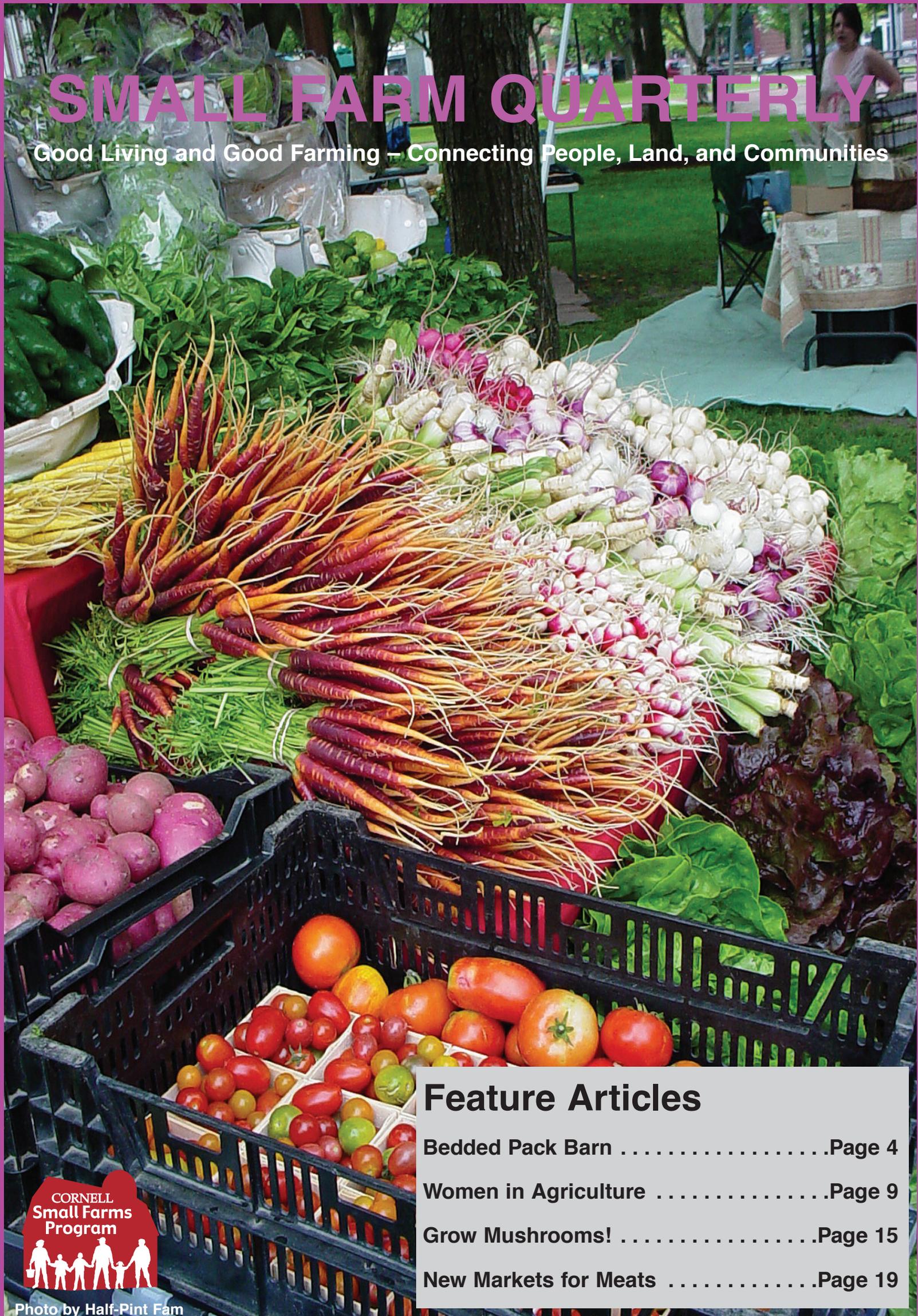


SUMMER 2007

SMALL FARM QUARTERLY

Good Living and Good Farming – Connecting People, Land, and Communities



**CORNELL
Small Farms
Program**



Photo by Half-Pint Fam

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SMALL FARM QUARTERLY - SPRING 2007

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SMALL FARM QUARTERLY

Good Farming and Good Living —
Connecting People, Land, and Communities

Small Farm Quarterly is for farmers and farm families — including spouses and children - who value the quality of life that smaller farms provide.

OUR GOALS ARE TO:

- Celebrate the Northeast region's smaller farms;
- Inspire and inform farm families and their supporters;
- Help farmers share expertise and opinions with each other;
- Increase awareness of the benefits that small farms contribute to society and the environment.
- Share important research, extension, and other resources.

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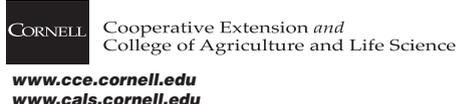
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Cornell Small Farms Program Update

WELCOME NEW SFQ EDITORS

We're very pleased to announce five new members of the Small Farm Quarterly Editorial Team. As of this issue, Betsy Lamb has taken charge of horticulture-related articles. She is the Ornamentals IPM Coordinator with the NYS Integrated Pest Management Program. Susan Neal of Wicaway Farm in Beaver Dams, NY, is editing our new Women in Agriculture department.

Starting with the fall issue, we will be joined by three additional editors: Sarah Johnston is the NYS Department of Agriculture & Markets' new Organic Agriculture Specialist, and our new Organic Farming editor. Gerard Monnat is a reporter and sales rep with Empire State Farmer, as well as a farmer himself, and will serve as the Community/World editor. Laura Wollin-Wood is an Agricultural Economic Development Specialist with CCE of Broome County and will serve as our New Farmer editor. Welcome aboard!

WELCOME VIOLET STONE

We are also very pleased to welcome Violet Stone as a new Program Assistant with the Small Farms Program here in Ithaca. Violet is originally from Susquehanna County, PA, where she grew up on a wildlife preserve. Her most recent work with small farms was on California's central coast where she facilitated weekly produce sales for Mariquita Farm, a 30 acre organic produce farm specializing in Italian heirloom varieties, to over 40 restaurants in the San Francisco Bay area. She's also worked as a farmers' market manager, local

foods educator and farm direct-marketing consultant in the Hudson Valley, New York. She has a certificate in Ecological Horticulture from the UCSC Farm and Garden and a degree in Environmental Studies from Oberlin College. Welcome Violet!

ORGANIC DAIRY MANAGEMENT WORKBOOK NOW AVAILABLE

This past winter we held workshops on "Organic Dairy Managing for Success" in Malone, Watertown, and Dryden, NY. The workshops brought together managers and family members from 25 farms. Participants had the opportunity to write their Holistic Goals and share some of the differences in time management between conventional and organic farm management. The workshops will be held in 4-5 other sites next winter. The workbook is now available online. To download it go to: www.smallfarms.cornell.edu, then click on the Organic Dairy quick link and scroll down to "Organic Dairy Managing for Success Workbook."

SMALL FARMS SUMMIT REPORT & RECOMMENDATIONS

In June we published a report entitled Key Opportunities & Strategic Investments to Enhance Small Farm Viability in New York State. It outlines six major opportunities identified by participants in the 2006 Small Farms Summit, and makes recommendations for investments in research, farmer education, public education, and agriculture development collaborations, as well as state policy initiatives. The key opportunities identified are:

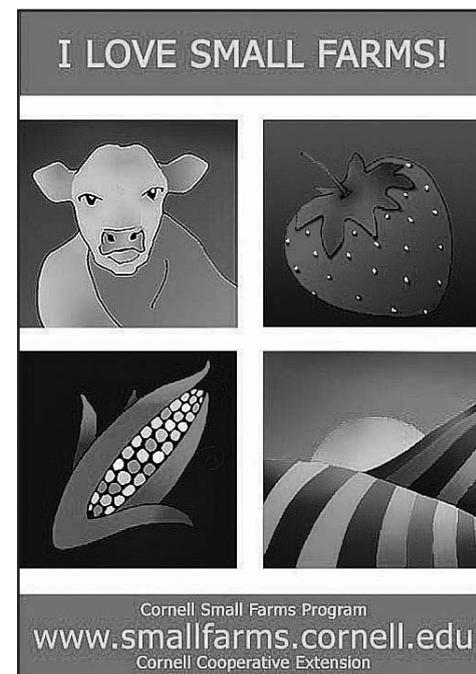
1. Marketing Innovations to connect consumers with local and regional producers
2. Renewable energy technologies, energy crops and energy conservation
3. Enhanced utilization of grasslands resources
4. Integrated farming systems using appropriate technologies.
5. Improved processing regulations, infrastructure and technologies for small farm meat and dairy products
6. Beginning farmer support

We will be working with members of the Small Farms Task Group to move forward on many of the recommendations made in this report. The full report can now be downloaded from the home page of our website at www.smallfarms.cornell.edu.

NEW AGVENTURES PROJECT

Our Beginning Farmer project has been reborn as the New AgVentures project, a name that more accurately conveys our intended audience: not just beginning farmers, but also those who are diversifying into new enterprises.

We have just released the Guide to Farming in NY: What Every Ag Entrepreneur Needs to Know, by Monika Roth and many others. This booklet is designed as a series of fact sheets about everything from agricultural assessments to zoning. The publication is available online for free download from the Small Farms website at www.smallfarms.cornell.edu. Click on "Resource Spotlight" or on "What's New" on the home page.



STEWARDSHIP AND NATURE

Clouds

by David Kline

When opportunities drift my way for cloud watching, I usually acquiesce. Sometimes I wonder whether I farm to make a living, or whether it is all a front, just an excuse to be out in the fields looking at clouds.

Thoreau thought a cloudless sky is like a meadow without flowers and a sea without sails. I'd have to agree. This week I had several days of great sky and cloud watching. We had six acres to plow for corn, and the weather was ideal: Warm enough that rest was needed for the horses and breezy enough that the cumulous clouds crossed the sky like fat sheep trotting across a meadow. When I'd get a crook in my neck from watching I'd plow another round or read Gretel Ehrlich's *The Solace of Open Spaces*, which I carried in my pocket.

We're getting to the time of year when cloud watching becomes serious, a necessity, almost an obsession - hay making time. When, as a neighbor once put it, we constantly keep one eye on the western horizon.

The first clouds to appear after a high pressure system has cleansed and cleared the sky are the high altitude cirrus clouds. True cirrus clouds may be as high as fifty thousand feet and have a thin, wind-swept, wispy appearance. Because they look like the flowing tails of running horses, the lovely pure white clouds are also called mare's tails. When mare's tails come swishing across a late-spring sky, we hay makers begin to have doubts about mowing the new crop. Rain may be as close as forty-eight hours away.

If the mare's tails are accurate in their forecast, and rain is on the way, the next clouds to form are the cirrocumulus. These clouds are thicker and are made of small convection cells that give them the appearance of fish scales - the mackerel sky of weather proverbs. A sky filled with mackerel scales is one of the prettiest of all, particularly early in the morning when the clouds are bathed in the red glow of the rising sun.

Last Sunday morning gave us one of the grandest displays of mackerel scales I've seen in a long time. Actually the scales were more like the delicate silvery scales of a shiner minnow, small and evenly spread across a wide



April morning at the Albano Farm, Grand Gorge, NY

Photo by John Thurgood

portion of the sky. In a few places the scales gradually increased in size toward the outer edges until they could justifiably be called mackerel scales.

Following the mackerel scales by a day or two are the heavier wine-dark clouds bearing rain. At this point cloud watching loses its zest.

For me the most enjoyable clouds to watch are the puffy, low level, cumulus clouds of warm seventy-five degree afternoons. Sailing like clipper ships through the otherwise clear sky, a cumulus cloud the size of a football field may contain only enough water to fill a bathtub. Even as the clouds race east with the currents of brisk wind, there is a constant roiling within as parts move into the wind, then turn and billow back into the rest of the cloud.

Cumulus clouds are also an indication of fair weather, those halcyon hay days when heat waves shimmer above the tilled ground and dust devils rise and dance across the fields. The field I was plowing is for some unexplained reason prone to king-sized dust devils. Twice already in years past we had hay raked and were ready to start baling when dust devils appeared and scattered the windrows to smithereens. Clumps of hay were flying as high as three hundred feet; I at first mistook them for soaring vultures, and then, to our chagrin, the hay was dumped into a cornfield. Another day a dust devil swirled down the field

and tried to steel my shirt. Whenever I get the chance I try to run into an approaching dust devil: for a few seconds its whirling wind tears at your clothing and I get a brief cooling jolt from the summer heat. (Natural air-conditioning.)

Cloud watching can be a tricky business, and I don't see how my tractor farming friends can do it and not appear indolent to their industrious neighbors. But with animal traction it's as natural as resting the horses. We often joke that where tractors can plow a six acre field in two hours, I figure two days - but my time includes listening to vesper sparrows and meadow larks and watching the clouds scud across the sky.

Recently I was told that great egrets, those lanky white heron like birds that wade around in murky swamps watching for fish and frogs, are the departed spirits of birders and cloud watchers - which explains the permanent crook in their neck.

*David Kline watches clouds, farms, and writes in Fredericksburg, Ohio. He is the author of two books, *Great Possessions* and *Scratching the Woodchuck*. This article is reprinted, with permission, from *Scratching the Woodchuck*.*

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COWS & CROPS**The Bedded Pack Barn****An old idea with brand new importance.**

by John Thurgood

So, where do the past and the future of agriculture meet? In some respects it is in the area of farm environmental management. It seems that many of the practices associated with modern agriculture and the "green revolution" have led to widespread environmental degradation in the form of nutrient runoff and soil erosion. To resolve some of these issues many farmers are reinventing "old-time" systems such as grass-based farming and composting.

Here in the Catskills, dairy farmer Jake Fairbairn has been working with staff of the Watershed Agricultural Program to resolve some environmental challenges at his farm, Lazy Crazy Acres. The solution Jake has developed is surprisingly old fashioned.

PROBLEM: NUTRIENT RUNOFF

The problems were primarily caused by housing and feeding dairy cows outdoors as well as farm fields that are inaccessible for winter manure spreading. As Jake's farm has no practical filter area for treating barnyard effluent, the "modern" alternative would be a covered barnyard. The "modern" solution for manure storage would be an above ground storage tank.

The problem with this approach was a lack of space on the farmstead for these systems and Jake's aversion to liquid manure. The nutrients in liquid manure are relatively soluble and are prone to leaching through the soil profile. Odors would also likely aggravate Jake's neighbors and seasonal visitors to the Catskills.

SOLUTION: BEDDED PACK

After extensive exploration (described in the July 10, 2006 Small Farm Quarterly, "Bedded Pack Barn at Lazy Crazy Acres") Jake decided to implement an "old time" bedded-pack system that would house cows during six months of the year, serve as the winter feeding area, and store manure in the form of a pack. The project is funded by a USDA Conservation Innovation Grant and the Watershed Agricultural Council.



