

NOFA Summer Conference: An Intergenerational Success

Each year at the NOFA Summer Conference some exciting observation can be made. This year was by far the most intergenerational event we have ever had. There were droves of little kids, and teens and droves of folks well into their 80's, and lots of young adults, and of course the plethora of those of us in mid to late middle life. As this movement gets older (we had our 30th birthday this year), it is warming to see that there is a whole new generation of organic farmers and gardeners on the scene.

NOFA has always looked pretty white, too, but there was a strong contingent of people of color. That was thanks in part to a participant who sent us \$1,800 for scholarships for people of color, and possibly in part due to our keynoter, Cathrine Sneed. Preceded by the great NOFA Skit and Organic Tabernacle Choir, Cathrine brought us a stirring message about the good work that is being done in San Francisco and other parts of the country to bring gardening and farming and usable horticultural skills to our nation's prisoners. These prison farming projects — which often connect with low income people to provide fresh organic food in low income neighborhoods — bring hope to prisoners and to community folks. Cathrine's work in San Francisco sparked the NOFA/Mass "Garden of Miracles" Project in Springfield, Mass. Videotapes of the keynote program are available for \$15 to the "NOFA Video Project" at this address.

Kim Stoner was the recipient of the coveted NOFA Person of the Year Award. Kim is a NOFA-CT member who has worked tirelessly on the Board of Directors and on the Organic Landcare Committee. Kim is a very humble person who works in the background with quiet and kind diligence. Congratulations.



photo by Greg Zach

A couple of young conference-goers seem to have a little energy left during the fair.

It looked as if we would have a repeat of last year's deluge of rain, but luckily the worst of it passed south of us and we just got some light rain on Friday night and again on Sunday morning.

The word is that the Food Court which replaced NOFA Nibbles needs filling out. But with some experience under our belts we hope to have more good eating alternatives next year. There were rave reviews about the Hampshire food this year, however. We so appreciate that the Food Service folks at Hampshire go out of their way so thoroughly to bring us as much organic and local food as they can while we are there for the weekend.

For me the best time of the conference is the fair when I sit and braid garlic, watch Dale's great horse show and all the games and get to talk to so many folks who stop by. As has

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photo by Jack Kittredge

Goats never fail to fascinate as a small breed compromise critter for milk, meat and forage.

Why Organic Landscaping?

In a journal entitled **The Natural Farmer**, it may be surprising to find an issue devoted to Organic Landscaping. Don't organic farmers in the northeast have enough concerns, you may ask? Isn't the interest in organic landscaping from urban and suburban folks, rather than the rural community to whom we normally speak? Isn't the purpose of landscaping to make land pretty rather than productive, and how does that mesh with NOFA goals?

These are all fair questions, and yet the sobering fact remains that in much of the northeast more synthetic chemicals are used in landscaping and horticulture than in all of agriculture. For those of us concerned about things like chemical sensitivity, ground water contamination, and thriving soil life, a pesticide has the same damaging effects whether sprayed on arugula or azaleas.

For a long time organic management was ridiculed as unrealistic. Finally, the costs to health and environment of conventional techniques are being fairly evaluated. Thoughtful people are realizing that organic management is the only realistic long-term solution. It is not surprising that these people, who already eat organic food, want their lawns and landscapes managed with the same sensibility.

The Natural Farmer Needs You!

The Natural Farmer is the newspaper of the Northeast Organic Farming Association (NOFA). All members receive a subscription as part of their dues, and others may subscribe for \$10 (in the US or \$14 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:

Winter 2001-02 - Farming and Families
Spring 2002 - AgroForestry
Summer, 2002 - On-Farm Research

Moving 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 data base 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. We don't keep copies of these, and 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 Contacts" 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 handwritten. To be a real gem, send it via electronic mail (JACKKITT@AOL.com) or enclose a computer disk (3 1/2 inch size). We use a Macintosh G3 with Microsoft Word but can with only modest difficulty convert IBM disks as well. Also, any graphics, photos, charts, etc. you can enclose 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

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Northeast Organic Farming Association

NOFA is in the forefront of establishing an organic landscaping standard in the northeast. In Massachusetts and Connecticut a joint NOFA Land Care committee has been meeting and is finalizing rigorous standards. On Long Island a landscaper group has done the same thing under the sponsorship of an environmental/health care coalition. Stories on both these groups and their work appear in this issue.

In a larger sense, of course, we all benefit from the success of these efforts. Much public land is managed in our name, usually with conventional chemical techniques. If we want to be responsible citizens

as well as leave a better environment to our kids, we need to require our public bodies to adopt sustainable management as well. On Long Island this work is proceeding well, with a first-in-the-nation court victory requiring that public golf courses adopt organic management, and plans to focus next on public school grounds. That work, as well, is covered in this issue.

We hope that the techniques created over the last generation by organic farmers can work in the landscaping arena, and that landscapers, in turn, will develop materials and methods that will make organic farming easier and more productive in the northeast. Both industries, after all, are at the very beginning of discovering the complex relationships with which nature has blessed her children.

Advertise in The Natural Farmer

Advertisements not only bring in TNF revenue, which means less must come from membership dues, they also make a paper interesting and helpful to those looking for specific goods or services. We carry 2 kinds of ads:

The NOFA Exchange - this is a free bulletin board service for NOFA members and TNF subscribers. Send in up to 100 words (business or personal) and we'll print it free in the next issue. Include a price (if selling) and an address or phone number so readers can contact you directly. If you're not a NOFA member, you can still send in an ad - just send \$5 along too! Send NOFA Exchange ads directly to The Natural Farmer, 411 Sheldon Rd., Barre, MA 01005 or (preferably) E-mail to JACKKITT@AOL.COM

Display Ads - this is for those offering products or services on a regular basis! You can get real attention with display ads. Send camera ready copy to Justine Johnson, 37 Cherry St, Easthampton, MA 01027 and enclose a check for the appropriate size. The sizes and rates are:

Full page (15" tall by 10" wide)	\$240
Half page (7 1/2" tall by 10" wide)	\$125
One-third page (7 1/2" tall by 6 1/2" wide)	\$85
One-quarter page (7 1/2" tall by 4 7/8" wide)	\$65
One-sixth page (7 1/2" tall by 3 1/8" wide), or (3 3/4" tall by 6 1/2" wide)	\$45
Business card size (1 1/2" tall by 3 1/8" wide)	\$12

Note: These prices are for camera ready copy. If you want any changes we will be glad to make them - or to type set a display ad for you - for \$10 extra. Just send us

the text, any graphics, and a sketch of how you want it to look. Include a check for the space charge plus \$10.

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 should receive your ad copy one month before the publication date of each issue. The deadlines are:

January 31 for the Spring issue
April 30 for the Summer issue
July 31 for the Fall issue
October 31 for the Winter issue

Contact for Display Ads: Send display ads with payment to our advertising manager, Justine Johnson at 37 Cherry St., Easthampton, MA 01027. If you have questions, or want to reserve space, contact Justine at (413) 527-1920 or JJSL145@aol.com.

Disclaimer: The Natural Farmer cannot investigate the claims of advertisers and we don't vouch for anything advertised here. Readers are expected to exercise due caution when inquiring about any product or service. Different NOFA chapters have different standards for fertilizers, for instance, and a product acceptable in one state may be prohibited in another. Please check with your chapter when in doubt. Remember, however, that advertisers are helping support the paper and, when appropriate, please support them.

NOFA Exchange

The Capon Club - If you attended Dick Grant's capon workshop and are interested in being part of a **caponizing field day** next spring, please let me know and I will add you to the email list. If you don't have email, let me know and I'll contact you via postcard. Heck, even if you didn't go to the workshop and would like to enhance those Kosher Kings or Jersey Giants, let me know. Richard Murphy, 263 Long Hill Road, West Brookfield, MA 01585. Phone: 508-867-5735. email: rmurphy@star.net

Agricultural Internship with livestock focus at a 232 acre education center and wildlife sanctuary 30 miles west of Boston. Daily care of pigs, cows, sheep, chickens, draft horses, pony, goats plus production of hay and organic vegetables. Weekly stipend of \$175 minus \$25 for rent. Begins October, 2001 for a year. Contact Molly Hawkins, DRumlin Farm, South Great Road, Lincoln, MA 01773 (781) 259-9506 ext. 7707, mhawmins@massaudubon.org

Wellspring Land Co-operative seeking new member, **Small-scale farming opportunity**. Wellspring farm is located on 187 acres in Marshfield, VT. The three households living on the land own their homes and share ownership of the land co-op. One of the members is leaving and seeks to sell their home and interest in WLC. Price of \$99,500 includes two-bedroom home (clustered with two other homes and farm buildings) and third interest in land co-op (40 acres open, 147 acres wooded). For details contact: Roberta and Duffy Gardner, 182 Lafiria Place, Marshfield, VT 05658, (802) 426-3482

Certified Organic Hay, Straw, Grains For Sale - Massachusetts produced 1st and 2nd cuttings hay. First cut nice grass/clover mix \$3.50 out of the barn. Second cutting gorgeous red clover hay \$4.00 out of the barn (excellent creep feed for calves/lambs. Also selling our own barley, wheat, and rye straw \$4.00/bale. We will have winter rye, hard red winter wheat, hullless barley, dent corn, and tofu grade soybeans for sale this winter. Please call White Oak Farm/Matt Rulevich at (413) 323-6922 before 8:30am or after 8:30pm for specifics and to arrange for pick-up. Limited quantities. Delivery available.

Farm Manager needed for educational farm. Full-time management position with competitive pay and good benefits. Prior experience in the following a must: supervision, dairying, teamstering, and maple sugaring. Prior experience in the following a plus: budgeting, education, and working with the public. Responsibilities include: overseeing all farm operations including dairy, fields, maple sugaring, equipment maintenance, small animals, and horse-drawn farm operations. Start date; October 22 (or sooner). To apply, send cover letter and resume w/ three references by August 31 to Kully Mindemann (at address below). EOE. Stonewall Farm, 242 Chesterfield Road, Keene, NH 03431, FAX: 603/357-6018, www.stonewallfarm.org, e-mail: stonewallfarm@monad.net

Assistant farm manager wanted for 2002 season. Ol'Turtle Farm, 18 acre organically managed diversified vegetable farm looking for an energetic person eager to take on shared responsibility for the management of the farm and CSA. Field work and tractor experience necessary. Living space, farm vegetables, workman's comp and salary. Contact Eileen, Ol'Turtle Farm, 385 East St., Easthampton, MA 01027 413-527-9122 olturtle@javanet.com

NOFA/Mass certified organic garlic seed! Stiffneck - \$6/lb under 5 lb., \$5/lb 5 lb - 24 lb, \$4/lb 25 lb or more. Postage - add \$3.75 under 5 lbs, add \$5 from 5 lb to 15 lb, over 15 lb - add \$6. Garlic Braids - \$7.50 each plus shipping as above (each braid weights about 1 lb.) NOFA/Mass certified Many Hands Organic Farm, 978-355-2853

Apprentice position available for 2002 season. Ol'Turtle Farm looking for an apprentice seriously considering organic farming as a life. Will be involved in all aspects of the farm's operation with on the job training and more formal educational experiences in CRAFT. Season runs April to November. Living space, farm vegetables and stipend. Contact Eileen, Ol'Turtle Farm, 385 East St., Easthampton, MA 01027 413-527-9122 olturtle@javanet.com.

Wanted: A person, or better, a couple, to **help us grow, harvest and sell our low-spray apples** at Apple Annie in Brentwood, NH. Owners in their 60s are trying to plan ways to keep the 5 acre farm/orchard/retail store (PYO, cider press and small bakery) going. At present we have 130 old standard trees, bearing well, about 75 semi-dwarfs less than 15 years old, and three large vegetable gardens, but we are flexible about new directions, too. We'd pay you for the first few years, when/if you take over, costs and proceeds will be yours, and use of the land and barn rent-free. Anyone with interest or ideas, please call or write Charles & Joan Pratt, Apple Annie, 66 Rowell Rd., Brentwood, NH 03833 (603) 778-8881

Herb Pharm offers an **HerbaCulture Work/Study Program** on our certified organic farm in southern Oregon. Program runs mid-March through June. Work includes cultivation and harvest of medicinal herbs in exchange for classes involving many aspects of organic farming and herbalism. Must be prepared for hard work. No monetary fee. Communal housing provided. For application write: Work/Study, Herb Pharm, PO Box 116, Williams, OR, 97544. For more info. Email workstudy@herb-pharm.com or phone (541)846-9121

NOFA Interstate Council is looking for a **website content manager** for its website, www.nofaic.org. Responsibilities will include updating contact information, overseeing development of The Natural Farmer electronic archives, maintaining links to NOFA chapter sites and developing new sections to include other Council publications. For additional information, please see <http://www.nofaic.org/opportunities/>

Blow Your Own Horn!

Hairy Vetch seed for sale in 50 pound bags, 60¢ to 75¢ per pound (depending on quantity) plus shipping. Will ship by mail or truck. No Sunday calls. 573-549-2231

Garlic: Certified organic Geman White seed (porcelain-hardneck) available. Huge, easy to peel cloves. Will keep until spring under average household conditions. This strain has a high allicin content (medicinal property). \$6.50/lb. Order now for fall planting. Call Winterwood Farm, Chelsea, VT (802) 685-7726 or Email: harbaw@together.net

Farmers invited to sell at Shades of Autumn fest at Tower Hill in Boylston, MA any or all of October 6 - 8 from 10:00 to 5:00. This is the culmination of a farming education program throughout three local towns. For more information, contact Judith Friebert, 508 869-2371

EPA's new GE Plant Pesticide Rule

by Prof. Philip L. Bereano
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As you may have heard, the EPA has now released its "Plant Introduced Protectant Rule" and will accept public comment within the next 30 days (until September 19). Information about the Rule, as well as the Rule itself can be found through: <http://www.epa.gov/scipoly/new.htm>

If this agency were to carry out its responsibilities to offer the public a meaningful opportunity to comment, the whole Rule would have to be reopened for comment. As is, this Rule is promulgated - made final - with several exceptions to which comment is still permitted. That violates the intent if not the provisions of the Administrative Procedures Act

The version released by the Bush/Whitman EPA is similar to that briefly released by the Clinton/Browner EPA in January, which means there is a significant change from when the Rule was last seen in 1994: back then the "plant pesticide" under the law was defined as all the insecticidal transgenic proteins and all the transgenes necessary for their production. Now, the definition of "plant introduced protectant" is limited to the transgenic protein with insecticidal activity. This is a clever way to prevent the biotech industry from any future StarLink type liabilities: current assays for protein are much less sensitive than those for genes. Lots of foods which could be shown to contain transgenes would not be considered to contain or be derived from a GE crop because - voila! - the transgenes are not "the pesticide". If such a Rule had been in place when Friends of the Earth identified StarLink genes in the taco shells, there would have been, legally, no

contamination, there would have been no embargo of Starlink, and Aventis would not have had to shell out millions to keep StarLink out of the American food supply.

It is critical that scientists register their thoughts about EPA's assumption that there is enough evidence to demonstrate that transgenes and non-pesticidal transgenic proteins in GE crops present no human health or environmental risks. It is also critical that comment be made about the alleged pesticide reduction and crop yield "benefits" of GE crops. EPA uses these "benefits" to discount the known and potential adverse effects.

Comments on toxicity assessment of GE crops are in order. To establish tolerances in/on food, EPA tests toxicity of transgenic proteins with only a single rodent acute feeding test, done at high doses.

If no toxicity is found at high doses, EPA assumes that there can be no chronic toxicity at low doses in the food supply, despite known examples of exceptions for other proteins, and innumerable examples with conventional chemical pesticides. Despite authority to require chronic feeding studies, EPA has used this single assay to pronounce the protein "non-toxic" and grant exemptions for the requirement for a tolerance for the transgenic insecticidal protein in GE crops. This means any amount of the transgenic protein is allowed in the crop (likely manufacturers cannot control transgenic protein levels). Curiously, EPA does not consider potential allergenicity in its dietary tolerance analysis, even though allergenic reactions from novel dietary proteins cannot be ruled out. If it did consider allergenicity, it would have to either identify a safe level (a tolerance), or deny the registration. As the Science Advisory Panel just told EPA, there is no way to identify a safe level of a potential dietary allergen. Thus transgenic proteins are declared "non-toxic" and GE crops can be registered.

The 1996 Food Quality Protection Act specifically requires EPA to set tolerances to pesticides in/on crops with children's sensitivities in mind. The method required is to reduce the tolerance set for adults by a factor of 10 unless there are data to the

contrary. Despite this legal requirement, despite the fact that children are known to be sensitive to allergenicity, and despite the fact that there is no way to identify a safe level of potential allergen, EPA allows any amount of transgenic protein in GE crops when it grants an exemption from the requirement for a tolerance. Apparently EPA has had to find a way around the FQPA requirements in order to grant these registrations.

The real kicker is that this Rule is not enforceable!

With conventional pesticides, farmers - the end users - read legally enforceable instructions in the label on the can of pesticide. If they fail to follow the instructions, EPA and, through delegation, state agencies, can and do take legal action against them. This makes sure that the pesticides are used as intended, and a whole framework of applicator instruction, inspectors and state and federal legal teams keep this system working. All of that is thrown out with "plant introduced protectants." Here, farmers get no legally enforceable label, the manufacturer is supposed to make sure they get an "instruction sheet". It is the manufacturer - in New Jersey or Missouri or Michigan which holds the enforceable label. If a farmer in Iowa fails to follow instructions, no state or local EPA office can take

action against them (not surprisingly, neither EPA nor states' labs have any way to even identify GE crops). What happens is the manufacturer is supposed to enforce "grower agreements". So, Monsanto or DuPont or Dow is supposed to go out into the Iowa and Illinois and Florida and Ohio fields and check to make sure farmers are following the instructions - planting their Bt refugia, for example. As StarLink demonstrated so clearly, this system was broken from the start. It's a built-in conflict of interest for the registrant, to whom federal regulatory responsibilities have been transferred. When there is a problem, EPA is supposed to enforce against the registrant. We shall see further how well this system works when we see what type of penalties are levied against Aventis for their failure to hand out and enforce "grower agreements" designed to keep StarLink out of the human food supply.

