documents. The accreditation body does not define the control of documents and records. Nor is the ARC Branch in process of implementing ISO 9000/2000 standard.

The accreditation body does not maintain a system for all records and documents. It does not have procedures for reviewing, evaluating, and maintaining records of review by NOP and quality records, such as internal audits, management review records and complaint records.

The accreditation body does not have written consent from the certifying agent for disclosure of information. This may be part of the Freedom of Information Act (FOIA) requirements for federal and state agencies. The need for this consent requires additional review.

The accreditation body does not define the minimum criteria for competence for auditors and technical experts providing advice on the regulations.

The accreditation body does not have clearly documented instructions describing the duties and responsibilities for the accreditation activities performed by the NOP personnel, administrator, and other parties (e.g. website updates).

The auditor training records (ARC Branch) do not always include the date of the most recent update of records. Some records were incomplete in the database and paper records were not always complete. It is noted that information was found during the evaluation and that an internal audit of this area is scheduled for December 2003.

The accreditation body does not have procedures in place for appeals, complaints, and disputes received from applicants, certifying agents and others.

The accreditation body does not require its certifying agents to make available to it the records of all complaints, appeals, disputes, and subsequent actions.

The accreditation body does not have a detailed description of the completion of the accreditation process. No procedure is available for the operations that occur after the completion of the documentation by the ARC Branch and transmitted to the NOP office.

The accreditation body does not inform the applicant of the names of the auditors to carry out the assessment with sufficient notice to appeal against the appointment of any particular experts or auditors.

The accreditation body does not witness fully the on-site activities of one or more assessments or audits conducted by the applicant prior to initial accreditation. It is noted that the regulation allows accreditation prior to the on-site visit and that this visit may not occur for five years from the date of renewal.

The accreditation body does not invite the certifying agent to comment on the report.

NOP has posted ANSI's report as well as the agency's response at www.ams.usda.gov/nop/CertifyingAgents/ANSIReportInfo.htm. For more information about NOP accreditation procedures, consult the Final Rule on the NOP website: www.ams.usda.gov/nop/index.htm. Click on 'NOP Regulations and Policies' to see the Final Rule in a variety of formats and languages—the section on accreditation is 'Subpart F'.
Participatory Organic Guarantees

by Elizabeth Henderson

Before the implementation of the National Organic Program (NOP) in October 2002, organic farms that did not want to be “certified” organic were free to label their products organic. Each farmer made the decision to certify or not based on market requirements, the usefulness of certification for promotion, budgeting considerations and personal preferences. The NOP changed all that, imposing legal control that limits the use of the organic label to entities that are certified organic by a USDA accredited certification program. The only exception is very small farms that gross under $5000 worth of product. The NOP’s elimination of the voluntary nature of organic certification places the livelihood of many small organic farms in danger and threatens to split the organic movement. We need to find some alternatives. The Participatory Guarantee Systems project may help us create alternatives to the NOP that combine farmer and customer education, local marketing and a credible organic guarantee.

In April 2004, I traveled to Torres, a small city in the south of Brazil to a week long gathering on alternatives to organic certification. The organizer, Pipo Lernoud, founder of MAPO (the Argentinian equivalent of Northeast Organic Farming Association) and vice-president of the International Federation of Organic Agricultural Movements (IFOAM), invited me because of my 16-year experience as a CSA farmer and because I was one of the authors of the NOFA-NY Farmers’ Pledge. The other North American who attended was Ron Khosla, founder of Certified Organically Grown. The 40 participants came from 20 countries, representing most of Latin America, but also places as far flung as New Zealand, Thailand, India, Uganda, the Philippines, Sweden and Italy.

Over the past 5 years, more and more IFOAM members have been urging a shift in resources from certification to promoting rural development, small farms and local trade. The Movimiento Agroecologico de Latino America y el Caribe (MAELA) went so far as to split with IFOAM over this issue. MAELA members were critical of IFOAM for emphasizing international trade in organic products and for creating a certification system that is too expensive for most of the world’s organic farms. MAELA focuses on small farmer empowerment and the development of local markets. As Vice President of IFOAM, Pipo heard these voices and negotiated a reconciliation with MAELA so that the two international networks could sponsor the April 2004 meeting on Alternatives to Certification in Brazil.