Jake Fairbairn moving processed straw bale to bedded pack barn.

Photo by John Thurgood

In the Summer 2006 issue of the SFQ, we promised to give you an update on the system's performance during the first winter. First let's review the basics of the project. The system consists of a 50' x 100' fabric-covered hoop structure with 8"x 8" locust posts and 3" x 12" rough-cut tamarack sidewalls that are 10' high. There are six 2' x 6' windows per side. Surface drainage takes water around and away from the building. The floor consists of one foot of 2" minus crushed gravel over geotextile fabric, then 6 inches of wood chips covered by straw bedding.

The bedded-pack system at Lazy Crazy Acres was not intended to be a composting barn with twice daily stirring like the barns you may have read about in the mid-west. Jake did not want the extra chore of stirring and realized that meant that he would have to use more bedding. The system has a rotated feeding area using large round bales to avoid having a concrete feed alley which would require liquid manure storage.

EVALUATION: THUMBS UP

So how did it all work out? This past winter Jake had his Jersey and mixed-breed cattle on the bedded pack: 35 cows, 20 bred and open heifers, 11 yearlings and 2 calves (Jake likes his cows to freshen on pasture). Jake and his fiancée Karen Caskey are really positive about the covered, bedded-pack system.

Jake said, "My cows are in better condition and my yearlings have done better than ever ... they really look great. The cows were happier and so was I." Jake's parents, John a veterinarian, and Sally, help out on the farm and are also very happy with the system.

Jake relates that the only drawback of the new system was that since the cows spent the winter on a soft, bedded pack, their hooves had to be trimmed this spring. The excellent udder health and milk quality experienced with the previous system has continued. The somatic cell count before and after the bedded pack barn has averaged 150,000.

The cows were supposed to enter the facility on December 15, 2006. That date was delayed while the contractor completed construction. Next year, Jake will likely have the cows in the barns as the weather breaks to winter, probably in November or early December.

MANAGING THE SYSTEM

Jake adds bedding to the barn every other day which takes 45 minutes to an hour. The alter-



Jake Fairbairn and Karen Caskey enjoy time away from the farm at "Down Off the Farm Day," an event sponsored by the Watershed Agricultural Program in appreciation of participating farmers.

Photo by John Thurgood

nate day he adds one or two round bales of hay or haylage. They have found that the polypropylene pipe-type, round bale feeders stand up to the cattle better than the lighter gauge steel feeders they used before. Jake milks his 35 cows in a 5 unit swing parlor and is usually done with milking in about an hour.

Adjusting the height of the barn waterers as the pack built up was accomplished by placing the waterers on 6" x 6" wood cribbing. The challenge was the need for the pack to hold the waterers in place, which led Jake to digging the waterers out with a pitch fork as the pack built up. We will welcome time-tested ideas on the construction of adjustable height waterers. Remember, they must remain insulated underneath to prevent freezing.

Jake will install hinged panels to cover about half of the windows, especially where calves are housed. Jake closed the overhead doors on each side of the barn nearly every night this winter, reopening them during the day except when there was wind, rain, or sub-zero temperatures. With the doors closed, ventilation consisted of air moving through the shade cloth end walls and windows. Jake relates that, "Ventilation was excellent, nearly as good as outdoors." Some farms have experienced a build-up of ice on the end wall shade cloth, so Jake will monitor this, although it was not a problem last winter.

Since Jake's herd has not reached the barn's design capacity of fifty cows, he used one-third of the barn to house heifers and youngstock. Jake used metal panels to create pens for the heifers; a line of electric fence separated the cow and heifer areas. As the pack built up, animals could reach to the open windows, so Jake ran electric fence in front of them. The



The cows are comfortable and clean in the 50' x 100' bedded pack barn.

Photo by Paula Christman

cows had about two-thirds of the barn's area this winter. In the future, the heifers will be housed in his parents' barn.

COSTS AND BENEFITS

The litmus test of bedded-pack system viability seems to revolve around one issue....bedding cost. Jake used 66 tons of processed straw from Canada at \$150/ton for bedding this win-

feeding area. "Your cows will do better and the manure coming out of the pack is in a much more stable form than liquid manure," he says.

If designed properly, the bedded pack system can meet NRCS standards and specifications for barnyard water management and manure storage. Similar systems in Vermont have received cost share assistance through the USDA EQUIP program.

The cows were let out to pasture for full days around May 15, once the pastures greened up enough to receive them. In advance of taking the heifers up the road to graze on Jake's parents' pasture, they were given full reign of the barn, creating quite a stir. "The heifers were running around like a bunch of teenagers, kicking up their heels and yelling yooo-hoo!" Karen related. They took a video of the whole event. Now, there's a video to post to You Tube!!!

For more information on bedded-pack barns you can contact me, John Thurgood at 607-865-7090, jmt20@cornell.edu or Jake Fairbairn at 845-586-1255, oliver19554wd@aol.com.

John Thurgood is a Senior Whole Farm Planner for Cornell Cooperative Extension in Delaware County as part of the NYC Watershed Agricultural Program. The WAP (www.nycwatershed.org) works with farmers in the Catskills to develop and implement whole farm plans to protect the water supply for the nine million residents in and around New York City while enhancing farm viability.

Resource Spotlight

USDA-NRCS Environmental Quality Incentives Program (EQIP) and Conservation Innovation Grants

The Environmental Quality Incentives Program (EQIP) is a voluntary conservation program from the USDA Natural Resources Conservation Service. All sign-ups are conducted at USDA Service Centers at the local level. The program supports production agriculture and environmental quality as compatible goals. Through EQIP, farmers may receive financial and technical help with structural and management conservation practices on agricultural land.

The Conservation Innovation Grants (CIG) program is a voluntary program intended to stimulate the development and adoption of innovative conservation approaches and technologies. Under CIG, EQIP funds are used to award competitive grants to non-Federal governmental or non-governmental organizations, Tribes, or individuals. CIG will benefit agricultural producers by providing more options for environmental enhancement and compliance with Federal, State, and local regulations.

For more information on these funding programs call your local USDA-NRCS office. For EQIP information visit: www.ny.nrcs.usda.gov/programs/eqip/eqip2007/eqip2007.html. For CIG information visit: www.ny.nrcs.usda.gov/programs/programs/cig.html.



Construction of the walls, 8"x 8" locust posts and 3" x 12" rough-cut tamarack sidewalls that are 10' high.

Photograph by Paula Christman

MARKETING**A Cheesemaking Renaissance**

Upper Hudson Farmstead & Artisanal Cheesemakers work together to promote this up and coming culinary craft

by Sandy Buxton

Amid the rolling hills and rushing creeks of Washington County, New York, there is a Renaissance happening. Cheesemakers are once again plying their trade and tickling the taste buds of their appreciative clients.

Years ago, each town had at least one cheese-maker whose skills helped to preserve fresh milk in a form that was desirable and saleable. Now Washington County boasts a number of cheesemakers who are working with several different kinds of milk to turn out a delectable and diverse array of fresh and aged cheeses.

Calling themselves the Upper Hudson Farmstead & Artisanal Cheesemakers, five of these sheep, goat and cow's milk dairies are all competing for space at the farmers' markets and on the shelves of the local gourmet shops. Each with a different story, they all have a common mission - to produce a delicious product that will help them to receive a sustainable income for the farm.

ONE COUNTY -- FIVE UNIQUE CHEESE-MAKERS

3-Corner Field Farm is a unique dairy that has been milking more than 200 sheep for years. While building the herd from a lawn mowing project gone wild, Karen Weinberg sold frozen milk to another sheep dairy that was manufacturing product. But as she perfected her system and gained skills in manufacturing and marketing she and her family have begun producing yogurt and cheeses that are marketed via the internet, Union Square Green Market in New York City and locally. Some milk is even sold to a neighbor to be processed into a delightfully soft, scented soap.

Goat dairies are more common to see, but the cheese that each produce is unique to their

ingredient that makes their recipes impress. In addition to their goat cheeses, Liza is also buying milk from local Jersey and Brown Swiss herds to make some wonderful cows' milk cheeses. Her products include fresh quark, feta, and fromage blanc as well as aged cheeses.

Having started by purchasing milk to make cheese, the Porters wanted to have control of the milk and what goes into their cheese each week. They are in the process of trying to create a sustainable dairy that produces forage for the animals as well as markets their cheeses. Liza reminds people that all of this work takes milk with a wholesale value of about \$16/cwt. and ends with products that have now made the milk worth \$200/cwt.

Jeff Bowers at Sweet Spring Farm is moving fresh chevre into a whole new arena. He produces some mild yet tangy chevre which may include coatings of herbs or spices. He is also producing some mold ripened cheeses, one is aged for 2 weeks to produce a creamy, tangy product with a consistency of a Brie or Camembert.

The Argyle Cheese Factory, LLC is a new venture by Dave and Marge Randles. Dave is a partner on a Holstein dairy which was looking for a new opportunity to be able to continue with long term sustainability. Marge has been exploring several ideas and has decided to pursue cheesemaking. While the farm is not in cheese production yet, they have spent months doing their homework - they have been to classes, made cheese once a week for months, worked with consultants, tweaked recipes and crunched numbers.

All of these cheesemakers feel that creating a product that is desirable for consumers and sold directly to the customer gives a farm a



A succulent wheel of cheese has been cut into wedges in preparation for sale at the farmers' markets. Photo by Rob Barendse

location, animals and manufacturing methods. Consider Bardwell Farm, which straddles the border of Vermont and New York in the hilly Slate Valley town of West Pawlet. The cheeses that Angela Miller, Russell Glover and their cheesemakers Peggy Gallop and Peter Dixon produce are tangy, sharp and bright much like their inquisitive goats.

Revitalizing a historic cheesemaking farm, their Oberhasli goats produce milk for tasty fresh chevre and feta-style cheese as well as aged tomme and a bloomy-rind cheese. Using cows' milk from Jersey cows in Chester, VT on a partner farm, Peggy and Peter also produce a raw milk, washed rind cheese and an Italian Alpine cheese that is aged 4 months.

Longview Farm has been milking goats to make their creamy feta, both fresh and aged and a Parmesan-type cheese. Marketing their cheese locally through several farmers' markets as well as restaurants, Liza and Dave Porter have a client base that makes a beeline to them at the farmers' market to get that special

tremendous opportunity in achieving some financial independence. It is difficult to produce a commodity on a small scale and be profitable when you have little or no control over the price you receive or the expenses you pay.

CHEESEMAKING CHALLENGES

Marge Randles believes that her research shows cheesemaking is a viable opportunity for producers. However there are some hurdles that prevent most farmers from viewing this as an option:

Time - farmers are already stretched trying to produce forage, harvest milk and accomplish regular tasks, and there isn't much extra time to put into the research needed for a new venture, and this is a whole new venture!

Knowledge and skills - the technical knowledge and skills needed to make cheese, develop a desirable product and then market it successfully are skills that most commodity farmers don't already have - they must be learned.



Liza Porter of Longview Farm in Argyle, NY walks some of her goats out to browse. Healthy, well cared-for animals are a key ingredient in good cheese! Photo by Rob Barendse

Resources - to be a successful dairy value-added farm, you must have a consistent, superior quality product to work with. Milk does not improve at all after it is harvested, so it is important to start with the best so you can end with an outstanding product.

Finances - even the most simple of production systems require investment as well as the ability to weather the first months of low production, low name recognition and constant promotion to customers. Most farms do not have the extra available cash to be prepared to fund a slow growing venture even if the potential is enormous.

Marketing - commodity farmers normally produce milk and sell it directly to a company.

these five members of the Upper Hudson Farmstead & Artisanal Cheesemakers will open their operations to the public. Come watch the cheesemaking process, meet the cheesemakers and some of the animals that make the raw resource needed for cheese, milk.

This is a self-drive tour, you can stop at every cheese maker, or pick one or two that you are interested. For more information contact Sandy Buxton, Cornell Cooperative Extension, Washington County at: 1-800-548-0881 or visit: <http://cheesetour.blogspot.com>.

Sandy Buxton is with Cornell Cooperative Extension of Washington County.



The environment and production system of the milk can have a tremendous impact on the flavor and characteristics of the cheese produced. Photo by M. Randles

Once it is on the truck they no longer worry about getting paid because they know a check will come. When you direct market a product, it is completely different. You have to develop a marketing plan, be prepared to make changes and adapt and you aren't sure that you will get any money until it is actually in your hand!

SEE FOR YOURSELF
On September 15 and 16, 2007,

Energy Conservation Tip

Did you know that running a room air conditioner for 6 hours a day can cost about \$34.00 a month? Running a circulation fan for the same amount of time each day will cost about \$2.50 a month. You can save over \$30.00 a month by using a circulation fan!

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NEW FARMERS**Make New Ventures Less Risky**

Whether starting from scratch or just starting a new enterprise, it pays to reduce your risks.

By Molly Ames

Editor's note: This article is part of a series focusing on risk management funded by the New York Crop Insurance Education Program under the Risk Management Agency (USDA) and the NYS Department of Agriculture & Markets.

Managing risk is especially important if you're starting a new venture on your farm, investing in changes so that your children can farm, or taking the plunge and starting a new farm of your own from scratch.

Nancy got involved in a mentoring program that helped her explore another form of animal agriculture that would work with her existing talents. But new enterprises have demanded the development of new skill sets. "We need to keep better records, I think. I suppose all farmers do," says Nancy. "But with the new venture, we need to keep track of how much hay the goats are eating. We finally gave up the shoebox and got it into the computer."

GROW YOUR MARKET

Every new venture is a learning process with new and different production issues. "With goats, the health issues are different," Nancy



Pat Kilcoyne raises Black Angus near Brasher Falls, NY, and advises that you "pick your people" carefully to reduce the risks of a key relationship going sour.



Stephanie Weber and her daughter Nancy got started with meat goats as a way to help pass the farm on to the next generation. Photo by Molly Ames

I've been fortunate to work with many farmers who have successfully started new ventures – some from the ground up. We can learn a lot from folks who have survived those first few tough years. In Part 1 (see the Spring 2007 issue of Small Farm Quarterly), we heard some sound advice from those who have been there and lived to tell about it. Here's more:

PERSEVERE

The actual farming is the easy part. You also have to be ready to persevere on the many other barriers that might stand in your way. When Liz and Brian Bawden moved their dairy from Canada to northern New York 10 years ago, the logistics of transporting family, belongings, cows and machinery were only part of the challenge.

Even though Liz is an America citizen and their move was pre-9/11, the visa process was daunting, and just one example of legal-risks and paperwork challenges that you need to consider during start-up. Explore what laws and regulations you'll need to comply with, and what licenses or certification you may need to secure before you start your business.

"Too many couples are not willing to put their heads down and persevere through adversity," says Liz. "There will be train wrecks. They can't all be avoided. When they happen, you deal with them."