There is more: comments are actually solicited on exemptions to the Rule. Take a look.

I hope all this whets your appetite to read the Rule and make your thoughts known. Keep in mind there will be a Docket Number which you must include in your correspondence, or EPA will disregard your comments.

United Nations Development Agency Exploits Poor & Hungry to Push Genetic Engineering

by Pesticide Action Network Asia and the Pacific

The Human Development Report 2001, "Making Technologies Work For Human Development," commissioned by the United Nations Development Programme (UNDP), reads like a PR dossier full of pro-corporate technology propaganda, gift wrapped in the guise of helping the developing world 'harness the tremendous potential' of information technology and biotechnology.

The UNDP report ignores the concern and opposition to genetic engineering by farmers, agricultural workers, consumers groups, and concerned fisherfolk, scientists, and indigenous people's in both developing and developed countries.

Kilusang Magbubukid Ng Pilipinas (KMP), the Peasant Movement of the Philippines, with a membership of 800,000 landless peasants, small farmers, agricultural workers, fisherfolk, rural youth and peasant women, have been actively protesting the development of GE rice by the International Rice Research Institute (IRRI) and are against the field-testing of other GE crops in the country.

Thousands of farmers and other anti-GE advocates participated in the Long March for Biodiversity, principally against GE rice, which travelled across Thailand for 11 days during September 2000. Farmers in the Thung Kula Ronghai area, well known for the cultivation of jasmine rice, said they were very worried that the introduction of GE crops into the country would have a serious impact on the poor rural majority.

In 1998 Monsanto and the State Government of Karnataka, India, carried out experiments in farmer's fields of GE crops without the knowledge of the majority of farmers. On November 28 thousands of farmers occupied three fields and burnt the illegal crops. This action marked the beginning of a campaign of civil disobedience called Operation 'Cremate Monsanto' in Karnataka and other Indian States.

The UNDP report also conveniently ignores actions taken against genetic engineering by some developing world governments. This includes governments in Asia that have developed or are developing regulations to stop the importation of GE seeds and foods across their borders. Others have taken positions on labelling, traceability and producer liability.

The recent ban against the importation of GE food by the Sri Lankan government has been described as one of the toughest restrictions against GE food in the world.

What happened to the right to safe food?

The UNDP report asserts that undernourished poor people can not afford to indulge in the unrealistic notion of health concerns - people need food no matter what the cost!

Dr. Arpad Pusztai, one of the world's foremost expert's on nutritional studies argues the safety testing of GE foods is inadequate to assess potential harm, that GE foods can carry unpredictable toxins and that they may increase the risk of allergic reactions.

A worst case scenario of what can possibly go wrong with GE food has already been indicated in the US and Europe in 1999 when a batch of the amino-acid food supplement L-tryptophan manufactured using GE microbes entered the market. It killed 37 people and permanently crippled some 1,500 others with a new nervous system disorder-eosinophilia myalgia syndrome (EMS).

Moreover, the UNDP report perpetuates the myth that technological fixes such as genetic engineering will alleviate poverty and feed the world. Unfortunately, the solution to world hunger is not so simple.

In many developing countries there is in fact an over supply of food, which is not readily accessible to the poor - they simply can't afford it. In a country like India, that fully embraced the 'miracle' of Green Revolution farming, some 320 million people go hungry while 60 million tonnes of grain lie idle in grain stockpiles.

The problem of poverty and hunger is not technological in nature, but is rooted in basic socio-economic and political realities, including inadequate food distribution, the lack of resources to grow food, the lack of farmers rights and land rights, and political will.

In India a study by the New Delhi based Research Foundation for Science, Technology and Ecology (RFSTE) estimates that farmers' expenses would increase by as much as nine times if they switched from traditional seeds to GE cotton seeds. Bt cotton is currently under field trial in India. An application

by Mahyco/ Monsanto for the commercialisation of its Bt cotton was recently rejected by the Indian government based on insufficient data as to the agronomic advantage of the commercialisation of the Bt cotton and insufficient environmental safety and socio-economic studies.

In Indonesia Monagro/ Monsanto's Bt cotton field trials failed to out-perform the indigenous variety in all but one of nine districts in South Sulawesi. The Bt cotton also succumbed to drought and pest infestations.

Indonesian farmers have protested against the Bt cotton and the NGO Coalition for Biosafety and Food Safety representing 72 NGOs has taken legal action against a government decree allowing the limited release of the Bt cotton seed in South Sulawesi.

Another GE product enthusiastically promoted in the UNDP report, as helping to alleviate malnutrition, is 'golden rice.' The development of this is far off in the future with many doubts as to if it really offers any significant solutions to nutritional problems. Many believe this is simply another PR strategy by a morally bankrupt genetic engineering industry.

The reality is that the genetic engineering industry has funnelled the vast majority of its investment into the development and commercialisation of a limited range of products, which are of little relevance to the needs of the world's poor and hungry.

"Instead of looking to as yet unproven as well as non-existent biotechnology breakthroughs, the UNDP should be looking into the many proven examples of ecological agriculture in developing countries based on pro-people technologies that work for resource poor communities and not against them," maintains Rengam.

It is all too evident that genetic engineering and GE foods and crops serve the short-term capital interests of a multi-billion dollar industry at the expense of our health and the environment. Corporations basically have only a financial motive in developing genetic engineering - to create a new round of capital accumulation. It is deeply disturbing that the UNDP has become a conduit for this motive. The needs and wants of the poor and hungry have been ignored yet again.

News Notes

compiled by Jack Kittredge

NOSB Needs You! The National Organic Standards Board will have 5 of 15 seats vacant by the end of this year. The USDA is now seeking nominations of organic farmers, handlers of organic product, consumer/public interest representatives, environmentalists and scientists to fill them for 5 year terms. Without strong NOSB members, the National Organic Program (NOP) will lose its independence and current strict standards may be threatened. Details on the openings and how to nominate are in the Federal Register of July 13, 2001 Vol. 66, No. 135, p. 36740 and much can be gleaned from the NOP site <http://www.ams.usda.gov/nop/> or by calling Toni Strother at 202-720-3252. Deadline is October 11, 2001. *source: Email from NOSB member Willie Lockeretz*

OGBA Goes Bankrupt. One of the major midwestern organic certification organizations, the Organic Growers and Buyers Association, revealed in late July that it was shutting down for lack of funds. The organization was based in Brooklyn Park, MN and certified over 500 clients. In many cases these are farms awaiting inspection which now have no organic certification despite a crop ready for market. OGBA chair Ray Yokiell said the agency is trying to get clients' folders to other certifiers, primarily FVO and OCIA, to ease their strain. The clients will probably have to pay a second time for certification, however. *Source: IOIA Inspectors' Report, Summer, 2001*

Lloyds' of London Now an Organic Certifier. As the below label demonstrates, organic certification is attracting some new blood. Perhaps bananas are a more lucrative product than the corn and soy OGBA (see above) was inspecting! *source: private communication, June 13*

USDA Provides \$1 Million for Certification Fees. The US Department of Agriculture has announced that \$1 million will be available to share the costs of organic certification in 15 states, including all 7 NOFA states plus Maine. Producers are eligible for reimbursement of up to 70% of their fees, not to exceed \$500. More information is on the NOP website <http://www.ams.usda.gov/nop/> *source: Alternative Agriculture News, June, 2001*

Plant Defenses Studied. Researchers from the Agricultural Research Service (ARS) published work in the March 29 issue of Nature which indicates that a chemical in the saliva of beet army-worm caterpillars prompts corn seedlings to emit an aroma enticing to parasitic wasps - a natural enemy of the caterpillars. *source: Acres, USA, August 2001*

Berries Good for Cancer, Heart Disease. ARS researchers also have found that plants containing resveratrol are both protected against fungal disease and have measurable cancer and heart disease fighting qualities. Such plants include blueberries, cranberries, dark-skinned bunch grapes, and huckleberries. The compound is most concentrated in the skin and seeds, as opposed to the pulp and juice. *source: Maine Organic Farmer and Gardener, June-August, 2001*

Maine Passes GM Seed Law. The governor of Maine has signed into law a bill sponsored by the Maine Organic Farmers and Growers Association requiring manufacturers or seed dealers of genetically modified plants, plant parts, or seeds to provide written instructions to all growers on how to plant, grow, and harvest the crops to minimize potential cross-contamination of non-GM or wild plants. Copies of the instructions must be filed with the Commissioner of Agriculture at least 20 days in advance of sale, and manufacturers or dealers must maintain a list with names and addresses of all Maine growers of their GM stock. More information is at <http://www.mofga.org>. *source: Alternative Agriculture News, July, 2001*

Canadian Court Allows Towns to Ban Pesticides. The Supreme Court of Canada has ruled that the Montreal suburb of Hudson acted legally in banning lawn pesticides in 1991. Landscapers had brought the case, arguing that the town could not block use of the chemicals since they had been approved at the federal and provincial level. The court ruling noted that municipalities are closest to the everyday lives of citizens and thus most responsive to their needs, and that in such nonessential uses as lawn care the public health purposes of the Hudson bylaw are primary. Some 36 other Canadian municipalities have enacted similar bans since 1991. *source: Our Toxic Times, August, 2001*

SARE Announces Sustainability Grants for Farmers. The Northeast Sustainable Agriculture Research and Education Program is offering grants up to \$10,000 to farmers to conduct experiments, try new approaches, and test emerging ideas about agricultural sustainability. Application deadline is December 3 and forms can be downloaded from www.uvm.edu/~nesare/ or you can call 802-656-0471 or email a request to nesare@zoo.uvm.edu. *source: SARE press release, June 21*

Connecticut NOFA Certifies Nearly 900 Acres. Fifty-two farms and one processing facility in Connecticut have met the organic requirements for certification by that state's NOFA. A directory of all these farms and the markets where they sell is available if you send a self-addressed, stamped envelope to CT NOFA, Box 386, Northford, CT 06472-0386. The farms are also listed at <http://ct.nofa.org> *source: CT NOFA press release, August 3*

Golden Rice Developers Back Down. "Golden" Rice is a new genetically modified variety which has been hailed in advertisements as helping to solve the world's food problem. It is engineered to produce enhanced beta-carotene, the precursor for Vitamin A. Critics such as Indian scientist Vandana Shiva and Greenpeace have charged that a child would have to eat almost 10 pounds of cooked rice a day to satisfy his or her daily Vitamin A requirement, and a better way to get adequate nutrition would be to encourage Asians to eat (unpolished) brown rice since most nutrients are in the hull. Now Gordon Conway, president of the Rockefeller Foundation which funded the rice's development, says: "The public relations uses of Golden Rice have gone too far. We do not consider Golden Rice the solution to the vitamin A deficiency problem." Swiss scientist Dr. Ingo Potrykus, who actually developed the variety, says: "Greenpeace has identified a weak point in the strategy of using Golden Rice for reducing vitamin A deficiency. I share Greenpeace's disgust about the heavy PR campaign of some agbiotech companies using results from our experiments." *source: Sacred Pathways, June/July, 2001*

7800 Certified Farmers in US. A count of the nation's certified organic farmers as of January 1, 2001, reported 7800, an increase of 18% from the 1999 total of 6600. The count was compiled from surveys of the 89 US organic certification agencies. *source: Alternative Agriculture News, June, 2001*

EPA Rules Against StarLink Appeal. The US Environmental Protection Agency announced that it would continue its policy against permitting even trace amounts of genetically engineered StarLink corn in human food. The agency found that an expert panel had failed to establish that StarLink was safe to eat and it thus continued to restrict the product to use only in animal feed. Aventis CropSciences, the corn's developer, has spent millions trying to buy back all the StarLink mixed in with other corn in silos around the country. A favorable ruling from the EPA would have let the firm off this expensive hook. *source: Alternative Agriculture News, August, 2001*

Osage Orange Makes Top Fence Post. Those looking for an alternative to treated wood for fence posts will be interested to know of results from long-term Oregon State University research. In order of preference by material: Osage Orange (100% lasting after 66 years with no evidence of degradation), I and T-section steel posts painted with green enamel paint (100% lasting after 48 years), L-section steel posts with aluminum paint (88% remaining and average life of 48 years for those that failed), T-section steel posts with red oxide paint (64% remaining after 48 years, average life of 36 years for those that failed), U-section steel posts with green enamel paint (78% remaining, average life of 33 years for those that failed), western juniper posts (16% after 66 years, average life of 23 years for those that failed), and black locust (18% remaining after 61 years, average life of 11 years for those that failed). Fungi at the soil line are the chief cause of rot. Osage orange is common throughout the Great Plains and was used as hedges before the invention of barbed wire. *source: Growing For Market, June, 2001*

SARE Announces Farmer-Educator Initiative. The Northeast Sustainable Agriculture Research and Education Program is seeking 3 farmers who are experts in their fields and have experience sharing their knowledge with other farmers and ag professionals. The deadline is September 28. The fields are dairy grazing management, horticultural crops, and agronomic crops. Each farmer-educator will be reimbursed up to \$8000 for time and expenses incurred in sharing their knowledge. More information is at www.uvm.edu/~nesare/ or 802-656-0471. *source: SARE press release, June 14*

Monsanto Leaving GMO Potato Field. NatureMark, the subsidiary which Monsanto set up to develop genetically engineered potatoes, is closing down. The NewLeaf, a Bt spud variety released in 1995, never was widely accepted and subsequent releases were even less popular. Monsanto spokesman Loren Wassell said: "The insect-protected potato is a great product, but it is a niche product. We will instead be focusing on four key crops - corn, oil seed, cotton, wheat - that are grown on many millions of acres." *source: Vegetable Growers News, May, 2001*

UK Organic Market Growing Rapidly. Between April 1999 and April 2000, the United Kingdom market for organic food grew by 55 percent to over £600 million. This makes it the fastest growing market in Europe. By the end of this period 2.3% of the UK's agricultural land was under organic management. This land accounted for less than half of the organic food sold in the UK, however, as 75% of the organic sales were accounted for by imports. *source: Organic Farming, Summer, 2001*

CFSA Phases Out Certification Program. The Carolina Farm Stewardship Association, the primary organic certifier in the Carolinas since 1987, has voted to end certification and steer their members to other organizations which offer organic certification services. In a letter to members the board wrote: "The main concern was that the USDA wanted certifiers to be a regulatory agency of the USDA. We realized this would limit our ability to continue some of our educational and farmer support services and would prohibit us from having our certified growers on the board." *source: Growing for Market, August, 2001*

Special Supplement on Organic Landscaping

Landscaping On Nature's Terms: Natural Organic Design

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So, you want to craft a landscape that reflects your concern for the environment and your personal health, one that is easy to care for, and looks great, too. Is this too much to ask for? Not at all! All you need to do is learn to imitate Nature and you can have it all. When Nature is allowed to guide our thinking, we use the elegant process of natural selection and evolution that has been defining how, where, and why plants grow for eons. This will not only result in a landscape that is safe and pleasant for *all* its inhabitants, it will also require less human inputs, and will emulate more closely the simple beauty of natural design that is happening spontaneously all around us. We just need to "see" with much more than our eyes, the many interrelationships between different but dependant life forms and what conditions are necessary to foster these relationships. Once we learn to learn from the Master Designer, we can begin to recreate these relationships, no matter how crudely, on the pieces of the earth entrusted to our care. Maybe the best result of landscaping on Nature's terms is it becomes infectious and begins to spread.

Landscaping with Nature ought to be fun - full of challenges and creative possibilities. It is also solemn, requiring a deep understanding and respect for the life forms we are manipulating. It is imperative to think of plants and soils as *living* systems, alive like you and I. A tree that is improperly sited cannot move itself to a more suitable location; it must endure or die. What we do or don't do with a landscape has a positive or negative effect on everything from worms to weasels, to weeds. That's why it is so important to take the time and expend the effort to learn how to collaborate *with* Nature, to draw inspiration from it, instead of fighting against it. This will insure a more gentle hand on the land we affect. In short, we must learn to learn from Nature.

Before we go any further, a discussion about exotic vs. native plants is in order. One of the basic tenets of the organic movement is "Do no harm". There are exotic invasive plants used commonly in landscaping that are very harmful to the environment. They grow so prolifically that they crowd out native vegetation and wildlife that is dependant upon the native vegetation for their existence. There are many more exotic plants that are well behaved and relatively pest-free, making them an asset to the environment. However, recent studies have shown



The walkway to this house was landscaped using mainly native, sustainable plants and boulders from the site.

photo courtesy Mike Nadeau

some "well-behaved" exotics become troublesome after a period of time and can be very difficult and expensive to eradicate. Native plants (plants indigenous to a bioregion present before European settlement [my definition]) have evolved over the millennia to thrive in their natural habitats. Many of them are as beautiful as the exotics and serve many purposes. Properly used, native plants provide a "sense of place" that unifies a landscape to its bioregion. Just think of a palm tree growing in a New England farm field and you'll know what I mean. For me, the answer is to stay well informed about the exotic invasive plant issue, plant natives lavishly, and plant well-behaved, appropriate exotics judiciously.

Another issue high on the list of "Do no harm" is pollution. Remember as we design our landscapes that every land use decision we make either enhances or degrades the environment. This will help us prevent creating or allowing pollution to happen. A few simple changes from the way things are done conventionally can go a long way to avoiding pollution. Using porous paving on driveways, such as gravel or pavers with porous grout in the spaces between them, will reduce surface water runoff and allow natural percolation and filtration to take place. Planting a diversity of vegetation with a natural leaf

litter works like a forest to slow down the water and allow it to seep in. Directing storm water from gutters and swales to low areas or holding ponds on our sites will allow the water to slowly seep into the ground to recharge the water table. This also creates unique opportunities to use many beautiful and useful plants that prefer a wet or periodically wet spot. Conventional "wisdom" advocates storm water charging off the roof, through the gutters, down the asphalt driveway, over the compacted lawn, into the gutter, into the sewer, and out in a torrent into the local stream, which can not handle the torrent. All this runoff carries with it many pollutants and causes pollution in the form of erosion by sheer velocity. Thoughtful design can eliminate most or all of this form of non-point-source pollution. Of course, natural organic design uses no synthetic materials to create and maintain our landscapes and goes a long way to preventing pollution.