As we sat in the conference room at the Centro Ecológico examining together the programs of the participants, a common image began to emerge. While each alternative program is unique and specific to its social context, they all have core principles based on sustainable, ecological practices with a strong current striving for social justice, equity, and gender balance. Most projects have some documentation, but the touchstone for the organic guarantee is farmer integrity and trust between farmers and their customers. Shared goals are to empower even the poorest and smallest scale farmers to become active contributors to and beneficiaries of local sustainable development and to offer continuous education to farmers and other stakeholders in the system. The focus is on direct sales through farmers markets, coops, CSAs, Teikei, farm stands or farmer-controlled stores. Paperwork and expenses are kept to a minimum so that even illiterate farmers can participate.

There are some inspiring examples. Over the past 5 years, in the south of Brazil, the Rede Ecovida de Agroecologia has spread its decentralized network to producer associations including over 10,000 producers, consumer cooperatives and agricultural technicians. Instead of inspections and reports, Rede Ecovida asserts that their organic guarantee is the result of trust “generated by a huge process that begins as increased awareness of the producer (farmer, processor) related to produce without destroying, as in nature.” The Ecovida Network has formed 21 nuclei, each consisting of 6 to 8 local groups, which include farmers’ associations, non-profits and consumer coops. Each group works in its own way to improve farmer and consumer awareness and technical facility in organic production and to build local markets. Instead of inspections, groups, which include other farmers, a technician and some coop members walk around the farm and discuss progress, problems, and new discoveries with the farmer. We visited two of the farms, two thriving food coops in very small towns, a women’s holistic health center, two totally organic farmers markets with over 400 participating farms and their spon-
The Natural Farmer  
Summer, 2005

The Ecovida Network threw a barbecue dinner and dance for us to party with 80 farm families.

Stakeholders in the organic sector in New Zealand formed Organic Farm New Zealand to provide a credible guarantee for the smallholders for whom existing certification was too expensive. After only two years, 200 of the 2000 smallest farms have organized into 12 regional groups or “pods” of from 7 to 40 farmers who inspect one another’s farms. They use a recognized national organic standard. Elected regional groups administer the program, which has the support of the Soil and Health Association and the New Zealand Government. By working in groups, the farmers learn from one another and form relationships of trust that lead to joint marketing and purchasing, as well as providing an organic guarantee.

Since 1992, the Institute for Integrated Rural Development (IIRD) in Aurangabad, Maharashtra State, India, has set up organic bazaars where 1,250 organic farmers sell their produce. 45 eco-volunteers, women who complete a 3-year training in organic farming, visit the farms once a month to disseminate technical information and assure adherence to organic methods. Strengthening the social position of women farmers is a major focus of the IIRD program.

In Uganda, where traditional farmers still use basically organic practices, membership in the National Organic Agricultural Movement of Uganda (NOGAMU) has spread rapidly to 82 associations involving 25,000 farmers. Farms that join NOGAMU can market their products as organic as soon as a local marketing officer inspects them for compliance with the national organic standards. The system is informal with no documentation, but has earned a high level of trust from Kampala shoppers at the NOGAMU retail outlets.

After sharing our experiences, the participants in the Torres meeting concluded, with a sense of great exhilaration that the common elements in our programs add up to the basis for credible organic guarantees. We elected two working groups: one to write guidelines for creating participatory programs and the other, an executive committee charged with overseeing the fulfillment of the meeting’s action plan. I am in the first group and Ron in the second. Chris May from New Zealand, Vitoon Panyakul from Thailand and I drafted a description of the core components of a participatory program. Ron was lucky enough to travel to Uganda and Biofach in Germany to meetings of the executive group. They decided to call our effort Participatory Guarantee Systems (PGS), revised the document I helped write and made sure that reports on our meetings were completed and made available. You can read the Alternative Certification “Proceedings” and “Annex” on the IFOAM website – www.ifoam.org under the heading “I-GO Sponsored Publications.”