INVOLVE THE FAMILY

Often, the motivation to start a new farm enterprise is catalyzed by the next generation – either to generate the cash flow needed to support an additional family on the farm or to match a new enterprise with the skills and talents of the future farmers.

Take the Weber Family, who've farmed in Mexico, N.Y. for 50 years. Their children have been driving the search for new ideas. "Our son is not interested in milking cows," says Nancy Weber. "If he stays on the farm it will be doing other things."

Stephanie, Nancy's daughter, has been exploring non-commodity and organic agriculture. She works on a neighboring organic farm and for Northeast Organic Farming Association of New York (NOFA-NY), in addition to working on the home farm. Nancy got interested in meat goats, seeing them as a good way to use some of the farm's existing pasture. So mother and daughter joined together to develop a meat goat enterprise and explore other alternatives that will help pass the farm on to the next generation.

points out. "The first kidding is traumatic. You don't know what will happen. Twinning is common and you don't know how the kids will present themselves."

But you can't focus just on production. You need to devote as much energy – if not more – to figuring out how to sell your products as you do to producing them.

At first, the Webers marketed their meat goats entirely by word of mouth. "It has been our sole means of marketing as it seems there is an insatiable demand," says Nancy. "I became the 'goat lady.' I talked about them wherever I went. But word of mouth will only go so far."

As demand has grown, the Webers have joined area goat owners to market cooperatively. Greek, Jamaican, and Italian communities all provide markets. "But it is an interesting marketplace," says Nancy. "Depending on the market, they are very specific about their requirements. It is a very fussy market."

ADD VALUE

Don't limit your thinking to totally new enterprises. You may be able to develop a new business by adding value to commodities you already produce.

With some new skills and confidence from her experience with goats, Nancy is now exploring on-farm cheese-making, using milk from their cows. She will dip a toe in the water first by seeing if she can make a good-tasting product. Then she will test the market by making some cheese in sufficient quantity to take to local stores to see how it sells.

"We will feel our way and see what it tastes like," she says. "We hear our water in Mexico is famous. Our cows are pastured, our local grasses are unique. We will start out simple."

TAKE IT TO THE NEXT LEVEL

Listening to the stories of start-ups over the years, I hear another common theme: There often comes a point where the rubber hits the road – where you hit a point when you have to take it up a notch or get out.

For the Webers' goats, the pinch-point came when it was time to invest in facilities. Winter housing often becomes the critical juncture. "That was a large financial investment for a venture that we did not know whether it would pan out," recalls Nancy. "But we looked at the barn and pens we were building and decided we could always use them as calf pens for the dairy herd."

PAY ATTENTION TO PEOPLE

One often overlooked category of risk is people. Family members, employees, customers, literally all human interaction in the course of business is chock full of opportunity – as well as challenge. If you get those relationships right, your business can thrive. But if you ignore problems, you risk scuttling the best-laid plans.

Whether you go it alone or collaborate in your start-up, each has its pros and cons. "Pick your people!" says Pat Kilcoyne, who raises Black Angus and runs Kilcoyne Farms from a 200-acre farmstead near Brasher Falls, N.Y. "For me, I pick partners who are driven people, people who don't procrastinate or are too careful. I don't want people who are afraid of losing a little money."



But not everyone wants to partner at all. Some people want to keep the controls in their hands alone. It is very much an individual preference.

DO IT RIGHT!

There are two sides to the risk management coin. The positive side is what can happen when things go well. We realize the positive results we strive for – our goals and objectives including profit, personal, family, and lifestyle accomplishments.

The negative side is a harsh reality. The reality is, things do go wrong. Bad things happen. At the very least, things do not always go the way we anticipated they would. Murphy's Law applies to new ventures. If it can go wrong it will, and usually within the first three years of a new venture.

That does not mean that all new ventures fail. It does not mean there are not real opportunities for farm- and rural-based businesses. It just means you should do it right – seek to identify potential risk, quantify it and plan for it as best you can.

After all, if someone didn't take measured risks and jump in, we wouldn't have any farm- or rural-based businesses at all.

Molly Ames is an Extension Resource Educator for Cornell Cooperative Extension of Jefferson County, and Co-Director, New Strategies: Enhancing Profitability on North Country Farms, a project of New York Farm Viability Institute.

5 TYPES OF RISK YOU NEED TO PLAN FOR:

Production risk includes weather, pests, equipment breakdowns and anything that affects the quantity and quality of what you produce.

Marketing risk results from the uncertainties in your markets, including the price you receive, how much you can sell, and changes or loss of a market you were expecting to sell to.

Financial risk is how other areas of risk can affect your finances and your ability to cover your obligations, including debt, expenses or family living.

Legal risk refers to the possibility of being sued, fined or otherwise penalized for violating a law or a regulatory standard, including suits from customers or visitors concerning accidents or product liability.

People risk covers risks associated with employees, family members and others. The four D's – death, divorce, disability and disagreements can wreak havoc on a farm business.

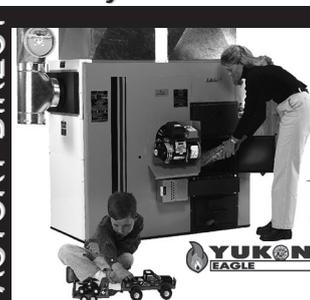


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FOOD FOR THOUGHT**Another Model for Sustainable Farming**

by Jim Ochterski

Bill Henning's model for sustainable farming (SFQ, Spring 2007) revolves around a 12-point characterization of a typical dairy farm from 50 years ago. I will take a different approach, breaking sustainable farming into four core components. This model is one of the organizing aspects of the Finger Lakes Sustainable Farming Center, an Extension-based information center shared by 3 counties - Ontario, Yates, and Seneca.

Before coordinating our educational support for sustainable farming, we wanted to have a clearer sense of what "sustainable" means. Here is the most straightforward answer I could develop:

"Sustainable farming is a regional-oriented process in which farms promote their own future by incrementally maximizing internal farm resources, minimizing inputs, diversifying revenue channels, and contributing assets back to the community."

Coming in at less than 30 words, this may be one of the shortest descriptions of sustainable farming available. Perhaps it will help to spread the concept out to a few paragraphs, then look at one way to market sustainability to customers.

SUSTAINABLE FARMING MAXIMIZES INTERNAL FARM RESOURCES

The idea of maximizing internal farm resources may look familiar to you if you follow the Rodale Institute's concept of regenerative farming. Farms have lots of internal physical resources, like soil ecosystems, minerals, stores of surface and ground water, solar gain, equipment, storage, and tools. Farms also have internal human

resources that monitor crop development, assess markets, make decisions, and provide labor. Money, sometimes an external input, is also part of the internal resources when it passes through the farmgate to the farm.

Maximizing the internal resources of a farm increases self-sufficiency. Self-sufficiency is a fundamental part of sustainability, though not the whole thing; our farms will always require some external inputs.

The example of nitrogen cycling might help illustrate this point. Nitrogen can be purchased in the form of fertilizer, but it can also be harnessed from the atmosphere through cover crops. Hairy vetch, seeded in September, is an over wintering legume that can capture almost 100 pounds of nitrogen per acre. By recycling the nitrogen already available using this and other cover crops, a farm can move toward sustainability.

SUSTAINABLE FARMING MINIMIZES INPUTS

So many external farm inputs have a negative connotation in sustainable farming: debt, fossil fuels, hired labor, purchased water, synthetic fertilizers, chemical pesticides, and government subsidies. Yuck! This model looks upon such inputs as necessary in many situations, but certainly warranting minimal use. To the extent that a farm can reduce the flow of external inputs to a drink, then a sip, rather than a greedy chug, it will be more sustainable.

SUSTAINABLE FARMING DIVERSIFIES REVENUE CHANNELS

This part of sustainable farming looks at the role of income diversity. On a farm's accounting ledger, there are often dozens of expense entries for each income entry. In fact, the Cornell Farm

Account Book contains nearly 80 pages to register expenses, and only about 8 pages to register receipts. Likewise, farm expense categories are numerous, and income categories are few.

In the process of sustainable farming, the farm will attempt to maximize the categories of income, spreading out revenue opportunities. The more diversified your production and services, the more markets you can access. A farm usually provides a marketable product (the crop or animal), but it can also provide services to enhance farm rev-

enue and boost product sales. Historically, farmers were also farriers, or blacksmiths, or teachers, or researchers, or real estate brokers, or lumberjacks, depending on their off-farm skills. Rare indeed is the farmer who gains all their income from product sales alone. Sustainable farms in the current day diversify revenue through off-farm services and/or on-farm activities, like teaching fees, tourism, tastings, show fees, activity fees, and farm building rentals.

SUSTAINABLE FARMING CONTRIBUTES ASSETS BACK TO THE COMMUNITY

Were it not for the community surrounding it, a sustainable farm could not exist. Fortunately, many farms are positioned to return important assets to the community. Sustainable farms benefit public health by maximizing access to locally-produced food. Community environmental assets - open landscape, erosion control, minimal chemical inputs, plus many others - flow from a sustainable farm to the lands around it. Sustainable farms are at the core of many social

For example, you are selling retail frozen cuts of pork at your roadside market, when a new customer asks, "Do you practice sustainable agriculture? I know several families who want to support sustainable farming, rather than those mega-farms, but I wasn't sure if your product is really different."

Here is an organized coherent response: "Yes, my farm is sustainable, because I rely on my family for most farm decisions. We use pesticides only when they are absolutely necessary, and we consume energy very efficiently. In addition, we help the community by bringing our pork barbecue to fundraisers and community events, so if you know of a group we could help, we will look at our schedule." This kind of answer reflects all four components of sustainable farming, stated with specific examples that any non-farmer can understand.

Sustainable farming is a process of small, but important changes. It is not an endpoint,



Photo by Bill Henning

networks. Farm operations almost always remain part of a community longer than non-farm landowners, and the owners typically spend their days working within the community, rather than driving off to a distant job.

COMMUNICATING SUSTAINABILITY WITH CUSTOMERS AND THE PUBLIC

I am seeing more situations where members of the general public are asking the question "Is your farm sustainable?" This is a tough question to answer, because the response naturally tends to be unorganized and incoherent, once you start to explain things beyond "Yes."

This model can help organize your response to the sustainability question. Think of some concrete examples from your farm that reflect the notion that you maximize internal resources, minimize inputs, diversify revenue and, contribute back to the community.

because there will always be one more internal resource to maximize, one more input to minimize, one more revenue channel to explore or one more asset to contribute back to your community.

THE FINGER LAKES SUSTAINABLE FARMING CENTER

The Finger Lakes Sustainable Farming Center is a newly developing entity featuring a farmer knowledge base, an online library of information, communications to residents and visitors, conferences, support for progressive farmland preservation, and geographic information system (GIS) applications around soil resources. Anyone with an interest can contact Cornell Cooperative Extension of Ontario County at (585) 394-3977, Cornell Cooperative Extension of Yates County at (315) 536 5123, or Cornell Cooperative Extension of Seneca County at (315) 539 2784.

Jim Ochterski is an Agriculture Economic Development Specialist with Cooperative Extension of Ontario County in Canandaigua, NY. He can be reached at 585-394-3977 x402 or jao14@cornell.edu.



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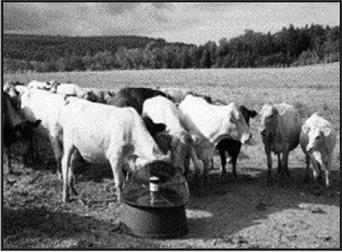
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MANAGING RISKS**Liability Insurance for Farmers**

by Anita Deming

One of the goals of risk management and insurance is to protect your assets from claims and lawsuits that may result from injury to people or damage to property when an accident or event occurs on your premises.

In today's society, liability claims and lawsuits are frequent occurrences. Effective risk management depends on the combined efforts and close communication between you and your insurance company.

Many farmers are hiring employees, inviting customers onto their property, offering value added products, selling directly to consumers, keeping large livestock, or finding "attractive nuisances" on their farm. Each of these requires attention to mitigate the potential for and impact of an accident.

“ Experience is something you get right after you need it. -- Dave Ferris ”

According to Dave Ferris of The Wood Office, P W Wood & Son, Inc., "Experience is something you get right after you need it." Your insurance company has the benefit of studying accidents for a living. They know the risks and should have recommendations for reducing your exposure. Talk to them, listen and implement their recommendations.

Look for an agent you are comfortable with, that you can talk to, who is well known and respected in your community, who understands agriculture and businesses, and who will work with you to reduce your potential for risk.

What are your risks? How much can you afford to lose? How much can you afford to pay? Any risk can be covered if you are willing to pay for it -- just call Lloyds of London! However, as a business you also need to balance your risks with the cost for protection. You can "shop" for coverage to compare policies. However, be sure you are comparing apples to apples for coverage.

WHAT INSURANCE DO YOU NEED?

When considering your risks, be sure to review the list below and describe your risks completely to your agent.

General Liability Insurance covers injuries to people while they are on your property. It pro-

fects you from losses due to lawsuits. This may be part of your "Farmowners" package policy.

Home Owners Insurance typically covers: fire, theft, personal property, lightning, riot, aircraft, explosion, vandalism, smoke, theft, windstorm or hail, falling objects, volcanic eruption, snow, sleet, and weight of ice. Usually flood and earthquake insurance needs to be purchased separately. It will also include liability protection for you and your family

Farm Owner's Insurance - For a farm owner we recommend that you have a "Farm Owners" insurance policy instead of a Homeowner policy. It will also cover barns, rental housing, equipment, animals, and other farm property.

Product Liability Insurance for damages that may arise from the handling, use of or condition of products manufactured, sold handled, or distributed by your business. This may be part of your "Farm Owners" insurance.

Automobile Insurance covers damage to your vehicle and liability and "no fault" insurance required by state law. Do other people drive your vehicles? How big are your vehicles?

Contract Liability Insurance covers the assumption of the liability of another party through a contract or facility use agreement. For instance: If you are selling at a grocery store you will likely need \$1 million in product liability and additionally insured insurance. This coverage should be discussed with your insurance agent.

Crop Insurance for weather, market, fire, pests, and other disasters. A variety of insurance products is available including Multiple Peril Crop Insurance (50% yield loss), Adjusted Gross Revenue (50% income loss), or Non-insured Crop Disaster Assistance

Health insurance for yourself and family in case you are hurt and need medical care. Life Insurance to help your family in case something happens to the bread winner.

Workers' Compensation Insurance is required if you have employees. Health insurance may be provided for employees as well.

Unemployment Insurance is required for farms that have 10 or more agricultural employees on the

farm in any day, or that have \$20,000 in quarterly payroll. It is also required for all other employees if the payroll is over \$1500 in any calendar quarter.

Disability Insurance will provide living expenses if you are hurt or sick and cannot work.

Vendor's Insurance will cover your liabilities if you are selling at a farmers' market or trade show.