Since natural organic design is based on Nature's terms, it is important to define what they are. In a nutshell, Nature's terms are the genetic limitations of any life form, which determines its survival. Another literal description is the continual evolution of natural processes and functions of the earth, (and I stress) *not necessarily for the sole benefit of*

humankind. A more down-to-earth definition of Nature's terms as they relate to landscaping is the environmental conditions that occur on a particular site that affects the ecology of that site. Some of these conditions are things like weather, diseases and insects, cultural problems (us), sun/shade, dry/wet, topography, drainage, and so on. All of these factors and more (many of them unknown or misunderstood) determine how, where and why a certain plant will thrive here, but languish there.

To me, a successful organic landscape has to be conceived and designed to take advantage of the benefits of organic land care and to avoid the limitations. This will insure that the landscape can be established and maintained organically. This is very simple stuff to do. An example of this might be to simply avoid using a particular wildflower that is plagued with powdery mildew by substituting it with a disease-resistant variety or choosing another plant altogether. Another benefit of heeding Nature's wisdom when designing landscapes is that our inspirations can be more easily sustained for the long term, requiring a minimum of inputs, because plants are where they "want" to be. This basic principle of natural organic landscape design (sustainability) is infused throughout this article.

To truly operate within Nature's terms takes a certain quality that is probably one of the most misunderstood, and for some, hard to come by. That quality is humility. I use the word here to describe the need to take all of our knowledge, experience, and ego and put it aside so we can "see" an untainted picture of what the land is "showing" us. We all know our poop, but sometimes leave little room for true inspiration. Every walk we have taken in the woods, every stroll through a meadow or a wetland, is a vast store of inspiration that we can use if we develop the quality of "seeing what wants to be there" – what would occur naturally if Nature alone were to design the landscape. Then we take our knowledge and experience and *humbly* apply it to what we've learned from the land, to fashion the landscape into a functional and beautiful environ-



photo courtesy Mike Nadeau

Lawn alternatives using native and sustainable plants like this one, increase biodiversity while often reducing maintenance requirements.

ment that will meet the expectations of our clients and ourselves.

Speaking of clients (or ourselves if we are designing our own landscape), it is important to learn what their needs, priorities, and budget requirements are early on. I ask if they have a vision or a dream for the site or part(s) of it. If not, I try to engage them in creative contemplation. I try to transfer the excitement and passion I feel for what I do, not just regurgitate knowledge. It is important to explain the organic approach to landscaping, and why I do it this way. Be careful not to be perceived as a crusader who is out to save the world with the

client's money! They may run to the nearest non-organic landscaper and never leave. Point out the potential for lower maintenance costs by using organic design principles, and a safer environment without using synthetic materials to sustain their landscape, but *never* tell a client that such a landscape is maintenance-free, because it is not. At this point it is important to learn the client's level of commitment to my organic approach, even if it will be more costly for them in the short term than conventional landscaping. It is very important that I feel "good" about working with them and the work they want done. An old timer once told me long ago I couldn't lose my money, my reputation, or my

self-respect on a job I turn down. I haven't always heeded that advice, but I have never forgotten it.

Once I know what functions need to be designed into the landscape, I concentrate on mingling functionality with natural organic design by learning as much from the landscape as I can. By sitting quietly and observing natural rhythms taking place all around helps me connect with the "spirit of the place". Notice how the site relates with its surroundings. Locate areas of beauty and interest and take advantage of them. Watch where the chipmunks come and go, feel where breezes come from, note sun and shade patterns, comprehend differences in vegetation and know why they differ, search for wet and dry areas and understand the movement of both surface and sub-surface water and its relationship to flora and fauna. Learn to evaluate the native landscape that abuts your site and dream up ways to mimic its repetitions and oddities. Are there woods or corridors adjacent to the site, and how can they be utilized to invite the animal neighbors back into the landscape? If little or no native landscape exists, try to locate nearby natural areas that match as closely as possible the ecology of your site and use them as inspiration. Plants and soils go hand-in-hand and should be given equal consideration. Learning about the characteristics of the soils on the site is an indispensable tool for selecting the right plant for the right place and is another basic principle of natural organic design.

Natural organic design is much more than just arranging plants informally on the landscape. It is an attempt to create plant communities that function symbiotically by imitating the natural groupings of plants and soils that occur natively in the wild. These communities are self-sustaining because the growth characteristics of each species is complimentary to the other. Learn to work with the attributes and limitations of the site, as they exist instead of altering them. With this information it is possible to create a landscape that fulfills the client's needs for functionality and aesthetics, while

respecting the integrity of the natural ecology of the land. It is also a great way to re-invite the wild creatures back into the landscape, because a diversity of plant species create excellent habitat.

My early training in landscape design dictated that a certain amount of space "should" be allowed between plants so they could grow into "specimens". It was also stressed that the plants should be uniform in appearance, lest you compromise the design! And always, always, plant monocultures (repeatedly use the same plant) to get more bang for your design buck. Needless to say, I have been busy un-learning all that nonsense because when I walk into a woods or through a meadow, I see plants of mixed species growing in community, some growing very close together, others farther apart. I also see plants of uneven age growing together. And heaven forbid, plants that are misshapen – even dead ones! Are these mistakes? Hardly. It just requires a different mindset to understand this, very different. Instead of thinking of plants as individuals, think of groups of them as a collective and self-supporting organism. Instead of judging each individual tree as a "specimen", imagine the collective organism as the specimen. In other words, the trees that make up a forest are not particularly handsome on their own, but the forest when viewed as a whole, is. So don't just plant trees, plant ecosystems!

We can observe and imitate nature literally if we are designing an area that will not be used by humans. But most of my clients want to actually "use" the designed space. (The nerve!) So, how do we select

the "right plants for the right place" and integrate all the functions and aesthetic qualities our clients require? We can do it by blending art with ecology. One way of doing this is using groupings of compatible plants that are not only beautiful and functional, but serve an ecological purpose, too. For instance, a privacy screen can be composed of flowering, berrying and evergreen plants that attract, shelter and feed wildlife. This same screen planting can be strategically placed to connect with an adjacent open space, creating a safe corridor for wildlife to travel in. In areas where less than a formal lawn is needed, the beauty and ease of a "low-mow" lawn or a grass and wildflower meadow is an excellent ecological alternative. Pathways that weave through properly chosen and planted vegetation, that reveal the landscape as you turn the corner, elicit excitement and surprise and can show off special design elements to best advantage.

This article just scratches the surface of natural organic design. I urge you to read up, take classes, question the status quo, take chances, get out and observe. But most of all *spread the word!* As I said in the opening paragraph, maybe the best result of landscaping on Nature's terms is it becomes infectious and begins to spread.

Eco-Landscaping - Using Native Plants Around the Home

by Christopher Miller

Regional Plant Materials Specialist, USDA-NRCS

The concept of incorporating the design elements of the natural environment into the home landscape and a more “hands-off” approach to landscaping has been gaining momentum in recent years. Creating a sustainable landscape is somewhat daunting at first, because it seems to go against the grain of our instincts to rule and control nature. While many of these techniques are promoted as low maintenance, they may require some short-term maintenance at the beginning. For example, establishing a native grass/wildflower meadow may initially require a higher level of cultural management than establishing a lawn but will provide a low maintenance, aesthetic look for a long period of time.

Most of the ecological landscaping principles are based on:

- knowing your soil conditions (pH, texture, drainage)
- carefully selecting adaptable, indigenous native plants to your geographic region
- identifying microclimate site conditions on your property
- minimizing turf grass (lawn) area
- conserving water (mulching, proper timing)
- reducing or eliminating commercial fertilizers and pesticides.

Many different levels of complexity can be undertaken from simply reducing lawn maintenance to utilizing integrated pest management (IPM), which requires knowledge of threshold levels of pest damage, alternative treatments, insect ID, etc. The most realistic approach is to start small and integrate changes in phases stopping to evaluate the past and contemplate future challenges along the way. While the references I've listed at the end of the article focus on many of these ecological concepts in detail, I would like to focus on the use of native plants in the landscape.

Why Landscape with Native Plants?

- 1. Reduce fertilizer and chemicals** – native plants require little fertilization once established and are resistant to most pests and diseases
- 2. Reduce water use** – native plants have evolved to the long-term water balance of the geographic area
- 3. Support the ecosystem community** – native plants serve as food, shelter, and reproduction hosts for a wide variety insects, birds, and mammals.
- 4. Reduce the proliferation of invasive plants**- by planting only native species, the localized seed source of invasive species is reduced.

One of the first steps you might consider in creating an eco-landscape is to eliminate turfgrass in those difficult soil conditions around your property. Maybe it's a particularly wet area which could be replaced with herbaceous wetland plants and/or floodplain shrubs. Conversely, if it is a particularly dry, sterile location you may consider planting native grasses and/or wildflowers which do not require much water, fertilization and only annual mowing once established, in the late winter/early spring. Another option may be to set aside natural areas and allow nature to select what volunteers in the site. An annual mowing or periodic weed pulling may be necessary to keep out invasive plants. On steep slopes, consider planting groundcovers instead of grass.



photo courtesy Chris Miller

Tall native grasses add fall and winter interest to the landscape

Identify Microclimates on your Property

Wet sites - These areas could be at downspout outlets, drip from air conditioning condensation, or concentrated runoff from roads, driveways, or natural depressions or floodplain areas.

1a. Moist-Wet, Part Shade to Shade tolerant species

Shrubs

Clethra alnifolia - sweet pepperbush
Cornus sericea/amomum – redstem/silky dogwood
Hamamelis virginiana - witchhazel
Ilex verticillata - winterberry holly
Itea virginica – Virginia sweetspire
Kalmia angustifolia – sheep laurel
Leucothoe racemosa– swamp fetterbush
Lindera benzoin - spicebush
Physocarpus opulifolius - ninebark
Rhododendron viscosum - swamp azalea
Vaccinium corymbosum – highbush blueberry
Viburnum dentatum - southern arrowwood
Viburnum lentago - nannyberry
Viburnum prunifolium - blackhaw viburnum

Herbaceous Plants

Asclepias incarnata - Swamp milkweed
Carex spp. – Sedges
Chasmanthium latifolium/laxa – wood-oats/slender spikegrass
Cinna arundinacea - Wood reedgrass
Dryopteris noveboracensis – New York fern
Elymus virginicus – Virginia wildrye
Lobelia cardinalis - cardinal flower
Onoclea sensibilis – sensitive fern
Osmunda cinnamomea – cinnamon fern

1b. Moist-Wet, Full Sun

Shrubs

Amelanchier spp. – shadbush, juneberry, service-berry
Aronia arbutifolia - red chokecherry

Aronnia melanocarpa – black chokeberry
Cephalanthus occidentalis – buttonbush
Cornus racemosa – gray dogwood
Cornus amomum - silky dogwood
Cornus sericea - redosier dogwood
Myrica pensylvanica - bayberry
Rosa palustris – swamp rose
Salix exigua - sandbar willow
Salix discolor - pussy willow
Sambucus canadensis - elderberry
Spirea tomentosa – steeplebush
Spirea latifolia - meadowsweet

Herbaceous Plants

Asclepias incarnata - swamp milkweed
Aster novae-angliae - New England aster
Acornus calamus/americanus - sweet flag
Calamagrostis canadensis - bluejoint reedgrass
Carex spp.- sedges
Eupatorium purpureum - Joe-Pye weed
Glyceria spp.- Mannagrasses
Hibiscus moscheutos – marsh hibiscus
Iris versicolor - blueflag iris
Juncus effusus. - soft rush
Scirpus spp. - Bulrushes
Sparganium spp.- Burreed
Verbonia noveboracensis - New York ironweed

Dry sites– These areas could be old access roads no longer in use, borrow areas, or open, sandy or clayey areas. Native grasses are highly adapted to dry, sunny sites. Although they establish slower than turfgrass species, they require much less long-term maintenance (no lime, fertilizer, and only annual to biannual mowing). These grasses can be used with native wildflowers to create a natural meadow. Native grasses can also serve as accents in ornamental plantings where introduced grasses are commonly used. A commonly used ornamental grass, *Miscanthus* or Chinese silvergrass, should be avoided as some genotypes spread and become invasive in natural areas.

All the cultivars listed below are adapted to the Northeast. Those in bold were developed specifically for their ornamental value.

2a. Dry sites, Full – partial sun : Improved Varieties of Native Warm Season Grasses

Common Name	Scientific Name	Cultivar(s)	Maximum Height	Common Name	Scientific Name	Cultivar(s)	Max. Height
Big bluestem	<i>Andropogon gerardii</i>	'Niagara'	7 feet	Purpletop	<i>Tridens flavus</i>		4 feet
Broomsedge	<i>Andropogon virginicus</i>		3 feet	Sideoats grama	<i>Bouteloua curtipendula</i>		3 feet
Coastal panicgrass	<i>Panicum amarum</i>	'Atlantic'	6 feet	Switchgrass	<i>Panicum virgatum</i>	'Blue Tower'	8 feet
Deertongue	<i>Dichanthelium clandestinum</i>	'Tioga'	3 feet			'Cloud Nine'	8 feet
Eastern gamagrass	<i>Tripsacum dactyloides</i>	'Pete'	8 feet			'Heavy Metal'	5 feet
Indiangrass	<i>Sorghastrum nutans</i>	'Sioux Blue'	6 feet			'Prairie Sky'	4 feet
Little Bluestem	<i>Schizachyrium scoparium</i>	'The Blues'	3 feet			'Red Cloud'	6 feet
		'Blaze'				'Shenandoah'	4 feet
Prairie cordgrass	<i>Spartina pectinata</i>	'Aureomarginata'	7 feet			'Squaw'	4 feet
Prairie dropseed	<i>Sporobolus heterolepis</i>		3 feet			'Strictum'	6 feet
Purple lovegrass	<i>Eragrostis spectabilis</i>		2 feet			'Warrior'	5 feet
				Wood-oats	<i>Chasmanthium latifolia</i>		4 feet

Wildflowers Adapted to Sunny, Dry Sites

- Aquilegia canadensis* – wild columbine
- Asclepias tuberosa* – butterflyweed
- Aster spectabilis* – showy aster
- Baptisia australis* – wild blue indigo
- Chamaecrista fasciculata* – partridge pea
- Coreopsis tinctoria* – tickseed
- Echinacea purpurea* – purple coneflower
- Rudbeckia hirta* – black-eyed susan

Shrubs/Groundcovers

- Artostaphylos uva-ursi* - bearberry
- Ceanothus americanus* – New Jersey tea
- Comptonia peregrina* – sweetfern
- Juniperus communis* – creeping juniper
- Myrica pensylvanica* – Bayberry
- Prunus maritima* – beach plum
- Rhus copallina* – shining (dwarf) sumac

2b. Partial Shade, Dry sites

Herbaceous Plants

- Carex pensylvanica* – Pennsylvania sedge
- Deschampsia flexuosa/cespitosa* – crinkled/tufted hairgrass
- Pteridium aquilinum* - Bracken fern

Shrubs/Vines

- Campsis radicans* – trumpet vine
- Kalmia latifolia* – mountain laurel
- Parthenocissus quinquefolia* – virginia creeper
- Rubus allegheniensis* – blackberry
- Vaccinium angustifolium* – lowbush blueberry
- Gaylussacia baccata* – black huckleberry

Buy Locally Grown Nursery Stock

For all nursery material purchased, it is important to select locally grown plants as opposed to plants shipped in from other regions. There are now many specialty nurseries that grow native plants from locally collected seed. These plants are highly adapted to growing conditions (i.e. humidity, temperature) of the area.

Landscaping Plants to Avoid

The following plants have been historically used in landscaping because of their aesthetic and/or wildlife habitat value. However, these species have been identified by natural land managers and government officials as being invasive in the wild. The prolific spreading nature of these plants displaces our native vegetation:

Herbaceous Plants

- Lythrum salicaria* – purple loosestrife
- Miscanthus sinensis*– Eulalia, Chinese silvergrass

Shrubs/Vines

- Berberis thunbergii* – Japanese barberry
- Celastrus orbiculata* – oriental bittersweet
- Eleagnus umbellata* – autumn olive
- Euonymus alatus* – winged euonymus (burning bush)

- Ligustrum obtusifolium* - Privet
- Lonicera* spp.– shrub honeysuckle
- Rhamnus cathartica* - buckthorn
- Rosa multiflora* - multiflora rose
- Wisteria floribunda* – Japanese wisteria

Trees

- Acer platanoides*- Norway maple
- Ailanthus altissima* – tree of heaven
- Paulownia tomentosa* – Empress tree

In conclusion, a sustainable landscape contains all the elements of a traditional landscape design but minimizes or eliminates the obvious irrigation, herbicide, chemical fertilizer and mowed turf components. To accept this naturalistic approach as a society, we have to alter our paradigm and view these “unkept” landscapes as beautiful because they function ecologically. This can be one’s personal contribution toward local environmental stewardship.

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photo courtesy Chris Miller

Silvery sheen of little bluestem seedheads provides aesthetic value as well as drought tolerance to a natural landscape

The Organic Land Care Program

by Kim Stoner

For me, it started in Quaker Meeting when I talked with Connie Eash, an anti-pesticide activist, who works with people with multiple chemical sensitivities and is also the mother of a chemically sensitive son. I mentioned my work with organic farmers and my volunteer work with NOFA. Connie was appreciative, but she also said, "Of all the chemically sensitive people I know, none of them was initially poisoned by pesticides in their food. It is much more common for them to have been poisoned by pesticides used in buildings or in the landscape."

That reminded me of my perennial frustration at home. I live in a condominium, and I have served on the Board of Directors of the condo. While I have been able to get my fellow board members to at least think about why pesticides are being applied (instead of just going with the ChemLawn program), pesticides are still routinely applied to the shrub beds and the lawn. I go out of my way to buy and eat organic food, but how much good am I doing for myself or for the planet when pesticides are being applied several times a year just outside my windows?

Farming and food are important, but, let's face it folks, farmland is a very tiny proportion of the land in states like Connecticut and Massachusetts. Even if it were all organic, that would make only a dent in the total pesticide use in our states. The NOFA phones and mailboxes get inquiries all the time looking for professionals who can care for lawns and landscapes organically. Why have we been missing this challenge and this opportunity?

