Spring 2005

SMALL FARM QUARTERLY

Good Living and Good Farming that Connect Land, People, and Communities

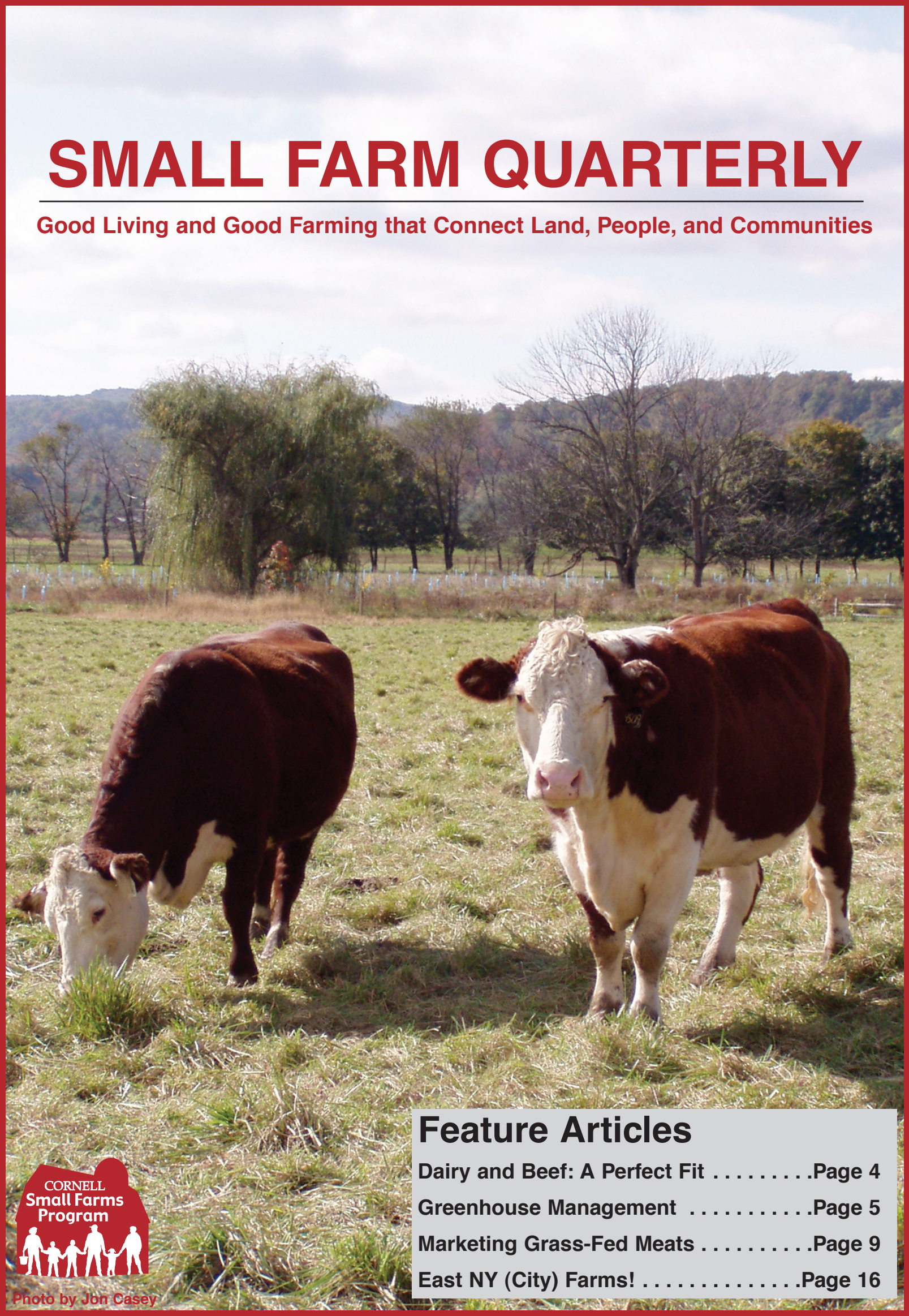

Photo by Jon Casey

Feature Articles

Supplement to Country Folks

SMALL FARM QUARTERLY - Spring 2005

TABLE OF CONTENTS

SMALL FARM QUARTERLY

Good Farming and Good Living that Connect 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; and
- Increase awareness of the benefits that small farms contribute to society and the environment.