Environmental Pollution Insurance covers clean up of manure, or pesticide spills.

Be sure to describe your operation fully to your agent, so that they can find a package that will help you protect your assets. You should also implement standards of practice for your type of operation. Remember your liability extends to: What would a "prudent" person do? By demonstrating that you have taken precautions and implemented best management practices, you will do a lot to reduce your risks.

WAYS TO REDUCE YOUR LIABILITY

There are basically three strategies for reducing your liability. Use them as you can to meet your goals.

- * Risk avoidance - Don't do it! Example: Don't ride horses
- * Risk reduction - Modify. Example: Use helmets.
- * Risk protection - Buy insurance to cover risk and protect your assets.

Negligence is when you don't do what a "prudent" person would do, or you do something you should not do. Spend some time thinking about risk and ways to reduce it in your operation. Read up about the best management practices in your industry so you what is considered "prudent."

Remember you have a higher duty of care to children and invitees. Keep your property in good repair. Watch for those things that are so likely to hurt someone that you will likely lose a lawsuit, such as: raw food products, blasting, dangerous animals - a dog that

has bitten even once before, stallions or bulls, or a horse that has ever bucked. If possible, remove these dangerous risks from your operation.

Making false statements or publishing incorrect information that may damage a person's reputation can result in liable suits. Be careful of advertising claims or comparing your operation to others in a negative way.

Manage your production techniques according to recommended best management practices. This will increase the likelihood of success and decrease risk. Bio-security is recommended. Provide booties and hand wipes for visitors that enter barn areas.

Remember, this article is for general information only and should not be considered a substitute for consultation with a qualified insurance agent. Always read your policies carefully and discuss your actual coverage with your agent.

Anita Deming is the Agriculture Educator and Executive Director of Cornell Cooperative Extension of Essex County. She can be reached at 518-962-4810 ext. 409 or ald6@cornell.edu.

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WOMEN IN AGRICULTURE**Mothers of Conservation**

These self-appointed guardians are protecting, nourishing, and monitoring endangered livestock breeds

by Susan Neal

When you consider the plight of endangered animals, chances are that cows and pigs don't readily come to mind. Yet many rare livestock breeds are just as seriously threatened with extinction as their more exotic cousins.

Luckily, a unique group has stepped forward to help protect threatened livestock from certain and irretrievable loss. These self-appointed guardians protect, nourish, and watch over these animals—literally mothering them back from the brink of extinction.

Who are these dedicated protectors? They are farmers, breeders, and conservators. Among this group, women farmers are having a considerable impact on the conservation of endangered breeds.

ABOUT HERITAGE BREEDS

Known by a number of different terms — "endangered," "rare," "traditional," "minor," and the preferred moniker "heritage," the members of these livestock breeds may be few in number, but they are anything but insignificant. In fact, heritage breeds were once the predominant breeds in America, supplying our nation with all of its meat, fiber, draft power, and dairy products for generations.

Heritage breeds are defined as being representative of one of the six traditional species that were common in North America prior to the 1940's—namely cattle, sheep, goats, horses, asses, and pigs—and whose genetically distinct populations have declined to drastically low numbers.

For the most part these breeds fell out of favor a mere fifty years ago, when highly specialized breeds became the darlings of the industrialized agriculture movement. But the same traits that made these breeds key players in America's agricultural past are still very much alive and accessible today.

Their genetic vigor and variation make them important in a biologically uncertain world. Their superior foraging and pasture conversion abilities frequently yield greater efficiency rates and lower production costs than their modern contemporaries.

Heritage breeds are often known for their hardiness and disease resistance, developed after centuries of fending for themselves to a much greater extent than modern breeds are accustomed to. And their renowned fertility and longevity mean that many of them remain productive well into their teens and twenties.



Louise Firouze and Caspian in Iran
Photo by Kristull Ranch, KY

WOMEN IN BREED CONSERVATION

While both men and women have been quietly working behind the scenes for decades to save these unique animals, women conservators are becoming a serious force in the field of heritage livestock conservation.

Don Schrider is Communications Director for the American Livestock Breeds Conservancy, the premier heritage breed organization in America, dedicated to conserving and promoting heritage breeds, and to setting the criteria by which rare breeds are classified. When asked about the gender statistics of his organization's membership, Don reported that more than 50% of members are women. "I would estimate that that figure is closer to 60 percent," he said.

While mainstream livestock production may still be considered the domain of men, women have clearly become a dominant force in the conservation of heritage breeds.

"Conserving rare breeds is a nurturing type of activity," Schrider admits. Perhaps evolution has perfectly tailored women to "mother" rare breeds during their most desperate hour. When women farmers, breeders and preservationists elect to save a heritage breed, they are not merely "collecting antiques." Women who dedicate their lives to preserving heritage breeds do so to honor our nation's agricultural past and to ensure its agricultural future.



Colonial Spanish Wilbur-Cruce Foals and President Robin Collins, Heritage Discovery Center, CA

Photo by Heritage Discovery Center

ADDING VALUE TO CONSERVATION

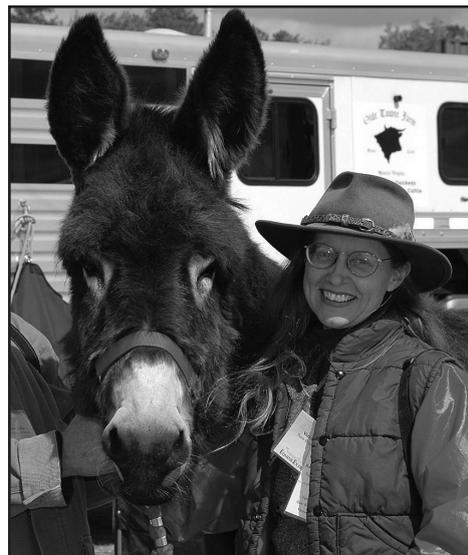
And in the process they are building successful, viable breeding populations and cottage industries. Artisan cheese making and hand spinning and weaving are just a few of the handicrafts that women conservators are reviving along with their heritage livestock.

Shannon Nichols is a rare breed conservator and member of the ALBC. She raises Kerry and Ayrshire Cattle and Arapawa Island Goats on her Madison, New York farm. Nichols creates specialty cheeses with milk from her heritage livestock, and claims that she would never return to using modern breeds. For her, heritage breeds are the perfect fit for her farming and business ventures.

Nichols also sees a growing trend in women becoming involved with rare breeds. "As more heritage breeds are seen as economically viable on sustainable farms," she notes, "we will see more women using them, especially for value added projects." While Nichols finds many of her male counterparts interested in the history and traditions of various heritage breeds, she finds women to be the most passionate about their work.

A PERSONAL PASSION

Nowhere is this passion more evident than in the area of rare equine preservation. And Victoria Tollman knows first hand how important women are to the survival of endangered horse breeds. She is the Executive Director of the Equus Survival Trust, a non-profit organization dedicated to the preservation and promotion of rare and endangered breeds of horses.



American Mammoth Jackstock Jenny and Equus Survival Trust Executive Director, Victoria Tollman

Photo by Olde Towne Farm, VA

Tollman reports that a solid 80% of her organization's members are women. "Their impact and concern about the endangered breeds is crucial," she notes, "as well as incredible."

Women conservators are a dedicated, savvy, and determined group. They understand all too well that once a breed becomes extinct, it can never return to what it was."

She looks to women like Mimi Rehor, who left the lucrative corporate world in order to dedicate her life to the preservation of Abaco Barb horses. And to Louis Firouz, an American woman who rediscovered the nearly extinct Caspian horse in Iran in the 1960's. This daring woman was instrumental in not only saving the breed from certain extinction, but in convincing the Iranian government to establish a state-run stud and to designating the Caspian as a national treasure.

Her work, understandably, has not been easy, and her efforts have been fraught with peril. Many times her herd has been confiscated by the government and she has been imprisoned. Yet this brave, now elderly, American woman remains in Iran to continue her preservation efforts to save the animals she reveres.

Many in the heritage breed community report that this depth of dedication is routinely witnessed in the women who work to save rare livestock. The energy they put into education, promotion, and preservation today will ensure that these genetic treasures are available to future generations. For as Victoria Tollman can attest, without the dedicated mothering of women conservators, many endangered livestock breeds would simply cease to exist.

Susan Neal raises heritage chickens and turkeys (Buff Orpingtons and Bourbon Reds) at Wicaway Farm in Beaver Dams, NY. She can be reached at (607) 535-2135 or wicaway-farm@aol.com.

Degrees of Endangerment

The American Livestock Breeds Conservancy was founded in 1977 by a group of agricultural historians, who were joined by farmers, scientists, and other interested individuals concerned about the preservation of America's genetically important heritage breeds. Today the organization actively works to preserve and promote more than 150 different breeds of rare livestock and poultry. The ALBC's livestock classifications include:

- * Critical: Fewer than 200 animals of a particular breed are registered annually in the U.S. and less than 2000 specimens exist in the global population.
- * Threatened: Fewer than 1000 individuals are registered each year in this country, and less than 5000 exist globally.
- * Watch: Fewer than 2500 animals of a particular breed are registered in the U.S., and less than 10,000 individuals can be found globally.
- * Recovering: Refers to breeds that were once listed in another category but whose registrations numbers have increased to exceed their "Watch" status; they are still in need of careful monitoring, support, and protection.
- * Study: Breeds of genetic interest that currently lack definition or genetic/historical documentation.

Resource Spotlight**Heritage Breeds Conservation**

For more information about heritage breeds, contact the following resources:

Heritage Breeds Conservancy, Inc.
PO Box 187
Great Barrington, MA 01230
(413) 528-2817
www.nehbc.org/index.html

American Livestock Breeds Conservancy
PO Box 477
Pittsboro, NC 27312
(919) 542-5704
www.albc-usa.org

Equus Survival Trust
7273 West Pine St.
Low Gap, NC 27024
www.Equus-Survival-Trust.org

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COWS AND CROPS

Estimating Manure Application Rates

Protect water quality and avoid over- or under-fertilizing your fields

by Brian S. Aldrich

Estimating the rate at which you apply manure gives you one more piece of information to use in management decisions. (If you don't know how much you've got, it's harder to make decisions about what to do with it!) For example, you may want to apply more or less manure to different fields, depending on their fertility. Calibration gives you more control, so that fields will not be underfertilized nor overfertilized. Here are three different ways to calibrate your manure spreader.

THREE METHODS

The first we'll call the "recordkeeping" method. Every time you spread a load on a field, check it off on a piece of paper. When you have finished covering the field uniformly, divide the total number of loads you spread by the number of acres in the field. That will give you the number of loads spread per acre.

Multiply this by the capacity of your spreader in tons per load. The result will be your spreading rate in tons per acre. You can estimate your spreader's capacity based on its dimensions using formulas in a table in the Penn State Agronomy Guide. The table can be found on the Internet at <http://aggguide.agronomy.psu.edu/cm/pdf/table1-2-17.pdf>. If you don't have access to a computer, call me and I can send you the table.

The second method we'll call the "plastic sheet" method. Cut a sheet of thick plastic to a known size, such as 5 ft. x 5 ft. (25 square feet). Fold the sheet up and wrap a piece of rope around it that you can use to hang it from a milk scale to get the tare weight.

Then lay the plastic down in the field and drive over it while you're spreading manure. Fold



In the "plastic sheet" method, you simply place a sheet of plastic in the path of spreader, spread manure right on top of it, and then weigh the sheet full of manure.

All photos by Brian Aldrich



Another method is to weigh the manure spreader before and after loading, using portable truck scales.

the plastic up carefully with the manure in it, and weigh it again. Subtract the first, empty weight from the second, full weight. That gives you the pounds of manure spread on 25 square feet. Multiplying that number by .87 gives you your spreading rate in tons per acre.

The last method we'll call "truck scales". Weigh the entire manure spreader when it is full by driving it up onto a pair of portable truck scales. Spread the load, then weigh the spreader again empty. Use a walking wheel to measure the area spread and determine how many square feet were covered. The pounds spread per square foot can then be converted to tons spread per acre.

ADVANTAGES AND DISADVANTAGES

The advantages of the recordkeeping method are that it requires no extra equipment, and it is the most accurate. The disadvantage is that you won't know what your spreading rate is until you have finished covering the field.

The advantages of the plastic sheet method are that it gives you an immediate answer, and it is inexpensive. The disadvantage is that it is less accurate, because the estimate may vary greatly depending on if you hit the plastic at the beginning, middle, or end of the spread.

This disadvantage can be overcome to some degree by measuring several loads and taking the average. Making repeated measurements will show you how much variation there is in your spreading, but of course it will take longer. Lastly, the plastic sheet method is limited to solid manure, since liquid forms would run off of the sheet.

The advantages of the portable truck scales are that they are faster, and they give you a better average. The average is better because you are measuring the distribution of the entire load, as opposed to just the area covered by one plastic sheet. Truck scales are faster because their greater accuracy means fewer trials are required.

Truck scales also provide a better measurement of your spreader's capacity than you will get from the manufacturer's literature. They can be used for both solid and liquid manure spreaders. The disadvantage of truck scales is that they are expensive.

You don't have to pick one "best" method to calibrate. You can try two or more methods and compare the results as a crosscheck. Recalibrating once a year is another good way to check that you are getting reliable numbers. If you change equipment or the type of manure you spread, you should also recalibrate. (My soil physics professor always used to say, "It never hurts to calibrate.")

For more information you can download "Fact Sheet 18: Calibrating Manure Spreaders" from

the Cornell Nutrient Management website at <http://nmsp.css.cornell.edu/publications/factsheets/factsheet18.pdf>. Or call me for a copy.

Extension of Cayuga County in Auburn, NY. He can be reached at 315-255-1183 or bsa9@cornell.edu.

Remember, if you can't measure it, you can't manage it!

Brian Aldrich is Agriculture Resource Extension Educator with Cornell Cooperative

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Small Farm Expo Coming to Ulster County, NY October 13-14

Are you a small-farm owner looking to explore new options? Or have you always just wondered what it would be like to live on a farm? The seventh annual Northeast Small Farm and Rural Living Exposition and Trade Show promises to be a great educational experience and networking opportunity for small farm owners and anyone else interested in living in the country.



The Expo will be held October 13-14, Saturday and Sunday, at the Ulster County Fairgrounds in New Paltz, NY. Educational workshops, demonstrations and lectures include:

- * Making money from your land
- * Organic and traditional small farm workshops
- * Fencing construction and small farm equipment demonstrations
- * Growing flowers, trees, shrubs, fruit and vegetables
- * Forest stewardship & natural resource conservation seminars
- * Equine exhibits & demonstrations
- * Raising Livestock Workshops
- * Pasture Management workshops



The Expo also features a small farm/rural living trade show and exhibits. Admission is only \$5 per adult per day. Children 5-14 are \$2. Under 5 free!! The Ulster County Fair Grounds is on Libertyville Road in New Paltz, NY, just 3 miles west of Exit 18 off the NYS Thruway.