Ron wrote this introduction to PGS: “Participatory Guarantee Systems share a common goal with conventional certification programs in providing a credible guarantee for consumers seeking organic produce. The difference is in approach. … PGS programs place a high priority on knowledge and capacity building – not only for producers but for consumers as well. This direct involvement allows PGS programs to be less onerous in terms of paperwork and record-keeping requirements – an important element, since PGS systems seek to be absolutely inclusive in bringing small farmers into an organic system of production. In stark contrast to existing certification programs that start with the idea that farmers must prove they are in compliance to be certified, PGS programs use an integrity based approach that starts with a foundation of trust and builds from there with unparalleled transparency and openness, maintained in an environment that minimizes hierarchies and administrative levels.

Ron and I made a promise in Brazil that we would spread the word about Participatory Guarantee Systems in the United States (see accompanying article) and even try to get something started. I plan to help activate the existing network of farms, CSAs, food coops and natural food stores in greater Rochester, N.Y. Like the original organic certification programs, we envision a patchwork of decentralized efforts. Let 1000 flowers bloom! But we can provide the groundwork for others – a version of the computer program Ron devised for Certified Naturally Grown (www.naturallygrown.org/pgs) contains standards, application forms, farm report forms, the Social Stewardship Standards I helped write, the Farmers Pledge, and the guidance documents from the IFOAM project. Please let us know when you get started!

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Participatory Guarantee Systems – Shared Vision, Shared Ideals

Introduction
There are dozens of Participatory Guarantee Systems serving farmers and consumers around the world. Although details of methodology and process vary, the consistency of core principles across countries and continents is remarkable. The elements and characteristics outlined here demonstrate our shared vision but are not meant to concretely direct exist-
tence. The primarily local and direct market focus of PGS systems encourage community building, en-
vironmental protection and support to local econom-
ies in general.

PGS Philosophy [Fundamental Values]
Participatory Guarantee Systems share a common goal with change to third-party certification systems in providing a credible guarantee for consumers seeking organic produce. The difference is in approach. As the name suggests, direct participation of farm-
ers and even consumers in the certification process is not only encouraged but may be required. Such involvement is entirely realistic in the context of the small farms and local, direct markets that PGS sys-
tems are most likely to serve. Active participation on the part of the stakeholders results in greater empowerment but also greater responsibility. This requires PGS programs to place a high priority on knowledge and capacity building – not only for pro-
ducers but for consumers as well. This direct involve-
ment allows PGS programs to be more sensitive in matters of transparency and openness, maintained in an environment that minimizes hierarchies and administrative levels.

Basic Key Elements

1. Shared Vision
A fundamental strength of the Participatory Guar-
antee System lies in the conscious shared vision that farmers and consumers have in the core principles guiding the program. While PGS programs may vary in the level of actual participation, they thrive be-
cause of the active awareness of why, how, and not least of all WHO is being served.

2. Participatory
Participatory certification is based on a methodol-
ogy presupposing intense involvement by those in-
terested in the production and consumption of these products. Principles and rules for organic produc-
tion are conceived and applied with the contribution of all stakeholders – producers, consultants and con-
sumers. The creativity of the production quality is a consequence of participation.

3. Transparency
All stakeholders, including farmers, must be aware of exactly how the guarantee mechanism generally works, the process and how decisions are made. This does not mean that every detail is known by every-
one but rather a basic understanding of how the sys-
tem functions. People should be aware about the cri-
teria of how decision on certification is made, espe-
cially the reason why some cannot be certi-
fied. This implies that there must be some written documents available about the PGS and the docu-
ments are made available to all interested parties.

4. Trust – “integrity based approach”
The advocates of PGS hold to the idea that farmers can be trusted and the organic certification system should be an expression of this trust. It should re-
clect a community’s capacity to demonstrate this trust through the application of their different social and cultural control mechanisms, providing the neces-
sary oversight to ensure the organic integrity of their organic farmers. Thus, a variety of culturally spe-
cific local systems and mechanisms for demonstrating and measuring organic integrity are recognized and celebrated. These are integral to the certification process.

5. Learning Process
The intent of most PGS has been to provide more than a certificate, also aiming to provide the tools and mechanisms for supporting sustainable commu-
nity and organic development where the livelihoods and status of farmers can be enhanced. It is important that the process of certification con-
tributes to the production of knowledge that are built by all the actors involved in the production and consumption of the organic product. The effec-
tive involvement of farmers, consultants and con-
sumers on the elaboration and verification of the principles and rules not only leads to the generation of credibility of the organic product, but also to a permanent process of learning which develops ca-
pacities in the communities involved.