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FROM THE EDITORS

Cooperative Extension – What's It Worth to Your Farm and Community?

By Joanna Green and Anu Rangarajan

Have you ever thought about what would change for your farm or your community if the Cooperative Extension system were to disappear? Would the loss of your local agriculture educator, the community development support, nutrition education or the 4-H program for your kids make a difference to you?

Helene Dillard, Director of Cornell Cooperative Extension, recently delivered her annual "State of Extension" summary. It provided an overview of the strength and scope of our system, and then talked about the serious budgetary challenges universities and extension are facing.

We're called "cooperative" Extension because Extension is essentially a cooperative partnership among federal, state, and county governments and the Land Grant college(s) in each state.

Federal and state funding for Cooperative Extension over the past 20 years has stayed pretty much flat in spite of inflation. This has put increasing pressure on County Extension associations and local governments to either come up with more dollars, or cut back staff and funding. This is only one aspect of a larger "sea change" in public policy which is shifting the burden of funding for public services onto local communities.

You've probably already felt the impacts of this in your own county. In some states the Extension system has already been decimated. In others, the system has been "streamlined" over time so that these educators have to cover more subject matter. The result is that often our county agriculture educators have to limit or eliminate on-farm visits. Here in New York, many county-based staff have already become regional specialists, serving several counties.

In spite of these challenges, Extension continues to play a critical role in many communities. We are continually impressed with the dedication and creativity of our Extension colleagues who work with small farms. Even in the face of cuts, these folks continue to pursue grants and other new funding sources to do important work in their communities.

But now, on top of the ongoing budgetary stress Extension has been dealing with for many years, President Bush's proposed budget cuts federal formula funding for research in half in 2006 and to zero in 2007. Much of this funding helps get the applied research done to answer the questions of farmers, citizens and communities. This research supports effective extension. Similar funding challenges at the state level have also emerged.

As a one of America's great public educational institutions, Cooperative Extension is uniquely suited to serve the needs of local communities, farm businesses and families. People from within communities help solve local problems. Sure, there are plenty of things Extension could do better. But doesn't it makes sense – and good public policy -- to invest in preserving and improving this important "educational infrastructure?"

Why not visit your local Extension office -- and find out how you can get involved.

SMALL FARMS PROGRAM UPDATE

Winter is that season that we relish as one for quiet reflection. While we may still have all our tasks, we come right back in for that huddle around the wood stove. Here, at the Cornell Small Farm Program, we have been doing a lot of huddles, thinking about where and how to grow our efforts.

Back in December, we hosted two meetings of small farm operators to further understand needs and interests of our small farm community. With the help of local Cooperative Extension partners, we held one meeting in Orange County and the other in Wyoming County. In future years we will hold meetings in other regions of the state.

We were particularly interested in how these small farms interact with their neighbors and communities, and how they envision their own future in this landscape. We also asked them to consider who they need to work with to realize this vision for themselves and their communities. As in the past, we heard that farmers want Cooperative Extension to continue helping facilitate farmer to farmer networks. These peer learning groups build important relationships while enhancing skills and knowledge. Some farmers also expressed interest in learning how to cooperate to tap certain markets. We are considering these and other ideas from farmers as we develop our program plans for the coming year.

We would like to express our gratitude to three members of the Small Farm Quarterly Editorial Team, Tom Gallagher, Eric Toensmeier, Cathy Sheils and Claire Hebbard, who have moved on to other endeavors. We appreciate the role that they played in helping make this magazine a success. We have added some new editors to the SFQ team. Thank you to Bernadette Logozar (CCE, Franklin Co.), Gary Goff (Department of Natural Resources at Cornell), Rebecca Schuelke (CCE), and Madeleine Charney of the New England Small Farm Institute.