These photos are from previous Small Farm & Rural Living Expos hosted in New York, Pennsylvania and New Jersey. Come join us this year! For more information visit www.smallfarmexpo.org.



HOME AND FAMILY

On Raising Rural Kids

Get moving for a healthier family

by Celeste Carmichael

More than one out of five youth in New York State are considered obese. Yikes. This statistic frightens me...and I hope it frightens all of us.

I think that we can all relate to why this is happening...more sedentary lifestyles, sedentary play (video games and high tech components), living in areas where we can't always safely walk or ride a bike, demands of busy schedules, chores that are (sometimes) less physical than they used to be, larger meal portions,...and eating out more.

Here is a personal example. Last night -- after I scooped up the kids at school, brought my dog to the veterinarian and my middle daughter to the orthodontist but before softball practice -- we stopped at an all-you-can-eat Chinese restaurant. Hmmm... did someone say -- busy schedule? Eating out? Large meal portions?

This hectic lifestyle is often the norm for today's families and the root of weightier issues. However, there is good research about ways to overcome the statistics. My fortune, by the way -- no kidding -- read, "Take care of your body, and you will have many years of rewards".

Obesity prevention is a hot topic everywhere and a major programmatic initiative for Cornell Cooperative Extension. And, while diet contributes to childhood obesity, activity seems to be the key for a child to grow with a healthy weight.

Through my work with the State 4-H Youth Development Office we are seeking fun and



Walk, play, golf, swim...whatever works for you - get moving with your family, for fun and for your health. Photos by Celeste Carmichael

meaningful opportunities to address this through some of our larger events. For example - every year the top complaint for our statewide youth conference (held on Cornell's campus) is that there is too much walking ("can't you send us a bus?"). Going from the dorms to the programs is quite a walk. But just how much is too much walking?



10,000 STEPS TO HEALTH

As conference coordinator, last year I decided to wear a pedometer, or step counter, to see just how much we are expecting of our participants. The result was that I walked about 12,000 steps each day...about 2,000 steps more than the recommended 10,000 steps a day...and the right amount of steps for growing youth.

This year we intend to give all 500 participants pedometers to track their steps...building in a fun competition. Walking is, after all, healthy. The problem is that we, as a society, are not used to an active lifestyle. So what feels like walking too much, turns out to be just about the right amount.

Walking more, it turns out, is one of the best things that we can do for our health. Although numbers as low as 6000 steps a day have been shown to be correlated with a lower death rate in men in a Harvard Study, research by Dr. Catrine Tudor-Locke,

Arizona State University, has confirmed that 10,000 steps per day translates into long-term health and reduced risk of chronic disease, such as diabetes or heart disease. And while some consider 10,000 steps a day too hard to achieve, many consider this too little activity for youth.

How many steps does a child need? Studies show that 6-12 year old girls need 12,000 steps/day and boys need 15,000 steps/day to maintain a healthy Body Mass Index or BMI.

GET YOUR FAMILY MOVING!

Even if your after-school routine involves chores around the barn, or house, or outside play...you

Another option is to keep track of the distances you and your family members walk each day by estimating. On average it takes 2,000 steps to equal a mile. There are free websites out there to help you track your steps. Webwalking.com is just one. So pick a place you'd like to walk to -- my family would pick Disney -- and start on your way.

A DIFFERENT KIND OF MOVEMENT.

For those of you with kids excited by computer activities and games, I've recently learned about some interactive games that can encourage multiple players to move and have fun together.

The game that started this craze, Dance Dance Revolution, has been adopted by many schools and youth programs to work fitness, fun and technology together. If you don't know what this game is, I would encourage you to google it...there are lots of resources about it and other games similar in goals.

Celeste Carmichael is Program Specialist with the NYS 4-H Youth Development Program. She is also the Youth Pages Editor for Small Farm Quarterly.

Resource Spotlight New Cookbook -- The Farmer and the Grill

by Shannon Hayes

Have a little fun with your flame this summer!

Shannon Hayes, author of The Grassfed Gourmet Cookbook, has released her second book in time for the summer cookout season. The Farmer and the Grill is Shannon's guide to grilling, barbecuing and spit-roasting grass-fed meats (and saving the planet one bite at a time).

Written after studying classic asado techniques in Argentina, the book contains guidelines for sustainable, earth-friendly outdoor cooking; tips on working with pasture-based farmers; recipes and techniques for working with all cuts of grass-fed beef, lamb, pork and poultry; as well as instructions for authentic Argentine-style asado cooking.

Like The Grassfed Gourmet, The Farmer and the Grill comes packed with engaging essays and sidebars about farming and feasting, making it a cookbook that is as fun to read as it is to cook from. The book retails for \$17.95 and is for sale on the web at www.grassfedcooking.com, or by calling Shannon at (518) 827-7595. Bulk discounts are available for farms, retail stores and organizations interesting in making it available for resale.



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HORTICULTURE

Cosmos Farm

This Long Island vegetable farm uses debt judiciously to grow their business

by Margaret Tuttle McGrath

Mr. Yung Whan Yi and his wife Bock Hee Yi emigrated from South Korea to the United States in 1985. Mr. and Mrs. Yi now grow vegetables commercially at Cosmos Farm, Inc., located in Manorville, Long Island, NY. They grow approximately 35+ acres of Korean vegetables which are marketed in New York City and the Northeast.

Mr. Yi makes the day to day farm management decisions and Mrs. Yi works on the farm and operates the household in the tra-

ditional Korean life style. The Yi's have two sons, Michael and Charles.

With the assistance of FSA loan funds the Yi's were able to cut expenses, improve efficiencies and show a profit. They continue to make improvements to their property, upgrade equipment and now have expanded to marketing flowers.

Mr. Yi is proud to announce the grand opening of his latest enterprise, Bellmore Nursery, Inc. located in Bellmore, NY. This wholesale/retail operation will market flowers, hanging baskets, flats and assorted flowering plants.



Mr. Yi at the Grand Opening of Bellmore Nursery, Inc.

Photo by Susan Pierzchanowski

ditional Korean life style. The Yi's have two sons, Michael and Charles.

The major crops grown on the farm are Korean vegetables, such as cucumbers, lettuce, watercress and sesame leaves. Sesame leaves are a staple green vegetable of the Korean diet, and according to Mr. Yi, it is one of the best foods for your heart and blood vessels.

In 2000, the Farm Service Agency completed its first farm loan with Cosmos Farm in order to refinance the farm debt and provide funds for the upcoming crop year. Mr. and Mrs. Yi worked with the Farm Service Agency (FSA) and the Credit Team to discuss their finances, goals and objectives for the farm.

Cosmos Farm, Inc. also participates in the Non-Insured Assistance Program offered through the Farm Service Agency. This program provides financial assistance to producers of non-insurable crops such as vegetables when low yields, or loss of inventory or prevented planting occurs due to natural disasters.

The Yi's feel that the Farm Service Agency was the helping hand they needed and with it they were able to improve their agricultural operation.

For further information on USDA Farm Loans or other FSA programs contact your local USDA Farm Service Agency or USDA Service Center. For the office nearest you, check out your phone directory under U.S. Department of Agriculture, Farm Service Agency.



Spring Plants at Bellmore Nursery, Inc.

Photo by Susan Pierzchanowski



Mr. Yi at one of his greenhouses

Photo by Susan Pierzchanowski

Susan Pierzchanowski is the County Executive Director of the USDA Farm Service Agency in Riverhead, NY.

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FOREST AND WOODLOT

Grow Mushrooms!

Forest thinnings can yield more than just timber.

by Erica Frenay

For Nick Laskovski, what began as an opportunity for a free ticket to a fantastic summer music festival led unexpectedly to the birth of Chautauqua Shiitakes, a log-grown mushroom business.

Nick met Steve and Julie Rockcastle through Steve's son Logan, a friend and fellow Cornell student of Nick's. Julie and Steve live on about 300 acres in Sherman, NY, in Chautauqua County. Their property hosts the Great Blue Heron Music Festival, an event Julie organizes that draws 6-7,000 people annually and is now in its 16th year.

Nick wanted to attend the festival but was short on cash. So he offered to educate Steve and Julie about mushroom production in trade for a festival ticket. His timing was perfect: Steve and Julie were just beginning work on recommended actions from their Forest Management Plan. These included making stand improvements by thinning a large volume of red maple. They had intended to sell the thinnings as firewood, but Nick's visit convinced them otherwise. Not only did Nick get his free festival ticket, but he was invited to come back and help Steve and Julie start up a mushroom business.

MUSHROOM CULTIVATION PRIMER

Mushroom cultivation usually begins with the cutting of trees in early spring, generally March-April. Mushroom spawn can be purchased in various forms, all of which consist of the mushroom "mycelium" (a dense white matrix akin to plant roots) growing on some substrate, like grain, sawdust, or wooden dowels.

The grower then inoculates the cut logs by drilling holes, packing in the purchased spawn, and usually waxing over the holes to reduce moisture loss. To reduce risk of contamination by other fungal species and to maximize the amount of moisture in the wood, trees are inoculated within a few weeks of cutting, and diseased or dying wood is not used.

Inoculated logs are then stacked in particular formations in a "laying yard," where they lie in repose for 9-15 months until the new fungus has fully colonized its host and is ready to fruit. A good laying yard must offer the logs year-

round shade. A nice flat spot under a hemlock or other evergreen tree, preferably with a water source nearby, is ideal. In the long wait between inoculation and harvest, serious growers will periodically irrigate the logs, as they require about an inch of rain per week to remain viable.

Though logs will begin to fruit on their own, production will be spotty and unpredictable. Backyard and commercial producers typically force a fruiting of mushrooms by submerging logs in cold water to "shock" them. This will produce a flush of harvestable mushrooms within a few days. Logs may be shocked in this manner every 6-8 weeks during the growing season. Depending on density of the wood, a log will produce reliably in this manner for 2-5 years.

CHAUTAUQUA SHIITAKES

Julie and Steve were prime candidates for a mushroom enterprise. Steve ran Rockcastle Florist and Grower for 25 years before leaving the business. He still owns a lot of underutilized equipment: tractors, chainsaws, a wood chipper, drills, and a backhoe. As Steve, Julie, Logan and Nick walked the property, they realized they had abundant hardwoods, a beautiful laying yard by a creek, and all the equipment they would need to get started. All they lacked was the mushroom spawn.

They quickly agreed that this would be an ideal



Steve and Logan Rockcastle use a special tool to insert shiitake sawdust spawn into drilled holes in logs. Photo by Julie Rockcastle

1500 log operation that generates about \$10,000 revenue/year with only part-time labor.

This year, Julie, Steve, Nick and Logan will inoculate 850 logs over a period of four spring weekends with some help from volunteers.

If you'd like to see a mushroom operation in person and learn more about the techniques, look for Nick at this summer's Great Blue Heron Music Festival (greatblueheron.com). He'll be offering inoculation demonstrations and tours of the laying yard.

Erica Frenay works with Cornell's Small Farms Program as coordinator of the NY Beginning Farmer Project. She can be reached at 607-255-9911 or ejf5@cornell.edu.



Logs that have been inoculated and waxed are stacked in the dappled shade of the laying yard, while the crew keeps on working. Photo by Julie Rockcastle

Resource Spotlight Mushroom Production and Marketing

Cornell University mushroom production and marketing presentations, papers, and marketing information: www.hort.cornell.edu/mng/mushroomresources

Resources from the National Sustainable Ag Information Service: [//attra.ncat.org/attra-pub/mushroom.html](http://attra.ncat.org/attra-pub/mushroom.html)

Marketing Special Forest Products in NYS by Jim Ochterski. Includes a chapter on mushrooms. Available to download for free from [//snyat.cce.cornell.edu/sfp-marketing](http://snyat.cce.cornell.edu/sfp-marketing).

Resource Spotlight Forest Stewardship

You'll find a clearinghouse of forest management resources at www.dnr.cornell.edu/ext/forestconnect

Organizations offering free or low-cost consultations and assistance developing forest management plans:

- * NY: Master Forest Owners, 607-255-2115, dlt5@cornell.edu, www.CornellMFO.info.
- * VT Division of Forestry, see website for county-specific contacts: www.vtfpr.org/resource/for_forres_steward.cfm
- * PA Forest Stewards, 800-235-WISE, [//paforeststewards.cas.psu.edu](http://paforeststewards.cas.psu.edu)
- * ME WoodsWISE Program, (207) 287-2791 or online at www.maine.gov/doc/mfs/fpm/wwi/wwi.htm
- * CT Forest Stewardship Program, 888-30WOODS, or online at www.canr.uconn.edu/ces/forest/steward.htm

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use of their resources and initially dubbed the enterprise Chautauqua Shiitakes. Nick is currently working on the business plan, researching potential markets, planning out the financial and labor requirements, and estimating profit potential. With relatively low start-up costs, Steve and Julie are able to finance it without borrowing money, and they have a year to secure their markets before the logs start producing. The current plan is to sell to restaurants for around \$5/lb, and at local farmers markets where fresh shiitakes may fetch up to \$15/lb, but these figures vary with market potential.

The start-up budget was \$5,000 for 1000 logs. This included \$450 in spawn, \$2,000 for laying yard improvements, and \$1400 in labor (100 hrs. each for two people - Julie and Steve did not factor their own labor into the budget). If all goes well, they will inoculate another 400-500 logs each year as replacements for those that reach the end of their productivity. Steve and Julie are aiming for a 1000-

Logs are 3-4 feet long and 4"-10" in diameter. Nick chose multiple strains (or varieties) of shiitake mushrooms in order to have logs fruiting at different times of the year and to see which strain will produce best in their environment. They will make wood chip beds with the leftover branches from initial logging and inoculate these with the delectable Winecap *Stropharia*, another popular gourmet mushroom.

MUSHROOMS AS A BYPRODUCT OF GOOD FOREST MANAGEMENT

Mushrooms offer a great opportunity for farmers to diversify their enterprises: the most labor-intensive season generally occurs in the early spring months before the intensive growing season chores begin.

Although some tree species offer more productive substrates for mushrooms than others—for example, shiitakes grow best on oaks—nearly any hardwood you are cutting out as part of a forest management plan can be used. Studies vary in their economic assessment of mushroom production, but it is generally considered a much higher value crop than making cordwood from the same volume of logs.

Ken Mudge, a Cornell Professor in the Dept. of Horticulture, is studying mushroom production on various hardwood species. The results of his research will help growers understand production capacity for each type of wood, so that they can take advantage of whatever species they have in abundance in their woods.

MARKETING**Making Local Food Connections**

Supporting local agriculture is hot topic for consumers, food businesses, policy makers.

by Bernadette Logozar

Local food is getting to be a hot topic of discussion in homes and offices around the region. Proponents say that local food consumption can improve our health well-being, strengthen local economies, and may be ecologically more sustainable. Interest in eating more locally seems to be rising along with the recent scares about food contamination and illnesses that we have observed over the past year.