6. Horizontality
Horizontal means sharing of power. The verifica-
tion of the organic quality of a product or process is not concentrated in the hands of few. All involved on the process of participatory certification have the same level of responsibility and capacity to estab-
lish the organic quality of a product or process.

Key Features of a PGS
1. Norms conceived by the stakeholders through a democratic and participatory process, but al-
ways in accordance with the commonly under-
stood sense of what constitutes an organic prod-
uct. The norms should stimulate creativity, which is a characteristic of organic farmers, instead of inhibit it.

2. Grassroots Organization: The Participatory Certification should be perceived as a result of a social dynamic, based on an active organiza-
tion of all stakeholders.

3. Is appropriate to smallholder agriculture, because the participatory nature and horizontal structure of the programs allows for more ap-
propriate and less costly mechanisms of certifi-
cation, and actually highlights and celebrates and encourages consumers to seek out smallholders.

4. Principles and values that enhance the liveli-
hoods and well being of farming families and promote organic agriculture.

5. Documented management systems and pro-
cedures – There may be minimal paperwork required of farmers but there will be ways in which they are expected to demonstrate their organic commitment and integrity, these ways should be documented by the PGS.

6. Mechanisms to verify farmer’s compliance to the established norms, which is able to stimu-
late participation, organization, and which allow a learning process for all the stakeholders.

7. Mechanisms for supporting farmers to pro-
duce organic products and be certified as organic farmers, to include field advisors, newsletters, farm visits, web sites etc.

8. Should have a bottom-line document, for example a farmer’s pledge stating his/her agreement with the established norms.

9. Seals or labels providing evidence of organic sta-
tus.

10. Clear and previously defined consequences for farmers not complying with standards, actions re-
corded in a data base or made public in some way.
Book Reviews

The Compleat Squash: A Passionate Grower’s Guide to Pumpkins, Squashes, and Gourds
by Amy Goldman
photographs by Victor Schrager
708 Broadway, New York, NY 10003-9553
214 pages, hardback, $40
review by Jack Kittredge

Whether you are a grower, sculptor, or child, if you are fascinated by form you must be in love with the incredible cucurbit family. They look like something that could only have been dreamed up by Salvador Dalí – long curved Crooknecks which look more like a scimitar than a vegetable, Custards that you would swear are bright yellow tulips cast in wax and then set in a sunny window to sag a little, Pineapple Acorn gourds which seem to be trying to disguise themselves as bloated starfish.

Like the title says, Amy is passionate about these squash, and the full color photos of them, some 130 or more, are things of exceptional beauty. Posed very simply with an occasional block of wood or stone for support, the curcubits look regal and quite self-satisfied.

But, although this is certainly a remarkable and beautiful coffee-table book, it is more. For sure there are chapters on the varieties. Included are Maximas: Blues, Bananas, Buttercups, Hubbards, Mammoths, Turbans, Zapallitos, and others, the Moschatas: Cushaws, Cheese Pumpkins, Tropicals, Japonicas, the Pepos: Pumpkins, Acorns, Scallops, Crooknecks, Straightnecks, Zucchinis, Cucuzzas, and Ornamental Gourds, and the Argyropermas like Callicarpas. But Goldman also has chapters on planting and growing, hand pollinating, harvesting, and saving seeds from these wonders. She also provides recipes for their use in appetizers, soups, breads, desserts, as main dishes, and as salads, side dishes and condiments.

She concludes with a list of seed sources and groups which are working to preserve seed purity and heritage breeds of squash. If you love squash (and who doesn’t love at least one of this diverse family?) you will be tickled by this book. If you can’t afford it, ask your library to buy one.

Time, Soil, and Children: Conversations with the Second Generation of Sustainable Farm Families in Minnesota
by Beth E. Waterhouse
www.misa.umn.edu
52 pages, soft cover, $6.00
review by Dale Perkins

This short gem of a book explores the foundation of the sustainable agriculture movement in Minnesota through interviews with the children of parents who were farmers and activists in the 1980’s and 1990’s. Through conversations with 13 hand selected activist families, it attempts to discover if the parents, who share the same values and passion in their commitment to restore the earth as their parents did.