In March we had the good fortune be able to travel to California to engage in an intensive "Shared Leadership" program with a team of colleagues from Cornell's Community, Food and Agriculture Program and Community Food Systems Program. Our team also included Max Pfeffer, Assistant Dean for Cornell Agriculture Experiment Station. We developed new skills for working together as a team, and created an action plan for working more effectively with Cornell colleagues and stakeholder groups to build more sustainable agriculture and food systems. We see tremendous possibilities for our future food and agriculture systems, and are rolling up our sleeves with renewed energy. We are grateful to the College of Agriculture and Life Sciences for supporting us in this process. It feels like spring!

Small Farm Program Leaders Anu Rangarajan and Joanna Green were part of a Cornell Team exploring new ways to build sustainable agriculture and food systems. Starting on the left: Gil Gillespie (Community, Food, and Agriculture Program), Joanna Green (SFP), Jennifer Wilkins (Community Food Systems), Anu Rangarajan (SFP) and Max Pfeffer (Cornell CALS Administration).

Support Cornell's Student Small Farms Club and WIN!!!!

Buy a raffle ticket for only $1, and get a chance to WIN a gift basket filled with cheeses, honey, jams and jellies, and other goodies produced by small-scale farmers in New York.

Your money will go to support the Cornell Small Farms Club, a recently-founded organization of students enthusiastic to learn and help raise awareness about the viability of small-scale farms, both now and in the future.

1 raffle ticket……..$1 6 raffle tickets….....$5

Checks should be made out to "Cornell University - Small Farms Club" and sent to: Erika Worden, President, Cornell Small Farms Club, 135C Plant Science Building, Cornell University, Ithaca, NY, 14853. Be sure to include complete mailing address, phone number and email address if you have one. Raffle drawing will take place at the end of April, and winners will be notified shortly thereafter.
For more information call 607-255-9227 or email Erika at edw26@cornell.edu.

Thank you for your support!

How can I get Small Farm Quarterly?

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SFQ-only subscribers receive just the 4 issues of Country Folks that contain the SFQ insert for only $5 a year.

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COWS AND CROPS

Dairy and Beef: A Perfect Fit

By Peggy Murray

Larry and Barbara Herr moved their family from Lancaster, Pa., to Lowville, N.Y., in 1987. The couple left behind their Pennsylvania egg production business and began a 60-cow dairy in Lewis County. Their goal then, as it is today, was to raise their family more than cows, Larry says.

For five years, the Herrs milked 65 cows and raised all their replacements. Then in 1992, Larry and Barbara sold all their heifers and bought a few beef cattle. By his own admission, Larry is more of a beef person than a dairyman. He graduated from Penn State with a degree in animal science with a concentration in beef cattle.

Knowing how the beef industry works, Larry realized that he could not make a decent living with just beef. But dairy and beef complement each other, and his land resources fit both enterprises.

Today the Herrs milk about 64 cows, buy replacement heifers and raise 50 head of beef cattle. Larry raises the beef animals to approximately 500 pounds; then sells them to his father in Pennsylvania who raises them to maturity. This allows the Herrs to tap into Lancaster's good market for beef cattle, which Lewis County and the surrounding areas lack. Larry hires a local trucker to haul cattle to Pennsylvania.

Mechanics, Management & Resources

Initially Larry used his existing facilities to house beef. Then three years ago he built a Coverall building to house them in the winter. The rest of the year, the beef herd is rotationally grazed.

Larry grew both herds to the size his land resources can handle. The combination of beef and dairy maximizes harvesting equipment, which Larry uses for both enterprises. Any lower quality forages are fed to the beef cattle and the best forages to the milking herd.

In 2002, Larry bought his father's farm in Pennsylvania so he can continue to market his beef cattle through that outlet.

Larry tapped a number of resources as he made his transitions. The Soil and Water Conservation District helped him set up rotational grazing. Lewis County Cooperative Extension provided information on selecting grasses beneficial to both dairy and beef. Trade magazines also gave Larry useful information.