So, the Organic Land Care Committee began to meet. I brought together the Connecticut group: Connie, me, Carlton Holcomb (who had done organic property management) and Mike Nadeau, a landscaper whose business had gone increasingly organic over the years. I talked to NOFA/Mass and found out that they were thinking along the same lines. When they hired Priscilla Williams to look into the possibilities, she joined our little group. Kathy Sargent O'Neill of the Ecological Landscaping Association joined us too.

We set to work on our mission statement, which took some time to develop, but which has served us well. Our mission is:

Education of land care professionals and concerned citizens in the practice of organic land care, with the goals of maintaining soil health, eliminating synthetic pesticide and synthetic fertilizer use, increasing landscape diversity, and improving the health and well-being of the people and the web of life in our care.

Our first efforts to educate concerned citizens came with the development of a brochure on organic land care and increasing the workshops at NOFA conferences. This approach is fine for the "do-it-yourself" homeowner, but as we handed out brochures to the general public, we received more and more inquiries about how to find organic land care professionals. We needed a list, but we could see several problems with a list. We knew there were land care professionals who claimed to be organic, but, whether due to a lack of knowledge about the rigor of organic standards in agriculture or due to misrepresentation of their practices, used practices unacceptable to NOFA. We also knew that the list of organic land care professionals we could trust to make that claim would be very small, and most of those professionals already had as much business as they could handle.

The land care professionals knew that NOFA could not certify them the same way we certify organic farmers. As Carlton, a professional organic inspector, pointed out, what would you inspect? The property being managed? But the land care profes-



photo by Don Bishop

The committee, hard at work last winter, hammering out the Land Care Standards.

sional has no control over what the homeowner does to the property. The land care business? There are very few all-organic land care businesses in existence. Generally, there is a transition period for a new client changing from chemical to organic management and some chemicals are used during the transition, particularly on very valuable plants. The only solution we could see would be for organic management to be part of the agreement between the professional and the client. The client would be the inspector.

From this idea, we planned our program for land care professionals. First, we had to write standards. The standards would spell out for the professional and the client what organic land care means. Then, we had to develop a course for the land care professionals, so that there would be people who understood the meaning of organic and who were prepared to provide organic service to the clients who requested it. The graduates of this course would make up the NOFA list of accredited organic land care professionals. Finally, we would write a guide for clients and other concerned citizens, explaining organic land care and their role in making sure their property was cared for organically. The Boards of Directors and Certification Committees of Connecticut and Massachusetts NOFA approved this approach, and we were on the road.

The standards have been a long time in development, but they will be available by the time you read this. We started from the agricultural standards in our two states, but the land care profession has issues entirely different from production agriculture. One example is the issue of plant choice. In agricul-

ture, the vast majority of plants are not native to our bioregion, but in organic land care, we could express a strong preference for plants native to the local bioregion, while allowing non-native plants, as long as they were not listed or likely to become invasive species.

Writing these standards is a major achievement. These are the first comprehensive organic land care standards anywhere in the world, as far as we know. Members of the committee have been getting inquiries from all over the U.S., so we hope that these standards will become the model for organic land care programs everywhere.

We are currently hiring a curriculum coordinator to help us develop the pilot course for land care professionals, which will be held in Massachusetts in February of 2002. Programs for the public are being planned for Massachusetts, as well as a survey of garden centers to identify those selling organic materials and not selling invasive plant species. As we get more funding, we are hoping to write the citizen's guide, to put on another course for professionals in Connecticut, and to have homeowners' workshops.

To order a copy of "Standards for Organic Land Care: Practices for Design and Maintenance of Ecological Landscapes," write to Connecticut NOFA, P.O. Box 386 Northford, CT 06472-0386. The price is \$18.87 (\$20 including the 6% sales tax for CT residents) and \$3.00 shipping and handling. For information about the pilot course for land care professionals in Massachusetts, call NOFA/Mass at 978-355-2853.



photo by Don Bishop

Priscilla Williams and Mike Nadeau try to keep up with the committee's progress on a laptop.

The people who brought you these standards:

It's just after 10 o'clock on a Tuesday night, any month in the last year, in the conference room at the top of the Valley Laboratory in Windsor, Connecticut. A little group talks away, trying to work out a consensus on yet another controversial issue in the standards. It could be how and whether to restrict the use of leaf-blowers and other polluting engines, whether there really is a disease risk from blood meal and bone meal fertilizers in the U.S., or, going back a few months, how much nitrogen should a landscaper be allowed to apply (as organic fertilizer or compost, of course) to a lawn per year. We are all starting to think about our long drives home, but we are also committed to sticking it out, continuing the discussion by e-mail if necessary, in order to get a standard we can agree on, and then we will move on the next question.

We know each other quite well by now, not necessarily the details of each other's personal and day-to-day lives, but certainly the details of our particular passions for care of the land and the environment.

- Mike Nadeau, of Plantscapes, Inc., has been a land care professional all his life (and pushed for us to call it "organic land care" and not landscaping). He is already well known in NOFA for his enthusiastic workshops on organic arboriculture. He has both a mystical and scientific dedication to the health, beauty, and spirit of trees. He also is fascinated by meadows, and by studying local models of natural ecosystems in order to design landscapes with locally appropriate native plants. His tag line from the beginning has been, "Where there is passion, there is verbosity," and we sometimes have to prune his verbosity a bit, but his passionate dedication to organic land care has kept us moving forward.

- Kathy Johnson, of the Natural Resources Conservation Service, brought to our group her unique dedication for preserving our native soils as they are, wherever possible. Just as others are advocates of a diversity of native plants, she argues that our own diversity of soil types helps to create a diverse landscape – and soils we may think of as poor from an agronomic point of view are, in fact, the best habitat for many of our native plants. She made us rethink the standard organic line, "Feed the soil, not the plant," by saying, "If you keep feeding the soil, you get fat soil."

- Mary Tyrrell, of the Yale School of Forestry and Environmental Studies, is the point person on the crusade against invasive plants. She was also the final editor of the standards, so she had the difficult job of getting us to stop re-writing and rethinking so that we could actually get the standards done.

- Joanna Erikson, representing the Grassroots Coalition, turned to environmental activism when



photo by Don Bishop

Priscilla Williams and Kim Stoner pour through files while meeting with the Land Care Standards Committee.

she retired from a career in public health. She brings us formidable organizational skills, having actually written standards and manuals in her career, and an array of connections to the environmental community and to granting sources.

- Priscilla Williams, who moved during the last year from being an employee to being the owner of Pumpkin Brook Organic Gardening, Inc., is our specialist in garden beds and what is planted in them – perennials, annuals, herbs, even ornamental vegetable gardens. She is also the leading grant writer in our group, with a wide experience in raising money for other organizations and an ability to turn out pages of prose on a deadline.

- Todd Harrington, of Harrington's Organicare, draws information from organic agronomists like Neil Kinsey and the workshops and publications of ACRES U.S.A on how to build soil and balance nutrients, especially for growing lawns. He is always reaching out for new information and tools through his network of organic soil and plant experts, and he is becoming an expert and consultant himself. One measure of his dedication to our group is that he kept coming to our meetings, even as the new father of twins.

- Don Bishop, of Gardens Are... is another land care professional continually searching for new information, restlessly questioning and experimenting. He

occasionally had to step in to keep us from setting too many restrictions, reminding us of situations where the professional needs certain tools and materials in order to do the job efficiently and economically. He also recently had a new daughter to add to the rest of his brood.

- And then there's me, Kim Stoner, who is really a vegetable entomologist and doesn't know much about landscape plants, but who started this ball rolling and tries to keep it moving along. (committee note: The rest of the committee just couldn't let Kim get away with that very modest profile of our fearless leader. She has truly been the force that kept us going through much hard work and many long hours of debate. Like any good orchestra leader, her quiet, yet determined leadership, persistence and hard work brought out the best in all of us. On many difficult issues she transformed strong and varied opinions into a consensus that everyone could live with yet that remained true to our core organic values.)

I know that NOFA has always functioned on the extraordinary dedication of volunteers, but this group, which has put together the first comprehensive set of organic land care standards anywhere, as far as we know, deserves special recognition. And, even though there are now standards, we aren't finished yet. This is only the beginning of the NOFA Organic Land Care program.

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Bio-Integral Resource Center (BIRC). Least toxic pest management. Publications include: *The IPM Practitioner* and *Common Sense Pest Control Quarterly*. BIRC, P.O. Box 7414, Berkeley CA 94707; 510 524-2567; <http://www.birc.org>

Connecticut Agricultural Experiment Station. Publications, soil testing, identification of pests and plant diseases. CAES, P.O. Box 1106, 123 Huntington St.,

New Haven CT 06504. Insect inquiries: 203 974-8600. Plant inquiries: 203 974-8601. Soil testing: 203 974-8521. Windsor Valley Laboratory: 860 683-4977. Website: <http://www.caes.state.ct.us>

Ecological Landscaping Association. Educational workshops and forums. P.O. Box 2924, Framingham MA 01703-2924, 617 436-5838; Website: <http://www.ELA-ecolandscapingassn.org>

Long Island Organic Horticulture Association. Membership organization with classes and trade shows of organic products. LIOHA, 90 Pennsylvania Avenue, Massapequa NY 11758; 516 541-4321

New England Wild Flower Society. Membership organization offering education and information about the use of native plants in the landscape. 180 Hemenway Road, Framingham MA 01701; 508 877-7630. Website: <http://www.newfs.org>

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Long Island: The Landscape Goes Organic

by Jack Kittredge

Long Island stretches all the way from New York Harbor almost to the Rhode Island border. It is a 118-mile long relic of the last Ice Age, deposited by glaciers which had reached their furthest southward descent.

Home to seven million people, much of the western part of the Island has been developed and marketed to those pursuing the American dream of a single family house, a car (or two) and a yard.

But, given it's geological origins, Long Island is very sandy and acidic. The natural environment isn't conducive to nice green lawns, especially in the high summer when rainfall is simply not adequate to sustain grass. So, after the rapid development of the chemical industry in the 1950s, residents began to use lots of synthetic fertilizers, herbicides, insecticides, and fungicides in their search for a nice looking lawn.

A generation later, samples of ground water are turning up containing toxic breakdown products of these chemicals, and the incidence of breast cancer on the island is so high that it is the subject of a federal study by the EPA. One local organization, Neighborhood Network, is focusing attention on this connection and trying to bring residents to an awareness of the organic alternative. They publish a directory promoting organic lawn care, survey and publish lists of stores which carry organic lawn products, and have created an all-organic landscaping professional group, LIOHA (Long Island Organic Horticultural Association).

Neal Lewis, executive director of the group, says: "It's a team effort. We have 21 environmental and breast cancer groups, all across Long Island, that are distributing this information to their memberships. We're using this as a means to counter the large budgets of the chemical companies. It's really a comprehensive service. First we give them the tips so they understand the issues involved in maintaining their lawns organically. Then we give them descriptions of the products they can use. They've heard of pesticides and herbicides, but they haven't heard of rock dust, minerals, the role compost can play on a lawn. Then the problem is where can they get the products. A lot originally were only available by mail order. Most of the garden centers on Long Island are not providing a good selection of organic products. So we did surveys every two years over a 6-year period and chronicled how good a job stores were doing of providing alternatives to pesticides. We put our information in our material recommending stores with good selections.

"Now it's beginning to become comprehensive," he adds. "You have the tips, the descriptions, where to find them. Then we would run into people who are members of ours. The fact that we have a door to door canvass keeps us very grounded in the real world of our membership. Some of the groups I meet in coalitions take very adamant positions, but they don't have the same mindset we do. We're an environmental group, but we're not protecting the Sierra Mountains. We're protecting Long Island! This is a real world of people who want to maintain lawns here. We don't promote xeriscaping with evergreens and rock formations. People like to play with their kids on lawns. We refuse to give an inch on the notion that you have to compromise your health or the environment in order to live a typical suburban life and maintain a lush, green, healthy lawn."



photo by Jack Kittredge

Neal Lewis, executive director of Neighborhood Network, talks to the press about the release of the LIOHA 2001 Organic Landscaper List. Sixteen organic landscaping companies have met LIOHA's standards and were approved for participation. On left is Steve Restmeyer, LIOHA president and owner of one of the qualifying businesses. On right is Karen Miller, president of the Huntington Breast Cancer Action Coalition.

Neighborhood Network has a program staff of 6 people, a canvass crew of some 20 college-aged kids, and a phone staff for fundraising. Their membership of over 10,000 is acquired by door-to-door canvassing and is their primary financial support. In addition to the organic landscaping work, Neighborhood Network is also working for early intervention in mosquito areas to prevent later health problems with West Nile Virus and calls for spraying. Governor Pataki recently signed a law Neighborhood Network initiated, calling for neighbor notification when pesticides are sprayed by professional applicators such as landscaping companies or exterminators.

Lewis is from Long Island initially. He got involved in environmental issues while a student at Nassau Community College and did a report on Long Island's drinking water table for a biology class. He liked being an activist so much he took a year off to work with NYPIRG on environmental issues. After graduating in 1985 he went to law school and emerged with a degree in 1988.

"When I was going to law school," he says, "I wasn't going to come back to environmental activism. I assumed I'd work for a legislator, maybe, getting new laws passed. But I didn't really have a plan. The law profession leaves a lot to be desired in terms of careers. Criminal law is disgusting. If you are a prosecutor you really have all the resources and overpower the defendant, except for the few cases involving the very rich. Prosecutors get away with all sorts of things that are improper. My father was a cop so I'd had enough of that. On the flip side, who wants to defend criminals all the time? The reality is, for a criminal lawyer, that the vast majority of your clients are all guilty! Then there's corporate law, tax law — that's an accountant with a law degree. I'd glaze over. Real estate seems to be very boring. You really don't have that many options when you come out of law school."

So Neal ended up working for Neighborhood Network on half salary. Over the years he has

cobbled together a financial base of membership and small donations which has enabled the organization to chart its own course. He feels strongly that groups which depend on foundations for their primary funding are soon diverted from their real work into what will keep their names in front of the funding sources.

"I'm big on substantive work," he stresses. "Some people think we get a fair amount of press. But we really don't. I'm not as good at working with press as I should be. But I get frustrated. A lot of the activist groups are more focused on seeing their names in the paper than getting meaningful accomplishments."

The work Neal is currently most actively promoting is the transformation of the county park system, especially its golf courses, to 100% organic management. As he puts it: "I had a strategy that goes back to 1995. I had already been working on pesticides, working for alternatives. One of the questions was, how far can we push the envelope? A lot of people were big on IPM. We wondered if that was all we could get, or could we go for 100% organic? While we were debating that, I was invited to attend a meeting of a couple of golf course superintendents, which was organized by environmentalists. This was a fledgling group. At the time I'd never played golf and didn't know much about it. When I got to the meeting I found the environmentalists were very anti-golf.

"The superintendents," he continues, "had gotten a lot of interest for doing some IPM things, but the group fell apart after a couple of meetings, partly because the superintendents felt it was impossible to maintain golf courses at an acceptable level without chemicals. They talked about the number of golfers — the tens of thousands who would be marching across their turf. The compaction was a real problem, as well as just being able to find time to work on the land with it so much in use. They talked about having to cut the grass so short, and then constantly water it for growth, but the water being

perfect for fungus problems. So I said: 'Golf is the hardest. If you can get 100% organic on golf courses, you've cracked the nut! The Holy Grail of the pesticide fight is getting golf courses to be organic. If you can prove that you can maintain golf courses organically, then there's no reason that the person with the typical lawn needs chemicals!'"

So Neal decided to take up golf in order to understand what the superintendents were saying. He started playing golf on Sundays and Neighborhood Network made a decision to push for 100% organically managed golf courses. They decided not to focus on the superintendents, since they are just responding to pressures.

"In a private golf course," Lewis explains, "superintendents have to deal with the membership coming in and complaining. If you change the way the greens are cut, cutting it higher so the green is slower, they'll complain about that. Golfers are very particular. If you say to them that you're doing something differently, you've opened yourself up to problems. In private clubs, the golfers are the members, and the members are the owners. They can fire you. At least one superintendent who was active with us did get fired. So we focused on bringing various environmental groups together. We formed a coalition and called it 'organic golf'".

Neal's big break on this issue came when Suffolk County (one of the four counties on the island) decided to build 5 new golf courses. Back in law school Neal had learned about NEPA — the National Environmental Policy Act. It's the bill of rights of environmental law, setting out a policy that requires an Environmental Impact Statement (EIS) to be undertaken when a major federal project is underway. The big debate is: 'Does the study need to be done, or not?' The study takes a couple of years to do and it gives the environmentalist an opportunity to slow down the project with hearings, opportunities to respond, etc.

More than 30 states adopted state versions of NEPA. In New York it's called the State Environmental Quality Review Act. SEQRA applies whenever there is discretionary governmental action involved, such as zoning changes, which "may have a significant effect on the environment". One doesn't have to prove that a project is going to destroy the environment, just that it may have a significant effect on the environment. So a lot of the debates around this law revolve around whether the effects of a project will be significant on the environment.

When a study is done, however, the act requires the study to consider mitigation measures and alternatives. If a shopping center is proposed, for example, if it is proposed for 20,000 square feet, a group could propose that it be only 10,000 square feet. That would be mitigating the traffic impact by making it smaller. Or someone could propose making it a youth center instead. That would be an alternative which would attract less traffic. Here the debate centers around how feasible does an alternative have to be to justify being looked at?

As an attorney, Lewis had been involved in a couple of lawsuits involving SEQRA. He had fought a town incinerator, arguing they should promote recycling instead of incineration. The town agreed to do a recycling program to show that they had considered the alternative. So Neal learned about talking about alternatives. When Suffolk County wanted to build 5 golf courses, Neal decided to use the case to put a clear alternative out.

"We didn't want them coming back and saying they would use some organic methods," he stresses. "We wanted to position 100% organic as the alternative. Our strategy was to get one golf course to do it, go 100% organic. If that happened, we could go up against each new proposal and say: 'They can do it there, why aren't you trying it?' And if we could get a golf course managed that way, we had a great example for home owners and lawns."