This book is a labor of love and tribute to those early farmer/activists who crafted the sustainable agriculture movement. Those looking for quantitative material will be disappointed. This book is not and does not try to be a comprehensive survey and in no way contains any measurable data that will provide any clues to the impact parents have in turning their children into activists. Time, Soil, and Children is entirely qualitative, but at that does a wonderful job of inspiring the reader about the future of sustainable farming.

The author interviewed the children of thirteen farm families who were instrumental in launching the sustainable agriculture movement in Minnesota. Each chapter in the book is themed on topics that came up in interviews with the families interviewed. For example, almost every participating family spoke of the responsibilities the children had in working on the home farms and these thoughts and stories are captured in “The Value of Work” chapter. As the book is organized by theme and not by one interview after another, the young adults sporadically come in and out of the book. Fortunately, the author often shares brief reminders phrases about the interviewee. This helps the reader stay immersed in the book and the content is personalized.

An ongoing underlying item running throughout the book is the efforts it took for the families to manage their individual farms while giving so much time and energy toward organizing the grass-root efforts and groups which propelled the sustainable agriculture movement. While their parents attended meetings and did the work of organizing, it was often the young children, interviewed now as adults, who were left home to do the chores and run the farm.

The original question asked of the book is answered with a resounding “yes” through the families interviewed. The youth, each in their own way, are active in environmental causes. The typical young adult left the farm for education, exploration, or other reasons and in many cases returned or got involved in other causes off the farm. Few followed closely in their parents footsteps. The challenges of farming as well as the close connection and draw of the farm are fairly balanced. This reader couldn’t help but compare the stories of the youth in this book with those of the families who launched and carried NOFA to the organization it is today and a similarly compelling book is waiting to be written.
This book provides several personal glimpses of the history, as well as the future, of sustainable agriculture. Certainly there are many other stories out there, but this short (approximately 50 pages, with black and white family photographs scattered throughout) synopsis fairly describes the very grassroots social organization that planted and now nurtures the sustainable agriculture movement in this country. The book was funded by a forum of the Minnesota Institute for Sustainable Agriculture.

Digging Deeper: Integrating Youth Gardens into Schools & Communities, A Comprehensive Guide by Joseph Kiefer and Martin Kemple published by Food Works, 64 Main St, Montpelier, VT 05602, 802-223-1515, rootsnet@plainfield.bypass.com copyright 1998, $19.95 review by Sandy Snyder Several years ago I was part of a group on a conservation outing. A new teacher-to-be and a current teacher at another school began talking about how much they would like to have gardening as part of their classroom activities.

"What can we plant in the fall that we can eat in the spring?" one asked.

"There must be something we can grow," the other said.

They conversed back and forth for some time. Clearly neither was a gardener, even though they wanted to take the plunge.

I knew there was some funding in our state for such a program and suggested they ask for funds. But I, too, did not know how they could magically get the growing expertise they needed except through their own gardening experiences.

This past summer, when my fermented garlic won for being the most stinky, pungent entry at the Food Works Garlic Festival in Montpelier, Vermont, I came away with a prize: "Digging Deeper" has incorporated it in an intriguing way. Two or more teams of students shop at a local farmers market and try to buy food that fits in all food groups of the pyramid. I keep thinking of all of the "cooks" in the health department's office of for selling and wonder where the casserole and vegetable soups are.

Homeschoolers should also find this book very helpful. Journals kept from year to year will reveal growth of knowledge and social skills. And since the book is written in school curriculum style it should be easy to plug into the education requirements of your own community.

Down on the Farm: The Impact of Nano-scale Technologies on Food and Agriculture Published by ETC Group, 1 Nicholas St, Suite 200 B, Ottawa, ON, Canada K1N 7B7, etc@etcgroup.org 69 pages review by Ciarán Murphy The Erosion, Transformation, Evolution (ETC) Group's new book, Down on the Farm: The Impact of Nano-scale Technologies on Food and Agriculture, addresses the inevitable next step in agriculture: atomically modified foods. Companies will have the ability to take food, and modify it at a nano-scale, the scale of atoms and molecules. This technology goes well beyond today's genetically modified foods in manipulating the food's basic structure.