Larry completed a financial analysis to evaluate the economic feasibility for his initial transition away from raising dairy replacements to raising beef cattle. Buying beef cattle wasn't a huge investment, and Larry didn't have any trouble cash flowing the new operation.

The farm's profitability stayed the same. The trade-off from selling heifer calves, raising the beef and buying dairy replacements was pretty neutral financially. A goal was to generate enough income from his beef operation to buy his dairy replacements. Larry has been able to do that.

Raising beef doesn't require as much labor or management as does raising heifers. The Herrs' children did a lot of the calf chores when the family grew dairy replacements. Transitioning to a beef operation allowed the children to work less and be more involved in other activities.

Larry makes the day-to-day decisions on the dairy and the beef cattle enterprises. He uses QuickBooks and tries to track the economics of each operation separately. Forage costs are split between the two entities. Larry and Barbara make major financial decisions together.

THE FUTURE

The Herrs' transition to a combination dairy and beef farm has worked well for them. But now that their children are grown and Barbara has taken a job off the farm, Larry wants to slow down a little bit. Over the next two years, the Herrs will make major decisions about their next transition.

Larry is entertaining the idea of a share-milking arrangement. He would bring someone into the dairy who could build some equity by milking and work toward purchasing the dairy herd. Larry would continue the beef operation and grow forages for the dairy herd. He would like to grow calves closer to his market, feed them out and sell them locally.

Larry Herr finds that beef and dairy are a good fit for his farm.

Photographer: Peggy Murray

Larry would sell the dairy herd to his associate, rent the barn and provide labor without relying on help from family. Larry thinks this transition could happen in three years.

TRANSITION TIPS

Larry advises others who are thinking of similar transitions to:

- Assess their situation.
- Look for enterprises that fit together. For instance, a beef business would be tough as a stand-alone business but it fits well with a dairy.
- Talk to other people who have done similar things.
- Ensure that you have a market.
- Pay attention to details of the secondary business as well as the main business. It was a good decision to give up his heifer program to make time for his beef operation, Larry says.

For Larry and Barbara the transition went fairly well. Beef usually calve in the spring, so they must double up on labor at that time. Larry has an all-hay program, so he is not planting field crops when beef cows are calving.

Larry and Barbara gauge their success on whether or not they still enjoy what they do and can pay their bills. Benchmarks don't drive them. Larry makes good quality milk and has a good market for his beef cattle. That's what is important to them.

Peggy Murray is a farm business educator with Cornell Cooperative Extension of Lewis County. This article is one of a series of twelve profiles in the upcoming publication "Profiles of Successful Strategies for Small Dairy Farms" from the Northern New York Agricultural Development Program.

Farm Follies

Overheard at the coffee shop:

Farmer Fred:
This farming is just like selling cars.

Farmer Jed: What do you mean?

Farmer Fred:
I'm not making any money
but I can make it up in volume.

HORTICULTURE

Small Scale Greenhouse Management

By Judson Reid

Family-sized greenhouse operations in the Northeast often grow too many crops to keep them all happy, even if they only grow spring bedding plants!

There are typically dozens of flower and vegetable transplant species in each house, but each crop would like a slightly different environment. So the greenhouse becomes something like the story of the Old Lady who lived in a shoe. She had so many children she didn't know what to do. She whipped them all and sent them to bed without any supper. Must we treat our greenhouse plants in the same fashion?

By setting up multiple greenhouses, larger growers create different environments to suit the needs of specific crop groups. Different houses are managed for different water pH, nutrient and temperature needs. What about the small-time grower with only one greenhouse? Let's look at what we can and cannot control.

• Temperatures. Having separate temperature zones inside a single 96x30' greenhouse is not practical, although we can take advantage of microclimates in the greenhouse. Heat will rise both laterally and vertically in the greenhouse. If there is a slope, locate colder crops, such as pansies and cabbage, at the lower end. Species that need heat can be selected for hanging baskets. These will benefit from temperatures several degrees higher than on the benches or floor level.