One of the keys to Neal's case was compost. He had learned from the superintendents he worked with



photo by Jack Kittredge

Lewis points to sign at West Sayville golf course. Several organic products are being tested here by Cornell Cooperative Extension for effectiveness against the fungus "Dollar Spot".

that they loved compost as an alternative. One superintendent in Garden City took a golf course green that needed to be redone and put compost down on one half of the green, with regular topsoil on the other. He took photos of the results and the compost side was always greener.

That was a key element for what Neal needed in his lawsuit. He could say he wanted the golf course design based on a substrate of compost. So that became Neighborhood Network's alternative from the beginning — something clear and different that the courts could see. As a result of this opposition, Suffolk County did do an EIS. Their consultants wrote it up.

But, as Neal tells it, they didn't take him seriously: "They hit 'print' on their computer and out came all this boiler plate. There was no thought given to most of it. What is the major environmental impact of a golf course design? Pesticides and water usage. They should be the main focus. But we got one-half of one page as a response to our ideas of compost as a substrate and chemically-free as a design goal. In that one-half page they made three statements. First, they don't have to look at organic golf courses because as far as they know, none exist. Second, they said that an organic golf course would be overrun by biting insects and no golfers would want to come there. Finally, they said that compost has no turf disease suppressive qualities. Incredible. Three off-the-shelf outrageous statements!

"I had to show that these three statements were ridiculously wrong," he continues. "Even so, it was difficult to get the judge to come around to this level of analysis. They want to defer, not get into the nitty-gritty. But I was able to get an affidavit from Eric Nelson at Cornell describing the many disease-reducing qualities of compost. The comment about biting insects was just stupid because the chemicals used for turf have nothing to do with biting insects. The statement that no organic golf courses exist in the country may be true. There is a lot of contention about that in specific cases. But we were able to show from magazine articles and other sources that at least three golf courses had been identified as being maintained organically. We said, whether or not they are organic, if the trade journals identify some as organic the EIS should at least have looked into their experiences. So that wasn't a hard look, as required by SEQRA. Our final point was that this was a new design. It wasn't good enough to argue that because other bad things exist, another one is okay without looking at ways to make it better. Essentially their lawyers argued that they didn't have to give organics a hard look because it wasn't feasible. They might have done better had they argued that they did give it a hard look, even though they obviously didn't. It's easier for them to win on substance than procedure. But the engineers gave

them only a half-page, so maybe it was just too hard to argue with a straight face that a half-page is a hard look. Ultimately the judge ruled in our favor that the county had failed to give it a hard look. Rather than appeal, the county decided to accept public opinion and support an effort to design the golf courses as organic."

As a result of the court case, Suffolk County adopted a law calling for phasing out all synthetic chemical substances in park management for — for both new and existing courses! The law uses the EPA label categories of products to define when they should be phased out: substances carrying the "danger" label in 1999, "warning" in 2000, and "caution" labels in 2001. The date to be 100% organic is January 1, 2002. Lewis, however, feels the law was hastily written and worries that there may be pressures to delay final implementation despite widespread popular support for it.

The Suffolk County Parks Department was not using any "danger" or "warning" labeled substances anyway, he points out. So this is the year when they must wean themselves of the "caution" substances they do use — largely fungicides. And fungus is the main problem with organic golf. The very short height to which putting greens are cut, combined with the heavy watering they undergo and the compaction that occurs since golfers always converge on the greens, are conditions ideal for the growth of fungi.

"In our materials," Lewis elaborates, "we urge people to grow their grass higher — three to three and one-half inches high. People see that and ask why we don't tell golf courses to grow their grass higher as well. But you have to realize, a golf ball is only about an inch in diameter. When you drop it on the grass, if the grass is high, the ball is lost. That's just a reality. It's considered a rough area when the grass is covering your ball. It's hard to hit it out of the rough. Then people will say: 'But the putting greens are so, so short. They're as short as a carpet.' It's true. It's incredible that they're even able to cut it that short. Would it really hurt the game to cut them a little higher?"

"The reality with putting greens is that," he continues, "the better the course is, the shorter the green is cut. That's because the shorter you cut the green, the faster the ball rolls, and the faster the ball rolls, the more difficult it is to make a putt. A typical private course will cut the green a little higher, and then hackers or golfers who aren't that good will have a better time because it's easier to make a putt when the ball is rolling slowly. When you see a U.S. Open on TV, they'll always be commenting on how fast the greens are. You just have to tap the ball very lightly. And greens are not flat, so you have to aim not at the hole, but off from the hole so it will break



photo by Jack Kittredge

Golfers enjoy the West Sayville course, which is in the second of three years transition to organic management.

in. You get a much more dramatic break when you get a faster roll. So what you say to a golf course when you say we don't want you to grow your greens so short is: 'We don't want a world class course. We don't want a signature course.' Most golf courses being built today want to advertise themselves that way. So environmentalists are giving up the argument if they say you can't have an organic course unless you grow the green taller.

The big fungus on Long Island golf course greens is called 'Dollar Spot' because it's the size of a silver dollar. It's very common and the source of much concern in Suffolk County park circles this year. Cornell University is currently conducting a test on the West Sayville course, comparing fourteen biostimulants, microbial inoculants and other organic products for their ability to control the disease. None of the products is a compost derivative, and none of the test squares have been prepared using organic practices, so Neal doubts that positive results will be achieved.

As he puts it: "They're not taking a box and saying: 'Within this box we are doing all the things that people who promote organics are saying is necessary to do to get an effect.' They're not doing that with any one of these boxes. I would do that with compost teas, rock dust minerals, organic fertilizers, kelp, a number of different things to get this soil going right. Then I'd test that box against one next door which just had chemicals. But they're not doing that. They're just testing one product against another in an environment where none of them were designed to work."

Lewis thinks what Suffolk County needs to do is buy itself some new equipment to apply a lot of liquid compost (compost tea) on the greens. He says: "You have to concede that what you are doing with a golf course turf is not natural. It's very far from natural. So it is going to require significant inputs. This means lots of liquid compost on the greens and the Tees, the areas you Tee off from. You need a lot of microbe activity to keep the fungus under control."

One benefit of golf courses over home lawn management, of course, is that with the former you have highly trained people with an intensive budget. A private course can easily have a \$100,000 "chemicals" budget, says Lewis, and with those kinds of numbers an organic approach can be much more active with staff, equipment and inputs. Public courses, of course, are not as lavishly supported as private ones. There are plumbers and carpenters trucks among the SUVs at West Sayville. But fees still enable intensive management.

Suffolk County Parks Commissioner Peter Scully is one of the key figures responsible for the success of the organic golf experiment on Long Island. Peter is an experienced functionary in the county, having worked for the county executive and the Town of Islip before this. His attitude could well spell the success or failure of the project. On the day I visited, he was expressing reservations.

"We're committed to making this work," he assured me. "We support the policy makers. They had the best of intentions in passing this law. But we're in a position where we're not just on the cutting edge. We're ahead of the blade and in danger of being sliced up! These are highly technical and scientific issues. There may be a need for additional time to get a full panoply of available alternatives."

Scully stressed his view that only if he were given more resources could the program succeed: "For us, the issues are scientific issues and availability of resources. The county tends to be a leader in environmental and public health issues. That's great. There was a lack of understanding on the part of county officials at the time they enacted these laws that to move away from chemical pesticides would mean that we would need more resources. That continues to be a real issue for us. Golf courses are staffed at about half of what they should be for conventional maintenance practices. It's kind of a struggle to meet the challenge of going organic. There aren't any "tried and true" alternatives to pesticides right now. On top of that the procurement guidelines that we are required to follow call for competitive bidding. This in a market where there are no clear techniques and products that are effective. We find ourselves experimenting a lot. We're not in a position to be experimenters, understaffed and with limited resources.

"The fertilizer piece is something we are coming to grips with," he continues. "A single application of chemical fertilizer takes 50 bags of material. A single application of organic fertilizer takes 200 bags. We need more people to put it down, more equipment to spread it with, the costs of storage and transportation are higher. Learning how to use those fertilizers effectively is a challenge. The product support from the manufacturers isn't there, compared with the chemical fertilizers. But we're coming to grips with the fertilizer piece. One of our problems is being so understaffed. We have only 6 or 7 guys a course for maintenance. We would do well for conventional management at 9 or 10. We'd like to have 12 or 13 people per course to do an organic course. The greens get mowed every day, and the fairways every other day. It's easy to go organic if you are dealing with high grass situations, but the grass at 6/32 of an inch on the greens — that's where the problem is. It really is the stress of cutting to that level and having 55,000 golfers a year play on it. That's the number of rounds we get on a single course. We know what to do, we just need additional resources to do it."

Ed Matthews is the Superintendent of Parks for Suffolk County. He is the guy charged with coming up with the hands-on solutions to the problems of organic golf. He estimates the annual operating costs for each of the county's golf courses at about \$200,000. But the average public golf course revenue in Suffolk County is \$1.5 million. Clearly, golf is a profit center in public park fiscal planning. But the costs of new equipment and training personnel to fully implement an organic approach are killers. Ed repeats Scully's call for more resources,



photo by Jack Kittredge

The fungus "Dollar Spot" is shown here on the turf test area. The regularly spaced white dots define the test grid where various products are being tested for effectiveness, while the irregular blotches show how the fungus destroys the regular surface of a green, so important to good golfing.

and puts specific price tags on it: "Two other forms of organics which we would like to get into are going to require special equipment and increased manpower. One is compost teas, which will require us to purchase a compost tea maker. That's about \$13,000. It's not anaerobic. You can't keep it in barrels in a storehouse. You have to get it out quickly. Then we need dedicated spray equipment to apply it. That's about \$26,000. And we have to train personnel in when and how to go about that. You can't put it out in full sun, you need to wait until before dusk. There's so much to learn about it. That alone is a very ambitious program. I don't foresee us being able to implement that before the next growing season.

"The other area," Ed continues, "is high quality composts that we would like to use on our Tees and our fairways. Over the long term that will improve the viability of the soil and plants. The problem we have short term is an equipment one. I've identified a material handling system — a machine — with spinners on the back which can take the compost and spread it on the fairways and Tees. That's on our wish list for equipment. This year we hand spread compost and tilled it into hardpan areas. That is super labor-intensive. The results are there — I did it as a demonstration for our greens-keepers. You get positive results, even for shaded areas. No irrigation, just giving the soil what it needs. But it is labor intensive. We're raising the bar, but as we do that your cost per ton is going to go from \$13 to \$26 to \$42. It is better material. But if you don't get material which has been properly heated, you can introduce disease to your course."

Organic fertilizer is another product of which Ed would like to use more. He has used two formulations he likes. One is a very fine mix which has good solubility and washes down into the green. The other is not as soluble and they use it on the fairways. Because of the cultural practices Ed and his team have implemented in the last couple of years the fairways are in much better shape. He believes organic management has given them less burn, especially in the summer.

The U. S. Golf Association recently did a site visit of all the county's public courses. They suggested that one of the grass species at Indian Island course was in danger from a fungus, so Ed ordered seed for a different species. The disease did hit and they overseeded with the new grass. It worked, and the



photo by Jack Kittredge

Lewis and Ed Matthews, Suffolk County Superintendent of Parks, discuss the progress of the county's experiment in organic golf maintenance.

fairways at Indian Island look better now than ever. But, although overseeding is a tried and tested method of dealing with weed and disease problems, it is expensive and puts a strain on your manpower and your budget.

At this stage the organic golf program seems to be a tremendous success. The managers say the golf courses look better than they have in years. If they get funding for the compost tea operation and a little more staff, Neal thinks the fungus problem on the greens will be under control. Part of the message he derives from all this is that public officials realize there is broad popular support for organics. They will fight with you forever, then they realize: 'Why are we fighting on this? There's a lot of public support for it.' So they get on board.

With lawns, of course, there is far less demand for stressful growing conditions. In fact, Neal finds that just one change — cutting grass taller — makes the most difference in getting a good lawn without chemicals. One problem of growing grass short is weeds. When you grow it higher, he says, you shade the weed seeds. They need to get sun to germinate. Once the weed is growing, it doesn't matter how high you cut it. But with new weeds he finds they generally come where there's an opening in the grass. If you grow it higher, there's more shade and fewer weeds pop up.

Also, during June, when grass is growing well, you want it to send down deep roots. On Long Island, Neal says, there is usually a drought in August. Most chemical lawns there look great in June and terrible in August because chemicals discourage deep root growth. If you have deeper roots, you'll have a much better chance to survive the problems of drought. You get deeper roots in part by growing the grass higher, and in part by having aerated soil, so the roots can penetrate more easily. Aeration goes back to earthworms and microbes and all the biological activity in the soil. With chemicals you're killing that off and that's going to make the soil tougher for the roots to get through.

In the short run, Lewis admits, organic lawn care is more expensive. An organic lawn fertilizer can cost 3 times what a chemical one does. Corn gluten is very expensive. Rock dust, minerals, and dry and liquid compost can be expensive. He is enthusiastic about the garlic products you spray on trees as a repellent for mosquitoes. But they are kind of pricey. Chemlawn, alternatively, can come and do a service call for \$35 — spraying on a mix of fertilizers and standard pesticides. There's no custom analysis and they only use one jug for everything. The organic treatment is more labor intensive and the materials cost more. But over the long run organic lawns need less watering, no pesticide or herbicide treatments, and look better throughout the summer.

LIOHA has set up rules for organic horticulture. It lists land care businesses that have demonstrated a knowledge of organic landscaping, agreed to

comply with LIOHA's rules for products and practices, and will allow independent inspections to ensure compliance with LIOHA's standards. The organization has an 8-page contract for listed businesses. Included in the contract is the agreement to allow an inspector to go over the business purchase records, go along on a service call, do an extensive inspection once a year and show up for surprise inspections at any time. Currently 16 companies are on the list.

"Sixteen companies may not seem that impressive," says Lewis, "but we wanted to set a high standard. Our companies are primarily the smaller ones. We have one or two which are big enough to handle a wide area. But the bigger operations are usually not prepared to make the plunge to go fully organic. They want to go part of the way and provide some organic services while continuing to use chemicals. The reason we don't list landscapers who offer both organic and chemical treatment is that we felt that it was a question of deceptive practices that would potentially be at play. If you say the company has to be 100% organic it's easier to check up on them. Lets say you accept a company that has 50% organic business. If you go to their operation and find all these chemicals they can say they just use them with some customers and we can't check that out very easily."

The organization is set up as a trade association and no more than 1/3 of the board can be from outside the profession. Neal is chair, and runs it out of the Neighborhood Network, but the landscapers really set their own standards. There was real disagreement on the standards, he reports. Some landscapers wanted to use bonemeal, but others were concerned about prions. Some wanted to use biosolids because they were cheap, but others were adamant in opposing them (the final standards forbid their use).

LIOHA ran a trade show where they brought in all the makers of organic products to exhibit their lines, and invited a number of landscapers who are interested in organics but aren't fully there yet. Two hundred showed up, a good start. But Neal notes that there are 2500 landscape professionals on the island who could have come. So he figures they have a long way to go.

Steve Restmeyer is a professional organic landscaper and president of LIOHA. He specializes in the use of native and adapted plants to create unique landscapes. He has studied the flora of the area extensively in order to plant species which will thrive in the sandy, acidic soil.

"When I do a home I try to create an outdoor sanctuary, a living space," he says, guiding me around the yard of one of his clients. "They have this constant wind, here, coming in off the bay. All this foliage muffles the wind and deflects the air so that when you're on the front lawn you're actually very sheltered from the wind. I came here one day and there must have been 50 Monarch butterflies, congregating in the back yard in the wind shadow of

the house. They were on a migration. There's tansy and mints — peppermint and spearmint — which repel mosquitos. I plant mint around things that will rise up above it, so it won't out-compete them. Here is rosa rugosa, lavender. Here's a magnolia - one variety is hardy up to zone 5! It has creamy white flowers.

"My client is interested in getting as much food as possible," he continues, "so I also planted currants, gooseberries, rhubarb, raspberries and blueberries. Globethistle here, will attract the goldfinches — they eat the flowers. There's hollyhock, catnip — it's in the mint family. Different species here flower at different times of the season. This is anise hyssop, which is a great soil builder and helps choke out other weeds. Here's a paw-paw tree. The wind is hard on any large-leafed plant, because the constant fluttering tears the leaves."

Neighborhood Network has existed since 1984, and Neal is the second director. It began by working on incinerators and open space issues, but began to focus more and more on pesticides because of the breast cancer rates. Last fall they developed an education series: "Four steps to an organic lawn" and had ten forums for average homeowners around the island in March. One of the big areas they want to move into next is athletic fields at schools. In Yaphank site the county is building two 18 hole courses, one of which will be a signature course. In addition they are building 10 organic soccer fields. Neal wants to use them as an example of how to use organics to manage athletic fields — to take what they're learning from the golf course work and mesh it with the neighbor notice laws — which will disclose to parents the level of chemicals used in schools. He figures a lot of parents will end up challenging the schools as to why they are using so many chemicals. There are over 120 local school districts on Long Island, each of which can have several buildings and schools and is pretty independent. Although it would be hard to tackle them as a group, he hopes the parents will take them on one by one.

"You keep pushing," he says, explaining his philosophy of change, "and finally something else happens which means your work can go forward. Part of the problem is that activists are usually focused on correcting problems, getting protective laws passed, beating up politicians. It's hard to get them to focus on doing something positive in their community."

Lewis has plans to expand the organic landscaping work next year as well. He's going to expand the resource directory to include tips on energy conservation and list health food stores and organic farms. He figures it can only grow. The more people who are in this business, the more prices will come down and the bigger it will get!

To find out more about Neighborhood Network contact them at: 90 Pennsylvania Ave, Mausepequa, NY 11758, 516-541-4321 (fax: 516-541-4401) website: longislandnn.org



photo by Jack Kittredge

This Long Island house is across the street from the ocean and faces a stiff breeze most of the day. Organic landscaper Steve Restmeyer designed a perennial windbreak which moderates the breeze while providing blossoms, herbs and edibles throughout the season.