The book begins by telling us that the US government has no regulations concerning atomically engineered foods. The nano-products we have right now, mostly pesticides, do not need to be examined. These pesticide droplets are much smaller than normal ones. They can be as small as 10 nanometers. This means they can be mixed more easily than normal ones, and won't clog the spraying devices. Since they are being modified at such a small level, the droplets can be made to detour only when they touch a certain food. Instead of detouring anywhere like they do today, a droplet might only detour in an alkaline environment, like on the abdominal area of certain insects.

There are problems, though. Since they are so small, the droplets will not come off in the rain. The droplets will stay on your food unless researchers can find a way to take the chemicals off. The inhalation of nano-particles can be very hazardous. NASA did tests to confirm this. They found the inhalation of the lungs as a result of nano-fiber inhalation to be worse than in cases of silicosis.

The farmer will be in trouble too, but not just physically. Scientists working on nano-scale modification can put foreign DNA into cells. The DNA cannot attach to the genome, so it won’t be passed down to future generations. Farmers wanting to use the technology will have to go back to the lab every time they want to plant new seed. The seed companies may even attach sensors to their products to make sure the farmer is using only the seeds they provided, and only in the way they specified.

Many companies are working on plant modifications that would not bring on a major change. Some types of rice may turn from purple to green, or a special form of nano-fibers that you can weave into cotton will let you change color on a whim, from business to casual, for example.

Food companies are looking for major changes though. Every major food company either has a nanotechnology program, or is looking to get one. Luckily, you don’t have to worry for a while, since the first nanotechnology will have to go in the supermarket before the packaging. The food will be fresher because of the new packaging. Beer could be put into plastic bottles, instead of glass ones, and improved packaging design may be able to tell you if the food is contaminated some will even be able to fix the food if it is unsafe.

Some foods already have nanotechnology additives in them, but you wouldn’t know it. Certain companies have made nano-scale carotenoids, a type of food additive that gives off an orange color, and occurs naturally in carrots. Juices and margarines use it. The nano-scale version is easier to add to food, and is easier for the body to accept, lasting longer while on the shelf.

Other companies are developing ‘interactive foods.’ The consumers could pick the flavors and colors of what they eat. The food may be able to detect nutritional deficiencies, and adjust itself accordingly.

Eventually, the goal is no longer to grow food. It will be manufactured. Nanorobots could assemble a steak for you out of carbon, hydrogen, and oxygen, all of which are found in water and air. In theory, this could be extremely cheap, and eliminate world hunger. Food manufacturing is nanotech’s most ambitious goal, but least likely to appear anytime soon.

This book seems split on how to handle nanotech foods. Sometimes the ETC is against it. Others times, they say that if nanotechnologies are introduced, it should be done with strict safety standards. Nobody knows how dangerous, or safe, these foods could be. If there are no standards, agribusiness, and scientific institutions could compromise the potential for any beneficial nano-scale agriculture. The book recommends that civil society work together to discuss nanotechnology, to ensure that policy-makers help protect the lives of farmers and consumers, and the environment. They end their message to civil society by saying that farmers and consumers should monitor nanotechnologies in their areas. People need to research new nano-scale technologies, and team up with environmental organizations to pressure governments into making regulations for nanotechnologies. Without regulations, they say, nanotechnologies should not be released into the environment.

NOFA Interstate Policy Committee may have two job openings! The first is for a person to work part time staffing the committee - keeping abreast of the issues, setting up conference calls among committee members, keeping minutes, finding ways to improve communication and coordination among the NOFA chapters on policy issues, and setting up and attending a couple of meetings a year. The second is to write a publicist: a good writer (or several writers) to write press releases for the policy commit- tee on positions that we take, and to write 2 - 3 major, creative articles a year for more mainstream publications on issues of significance to the organic farming community. Please see the NOFA website for more details, www.nofa.org. Contact Elizabeth Henderson at 315-331-9029.
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**Calendar**

**Saturday, June 11, 10 am to 4 pm: Cheese Day, Sproose Creek Farm, just outside Poultuckespice, NY for more info: 518/692-8242 or tracy@farmandfood.org**

**Sunday, June 12, 9:00 am – 4:00 pm: Mid-Summer Growing of Vegetables workshop, MANY Hands Organic Farm, Barre, MA for more info: (978) 355-2833, farm@mhof.net, or www.mhof.net**

**Monday, June 13: Ecological Weed Management, PASA Field Day, Rock Springs, PA for more info: http://www.pasafarming.org/ or 814-349-9856 ext. 7**