LOCAL: THE NEXT BIG THING

This increased interest in local works very well for small farmers growing and raising a variety of products. This is definitely YOUR time to shine. Consumers want to know where their food is coming from, how it is being raised, grown and processed. They want to meet the people who are responsible for working the land and raising the food they are putting on their table for their families.



This growing demand for local is not only on the part of individual consumers. These same folks are also driving a growing demand on the part of schools, institutions, restaurants, stores and other businesses.

And this growing demand is something that is rippling around the world. The "100-mile Diet," which was started in 2005 by a couple in Vancouver, B.C. Canada, is now encouraging local eating for global change. The Weston A. Price Foundation is working actively to encouraging people to return to nutrient-dense, more local diets.

On the political front the Farm-to-Fork initiative, which is strongly supported by Senator Clinton, is dedicated to strengthening the



linkages between New York State farmers and their markets. In each of these cases people are asked to look closer to home for the food they are purchasing to feed themselves and their families.

Critics of the local food movement say that local food tends to be more expensive to the consumer, and that it can never provide the variety currently available. However, proponents argue that buying local does



"Making Local Food Connections" was the title of a March 28th event featuring a huge variety of local products. The event was sponsored by Adirondack Harvest, Paul Smiths College and Sodexo.

All Photos by Michele Ledoux

not mean giving up variety. It simply means people should favor local foods when these are available in season, and use the foods from distant regions on a limited basis to augment local products.

WHAT IS LOCAL?

But what exactly is "local?" There is no easy answer, as the definition of local or regional is both flexible and heavily debated. For some, local means a very discreet and small area, for example a city and its surroundings. Others stretch "local" to the boundaries of their province, state or nation.

Wikipedia tells us "the concept of 'local' is also used in terms of ecology, where food production is considered from the basic ecological unit it comes from as defined by climate, soil, watershed, species and local agrisystems. This is referred to the 'ecoregion'."

FOOD MILES

One angle is to focus on reducing "food miles" -- the distance that food travels to get from the farm to your table. The food mile may be useful as an indicator of the potential environmental impacts of food choices.



Recent findings suggest that it is not only the distance that food travels which is important, but also how it has traveled. Critics of the food mile concept note that transportation is only one part of the total environmental impact of food production

the case of an organization, business or enterprise, as part of their daily operations; in the case of individuals or households, as part of their daily lives; and in the case of a product or commodity in reaching the market.

The carbon footprint can be directly linked to the amount of natural resources being consumed, and used as a measure of environmental impact. When we are exploring the opportunities and the sustainability of agriculture through local food connections, it only makes sense to take into consideration the broader potential impact local food connections can make.

By understanding local food miles and the size of the carbon footprint of regional agri-food systems we can work to make better management decisions on the farm. So the debate on food miles brings us back to the farm, and the best management practices that are effectively implemented and used on the farm.

CHANGING OUR EATING HABITS

An important part of the local foods movement is educating the public about the sea-



sonality of local foods, and how to create an enjoyable and varied diet using as much local food as possible. If you are sitting in the Northern Adirondacks you cannot expect to be able to purchase fresh blackberries or raspberries from your local farmer in December-May. But you might well be able to purchase frozen berries.

The biggest challenge for people new to buying local, is realizing that everything is NOT available year round. And that should be OK. Because that means you get to have the adventure of eating different things during different times of the year.

As a consumer of local food you can feel confident that the money you are spending is going directly back into your community. And by choosing to buy local you can also affect the size of the carbon footprint you and your family are leaving on this planet.

Bernadette Logozar is a Rural & Ag Economic Development Specialist with Cornell Cooperative Extension in Franklin County. She can be reached at: 518-483-7403 ext. 312 or bel7@cornell.edu.

and consumption. To be able to provide a completely accurate snapshot of the environmental impact one would have to take into account how the food is produced and what energy is used in the production.

Researchers in New Zealand dispute the claim that food miles are a good indicator of environmental impacts. They compared the total energy used in food production and transport in Europe and New Zealand.

They found New Zealand agriculture to be more energy efficient than UK agriculture, even taking into account the energy it takes to ship the food from New Zealand to Europe. This, they say, is because New Zealand farmers use less fertilizers, can graze year-round and are not dependent on imported feed commodities. Additionally, they consider the significant level of subsidies used to support UK agriculture another indicator of inefficient resource use of farming in Europe.

CARBON FOOTPRINT

The assessment of overall energy use with respect to food miles and local food production leads to the concept of "carbon footprint". The carbon footprint is a measure of the amount of carbon dioxide emitted through the combustion of fossil fuels, in

HORTICULTURE

Managing Plant Diseases with Crop Rotation

by Margaret Tuttle McGrath

Rotating land out of susceptible crops can be an effective and relatively inexpensive means for managing some diseases. Generally, it entails growing non-host plants until the pathogen in the soil dies or its population is reduced to a level that will result in negligible crop damage.

However, the protocol varies among diseases, in particular the length of time needed. And it isn't appropriate for all diseases. Achieving success with this practice requires understanding the life cycle of the disease-causing organism (pathogen).

To manage a disease successfully with rotation, you need to answer several important questions.

HOW LONG CAN THE PATHOGEN SURVIVE IN SOIL?

For rotation to be effective, the target pathogen must be capable of surviving in the soil or on crop debris for no more than a few years. Those fungal and bacterial pathogens that can survive only in crop debris in soil are the most suitable pathogens to target for management with crop rotation because they cannot survive once the debris has decomposed.

Pathogens in this group vary in the length of time they can survive, and thus the length of rotation needed. Survival time partly reflects the type of plant host tissue infected.

For example, managing the bacterial canker disease affecting tomatoes requires a longer rotation than is needed to manage bacterial speck and bacterial spot. This is because the canker-causing bacteria actually get inside tomato stems, whereas speck and spot are restricted to the more rapidly decomposing leaves and fruit.

Some pathogens, including the fungi *Pythium*, *Rhizoctonia*, and *Fusarium* and the bacteria *Erwinia*, *Rhizomonas*, and *Streptomyces*, cannot be managed easily



Save seed only from fruit with no visible symptoms of disease, unlike this tomato infected with bacterial canker.

Photo by Meg McGrath

with rotation because they are true soil inhabitants.

WHICH ADDITIONAL PLANT SPECIES CAN THE PATHOGEN INFECT OR SURVIVE ON?

The target pathogen should have a narrow range of host plants, including weeds and cover crops, for rotation to be successful. This is often the case for pathogens that exist as a 'formae speciales' (abbreviated as f. sp.).

For example, *Fusarium oxysporum* f. sp. *melonis* causes Fusarium wilt only in cantaloupe and muskmelon. There are other formae speciales of this pathogen causing Fusarium wilt in other specific crops, including cucumber, watermelon, tomato, and alfalfa. In contrast, the fungus *Sclerotinia sclerotiorum*, which causes white mold, can infect more than 360 plant species.

Many pathogens infect plants in the same family or genus, so it is important to know which crop species are related and even which weed species are related to those crops. Your rotation plan must take into consideration these relationships and weeds must be managed carefully for rotation to be successful in controlling diseases.

However, it is important to recognize that there are pathogens able to attack unrelated plants, such as the pathogen that causes *Phytophthora blight* in cucurbits, peppers, eggplant, lima bean and snap bean.

WHAT OTHER WAYS CAN THE PATHOGEN SURVIVE BETWEEN SUSCEPTIBLE CROPS?

In addition to host plants, some pathogens can survive in and/or on seed. Other pathogens can survive on roots of non-host plants (symptomless carriers). For example, symptomless carriers for *Colletotrichum coccodes*, which causes anthracnose in tomato and black dot in potato, include chrysanthemum, white mustard, cress, cabbage, and lettuce. These weeds need to be managed and the crops treated like related species during the rotation.

HOW CAN THE PATHOGEN BE SPREAD OR RE-INTRODUCED INTO A FIELD?

Rotation can only be effective when other sources of the pathogen can be adequately managed and its re-introduction into a field prevented. Pathogens can be spread in infested seed or contaminated soil, by insect vectors, and by wind or water dispersed spores.

Some spores can be dispersed long distances by wind, as is the case with powdery and downy mildews. Pathogens producing relatively large spores incapable of being moved far by wind, like *Alternaria*, are more suitable for managing by rotation.

Most conventional seed is tested for pathogens that can be carried inside the seed and may be treated for those that can



Resistant structures, like this sclerotium formed in a tomato stem infected by white mold, can survive in the soil for a few years after the stem has decomposed.

Photo by Meg McGrath

exist on the exterior. Most organic seed does not have seed treatments applied to the outside of the seed. It is also important to choose seed from healthy plants and fruit if you are saving your own seed. Hot-water-seed treatment is a good way to control pathogens that can be in seed. Procedures are described in <http://vegetablemndonline.ppath.cornell.edu/NewsArticle/s/PepperLeafSpot.htm>.

Moving disease organisms from field to field on equipment can undo all the time and planning you put into creating your rotation scheme. Rotation is more likely to be effective if the entire field is rotated out of susceptible crops rather than just the section previously planted to the crop.

Rotation periods for some soil-borne diseases of vegetable crops

Vegetable crop	Disease	Years out of susceptible crops
Beans	Anthracnose	3
Beet	Cercospora leaf spot	3
Corn, sweet	Northern corn leaf blight	1, 2 with no-till
Crucifers (cabbage, broccoli, cauliflower, Brussels sprouts)	Alternaria leaf spot	3
Crucifers	Black rot	3
Crucifers	Clubroot	7
Crucifers	Fusarium yellows	7
Cucurbits (cucumber, melon, pumpkin, squash, watermelon)	Angular leaf spot	2
Cucurbits	Bacterial leaf spot	3
Cucurbits	Black rot (aka gummy stem blight)	2
Cucurbits	Fusarium wilt	5 to 7
Eggplant	Verticillium wilt	4 to 5
Lettuce	Bottom rot	3
Lettuce	Downy mildew	2 to 3
Lettuce	Drop	3
Onion	Botrytis leaf blight	3 to 4
Onion	Botrytis net rot	2 to 3
Potato	Black dot root rot	2
Potato	Common scab	3 to 4
Potato	Early blight	2
Spinach	Downy mildew (aka Blue mold)	2
Spinach	White rust	3
Tomato	Anthracnose	3
Tomato	Bacterial canker	3
Tomato	Bacterial speck	2
Tomato	Bacterial spot	2
Tomato	Buckeye fruit rot	at least 3
Tomato	Fusarium wilt	5 to 7
Beans, Carrot, Crucifers, Cucurbits, Pea, Potato, Tomato	White mold	5
Numerous	Root-knot nematodes	long; grow small grains

Adapted with permission from *Crop Rotation on Organic Farms: A Planning Manual*, NRAES-177, (forthcoming). Natural Resource, Agriculture, and Engineering Service, www.nraes.org.

For smaller farms, where this is not feasible, power washing equipment between fields or sections with different disease problems, while time consuming, can help restrict pathogen movement.

Margaret Tuttle McGrath is with the Department of Plant Pathology at Cornell University. She is stationed at the Long Island Horticultural Research and Extension Center at Riverhead, NY. She can be reached at (631)727-3595 or mtm3@cornell.edu.

Resource Spotlight Rotation planning, pathogens and diseases

Managing plant diseases using rotation requires planning and information on both crops and diseases. Here are some sources of information to help find what you need to plan a successful rotation scheme.

Plant Disease Management for Organic Crops
<http://anrcatalog.ucdavis.edu/InOrder/Shop/ItemDetails.asp?ItemNo=7252> (free download)

The New Organic Grower, 1995, by Eliot Coleman.
Published by Chelsea Green Publishing Company, Vermont.

Soil Resiliency and Health: Crop Rotation and Cover Cropping on the Organic Farm, 2005, by Seth Kroek.
Published by NOFA (Northeast Organic Farming Association), www.nofa.org

Sustainable Vegetable Production from Start-Up to Market, 1999, by Vernon Grubinger. Published by NRAES (NRAES-104). www.nraes.org

NRAES will be publishing a Rotation Planning Manual in 2008. This manual will contain an extensive table with rotation information for 203 diseases affecting 20 vegetable crops and crop groups and 55 diseases affecting 4 field crops, plus another table on crop diseases that also affect weeds. The manual will also have chapters on managing weeds and insects with rotation, soil aspects, rotation planning procedures, and example rotations. Stay tuned!

Cornell's Vegetable MD On-line: <http://vegetablemndonline.ppath.cornell.edu>

Penn State Vegetable Disease On-line www.ppath.cas.psu.edu/EXTENSION/VEGDIS/Identification.html

American Phytopathological Society Compendia on Diseases Pathogen and disease information on a wide variety of vegetable, fruit and ornamental crops www.shopapspress.org/disease-diagnostic-series.html

And remember that your County Cooperative Extension office can help you get an accurate diagnosis of your vegetable diseases!

GRAZING

Get Ready to Put the Brakes on Your Grazing

by Fay Benson

One of the tests for a grazer is being able to slow down their grazing speed when transitioning from spring to summer sward growth.

In the spring graziers are struggling to keep ahead of the grass re-growth, so they move the cows through their systems quickly. The trick is to anticipate when you need to put the brakes on or slow down the rotation, and add more pasture area in order to allow the grass more time for re-growth.

When soil moisture is low sward management is especially critical. If cows are put on pastures that are not fully re-grown, the cows will eat it lower than the recommended 3 inches. If grasses are 2 inches tall that means their roots are only about 2 inches long. The shorter the stems, the shorter the roots, and this will impact the plants ability to re-grow.

After grazing, the plant will prune off roots that are not needed for the smaller grazed plant. When there is less vegetation; besides the smaller root mass, there will be less shade to protect the soil from drying out even faster, which will compound the problem of the plant being able to obtain the required amount of moisture.

I remember one dry year when I allowed the cows to overgraze a pasture, and was amazed at how long the grass just sat there with no growth. I now see it was because not only did I overgraze the tops of the plants, it also caused the roots to shorten, and inhibited their ability to reach moisture and nutrients.

With the moisture we had last year you could graze down a pasture and it would re-grow because there was plenty of moisture. But in a dry year pasture re-growth isn't so forgiving. You may want to stop grazing at 4" to retain enough roots to get at the elusive moisture.

You may also want to add additional paddocks to your pasture system sooner than you would in a



Cows head out to find greener pastures at Bensvue Farms in Lansing, NY.

Photo by Fay Benson



After grazing, plants will prune their own root systems. Overgrazing results in a small root system that is very vulnerable to drying out.

wet year. This will keep the pressure off your spring pastures. Economically, it's best if you can continue getting the benefits of grazing by adding additional paddocks to your system, rather than taking animals off of pasture and feeding them supplemental feeds. Jim Grace, Farm Management Specialist with Steuben Co. CCE, analyzed some information from the Dairy Farm Business Summary Grazing Report for 1999, a drought year. He found that graziers who added additional acres to their system, which gave their grasses longer to re-grow, had much higher Net Farm Income -- \$476 per cow -- than farmers that pulled their animals off pasture and supplemented fed them -- who netted only \$78 per cow.