Organic Landscaping, Ecological Landscaping

by Jono Neiger, Kemper Carlsen

Landscaping. Landscape. Our homes, our yards, our gardens, hedges, and edges. Looking at these spaces ecologically makes a lot of sense. There are many ways to make them more ecological and it usually involves how we relate to them. The more we integrate our landscapes with our homes and lives, the forest or farm or other landscape next door, the better. Learning to see our landscape as not a stagnant showpiece which we constantly work to keep pristine and manicured is a start. It can be a dynamic place full of life and its daily, seasonal and lifelong changes. Each area of our garden, forest, or yard says something to us by what plants grow there, what animals visit, what light and rain it gets, or how the air moves through it. We may pass a bed of plants regularly as we go to and from the house. Looking out the window we see a stand of trees or a lawn. Each of these spaces provide us with the opportunity to design for beauty, food and wildlife. They further give us the chance to become more in tune with that land, that landscape, and to give back to the larger environment.

Here is an example. The plant bed near the house that you pass by often is fed by the compost you make in your yard from kitchen food scraps. Most of your produce came from either your yard, the neighbor's garden, or the local CSA farm (Community Supported Agriculture is a system where individuals buy shares in a farm's production). The veggies from the neighbor came as a trade for some childcare you did for them. The mulch around the plants is from leaves and grass collected around the yard; what a resource! Water for the plants come from a 500 gallon tank that collects rainwater from the roof. The tank is at the corner of the house hiding behind a hardy kiwi vine that uses it to climb up and keeps the water cool. The kiwi also keeps the

back porch cool in the summer and the fruits are delectable treats in late summer and fall. Incidentally the plant bed near the house is filled with native berry shrubs and some blueberry cultivars. There is a bird nesting under one shrub so you collect some berries from another. At the end of the bed is a semi-dwarf apple and the apples are close to ripe. That means it's almost time to get the cider press set up for the neighborhood gathering.

The high maintenance lawn that you can see from the window has gotten smaller and smaller each year and left more time for you to swing in the hammock and watch the kids play in the tree house. Building the treehouse with non toxic wood scraps from another project was pretty easy. The older boy next door and you have been doing things together since his dad left the area and his help with the treehouse made it go up fast. The edges of the small lawn have filled in with wonderful fruits, berries, flowers and herbs and several swaths of native groundcovers. It is a colorful and lively space, attracting birds, insects, butterflies, and of course kids and adults to eat the fruits and berries. The care is simple compared to the lawn that was there, and more enjoyable for everyone. All in all the yard is a little wilder, a little more natural looking, but it gives food and medicine, and supplies its own nutrients (compost), mulch and water. It gives habitat for local wildlife and enjoyment to you.

The careful planning and design of a landscape like this is important. By matching the elements to your needs and vision for your space, it can be easy to care for, non-toxic, productive and fun. This is a nice vision and I would like to add that it is not fanciful or hard to reach. In fact these ideas and many others can and have made the landscapes around us more a part of our lives.

Hedgerows

Borrowing an old idea and applying it anew, hedgerows can serve many functions on your landscape. Hedgerows were an important part of European and early American agriculture. They helped in defining land ownership, weather protection, erosion control and provided food and firewood. Today they are mostly thought of as a single non-edible species, trimmed like a box, providing the single function of a visual screen. More in keeping with tradition, hedgerows can be multi species plantings providing a variety of functions and uses in a yard, garden, farm or park. They can include plants for food and medicine, flowers, livestock forage, mulch material, wildlife food, wildlife habitat and attractors of beneficial insects. Hedgerows can be designed to block wind, rain and sun, stop erosion, create visual screens, fences, or simply to define a space. They are being rediscovered as filter strips along pastures and farms uptaking nutrients from manure before they reach streams or lakes. Hedgerows can play an important role in reducing runoff and topsoil loss. Hedgerows tend to be long and narrow, maximizing the amount of edge available. In nature, the place where two habitats or landscapes come together (an edge) is one of the most productive zones. Because many birds use edge habitat, a hedgerow tends to be self seeding as the bird droppings bring seeds (often from fruit and berry bearing species) from other areas. Many a landowner has seen a simple fence line turn into a hedgerow from bird imports alone. Hedgerows can be thick and wild with many native tall trees and shrubs, or the can be smaller and filled with a selection of cultivated plants. We need only to realize that hedges (and edges) can be places of great productivity as much as the more traditional garden plot.

Kemper and Jono live in Shutesbury, MA. They recently moved there from Oregon where they taught a permaculture and land stewardship apprenticeship. They are doing ecological landscaping in the area and teaching an introductory workshop in permaculture at Sirius community in Shutesbury on September 22,23 and October 27,28. They can be reached at 413-259-3734 & talltree22@hotmail.com

for effective turf management, like on a golf course,

...Work Both Sides

by Joel Simmons

The golf course superintendent has arguably the most difficult soil management challenge in all of agriculture. After speaking recently to a group of farmers on the issues of balancing soils, I was sitting at lunch with a few who were complaining about soil compaction. As I was listening, I started to chuckle to myself (or so I thought). One fine gentleman looked at me somewhat disturbed by my grin, so I quickly explained to him that most of my work is with golf course superintendents, who average 40,000 pairs of feet per year over small areas of around 3,000 square feet - not to mention the physical pressures of daily maintenance. They were concerned about running a plow over their fields *twice a year*, which is a serious problem but nothing like what a superintendent faces on a continual basis.

When a soil gets the kind of physical pressure that a golf course green receives each and every year, there is simply no way to avoid damage to the soil structure, even given proper mechanical aeration. Movement of air and water is severely restricted. Consequently, microbes cannot function effectively. The over-use of salt fertilizers can actually add to the physical damage of the soil by creating an imbalance in the carbon-to-nitrogen relationship. This will also affect the activity of beneficial bacteria, further restricting nutrient mobility and ultimately leading to plant stress and potential disease pressures. Perhaps the ultimate resolution for the golf course superintendent, agronomically speaking, is to get rid of the golfers!!!

Nutrient mobility within the plant can be evaluated in a variety of ways, including a LaMotte water-soluble soil test or a good tissue test. The LaMotte test is a "weak Bray extraction", which uses an acidification process intended to replicate the level of acidification that may be found in the soil. This is just another tool - not an exact science by any means - but it can reveal some interesting things. Standard soil tests may not demonstrate nutrient mobility as dramatically, since they show what nutrients are present on the soil colloids but give no indication of their availability. Tissue testing, on the other hand, can reveal that even when the soil chemistry is in balance, nutrient mobility may be inadequate to provide the plant all it requires for proper growth.

The level of nutrient mobility (as indicated by the LaMotte test) on any given golf course will vary significantly from green to fairway. Nutrient mobility on a green is usually significantly less than that of a fairway. Biological indicators are also significantly reduced on greens when compared to the fairway soils. This is clearly due to the intensified physical pressure that a green receives compared to the same area in the fairways. No golf course superintendent will find this surprising, but the level at which even a good green is able to mobilize nutrients may be an eye opener.

While tissue testing can be of great value when trying to determine what is actually being taken up by the plant, neither a LaMotte test (kits are available from agronomic supply stores) or tissue tests should ever replace a good soil testing program. It is imperative that you work both sides of the equation. Managing the soil on the basis of a good soil testing

program will help to balance the basic nutrients on the soil colloids. This will help to open the soil physically, allowing for better infiltration of air and water, and in turn provide a better environment for microbial activity.

All good soil management addresses the chemistry, physics and (most importantly) the biology of the soil as one entity. Once this is done, managing the leaf will help assure the plant gets what the soil cannot always provide. Again, with the incredible physical pressures that a golf course suffers it becomes an important management practice for the superintendent to take care of both the soil and the plant as separate programs. Foliar feeding provides a viable tool for the superintendent to help battle an incredibly difficult agronomic environment.

Knowing that golf course soils, in the best of situations, are not mobilizing all that the plant needs is an integral factor when developing a foliar feeding program. The same foot traffic that affects nutrient mobility in the soil also creates a tremendous stress on the leaf blade. Foliar feeding can not only provide what the soil cannot, but it can also help to reduce the simple physical stress that the grass blade suffers every time a golfer walks over it, or each morning after mowing. The ideal foliar program provides a complete package of NPK, calcium, magnesium, trace nutrients, carbohydrates and other bio-stimulants to help feed beneficial bacteria and the plant. The most important aspect here, however, is these applications are made in a "small but frequent" manner.

"Spoon feeding" can be done in a number of ways. Many courses are installing fertigation systems that

can provide the mechanism to supply nutrients to the entire course at one time. This can be a tremendous labor savings, and many of the better systems offer the flexibility of multiple supply and mix tanks to blend small batches of nutrients or bio-stimulants for better control. These tools can be especially effective during a grow-in situation when it is so important to keep nutrient levels up since the plants and their root systems are so young. However, these systems don't come without a price tag and not every course can justify the expense. A simple spray tank can provide all that is needed to work an effective foliar spray program. This method will apply the nutrients exactly where you want them, while saving money by not spraying unneeded areas. Flexibility is the key with a good foliar program; it provides you control and the safety of using only small amounts of nutrients.

Perhaps the most important aspect of a foliar program is the concept of "small but frequent" applications. A typical fertility program that feeds the soil every month or two creates the "roller coaster" effect; high mobility in the beginning of the cycle and lower mobility toward the end. This can even be true with many slow release fertilizers. These kinds of 'peaks and valleys' create stress on the plant at both the high end and at the low end. Managing your fertility program in a more controlled fashion can help to reduce the plant stress associated with this uneven level of nutrient mobility. Although not always practical, the ideal situation would be to spray a nutrient mix every week at very low rates. The idea is not to spray more, but to apply less *on a more frequent basis*, so that you apply the same amount of nutrient as if you were spraying twice monthly, or even monthly. This "small but frequent" rate concept is very important on sand based greens where the Cation Exchange Capacity is low and nutrient availability is limited, but even on a healthy soil green nutrient mobility is not always strong enough to provide the plant what it needs.

The "soup mix" that you create for foliar application should include all that the plant and the soil may

need: NPK, calcium, magnesium, traces and carbohydrates for the soil microbes. Available sources of nitrogen such as ammonium sulphate or urea at very low rates (1/10, 1/16... of a pound of N) are ideal. You should adjust these rates based on conditions without affecting the quantity of the rest of the mix. One of the advantages of a foliar program is that these "small but frequent" rates will allow you to use less nitrogen in the long run, which is certainly beneficial agronomically. Do slow release liquid forms of nitrogen really fit into a program where *you* become the source of slow release? A good question that certainly has its own debate.

Phosphorous and potassium should be from clean sources such as phosphoric acid, potassium hydroxide or sulphate. Calcium is as important a foliar feed as any nutrient because it is used more in weight and volume than any other element. It is also extremely immobile and, even in the healthiest of soils, does not move into the plant well. For this reason, any golf course can benefit from foliar feeding this important nutrient. The application rate of calcium should be increased when the plant is under stress. Again, this shows the flexibility of a foliar program. Although not needed at the same rate as calcium, magnesium should be a small part of a good foliar program. Magnesium is critical for many photosynthetic reactions.

A complete package of trace nutrients including boron, manganese, copper, and zinc should be a part of any mix. Unfortunately, iron is often the largest constituent of trace packages and will dictate the rate of other, perhaps more important, nutrients. High levels of iron can actually restrict the mobility of other nutrients, including nitrogen. If iron is needed or wanted, it should be used, but controlling its application rates will help prevent restricting mobility of other nutrients.

Trace nutrients should be in the form of a good chelate such as glucoheptonates or citrates. Although more expensive than sulfates or EDTA's, these chelated materials are much less reactive and will mobilize more effectively.

The other important addition to a proper foliar feeding program is a good source of carbohydrate or bio-stimulant. In addition to reducing the physical stress on the plant itself, they help to feed microbes which will in turn help to more efficiently mobilize nutrients to the plant. In general terms, the best way to increase the over all mobility of nutrients in a soil is to "feed the soil" and increase the beneficial bacteria activity. Sugars, humic acids, fish and kelp meals are all good choices to help further round out your program. Again, they should be applied in very "small but frequent" rates.

To get a really complete "soup mix" you will often have to do some of your own mixing, which unfortunately may not always be practical. Premixed packages can be a good start but may not contain everything needed for your situation. Most of these packages are loaded with nitrogen and iron, the two nutrients that should be used most sparingly and whose rates should be dictated by you, not by a manufacturer. Remember: when preparing a mix, it's imperative that you always do a bench test first. If problems occur, most likely it will happen in the tank, and not as a phytotoxic reaction. When in doubt spray your mix in a controlled area until you are comfortable with your blend. At low rates, with agitation, you can get a chelated calcium (positively charged cation) and phosphoric acid (a negatively charged anion) to tank mix with no problems.

Even when soils are properly managed and balanced with optimum nutrient levels, external environmental factors often prevent turfgrass plants from taking up what they need for proper growth and disease resistance. A good foliar fertility program provides you with the ability to give the plant all that it needs even when a soil cannot. Since the golf course superintendent is faced with the most difficult agronomic environment in all of agriculture, managing both sides of the plant is beneficial and cost effective. Testing and managing the soil is critical and always the first place to start, but since we know that nutrient mobility is limited in these high traffic soils a foliar program is also very effective. The real key is that this approach is "small but frequent," and you can increase or decrease application rates based on the conditions and stress factors you face. This puts you back in the driver's seat by giving you control and safety of application. There are as many foliar mixes as there are golf courses and superintendents. The bottom line is, "Do what works for you".

Joel Simmons is a former County Extension Agent and the owner of Earth Works Natural Organic Products of Martins Creek, PA. He is currently teaching Soil Fertility at the Rutgers Turf Management Program. He can be reached at EarthWorks Natural Organic Products, PO Box 278K, Martins Creek, PA 18063, 800 732-TURF or eworks@soilfirst.com.

Organic Land Care with OrganiCare

by Jack Kittredge

The Farmington Valley area north of Hartford is, like much of Connecticut, rich with homes tucked away in still rural ex-farmland. Gently rolling hills of green separate town centers and the strip malls where business is done. Many house lots are carefully landscaped and the buildings well maintained.

Just as the number of acres of farmland is on the decline in Connecticut, the amount of land managed by landscape companies is growing. Increasingly, the clients of these companies are concerned about pesticides on their lawns and chemicals in their groundwater. So landscapers are developing non-chemical programs to offer such clients. Todd Harrington, of Harrington's OrganiCare in Bloomfield, CT is one of them.

Todd grew up in the landscaping business. His father owned a large landscape maintenance company and Todd started landscaping with him when still a child, mowing lawns and doing maintenance in the summers. When he got older, Todd went to work for a tree care company and found that he especially enjoyed that. One of the people he worked with introduced him to the U/Mass program in forestry. Todd went there and graduated with an arboriculture and urban forestry degree, based on all the traditional methods of plant care.

After graduation in 1987, he worked with his father. But one day he was doing an estimate on a lawn that had just been treated by a chemical company. A terrible smell almost knocked him over and he felt like vomiting. That prompted him to think about making a change. He began to learn about organic management by joining organizations and going to classes. He joined NOFA and went to its conferences.

Todd had already come up with the name "OrganiCare" as suitable to a new business. But his father wasn't interested in organics, and it was difficult for Todd to work with him while trying to make changes in the business. So after 2 years with his father, Todd started his own business.

Despite his business name, less than half Todd's customers want 100% organic land management. Every year a number of them lose heart, he says, because they're used to the turbo-green look which comes from soluble fertilizers. Todd can't deliver that right away with organic products. Sometimes he can get people through that period, sometimes they can't wait. So Todd and his staff all need to be licensed pesticide applicators to service the folks who aren't willing to go all the way with organic care.

"Our organic program is more expensive than the chemical services," he adds, "15 to 20 per cent more expensive. So that hurts, too. Down the road customers save money with us, but not at first. The chemical lawn is cheap to start, but then people find they have to mow more often. They have to water more often. They have to aerate and dethatch the lawn. Down the road they're spending all this money. With the organic approach we add some materials into the soil early, but we wean the lawn from chemicals over time and pretty soon they're healthy. Our lawns don't have thatch. They come back quickly from drought."

Todd also has a bio-remediation program for lawns that are in very bad shape. This involves several biological products that contain humates which absorb toxins left from chemical lawn programs — from 2-4-D or diazinon or other chemicals — and hold them against leaching until bacteria can break down and digest them.



photo by Jack Kittredge

Todd stands in front on one of his landscaping trucks, painted with a natural lawn care ad.

OrganiCare spends \$20,000 to \$30,000 on marketing each year. They put out flyers, buy ads in kids magazines, and paint ads on their trucks. Although it's taken awhile for organic land care to catch on, Todd feels there is definitely a trend, now. Especially in those areas that are more apt to go organic than others. In Boston, for instance, he says people are looked down at who have a lawn without any weeds. It's considered okay to have some weeds. So the acceptance threshold is changing. This is nice since it's impossible to have a lawn that is 100% weed free.

One simple sign of OrganiCare's success is that Todd is not taking any more customers this year. At three full-time employees, plus a couple of part-timers, he doesn't have enough staff to handle more. He's looking for more workers, but wants to find people willing to rethink how landscaping needs to be done.

Jon Paula, one of Harrington's workers, explained his organic lawn program to me. They don't provide mowing services, just horticultural treatments. A normal program involves 6 rounds, or visits, about 4 to 6 weeks apart during the season. Each is designed to provide the necessary services for that time of year. The timing of the visits may change if weather conditions are unusual, but a normal program has dry compost going down at the beginning of the season, then compost tea on the next round. During rounds 3 and 4 it is the hot dry period of the summer when less nitrogen is needed and there is less danger of fungal problems, so compost tea isn't repeated until round 5. On round 6 humates are put down to help things overwinter and deal with show mold.

When he goes out for a round he leaves general information including: what round it was, what he

did on the property, did he treat any problems, the materials applied — earthworm castings, wetting agents, garlic, hydrogen peroxide, compost, acetic acid (vinegar) to control weed growth. He also leaves instructions for how to care for the lawn — how high to cut, to leave the clippings for nitrogen. At the beginning of the season they suggest people cut a little lower so that sun can heat up the soil. Later, they like grass taller so shade can prevent weed seed germination.

For the normal program, customers pay a flat rate per square foot. A half acre lawn would be about \$800 a year. A soil test is included in the normal program, and Harrington may make extra recommendations from the test results — micronutrients, organic matter, soil conditioners, microbial dethatchers. These would be extra options. Most of Todd's business is with private individuals. The institutional landscaping market, he says, is very cut-throat. They have only one client, The Connecticut Institute for the Blind, in the organic program.