• Water/Acid/Fertilizer. An injector (or proportioner) is a very useful piece of equipment, worth the investment even for smaller growers. These can be operated with no electricity. With this one tool the smaller grower can micro manage the different pH and nutrient needs of different crops. For example, different stock buckets can be created; one acid, one with no acid; one mixed for 250 ppm nitrogen, one for 125 ppm. When watering/fertilizing simply place the injector's siphon into the stock bucket corresponding to each crop group. Remember, the watering hose will still contain some formulation from the previous application.

Foliage plants, such as sweet potato vine, are placed on the floor. Shade and lower temperatures keep them from growing too fast.
Photos by Judson Reid

Most greenhouses in the Northeast must have some acidification plan in place unless they have moderate water alkalinity and/or a short turn around on bedding plants. If you are not interested in acidification, you may consider crops that don't need a low pH such as marigolds, geraniums, sunflowers, etc.

• Crops. Smaller growers that send to wholesale markets such as a Produce Auction can specialize, by growing a narrow spectrum of plants with similar requirements. For example petunias, calibrachoa, and New Guinea impatiens all need a lower pH and moderately high nitrogen fertilizer. A single stock tank with accurately calculated amount of sulfuric acid and 150 ppm Nitrogen could be used in this house. Alternately geraniums, marigolds and celosia often get by without acidification. In short, concentrate on creating one optimal environment in one greenhouse.

The grower with just one greenhouse must execute a strategy to deliver diverse crop needs, not shoehorn them into a single plan. If this is becoming too difficult to accomplish, perhaps its time to consider expanding into multiple structures. Having several greenhouse does not mean we cannot continue to be a family operation. Parents and children can work together to manage multiple greenhouses, each with a different crop group. Teenagers can be responsible for selecting a species, learning it's environmental needs, monitoring crop progress and tracking sales. The greenhouse is splendid for keeping families together in colder months.

Judson Reid is an Agriculture Educator with Cornell Cooperative Extension in Yates County, New York.

Family sized greenhouses often grow a wide diversity of flowers in a single greenhouse. This is a viable approach, but requires careful management.

This greenhouse is dedicated to doing one thing well: growing geraniums.

Business Management

When the Wind Blows....

Renewable Energy is This Small Farm's Brand New Crop

By Jude Barry

When Rose Ryan talks about her NOFA-NY certified organic farm, Harvest Home Organics, in Moravia, NY she does so with passion and pride. It has given her and her family so much enjoyment and enabled them to harvest from the land, be innovative and entrepreneurial and protect the environment that they deeply respect.

Of course like any producer it is not plain sailing. The farm sits at 1460 ft, one of the highest elevations of Cayuga County. The views over Owasco Lake are spectacular and the soil and drainage good, but as with any scenic spot, the wind howls.

"Growing on this hill is a tremendous challenge," says Rose. "The wind completely affects the way we farm. We have never been nor will be the early birds at the farmers market, because we have a shorter season than our farmer friends in the valleys. Our plants are stunted and others just cannot tolerate the fierce wind. Whatever we grow has to be hardy!"

Now however, the wind has become a resource and an asset to them. In February 2005, Harvest Home Organics began harvesting the wind to power the farm and their home with electricity. Their grid-connected small wind project is the first one in New York State to be funded in part by a USDA renewable energy grant.

"It brings together all we believe in, for a greener and environmentally sound future," Rose says. "The wind resource has always been something we have battled with and now we can embrace it. We expect the turbines' contribution to substantially reduce our electric bill, and by September 2005 net metering may well prove to essentially eliminate our electric utility bill. At that time, we will likely pay for the energy supply but the turbine will provide everything else."

Wind energy is the world's fastest growing energy technology. Landowners and businesses that have sufficient wind as a resource can use wind turbines (usually 10-500kwatts) to generate electricity to meet their own needs. The turbine owner can decide whether or not they wish to have the turbine connected to the grid. Connecting to the grid requires an interconnection agreement, which ensures certain grid guidelines are met. If the turbine is connected to the grid, through net metering the utility company can purchase excess energy produced from the turbine owner.

Small wind projects are a significant contrast to the utility-scale sources of wind energy. In these cases a large number of turbines are usually built together to form a wind farm. Several electricity providers today use wind farms to supply power to their customers. Probably the best known "wind farm" in New York State is a 30MW facility known as the Fenner Wind Farm (see resource list below).