The key point is that you should not over graze pastures so that they are stressed by the inability to reach moisture. If there are no fields within a half mile or so, it would be better to sacrifice one pasture and feed supplement in it till the other pastures are rested. I have heard that some farmers are concerned that their cows are bothered by the change of daily activity, if they are used to going out every day to the pasture, it's a change to their routine if they remain at the barn and fed supplemental forage.

Fay Benson is a Small Farm Educator with Cornell Cooperative Extension of Cortland County and the Cornell Small Farms Program.

NON-DAIRY LIVESTOCK

New Markets for Meats

This beef producer's business is growing faster than expected to meet growing demand for natural and Halal-certified Meats

by Kara Lynn Dunn

David Reino may become a full-time farmer sooner than he expected. Two new brands of naturally-produced meats have opened marketing opportunities that are accelerating the growth of his grass-fed beef enterprise in Farmersville, NY, approximately 45 miles south of Buffalo.

Reino has raised beef cattle on pasture since 1993. He owns 500 acres and rents 250 acres. He works to steadily improve his herd through genetics, grazing management, high quality pasture, and winter forage.

In 2005, he switched to grass finishing. That year he sold 50 backgrounded calves at auction and seven steers by private freezer trade. This year he anticipates selling more than five times the number of steers, a leap he credits to transitioning away from direct marketing in favor of selling through a specialty retailer.

A CLUSTER OF COOPERATING ENTERPRISES

Reino learned about some new marketing options in June 2006, from Joan Petzen, a farm business management specialist with Cornell Cooperative Extension in Allegany and Cattaraugus Counties. She told him about a group of meat producers in New York who had leveraged grant funding from the New York Farm Viability Institute to create four cooperatively-linked enterprises: * Pure Farm Goodness Livestock Cooperative, whose farmer-members produce naturally-raised beef, goat and lamb under both the "Twin Rivers Northeast Artisan Meats" and "Halal Premium Meats" labels * The Friendly Butcher, a privately owned, USDA-inspected processing facility in Randolph, New York; * Halal Premium Foods, a management and holding company; and * Halal Premium Meats, a single-owner subsidiary for sourcing and marketing cleric-certified "Halal Tayyib," or lawful and wholesome, meats to Muslim markets.

Through their New York Farm Viability Institute grant, the producers had gotten help from Brian Henehan and Judith Barry of Cornell University's Applied Economics and Management Department to figure out the plans and business structures for the four linked enterprises. The Institute is a farmer-led nonprofit organization that provides direction and grant funding to farm-

based efforts to increase farm profits, reduce barriers to success and encourage innovation. The Institute collaborates with the state department of Agriculture and Markets, agricultural colleges, Cooperative Extension, agribusiness, nonprofit groups and others.

TWO BRANDS FOR TWO MARKETS

Reino was among the first producers to sign a forward contract for his Angus beef to be processed and sold under the Twin Rivers brand. Twin Rivers-branded meats are distributed to health food stores, food co-ops, specialty retailers and "green" chefs. Twin Rivers products are also certified Halal Tayyib through Halal Premium Meats and can be marketed under the Halal Premium Meats label to targeted Islamic markets. Halal Premium Meats CEO and Marketing Director John Umlauf says, "our production protocols attract 'green-mainstream' and 'true natural' customers, including retailers and fine dining restaurants looking for naturally-raised, regionally-produced meats from small farms."

"The only change I made to fit the required protocols was to work with my feed dealer to make sure my supplement concentrate does not contain antibi-

otics or animal by-products. Under the new contract, I will truck my cattle one hour to The Friendly Butcher in Randolph, New York," Reino says.

TARGETED MARKETING = PREMIUM PRICES

Reino will collect a premium price when his cattle reach the processor. He recommends the retail location at the Friendly Butcher to his former freezer trade customers so they can still find the naturally-raised beef they desire. He says structuring his enterprise to the markets has been a key to success. This new contract represents the difference between selling seven steers last year and 50 in 2007. Capturing direct market price without doing the marketing myself will absolutely have a positive impact on my time and my bottom line," he says.

Reino's goal of raising 100 steers for slaughter each year is now within reach on a much shorter timetable.

"I would never have been able to maximize my return on investment for the land I have through traditional marketing channels. The Pure Farm Goodness Livestock Co-operative and the new branding have dramatically changed the nature of the opportunity for the viability of my farm business," he says.

"My gross receipts will nearly triple this year, and when I reach 100 head in annual sales, I will no longer have to work full-time off the farm." Reino says he is happy to be among those who meet the Pure Farm Goodness standards for consumers and for his farm business.



One of David Reino's Angus cattle to be marketed through the new Pure Farm Goodness Livestock Cooperative.

A second grant from the New York Farm Viability Institute is helping the Pure Farm Goodness Livestock Cooperative develop a program to recruit more producers to supply the anticipated demand for naturally-raised meats. Petzen says more than 150 producers of sheep, goat and beef meat have expressed interest in the cooperative.

For more information on the Pure Farm Goodness Livestock Cooperative contact Mr. Kelly Rhinehart, President, at kelhart@windstream.net or call (716) 474-2581.

Kara Lynn Dunn is a freelance writer and consultant for the New York Farm Viability Institute. She writes from her farm in Mannsville, NY.



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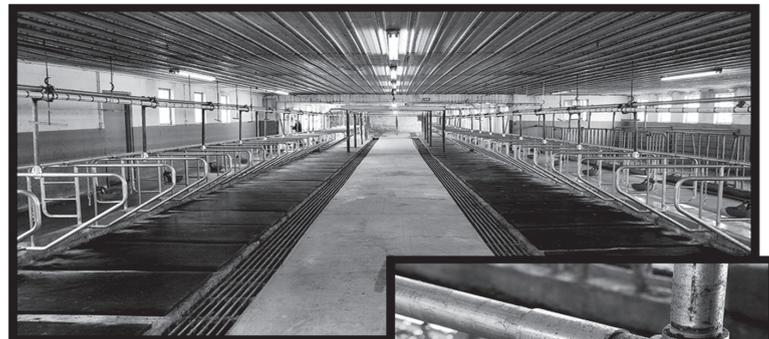
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Small Farm Quarterly Youth Pages

The Youth Pages are written by and for young people. Many thanks to 4-H teens participating in state and national 4-H horse activities for supplying most of the material in this issue's Youth Page.

We believe there's a bright future for young farmers in the Northeast. Whether you live on a farm or only wish you did, we'd love to hear from you!

Get your article published by sending it to:
SFQ Youth Pages
 c/O Celeste Carmichael
 4-H Youth Development Program Specialist
 CCE State 4-H Youth Development Office
 340 Roberts Hall
 Cornell University, Ithaca, NY 14853
 607-255-4799 • cjc17@cornell.edu

Alpine Goats: From Birth to Show

By Evy Crumb, Madison County 4-H and Hamilton chapter of FFA

It's springtime and my goat Freedom has just had her kid Liberty. I am wondering if we want to show Liberty. There are five categories that a judge looks at; they include general appearance, breed characteristics, dairy character, body capacity, and mammary system. I think that she will do well, so I have decided to show her. Now I need to train her so that she likes and trusts me and also behaves for people.

There are many steps to getting her to a show goat level. In order to get her to like people, instead of having her nurse off her mother Freedom, I bottle feed her. I use a clean soda bottle and milk Freedom into it, then put a rubber nipple on it then feed it to her. She knows that they can get milk out of it after she's had it for a while, but until then I open up her mouth by sticking my thumb and my index finger in the back of her mouth and put the rubber nipple in her mouth.

If I continue feeding her then she'll think that I'm her mom. After she has learned to like me I need to teach her to let me lead her. That way I can take her around the show ring without her dragging me or me dragging her or her bucking all around the show ring. If she does that the judge has a harder time evaluating her conformation. I have to teach her to let me handle her. I do that by scratching her back while I handle her legs or I do that while I am feeding her.

After a while, she is very friendly and it's almost show time. I need to get her perfectly groomed. If I take time to prepare her in advance, the final grooming for the show will be easy. The first step to grooming her is clipping her coat. Clipping makes it easier for the judge to feel her ribs and it helps the judge evaluate her conformation. I use electric clippers to cut her coat. I cut it so it's about 1/4 of an inch long, by using the same clippers you

use on dogs' or cows' hair. I need make sure that when I clip her I hold the blades parallel to her body so I don't cut her.

The day before or the morning of the show, I wash her whole body to improve her overall appearance. A really clean goat (especially a really white Alpine goat) makes the showman and the farm look even better. I also need to trim her hooves monthly so she doesn't get lame on her hooves due to hoof rot, and it helps her walk correctly.

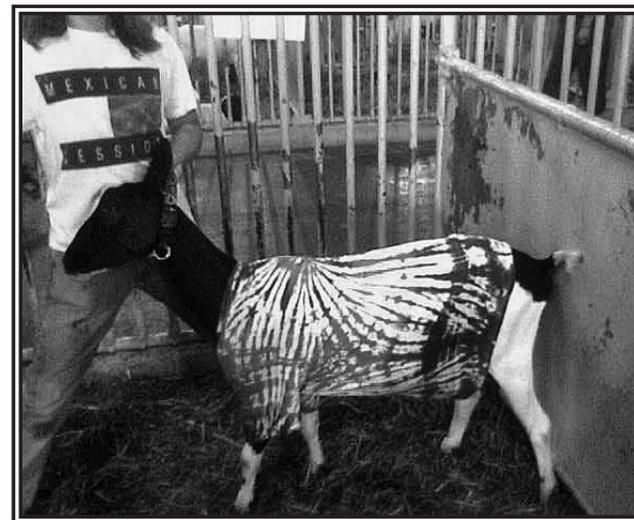
There, it's the day of the show and I need to make sure that all my goats are ready to go. Since some of my goats make milk; I do not milk them the morning of the show, so they have a full udder by the time of the show.

There Liberty is, all ready for the show and it's almost time to show her. She is in one of the first classes because she's an alpine junior kid and alpiners are the first breeds, and kids and dry yearlings go first.

In the show ring I need to keep Liberty between me and the judge at all times, I am showing her off, not showing myself. If I'm petting her in the show ring the judge can't see her as well, and they might pin her down because of it. If I set her up correctly and hold her head up high her front legs should be right below her withers, her back legs should be right below her pin bones and the top of her back legs should form almost a C shape. If I do that and "tickle" her right before her hipbones she will look like a world champion goat.

All the work from birth to show has paid off. Liberty has done very well, she got first place. She is following in the steps of her mother, who received first place or junior champion in every ring that she has stepped in.

For more information on the 4-H Goat Program, Go to: www.ansci.cornell.edu/4H/dairygoats/index.html



Buck-N-Bill Cap's Broghan, wearing her stylish T-shirt to stay clean at the 2006 NYS Fair.



Buck-N-Bill Cap's Broghan ready for the show.

AGRICULTURE AND YOU

BLOOMING BOTTLES

Materials:

- | | | |
|------------------------------------|----------------|--------------|
| 2- or 3- liter plastic soda bottle | Marigold seeds | Potting soil |
| Scissors (get an adult's help!) | Water | Tape |

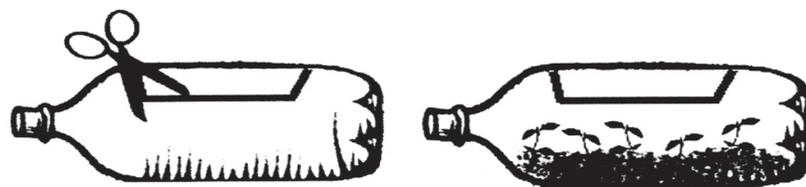
Procedure

1. Rinse the bottle out and remove the label (but save the cap).
2. With the bottle on its side, cut a hole about 6 inches long and three inches wide.
3. Place potting soil in the bottle, about 2 inches deep.
4. Moisten the potting soil, being careful not to completely saturate it.
5. Plant the marigold seeds in the soil, following the directions on the seed packet
6. Cover the hole in your terrarium with plastic wrap. Tape it in place if you need to.
7. Either poke a few holes in the plastic wrap or leave the cap off, so air can get in. Keep the soil moist, but not too wet.
8. When the marigolds are too big for the bottle, and when there's no chance of frost outside, carefully remove each plant with as much soil as possible and plant it in a flowerbed.

Brought to you by **New York Agriculture in the Classroom** (from our upcoming new curriculum) www.cerp.cornell.edu/aitc

Make a simple terrarium and help the environment by reusing disposable bottles!

A terrarium is an enclosure for keeping and raising plants for enjoyment, transplanting, and observation - a miniature garden in a jar, bottle or aquarium. A portion of the ecosystem is simulated on a small scale.



Observations:

Every other day, keep track of your plants in a journal. Record:

- Size of the bottle you used and the hole you cut
- Depth of soil and amount of water
- Date and number of seeds planted
- Date you first see plants sprouting (germination)
- Date the first two leaves appear

Questions:

What are the needs of a plant? Does the terrarium environment provide all of the things that a plant needs? What happens to a plant's needs as it grows? Do they change? Can a plant run out of nutrients in this environment?

Carrying out a Leader's Dream

By Corinne Milnamow, Shawna Kimberly, and Noelle Milnamow, Madison County Spurs and Spokes Club

Our riding instructor and 4-H leader Laura Beth Janson was killed in a fatal car accident on December 29, 2006. It was a devastating change for the Spurs and Spokes 4-H Club, our club, as Laura was a great role model for everyone that knew her.

Two days before Laura died, we had a Christmas party at her house. For part of Laura's gift we had made her a beaded horseshoe in Christmas colors. During the Christmas party Laura showed us a picture of the stallion she wanted to breed her 8 year old paint mare, Lady, to. His name is 'The Big Gun' and Laura asked us to research him.

For Laura's memorial service our 4-H club gathered together to make memory boards. We all brought our favorite photos of Laura and used colored scrap booking paper and decorated the boards. Everyone shared their Laura stories and their feelings. At the end of the evening, with just eight girls left, we went into a den and researched The Big Gun, his bloodlines, what he had won, and his conformation. Laura had taught us to research bloodlines for a state horse judging competition.

We talked about raising money to breed Lady, Laura's horse, and carrying out her dreams. The stud fee was \$1,500. We decided to make jewelry, cat toys, dog treats, and of course the beaded horseshoes to raise money. After about 20 minutes of planning and thinking we went out to our parents and told them what we were going to do.