OrganiCare also offers complete renovations. In such a case they will kill everything off with acetic acid, rototill the soil, top dress with compost and sand, and then seed into it. Todd says the result is a gorgeous lawn which will be sustainable because it will hardly ever need to be fertilized. The turf will come in so quickly there will be relatively few weeds. But it's a costly operation which may be feasible only with smaller lawns.

Compost tea is one of the key ingredients in Harrington's program. Jon showed me their new compost brewer. "Dr. Elaine Ingham developed the process of making compost teas in an effective and easy manner," he said. "A lot of the mixes are based on things she publishes in her magazine. This is a 50

This is the sign left by Harrington's OrganiCare workers when they have finished a visit maintaining a 100% organic lawn.

gallon tank. If you are going for a foliar spray, you use about 5 gallons per acre. We're using it more at 10 to 20 gallons per acre. This brewer runs off pumps, which circulate and add water and air to the compost. Suggested brew cycles are between 18 and 24 hours. It will all mix within itself. As the water is flowing across and through the basket, it is pulling everything out and depositing it into the water. You can feel the heat generated in the tank! It's like a compost pile. It's amazing! We're getting so much biological activity. When you are done it's a brownish liquid. Diluted it comes out as tan or a light amber. You can also smell it and make sure it's good.

"I use a mix of ingredients," he continues, "depending on what we are applying the tea to. If we are applying a biofilm to turf, you want a bacterial tea. That would be 10% wooded materials and mostly organic matter that breaks down faster like leaves and grass clippings, and then some sand and dirt to help stimulate the biology. But this mix has a higher percentage of wood, which doesn't break down as quickly and the fungal content is higher. This is something you might want to use with other materials on trees and shrubs, as a foliar spray, or as a soil drench to help control bad bacteria with good ones."

"I fill this cylinder in the brewer, putting in sea kelp and earthworm castings along with the compost. The microbial content in earthworm casting is phenomenal. By extracting all of those microbes through the water we are making an amazing biofungicide which is helping to fight off any disease. Stone dust is something we use in general mixes to help a lawn or shrub fight back from the devastation of a ChemLawn application. We use stonedust not only for the availability of nutrients — the things that were slowly depleted over time by harsh chemical applications, but it helps put positive electromagnetic frequencies back into the soil."

Todd is also excited about the availability of dry compost products for lawn care use. "Here's a wonderful product that anyone can use," he beams, "pelletized compost, which can be applied with a spreader. Top dressing compost over lawns and beds is a phenomenal way of applying it. It's also very easy. It breaks down quickly and helps to rejuvenate soils, adding a little extra organic matter. The microbial count in compost is high, which is what we're looking for. This one is made from composted hay, straw, peatmoss, lime, gypsum, poultry litter, cottonseed hulls, and corncobs in Charlotte Vermont. It's rated 2-2-3 for nitrogen, phosphate and potash. We also have green manures, primarily from grass clippings and leaves, that are turned once a month for at least 8 months, which are well digested and matured. We primarily do lawns with these. Turf is bacteria dominant. But woods, forest, and ornamentals are primarily fungi-related. You want to use wood chip-based compost with those."

The initial soil test provides Harrington with a baseline analysis of nutrients. But he feels that one result, the ratio of calcium to magnesium, is critical. Eighty percent of the base saturation of the soil should be calcium and magnesium, and they should be in a ration of 68 calcium to 12 magnesium.

"We look carefully at that 68/12 calcium/magnesium ratio," he stresses. "It's especially important for turf. What influences pH are the 5 cations: calcium, magnesium, sulfur, sodium, and hydrogen. We do a lot of gypsum applications because there is a lot of magnesium in these soils. The only way to get rid of magnesium is sulfur (when you combine them you get epsom salts — which leach out), and since gypsum is calcium and sulfur, at the same time you can bring the calcium up."

Depending on the soil test, he also recommends the use of lots of other products. "Humates are fantastic," he says. "They do wonderful things in the soil. We use Norwegian kelp as a biostimulant and growth enhancer for the roots. We use hydrogen peroxide — 35% food grade mixed 8 ounces to the acre in the tea — because it increases the oxygen flow in the soil. We have a lot of clay soil which needs more oxygen. We use surfactants from the yucca plant to flocculate the soil — to break it up. We use different sources of carbohydrates — molasses, sugar and dextrose. Our nitrogen sources are corn gluten, soy and humates. We also use fish

emulsion — that's a great source of protein, especially in summer. That's when plants utilize protein best. We use a lot of different microbes for disease control and to digest thatch. There are beneficial fungi and bacteria. We use a product with 77 colloidal minerals in it, stone dust, compost, earth worm castings — a lot of different stuff. If you understand how they work, there's a place for them."

For weed problems such as crabgrass, Harrington feels the crabgrass will outgrow the grass unless you either use a chemical pre-emergent or top dress with several inches of compost and seed a very aggressive turf variety. You have to do that in the fall, since crabgrass is an annual that will die off. So you want to prep your soil and have the grass established as thick and healthy in the spring. Then you cut it long — 4 inches — and that will prevent the crabgrass from coming back. Todd also uses corn gluten as a natural herbicide since it retards weed seed germination. But there is some question now if corn gluten can be secured which is GMO-free. He's also a little worried about blood meal and bone meal, because of mad cow disease.

For grubs OrganiCare uses beneficial nematodes, as long as the soil can stay moist. If the homeowner can make the commitment to keep the soil moist, the nematodes will get around and incorporate themselves into grub's bodies. Some nematodes are extracted from compost and go into the compost tea on a regular basis. Or they can be added in much heavier amounts as an option.

Applying compost tea, compost, minerals, etc. to landscapes all over north central Connecticut requires moving a lot of materials. Harrington has found custom trucks to be essential in managing this work. Although expensive, the trucks allow workers to spray or spread products rapidly and keep hourly productivity high.

Jon showed me one truck. "It's an \$80,000 vehicle," he admits. "But I have a 300 gallon tank and two 200 gallon tanks, giving me 700 gallons capacity. The big truck has a 900 gallon tank. It will cover four and a half acres of lawn. You back it up to a property and spray with this wand. This high pressure hose can reach tall trees — almost 90 feet up in the air. This is basically the equipment of a small fire truck. We have a 400 foot hose here so we can reach almost anywhere on most lawns. If necessary, we can move the truck. None of the trucks you see here are standard for the industry. We go at a higher rate of gallons per acre, we use a special wand, we can get smaller particle sizes through it — which allows stomates in plant leaves to absorb nutrients easier."



Jon Paula loads compost into the 50 gallon compost microbrewer Harrington's company recently bought to make compost teas.

photo by Jack Kittredge

sets NOFA have taken the bull by the horns and developed true standards that are much more detailed and involve a whole certification program that you have to go through. We have a solid manual, but we're still working on the standards. Kim Stoner has spearheaded the whole thing, along with Priscilla and Mary.

"One of the tricky things in the standards," he admits, "is how to allow people to run two separate businesses — organic and conventional. I set the standard there because I'm one of them. There's no way in the world I could go cold turkey and stay in business without my chemical customers. If you want to keep people in business then we need them to convert. There are certain things in the standards — separate sprayers, separate tanks, containers for the products. I'm setting the standards because I'm the only one doing it yet. We'll see how hard it is to track the separate businesses when it comes to certifying a landscaper. Policing it will be the biggest challenge! It has to happen though."

Because of his arboriculture training, Todd has been asked to consult for a group in Saudi Arabia raising date palms. They produce 580,000 tons of dates a year, worth \$203 million in the export market. The palms are planted out in the desert, and are totally dependent on water wells dug for each tree. The red palm weevil, a boring insect, has been attacking the trees since 1985 and the Saudis have exhausted all the chemical approaches to eliminating it.

Todd and a couple of his colleagues went to two of the biggest orchards in the country. They found that the main problem is the water management — the wells aren't changed as the plants get bigger so they extract more salt from the wells. The trees are thus under stress and so more susceptible to insect attack. Harrington redesigned the wells to give the roots more water, then put a 3-inch layer of compost — locally generated by an up-to-date facility — around the trees. They're doing a hectare of 52 date palms with these methods, as an experiment. They also injected a bunch of date palms with a tobacco-like chemical and with botanicals as repellants — garlic, peppers, and glyco-alkaloids from tomatoes and potatoes.

Harrington is very upbeat about this work: "It's exciting, he says. They have the ability to make changes quickly. We can make a big impact on the whole region if we can save their main staple crop. We said we don't want to kill the bug. We want to make the trees healthy. Then the bugs won't bother them. We work with the Sudanese. They are the businessmen. The Palestinians are the workers. The taxi-drivers are Indians. The Saudi's sit back and live in their palaces. It's an interesting culture. There's a lot of money there and it's not divvied up well! They complain when they dig for water that they only get oil!"

Todd says he is pretty content with the business currently. "We have three trucks a day going out, sometimes four. I don't see getting bigger, unless we franchise what we do. I've thought about that, but we're about the most advanced landscaping company in the country. I have about 30 different, very unique products. It's pretty sophisticated and it would take a lot of simplifying.

"My goal is," he continues "in the next year or two, to start incorporating biodynamics into my landscaping business. Nobody else does it. I know a lot about it, as well as radionics and para-magnetism, and I've always wanted to get into it. I'll use the preparations, I'll have stirrers, right on the trucks. You have to use those preps up pretty quick, though. You can't have them sitting in tanks very long. These energies are used very successfully in farming already. Agriculture is definitely more advanced than horticulture right now. Our industry will take another 15 to 20 years to get where farming is now."

photo by Jack Kittredge

Paul Cellini holds the "arbor jet" gun Todd patented to apply small doses of material directly into affected sections of trees. The gun uses a charge of compressed air to propel the liquid via a needle through the bark and into the cambium layer of the tree.

Harrington is sometimes frustrated by the demands of his customers for the perfect lawn of green, weed-free grass. He says, "You can't tell your customers: 'Sorry. You're going to have to deal with that patch of clover'. Clover's a great weed in your lawn. It's a legume! It fixes nitrogen right out of the air. If this was my lawn I'd overseed it with clover. Wild violets! They have a nice flower to them. But people don't want them. Just grass, and lots of it. The chemical system doesn't do anything for the soil. It's like treating the rug. Nothing goes below it. Lots of weeds can thrive in that situation. I can step onto a lawn and see what the problems are — acidity, magnesium deficiency, calcium deficiency — by seeing what weeds you have. Indicator weeds. Dandelions show a calcium deficiency — they're great at pulling up calcium from below with the tap root, and they thrive where it is low in the soil. If you balance the soil for the turf, most of these weeds will disappear. But most people aren't willing to wait years for this slow process.

"Thatch," he continues, "is a result of people putting down a quick release fertilizer and then watering their lawns very shallowly. Roots will go where the food is. If the food is all at the surface, the roots grow into a thick mat. Some die and it all builds up into a fibrous layer of undecomposed root and grass material. It makes it really hard to water or keep healthy. Our soil test is a core taken from the lawn, so you can see the thatch on it, a layer between the grass and the soil. We believe lawns should get fed low amounts of nitrogen frequently. Currently we're going out with a product called cropduster. It's an excellent foliar feed. We also apply garlic powder to help deter the surface dwelling insects — things like cinch bugs and weedhoppers. Sometimes we go out with stone dust, which is just a lot of liquid minerals which might be depleted in your soil.

"You look at the chemistry, biology, and physics. The chemistry will dictate how loose and how tight the soil is and what minerals are present and deficient. The calcium / magnesium ratio is crucial. We help out the biology by adding microbes. They are beneficials, and we add food for them in the form of carbon. That way they'll multiply. The 6.4 pH will give you the biology in the soil you need. It will kick in then. The physics will start to work — the oxygen, water, organic matter and minerals. You want 1/4 air, 1/4 water, 5 to 10% organic matter and the rest minerals. That will come into play once you get the other things right. But it is a process and takes time."

Todd is active in the effort to get standards developed for organic land care. He says there are only 3 different groups that have standards for landscaping. "One is the Ecological Landscaping Association. Which has outdated standards and needs to change them. Then you have the people on Long Island who really have their stuff together. That's LIOHA. Then we in Connecticut and Massachu-

photo by Jack Kittredge

Jon Paula applies compost through a broadcast spreader. The company's specially outfitted \$80,000 truck is in background.

Water for Every Farm

by: Claude Genest,
Certified Permaculture Designer
Green Mountain Permaculture

As a Permaculture designer trained in Australia, I was gleefully infected with a passion for the aspect of Permaculture that calls for the moving of earth. I love digging it by hand, and I love calling in the machines.

Good thing too, since the design for my property requires swales and berms to deal with the spring run-off that has twice in the last three years flooded our basement.

Dealing with this “problem” has allowed me to experience how the application of Permaculture principles can turn a problem into a solution, and a waste into a resource.

Strangely, we as a culture do not hesitate to use machines to destroy, uproot and flatten land, yet often recoil at the idea of using them to restore, regenerate and heal land.

Though they are costly to operate both financially and ecologically, Permaculture co-founder Bill Mollison points out that the output and sheer yield of a PC system dwarfs the energy expenditures of the heavy machinery that can be used to create them. Besides, he adds, when one considers the magnitude of earth-repairs before us, one quickly welcomes all the help one can get.

One of the greatest “helps” Permaculture has to offer are the earthworking techniques pioneered and perfected by P.A. Yeomans in his classic text “Water for every Farm”.

By carefully considering the land’s contours and water drainage patterns, we can, through a series of swales, berms, and ponds, drastically affect land’s overall fertility, and ability to tend itself. Indeed, the list of benefits/functions and yields of such a system is literally beyond the scope of this article.

Why then are these profound yet simple strategies not more widespread?

Not Australia, But...

As with most new ideas, there are skeptics, and I can assure you that living in relatively wet Northern Vermont, I was one of them:

“Well, Australia is desert, and we are temperate so, who needs to capture water?”

While the mass of Australia is desert, most live along the coast which spans from the tropics down to a temperate climate whose rainfall patterns are similar to ours here in New England.

Much more importantly however is the following classic Mollisonian insight:

“It’s not how much rain FALLS that counts... it’s how much rain STAYS !” The rate of evaporation and the ability to catch/intercept rainfall is directly proportional to the trees/vegetation (or lack thereof).

Whether we’re talking about clear-cut forest or manicured, roller-smoothed lawns, the effect is the same: rain evaporates and runs-off (carrying top-soil and poisons) much more than if that same rain falls on a functioning ecosystem that can absorb and make use of it.

Permaculturalists, having recognized that ALL energies entering a system (water, wind, manure, whatever) are resources, naturally wish to maximize their use before releasing them from their properties.

As Mollison might put it “Where the water runs, we make it walk”.

Swaling can assure that virtually NO water runs-off by serving not only to capture water, but also to direct excess water to and from ponds.

The role of water in soil’s overall fertility is greatly undervalued. The cheapest and most efficient way to store water is in the ground.

Five Good Reasons...

The temperate areas are actually better suited to the building of ponds than our stereotype view of Australia for (at least) five good reasons:

1. Our climates typically see precipitation exceeding evaporation so our ponds don’t just dry up. Conversely, in Australia, if they get it wrong and the pond evaporates, they often leave behind a saltified disaster.

2. We have a preponderance of clay soils to cheaply line our ponds.

3. We have an abundance of flora and fauna that critically depend on wetland ecologies and whose habitat is disappearing at a ferocious clip.

4. Rain doesn’t come at regular intervals. Ponds moderate climate in a myriad of ways

5. Ponds, at almost any scale, are powerhouses of bio-diversity. Whereas conventional ag seeks to get rid of as much nature as possible to better “control” it, Permaculture actively cultivates ecologies and creates functioning ecosystems (of which gardens and ponds are but parts of a whole). By focusing on the overall health of our land/organism, we can help nature help us. We can work with nature because nature works extremely well.

THE NUTS AND BOLTS

A swale then is simply a ditch dug along the contour and the berm is the corresponding mound of dirt that is scooped over to the downhill side.

As water finds its own level, and the swale is dug dead level, water fills, spreads, rises and then percolates into the ground at rates varying from 2 to 48 hours.

At selected (by you for best advantage) intervals along the length of the berm, you create a flat, dead level spillway to release extra water (which can be picked up by a downhill swale.)



The principle is to release the water as though it were cascading out of an overfull bathtub - i.e. in a thin, wide “sheet”.

Care of the Earth

Obviously, this is exactly the opposite of what our engineers do which is to concentrate the water down a straight ditch where its acceleration makes it potentially erosive, and then dump it right into our public waterways.

Not good at all and worse still, the silt and nutrient rich water goes unused... For Shame!

While this may be the “common” sense way to deal with one’s flooding it was also clearly, at least for me, incompatible with Permaculture’s first ethic, Care of the Earth.

Thus for my property, it made sense to dig a swale (several actually), especially since the captured water would hugely benefit my nascent “Food Forest”. Plus, I was just plum keen to start a-diggin’.

A Softer, Easier Solution...

But, in a fit of lucidity, I recalled the PC directive to “effect the greatest change for the least effort”.

Indeed, there was a softer, easier, and less expensive option...

See, the excavating necessary to regrade around the house and put in a proper driveway, resulted in a surplus of “Waste” material, (“extra dirt”) that typically gets hauled away and dumped.

As the pictures below show, I instead opted to have the machine operator lay out the dirt along a contour line that I had staked out. - In other words, I passed on digging a swale and merely created a berm. (I’ll get my chance to hand dig a smaller version later on)



RESULTS

Now, the same water that flooded my basement instead is slowed (its kinetic force removed), and has a chance to percolate into the ground where it will benefit the Food Forest to be planted behind and into the berm next year.

(as of this writing a 100x100 area to the left or “dog side” of the photo above has been tilled and planted to winter rye, buckwheat and clover - it too will add organic matter for the Food Forest to be planted next Spring. Any Volunteers?)