**Wednesday, June 15: Fermented Foods for your Health, PASA’s Field Day, Dickenson College, Carlisle, PA for more info: http://www.pasafarming.org/ or 814-349-9856 ext. 7**

**Thursday, June 16 to Saturday, June 18: Second National Farm-To-Cafeteria conference, Gambier, OH for more info: www.foodsecurity.org/2ccom/2005.html**

**Saturday, June 18: Raw Milk, PASA Field Day, Swiss Villa Dairy, Dauphin County, PA for more info: http://www.pasafarming.org/ or 814-349-9856 ext. 7**

**Tuesday, June 21: Sweet Corn IPM and Pasture Renovation, PASA Field Day, Byerly’s Farm, Union County, PA for more info: http://www.pasafarming.org/ or 814-349-9856 ext. 7**

**Thursday, June 30 to Saturday, July 2: Beginning Cheesemaking, PASA Field Day, Slippery Rock University, Butler County, PA for more info: http://www.pasafarming.org/ or 814-349-9856 ext. 7**

**Saturday July 9, 8:30 am to 5:30 pm: Summer Organic Beekeeping Workshop, The Pfeiffer Center, Chestnut Ridge, NY for more info: 985-352-5020, ext 20; email: info@pfeiffercenter.org; or visit: www.pfeiffercenter.org**

**New York:**
- Student/Senior/Limited Income $15, Individual $35, Family/Farm/Nonprofit Organization $40, Business/Businessman $100, Low Income: $15*
  - Contact: P O Box 886, Pennington, NJ 08534-0886, (609) 737-6848 or join at www.nofanj.org
- Student/Senior: $20, Individual: $25, Family $35, Business $50
  - Contact: Membership, NOFA RI, 51 Edwards Lane, Charlestown, RI 02813 (401) 364-0050, fritzvohr1@verizon.net
- Student/Senior/Limited Income: $15, Individual $30, Family/Farm/Farmers Association, Pella, Iowa.
  - Contact: NOFA-VT, PO Box 135, Warner, NH 03253, (603) 279-6146, kastoner@juno.com
- Student/Senior: $20, Individual: $25, Family $35, Business $50
  - Contact: Membership, NOFA RI, 51 Edwards Lane, Charlestown, RI 02813 (401) 364-0050, fritzvohr1@verizon.net

You may join NOFA by joining one of the seven state chapters. Contact the person listed below for your state. Dues, which help pay for the important work of the organization, vary from chapter to chapter. Unless noted, membership includes a subscription to The Natural Farmer. Contact: NOFA, PO Box 697, Richmond, VT 05441-697, (802) 224-5022, info@nofamass.org

**New Jersey:** Individual $35, Family/Organizational $50, Business/Organization $100, Low Income: $15*
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- Student/Senior/Limited Income: $15, Individual $30, Farm/Family/Nonprofit Organization $40, Business/Businessman $100, Add $10 to above membership rates to include subscription to The Natural Farmer.
- Contact: NOFA New Jersey, PO Box 880, Cobleskill, NY 12041, Voice (518) 734-5495, Fax: (518) 734-4641, email: office@nofanj.org
- Student/Senior: $20, Individual: $25, Family $35, Business $50
  - Contact: Membership, NOFA RI, 51 Edwards Lane, Charlestown, RI 02813 (401) 364-0050, fritzvohr1@verizon.net

**Rhode Island:** Student/Senior: $20, Individual: $25, Family $35, Business $50
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**Vermont:**
- Individual $30, Farm/Family $40, Business $50, Sponsor $100, Sustainer $250, Basic $15-25*
  - Contact: NOFA-VT, PO Box 697, Richmond, VT 05441-697, (802) 434-4122, info@nofavt.org

*does not include a subscription to The Natural Farmer
Organic farmer Bob Muth in his New Jersey melon patch. Just to the right of Bob is one of many large cannonball-sized seedless fruit. He says the way you tell a watermelon is ripe is when the ‘pigtail’ (the short growth opposite the stem leading from the vine into the melon) turns brown. He says the spot where the melon sat on the ground will turn bright yellow.

This paper contains news, features and articles about organic growing in the Northeast, plus a Special Supplement on Organic Cucurbits.