Weeks passed and we began to take orders from our barn and other barns for horseshoes which we personalized with a wooden name plate with the horse's name or anything they chose. We had beading nights and would all get together and make the horseshoes and later jewelry, bookmarks, painted pots and troll fuzzy pencils. We also sold our goods at the regional horse bonanza. And, our local Tractor Supply Company allowed us to hold a weekend fundraiser at their store.

As a result of all of these efforts we have raised over \$2,200. And, when Laura's sister talked to the owners of The Big Gun, they told us they would donate the breeding for our



Spurs and Spokes shown here selling some hand made items in memory of their leader and mentor Laura.

club! We are using the money raised for the mare and foal care, veterinary expenses associated with breeding Lady. Laura would be proud of us for carrying out her dream.

For more information about the 4H Horse programs, visit www.ansci.cornell.edu/4H/horses.

Motivated to Learn - A Glimpse of Katie Benson, 4-H Member from Orleans County

By Rebecca van Laer, Cornell Student Assistant with the Orleans County 4-H Program

"4-H has helped me to be more organized", says Katie Benson, a 16 year old from Orleans County who raises rabbits and Nubian goats. She also gardens, bakes and creates a variety of fine arts and crafts including mittens and drawings. Making time to complete projects and activities that she loves is difficult, but worth the challenge, Katie says.



Katie's work was recognized by a variety of judges at the New York State Fair this year. Her projects were brought to the attention of Celeste Carmichael, 4-H Consumer Family Science Superintendent and Youth Development Specialist. "The evaluators often bring well done work to my attention, but when two exhibits were brought to me by two different judges made by the same young lady, I took notice", Carmichael stated.

Of particular interest was an original cross stitched design that showed a frog wearing a 4-H t-shirt. "Seeing a well-done cross stitch by a 16 year old isn't uncommon, but we don't often see original designs,

and the story that went along with Tyler Green, the frog, was exceptional". Katie had developed Tyler Green over the years in her free time. She wrote and illustrated stories that captured his adventures, including, of course, his time at county fair.

For her 11th birthday, Katie's mom and aunt had Tyler Green copywrited, affirming his uniqueness and making the appeal of creating stories and artifacts about him even greater for Katie. It also increased the appeal of bringing Tyler Green products to the county fair. "Tyler is the same age as me, says Katie,



"so I know what he is going through. He is in 4-H and has learned about a lot of things as a member".

Research on non-formal education programs like 4-H suggests they have positive effects on participants both in and out of the classroom. Katie's interest in a variety of activities has helped her work hard to manage her time. Her interests also drove her selection of projects, and she chose opportunities that would help her pursue her interests.

Fair participants are asked to fill out exhibitor information cards, or EIS cards, that ask for reflections about what they learned. Although tedious, Katie noted, "the questions helped me tune in to the way that I felt about the project, what I learned and who I learned it from. Judging also helps me look at a project again, and see it through someone else's eyes. It helps me to do my personal best. It also helps me to accept other opinions."

To get started on your own Arts & Crafts Project, check out the Visual Arts series from National 4-H: <http://4-hmall.org/detail.aspx?ID=18561>



NEW FARMERS

Mentoring Young Dairy Farmers in Managed Grazing

A Wisconsin grazer explains how he uses mentoring and "sharemilking" to help others get started in dairy

by Alfrid Krusenbaum

It is difficult for young people to find an entry into dairy farming. Potential entrants from farming backgrounds may be bound by tradition, lack capital or simply do not have a positive outlook for the future. Candidates from non-farm backgrounds - which are increasing in numbers dramatically - have difficulty finding ways to acquire the necessary skills and equity.

GRAZING AND ITS OPPORTUNITIES FOR TRAINING NEW FARMERS

Grazing addresses many of the concerns which young people bring to farming. It can improve profitability, sometimes dramatically, and provide a comfortable living and fast equity growth. At the same time, many young people enjoy an improved quality of work by walking pastures and having cows on grass. Seasonal calving allows bundling management tasks and possibly taking time off from milking. Managed grazing requires a lot less capital to get started.

Wisconsin evidence (anecdotal) indicates that 60% of new dairy farm entrants employ managed grazing. On the other hand, more mature grazing farms can make huge equity gains, primarily through lower culling rates. This equity gain can be used for sharemilking (see below).

My wife Sue and I operate a 120 cow certified organic dairy in Southeast Wisconsin. Of the 320 acres, 220 are in managed pasture. 30 steers a year are marketed annually directly to the end consumer. For twenty years we have trained interns and apprentices on their farm and are now engaging in "sharemilking," a pathway to farm ownership commonly seen in New Zealand, but almost unknown in the US.

MENTORING INTERNS

Interning is a great way to learn basic and advanced labor and management skills. The intern should be highly motivated and the mentor well qualified in teaching these skills. At the same time the mentor should respect that although the intern provides labor in exchange for being taught, that relationship should not be abused.

In our situation this would be a live-in intern. Living with the mentor family provides many advantages for the intern, since a more intimate look into the decision making processes of the farm family is possible. Also many discussions about farming related issues usually take place around the dinner table.

For this arrangement to work, the mentor has to feel responsible for all aspects of the intern's life and consequently gives up some of the family's privacy. For example, often interns might come from far away or a different country and could be socially isolated if not taken in by the mentor family. We recommend a two-week trial period, before a commitment is made.

The intern works side by side with the mentor, particularly in the first weeks and months of the internship. This is a crucial stage since everything is new for the intern, especially if the intern is totally new to farming. An "information overload" should be avoided and the intern should be given just small tasks and mainly watch and learn the routines of the day.

The mentor should not expect that all activities and details will be remembered immediately.

Slowly the curriculum can become more formalized. In a seasonal grazing system it can be focused on the key management task of the season: calving, calf care and raising, breeding, herd health, spring grass management, financial management etc. Again it is important to distribute the main subjects throughout the year. This avoids an overload and at the same time allows for more in depth coverage of any given subject.

Field trips to other farms, pasture walks, conferences etc. show the intern the diversity of farming operations and management styles. Also a coupling of the practical experience with more formal classroom studies, for example the "Wisconsin School for Beginning Dairy and Livestock Farmers" at the University of Wisconsin is a great way to enhance and broaden the experience of the intern. Increasingly more responsibility should be shifted to the intern to encourage independent thinking and foster self-confidence.

The length of the internship should be a full year to experience all seasons on one operation.

SHAREMILKING

Sharemilking is a well-used pathway to farming in New Zealand, but is almost unknown in the US. We observed that many of our alumni interns did not make the jump into starting their own operations and the ones who did were often struggling due to high debt loads. At the same time we felt that our operation had reached a maturity that would allow us to share some of our equity gains with a new generation.

A young couple, which had interned with us for two years, entered into a formal sharemilking agreement with us in March for three years. They receive a percentage of the milk (they get their own check) and a percentage of the female calves which they are allowed to raise on our farm. After three years the sharemilkers move on and take their cattle with them. They share in many (but not all) of the expenses and are responsible for all chores and management associated with the livestock. At the same time the dairy owner is still mentoring the sharemilker.

FORGING A DAIRY CAREER PATH

I envision a dairy career path that could be replicated throughout the industry and could provide a clear way for prospective entrants to embark on. Depending on previous knowledge they would intern on one or better two farms for a total of two years. After that they enter into a sharemilking arrangement, which allows for building equity. In five years this would give them deep knowledge of dairy farming, a management track record and equity without too much risk.



Grazing dairies have an opportunity to nurture the next generation of farmers.

Photo courtesy of Jim and Anne Philips, Dryden, NY

They would be eligible for loans and be well poised to enter into their own business.

For dairy farmers looking to exit it could be a way of slowing down, sharing their wealth of expertise and still receiving income without having to sell all their assets.

We as an industry have to take on responsibility for training the next generation. Grazing farms are especially well positioned to provide this opportunity to young people: Lower culling rates provide for fast equity growth, they are often very profitable and provide a high quality of life.

Alfrid Krusenbaum is a dairy farmer and mentor at Krusen Grass Farms, LLC, of Elkhorn, Wisconsin. He spoke at a meeting on "Dairy Farmer Mentoring" in Dryden, NY, in March, 2007.NY.

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STEWARDSHIP & NATURE**Agricultural Environmental Management****Making the Most of Manure**

By Barbara Silvestri

This season in our continuing series on New York State's Agricultural Environmental Management (AEM) program, we focus on the AEM Manure Management Worksheet and the ways an assessment of your nutrient management practices can benefit your farm.

Not only do AEM practices reduce pollution risks and minimize odor issues, some can even help your bottom line. Reducing commercial fertilizer inputs saves money, while creating conservation buffers might qualify your farm for financial incentives. And protecting the water that your family drinks? Priceless!

Manure can be an excellent crop nutrient source and soil conditioner. If manure is not used in an ecologically sensitive way, however, its pathogens, nutrients, and organic material can contribute to the pollution of surface and groundwater, possibly including your own farm water supply. In addition, land application of manure is the most frequent source of odor complaints from neighbors and the public.

With the help of County Soil and Water Conservation Districts, New York State farmers have a voluntary and confidential way to assess their manure application practices. An essential component is the AEM Risk Assessment, which consists of worksheets selected specifically for your farm's needs. The assessment provides a comprehensive look at your farm's impact on natural resources and critical information for long-term business planning.

The assessment can help you document your environmental stewardship, prioritize areas presenting risk, identify opportunities to save money, and locate technical and financial resources to address potential concerns.

THE AEM MANURE MANAGEMENT WORKSHEET

Some of the factors assessed by the AEM Manure Management Worksheet are listed below, along with suggested practices to minimize risk:

* Know the nutrient needs of your crops - Soil test at least every three years to determine appropriate manure application rates to meet crop needs based on realistic yield goals.

* Monitor the nutrient content of your manure - Manure samples should be tested at least every other year. Ideally, a history of manure testing should be developed that characterizes the variability of the manure throughout the year.

* Calibrate manure application equipment - All manure (and fertilizer) application equipment should be calibrated regularly to determine the amount applied per acre.

* Keep records of manure applications to fields - Records should be kept indicating the number of loads of manure applied, the dates of application, weather conditions the day of application, crop yields, crop rotations, and any fertilizer application for each field.

* Determine the rate of manure application - Manure should be applied based on



crop needs and realistic yield goals. Commercial fertilizer applications are reduced or eliminated in order to account for nutrients in manure.

* Consider field runoff potential in scheduling manure applications - The greatest potential for loss of manure from a field occurs when soils are fully saturated and areas of concentrated flow develop. Utilize the Phosphorous Index to prioritize fields based on runoff potential. Avoid spreading on high risk fields that are saturated, frozen, or prone to flooding and apply manure to high risk fields during the growing season.

* Avoid wellheads and springs - Manure should not be spread within 100 feet of a wellhead or spring. Some well drained soils and soils shallow to bedrock may require additional setbacks and conservation measures such as, cover crops, immediate incorporation and split applications of nutrients to reduce the risk of well contamination.

* Maintain vegetated buffers along watercourses in fields receiving manure - A vegetated buffer or filter strip meeting USDA Natural Resources Conservation Service (NRCS) Standards helps protect waterbodies from nutrient runoff. The Conservation Reserve Program (CRP) and Conservation Reserve Enhancement Program (CREP) can cost-share the establishment of buffers and provide rental payments on land utilized as buffers and filters.

* Utilize storage - Even daily spread operations should identify safe temporary manure pile areas to store manure while weather conditions are not conducive to responsible spreading.

* Consider the timing of manure applications - In fields where neighbors are a concern, spread on weekdays in the early morning and avoid holidays and local special events. Be aware of the weather forecast for extreme weather events such as heavy rain, snow melt and prevailing winds.

* Incorporate when feasible - Incorporate manure at application or shortly after application, when feasible, in accordance with soil erosion control plan. This practice reduces runoff and diminishes odor. Note that early fall incorporation may create nitrogen leaching problems.

Did you notice some practices on the list that you are already using or get ideas from others that you might want to try? A free, confidential AEM Risk Assessment will help you to learn more. A resource professional from your local Soil & Water Conservation District, NRCS or Cornell Cooperative Extension can assist you in completing the assessment and review alternatives to reduce risk.

Development of a Conservation Plan is often the next step towards addressing

any potential concerns or opportunities identified, which may also help you save money and gain access to funding for additional planning or conservation practice implementation that may be necessary to protect water quality.

Join the over 10,000 farmers that have assessed their farming practices through AEM! If you would like to schedule a free, confidential AEM Risk Assessment for your farm, call your County Soil and Water Conservation District. For contact information visit www.nys-soilandwater.org and click on 'Contacts.' To learn more about AEM or to view the

worksheets, including the Manure Management Worksheet, click on 'AEM', then 'Technical Tools.'

Watch for future articles on additional worksheets of particular interest to small farms and other ways AEM can support your efforts to farm cleaner and greener!

Barbara Silvestri is the Information and Education Program Coordinator with the NYS Soil and Water Conservation Committee. She can be reached at 518-457-3738 or barb.silvestri@agmkt.state.ny.us.

**Saving and Creating Energy on the Farm**

Grazing cows on Fuess Meadows Farm save energy by harvesting their own feed, saving fuel and other inputs costs, while nearby windmills on the Madison Wind Farm create energy. The Fuess family dairy milks 40 Holsteins and has 117 acres of pasture and hayland. Working with the Madison County SWCD, AEM has helped them to identify and address environmental concerns and realize how pasture conserves the topsoil on their prime farmland for their children.

Photo by Troy Bishopp

Resource Spotlight**NCAT Announces One-Stop Shopping for Farm Energy Resources**

Responding to an explosion of interest in biofuels and other energy opportunities for agriculture, the National Center for Appropriate Technology (NCAT) has created a handy "one-stop shopping" search tool for farms and ranches interested in funding and building renewable energy projects, reducing energy costs, and becoming more energy self-sufficient.

The tool is at: http://attra.ncat.org/farm_energy/farm_energy_main.php. NCAT created this tool with the practical needs of agricultural producers in mind. Partnering with about a dozen leading renewable energy trade organizations and agencies, NCAT has gathered in one location up-to-date listings in all major energy-related topic areas.

Using clickable maps and a few simple drop-down menus, growers can quickly find technical assistance, financial assistance, and sources of equipment in their own state for making energy saving improvements and building anaerobic digesters, biodiesel, ethanol, wind, and solar energy projects.

Energy-related businesses, agencies, and non-profit organizations serving agriculture are encouraged to submit their own listings, using the simple self-listing form available at the site.

There is no cost to use the search tool or to list a business or resource. Funding is provided by the USDA Risk Management Agency, through a project called "Building Farm Energy Self-Sufficiency."

This is the latest energy-related tool available from NCAT's ATTRA National Sustainable Agriculture Information Service. To explore an extensive collection of tools, publications, and links, visit www.attra.ncat.org and click on "Farm Energy."

NCAT is a national non-profit organization with headquarters in Montana and offices in Arkansas, California, Iowa, Louisiana, and Pennsylvania. For more information about NCAT, visit www.ncat.org.

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