For this year, I am building the soil with a cover crop of buckwheat, oats and peas. I will harvest the buckwheat seeds - sow some, mill some. All of it is a daily source of food for our dozen Araucauna chickens. The ample remains will be chopped back and allowed to decompose in place. (Buckwheat, not the Chickens :-)

So, by essentially “changing my mind” and seeing the waste material as a resource I was able to



cheaply, easily, and best of all even spontaneously improvise with material at hand and turn a basement flooding problem into a productive permanent agriculture.

The monetary and ecological expense of having the dirt hauled away is eliminated, ecological benefits abound, and I am preparing for medium and long-term yields, even as I harvest chicken forage, green manure, buckwheat flour, and soil fertility this year.

Why aren't these ideas more widespread again?

For more information, please don't hesitate to contact us or schedule a visit to Green Mountain Permaculture on beautiful Isle LaMotte, Vermont. Contact Claude Genest, email: genest@together.net



photo courtesy Claude Genest

Pictured is the author with newly mulched and seeded area that will next year be planted into a "Food Forest". In background is newly created berm with buckwheat in flower.



photo by Rich Williams

Increasingly, organic land care is in demand. In July NOFA in Massachusetts and Connecticut sponsored the first Organic Garden Tour in Needham, Wellesley, and Newton Massachusetts to raise funds for the work of the joint Connecticut & Massachusetts NOFA Organic Land Care Standards Committee. Tour attendance was estimated at 150. Here landscape designer Mark Saydah, right, discusses his design at one of the Wellesley properties that was on the tour.



photo by Rich Williams

NOFA/Mass President Jonathan von Ranson talks with Ann Barker of Newton Highlands, one of the eight hosts of privately grown organic gardens on the tour. Barker has won numerous honors for her garden designs at the New England Spring Flower Show.

Book Reviews

number of markets are sketched out, as well as pointers on location, timing, getting vendors, sponsors, hiring a market manager, management concerns, and a wealth of promotional ideas and examples. With the growing number of markets in the country it makes a lot of sense for someone to come out with a book for market organizers to help them think through all the issues and make their work fruitful. This publication really fills that niche.

The final section is really a follow-up to the second section, giving lots of example of programs tying farmers markets to their communities — Agro-Art Festivals, in-school cooking programs, connecting with the hungry, using the power of the web, taking stands on food policy issues such as genetic engineering or food safety. The vision here of farmers markets as new and important community institutions is really refreshing and hopeful.

I think even if the cover price of this book seems a bit high, one should look at it as a unique and special product designed for a limited but focused market. If every farmers market in the country bought a copy for its manager to read, and then to make available to members on a revolving basis, it would be money wisely spent.

One complaint I have with *The New Farmers' Market* is that the photos, of which there are a reasonable number interspersed throughout the book, are all far too small. They appear to have reasonable enough resolution that they could be run as more than one-column photos. Virtually all, however, are less than 4 inches wide, many more like 2-3 inches. But they show groups of people or specific actions that take far more space to adequately represent than they are given. I don't know what sense of false economy or poor editorial judgement would dictate this mistake, but it detracts from an otherwise engaging and well-organized work.

The Botany of Desire: A Plant's Eye View of the World.

by Michael Pollan
published by Random House
271 pages \$24.95

reviewed by Jochen Welsch

The people who create my favorite seed catalogs, Fedco and Johnny's, realized long ago that gardeners and market growers looking for quality produce are willing to experiment in order to find varieties suited to their particular location and soil conditions. They are also just as likely to purchase seed to match their own aesthetic and gustatory/ culinary preferences. I am a sucker for the linguistically rich and humorous descriptions in the Fedco catalog and the visually lush photography in Johnny's and consequently every year I buy and try something new in my own garden based on the images these various sources conjure up in my mind. Some I try just once but others have become the standards by which I measure other varieties in terms of taste, appearance and productive capacity. Thus Fedco and Johnny's have learned to appeal to my desires to make a sale and create a satisfied customer who will likely turn on somebody else to this variety (and seed company) thereby helping to ensure its biological survival.

In *The Botany of Desire*, Michael Pollan argues that my selection of seed—and yours too—is part of a symbiotic relationship between humans and plants. In other words they select us as much as we select them. In simple Darwinian terms, plant varieties survive by adapting to our, or some other locomotive species like squirrels and birds, needs and desires. While his premise is certainly not new, he crafts what could seem to be an obtuse scientific idea into an informative and captivating read that

reminded me of some of my own experiences with animals and plants.

If you've ever had a cat or a bovine you probably often wondered as I have just who domesticated whom. Just think of all we do for cats. In exchange for catching a few mice, and allowing us to occasionally keep company with them (when they deign to lower themselves to it!) we give them a life on comparative easy street with shelter, affection, and guaranteed meals. They gave up a bit of wild freedom for a great deal of protection. And with cattle, well just who works for whom? In my experience, I worked far harder to keep the oxen I worked or cows I milked in contented condition than the milk or draft power they provided me with. That is the great trade off in domestication and, as Mr. Pollan points out, many domesticated species have fared far better than their wild cousins precisely because they entered into a symbiotic relationship with humans.

Mr. Pollan's book is divided into four chapters of comparable length each focused on a particular human desire and a particular plant. These are sweetness (apple), beauty (tulip), intoxication (marijuana) and control (potato.) Each chapter stands on its own so the book can be picked up and put down without losing too much continuity. This makes it highly appealing to farmers, gardeners and homesteaders who always have a myriad of projects going and consider themselves fortunate to find an 'idle' hour now and then to read. The book's 270 pages could just as easily be appreciated in one straight read as the writing never gets boring. Mr. Pollan rarely belabors a point and just when you might get tired of how one plant and one desire correspond to each other you find yourself exploring another relationship.

I like books that defy categorization and cross boundaries. This book moves through many disciplines and could be placed in any of the following sections of a book store or library: social history, natural history, botany, personal memoir, and gardening. Mr. Pollan deftly weaves religion, economics, politics and even sex into his exploration of human and plant co-evolution. You'll read about the myth making that surrounds the amorphous and paradoxical character that was John Chapman a.k.a. Johnny Appleseed. You'll learn about the pivotal role the temperance and Prohibition movements played in pomological development and how market forces have made apple growing the most pesticide dependent agricultural crop. You'll also learn a great deal about the apple's origins in Central Asia and how the human craving for sweetness and alcohol helped diversify the apple's gene pool.

The section on the Tulip will take you to Holland and Turkey, and help explain the economic problems of speculative bubbles — can you say dot.com? In the chapter on marijuana, Pollan explores pagan rituals, witchcraft, medicine, humanity's long relationship with mind-altering substances, the 'war on drugs' and the genetic manipulation of a plant by underground entrepreneurs. Finally, the chapter on the potato explores the earth shattering impact of the potato on world history, the French fry industry, genetic engineering, and organic farming. Throughout the book, Mr. Pollan also explores our disturbing tendency to try to over control nature and move beyond co-evolution by changing what has mostly been a mutually beneficial relationship between plants and humans into one where only the human desire is promoted. As a gardener and teacher, I know I will return to this book again. It forced me to think in both new and familiar ways about a variety of subjects: open pollinated vs. hybridized seed selection, my own relationship to nature, the role of corporations and politics in agriculture, history and culture. Incidentally Random House also knows a thing or two about human desires—the book's sleeve is simple and beautiful and would attract me to look at the book if I saw it. Reading the description, I would then want to read it and encourage others to do so as well.

The New Farmers' Market

by Vance Corum, Marcie Rosenzweig & Eric Gibson
published by New World Publishing, Auburn, CA
(530) 823-3886
\$24.95, paperback, 257 pages

reviewed by Jack Kittredge

Eric Gibson previously wrote and published "Sell What You Sow" and is clearly an enthusiast for alternative agriculture and direct marketing. This work was written more by his friends, Marcie and Vance, with his assistance. Most of the trio's experience is on the West Coast, primarily California, but they try to cite examples from around the country to lessen their regional chauvinism.

According to the USDA, in 2000 there were 2,863 farmers markets in operation in the US. While this is up 63% from just 6 years earlier, only some 20,000 farmers are involved in these markets. Clearly, there is a huge potential for growth here. Whether we in this country can ever achieve the interest in local food that is obvious in markets in China, France, Italy, Germany, Mexico, Peru or Spain is an open question. Has our national cheap food policy so numbed people to the taste and nutritional value of fresh, local produce that there is no coming back?

Marcie, Vance and Eric don't think so. They cite example after example of growers doing well because they based their business on giving people something new and different, something local and seasonal, something with a bit of flair or special interest. And then paying close attention to what the customers thought.

This book is not about growing anything. They pretty much assume you know how to do that. It is all about making a success of your business through selling at farmers markets. The whole first third of the book is devoted to advice to vendors on preparing for the market, making the business decisions, getting your booth right, organizing your display, signage, service, promotion, etc. They cite lots of examples from an extensive knowledge of growers' anecdotes, and this part is quite readable. Most of the advice is simple and sensible — stuff you probably know if you have spent a year or two marketing this way, but still handy to have in one place and think about over the winter as you plan your attack next year!

The second part of the book addresses how to make the market itself a success. The histories of a



photo by Jack Kittredge

Registration Queen Elaine Peterson finally gets her moment!



photo by Jack Kittredge

A proud owner of a new skill!



photo by Jack Kittredge

Couldn't they have put that pedal a little closer to my foot?

always been the case, the weather was fantastic on Saturday afternoon. Stephanie Jenkins split the cow plop pot with NOFA and got \$256. And Brian Metcalf won the bounteous CT basket. The auction brought in \$667 for next year's scholarship fund.

Sorry for the inconvenience of so many moved workshops. Hampshire told us too late in the



photo by Jack Kittredge

Dan Holmes fascinates a classroom of attendees interested in growing for intentional communities.



photo by Jack Kittredge

Brains and brawn continue to share the agricultural stage.



photo by Jack Kittredge

Teens and pre-teens learn the intricacies of weaving on two-pedaled looms.

game that they had taken three of our best rooms out of service for the weekend. Hopefully most of you found out where to go.

There were somewhere around 1200 attendees this year, with 129 kids, and 45 teens. NOFA state attendance was as follows: MA: 457, NY:

165, CT: 129, NH: 49, VT: 46, NJ: 30 and RI: 16 with handfuls of people from ME, PA, NM, VA, KY, CA, KY, OH, IA, WV and MD. Fourteen Arab farmers from Israel came and also presented an impromptu workshop on Saturday afternoon where there was a spirited discussion of the current situation over there. This interna-

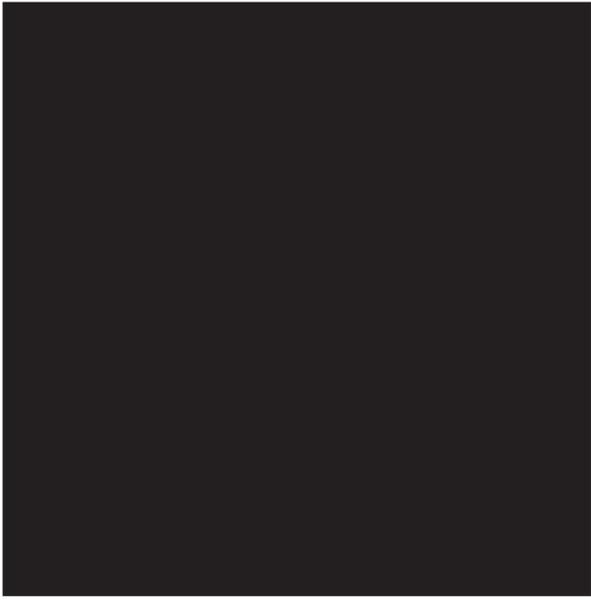


photo by Jack Kittredge

Bees, when you stop to think about them, are simply astonishing!

tional connection is quite exciting. They left us with a beautiful painting of Canaan.

Here is a special call to all NOFA Chapters to find a way to make some money and enhance next year's conference, which, by the way, will be August 9-11 at Hampshire. In the past NY did a quilt raffle, but has taken a break. CT and RI have done NOFA Nibbles, and presently CT does the basket raffle. A tractor or rototiller raffle, a special food booth, or other fundraising opportunity is all yours. Check in with us if you have an idea.

Would you like to design next year's logo and theme and win an all expenses paid trip to the conference plus a T-shirt, or \$150? Submit your graphic and logo to us by **October 15** to gain consideration. We will decide on October 20 at our next meeting of the committee.

Get those evaluations to us by **September 30**. I am looking for honest feedback on presenters and workshops, thoughts on how to make the conference better next year, ideas for new features, and your offerings for workshops that you would like to run, or for someone you know to run. We pour over the many typewritten pages of collated evaluations in an attempt to make this event better each year.

Thanks for coming to the conference. I hope you all came home as refreshed and happy to be part of the NOFA community as I did. Julie Rawson, 411 Sheldon Road, Barre, MA 01005 (978) 355-2853 jackkitt@aol.com.



photo by Jack Kittredge

Michael Pollen's new book (see reviews) raises the basic question of who is training and who is being trained here.



photo by Greg Zach

Julie Rawson enjoys a break by talking with friends while braiding her garlic during the farmers' market.

“Gardens of the Heart,” a CD Benefiting NOFA, to be Released this Fall

The Interstate Council of the Northeast Organic Farming Association (NOFA) announces an exciting collaboration with musician Margot Dilmaghani. “Gardens of the Heart,” a CD produced to benefit NOFA, will be released Fall, 2001. The CD features classical and ragtime solo piano music about Nature composed by women and performed by Margot Dilmaghani. Nocturnes, etudes and lyrical pieces about flowers, gardens, the Earth and sky are included. “Gardens of the Heart” is the second in a series of benefit CDs produced by Celebration Recordings at Clinton Recording Studios in New York City.

The CD “Celebration!” was released last year to benefit the Boston Women’s Health Book Collective for the publication of their book, *Our Bodies Ourselves in Armenia*. This CD features classical piano solos including preludes, etudes and baroque dances by Armenian women composers. The music was researched and recorded by Margot Dilmaghani, who holds a performance degree in harp from the Northwestern University School of Music. “Celebration!” can be heard on National Public Radio stations across the country and has raised enough money to sponsor the book’s next printing. Margot’s support of women’s issues grows

out of her connection to environmental issues. She believes, “Common wisdom correlates the manner in which a country treats the Earth and the way they treat women. Both need rethinking.” She says, “It’s a privilege to help NOFA’s advocacy work through ‘Gardens of the Heart’. NOFA is doing the most important environmental work possible. Stemming from the farming effort to provide us with pure food — the air, water and earth are all tended to in the most natural and loving way possible. One element affects the other, the inter-connection of all the elements is inextricable, within an all too fragile webbing. Together, through this conscious, responsible, sustainable manner of living, we can broaden our vision and approach to life at every level; honor it, soften it, gentle it, keeping it sacred and whole.”

Visit Margot’s website at Dilmaghani.com/celebration. She and her husband Dennis have been married for nearly 30 years and have three sons, Daniel, an entertainer, Matthew, an entrepreneur and David a college freshman.

NOFA, the oldest organic farming association in the US, is an organization of farmers, gardeners and consumers working to promote local organic food

systems through an Interstate Council and chapters in NJ, NY, CT, VT, NH, RI and MA. They certify farms, sponsor farm tours, mentoring programs, workshops, conferences, newsletters and support organic gardening programs in schools and prisons.

NOFA receives your entire donation for advocacy work, as costs for the CD were underwritten. Minimum donation, \$25 per CD. Checks may be made payable to NOFA and sent to: Celebration Recordings Box 392 Purchase, NY 10577

Margot says: “My love for the Earth and my enduring interest in environmental concerns grew out of my early childhood in America’s heartland, the Farm Belt. There, the rich, dark soil remains of ancient glacier deposits, the abundant wildlife in grassy fields, the backyard gardens and orchards augmented my intrinsic attachment to life’s basic rhythms and Nature’s beauty. Born with ‘perfect pitch’ a rare musical gift which identifies all sound as musical, I began piano lessons at age 3 and gave recitals soon after, continuing to play all my life. The first Earth Day, April 22, 1970, I was asked to play a chamber music composition at Northwestern University’s chapel. A time of enormous turmoil on college campuses, it provided an Epiphany, illuminating the unique connection fine art provides between the Eternal and the material, the enduring and the ephemeral. Since then, I have attached my music to environmental efforts satisfying my musical soul and activist heart. Further study in the broader dimensions of the musical experience constantly reinforce my appreciation for music’s access to Divine mystery.”

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Massachusetts: Individual: \$30, Family: \$40, Low
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Calendar

Sunday, September 9: Epicurean Tomato Fete,
Lenox, MA *for info: 413-229-8316*

Saturday, September 22: 8th Annual Biody-
namic/Organic Farmers Festival, Chestnut Ridge,
NY *for info: 845-356-3319*

**Saturday, September 22 - Sunday, September
23:** Exhibition & Sale of Heritage Breed Live-
stock, Pittsfield, MA *for info: 413-443-8356*

**Friday, September 28 & Saturday, September
29:** Effects of Horticultural Therapy on Physical,
Emotional and Social Wellbeing conference,
Daggett Farm, RI *for info: 401-722-2038*

Thursday, October 18 - Saturday, October 20:
Raising the Barn: Tools for Farm and Food
Education conference, Shelburne Farms, VT *for
info: 802-434-4122*

Friday, October 26: Great Green Hype: Genetic
Engineering and Agriculture lecture, Chestnut
Ridge, NY *for info: 845-356-3319*

Sunday, November 18 - Tuesday, November 20:
The Soul of Agriculture: New Movements in New
England Food and Farming, Durham, NH, *for
info: El Williamson, (603) 862-5040, E-mail
elw2@cisunix.unh.edu.*

Friday, December 7 - Sunday, December 9:
Northeast CSA Conference III, Claryville, NY *for
info: 717-264-4141 or info@csacenter.org*

**Wednesday, January 23 - Saturday, January 26,
2002:** Ecological Farming Conference, Pacific
Grove, CA *for info: Heather Ware at 831-763-
2111*

Fall, 2001



photo by Jack Kittredge

OrganiCare Landscaper Jon Paula sprays compost tea onto a lawn. His company's trucks start out each morning with a variety of liquid compost and other materials, which can be mixed and applied at one time through a series of connecting valves and hoses on the truck.

**News, features, and articles about organic growing in the Northeast,
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Organic Landscaping