Rose Ryan's new wind turbine at her farm, Harvest Home Organics, in Moravia, NY.

Photo by Daniel Welch

New York's Governor George Pataki has recently committed to increasing the amount of available renewable energy in NYS through a renewable portfolio standard or "RPS." In this RPS, NYS has committed to producing 25% of its energy from renewable energy (biomass, wind, solar etc) by 2012. New York State Energy Research and Development Authority (NYSERDA) and USDA have incentive programs (see resource list below) to help people get involved in renewable energy projects.

Rose Ryan was able to take advantage of the incentive programs. "Our 10 kw turbine would not have been a viable option to us without NYSERDA small wind incentives and the USDA Renewable Energy grant. They will have contributed a total of approximately 70% of the costs of this approximately $50,000 project. There are currently some great incentive programs for residential, agricultural and educational projects. I'm sure different people will have different reasons for entering into these projects. For some it might be financial drive, for others just because it's cool. For us it was a great philosophical match and something our farm will totally benefit from. In fact I would go as far as to say, with the exception of having children, it's the most worthwhile thing we have ever done."

Rose has an extremely positive outlook when asked if there are any disadvantages surrounding the placement of their wind turbine. "You know I really can't think of any thing that would make me think I wouldn't do it all again. There is some noise, but we think it is a very pleasant sound. It brings a song to our farm everyday. The turbine itself is a beautiful and graceful sculpture in our yard, which reminds us how fortunate we are to have the wind as a resource. We are lucky too in that our neighbors have been very supportive."

The turbines do require annual maintenance. The particular turbine that Rose has purchased has a 5-year warranty, and is expected to last a lifetime of 30 years. The company's oldest turbines have been operating 22 years.

Being one of the first to go through the process, Rose spent many hours on the phone working out the logistics of this undertaking. She says, "Just finding an inspector who had experience in this field was a challenge. When you're dealing with a grid connection there are a number of regulations you must meet."

For people that might be interested in investigating the small wind project opportunities, the first place to start is to find out if your site has a sufficient wind resource to make a small wind project viable. NYSERDA recommends that sites should have minimum average wind speed of 10 mph, although they suggest that 12-14mph is more feasible. To investigate whether a site is suitable, wind maps are available from www.awstruewind.com. Rose Ryan went straight to her NYSERDA eligible installer, Sustainable Energy Development, Inc., who she found very helpful, to determine whether they had sufficient wind for a cost-effective turbine. Information on eligible installers and using wind as an energy source are available on the NYSERDA website (see resource list below). There are also a large number of other websites with information available.

Once you have established that you have sufficient wind resource and have made contact with NYSERDA and eligible contractors, Rose would be happy to talk you through the process that she followed and to share her experiences. By the time you are reading this, Rose Ryan will have just hosted an open house to answer questions on the on-farm small wind project. She may offer additional tours in the future should there be demand. If you'd like to see the Harvest Home Organic turbine in action, just drive down Duryea Road in Moravia and you wont miss it!

Jude Barry is an Extension Associate with the NY Agriculture Innovation Center in Cornell's Department of Applied Economics and Management. She can be reached at 607-254-4741 or jab267@cornell.edu.

Resource Spotlight

Wind and Renewable Energy Resources

NYSERDA (New York State Energy Research and Development Authority) www.powernaturally.com/Programs
USDA Renewable Energy and Energy Efficiency Program: www.rurdev.usda.gov/rbs/farmbill
USDA grants awarded last year: www.rurdev.usda.gov/rd/newsroom/2004/EnergyLists0904.html
American Wind Energy Association (AWEA): www.awea.org
Fenner wind farm: www.fennerwind.com
Harvesting the wind: www.windustry.com
Rose and Doug Ryan: 4574 Duryea Street, Moravia. Tel: 315 497 0351 Email: harvesthome@usadatanet.net
NY Agriculture Innovation Center, http://agviability.cornell.edu - Jude Barry 607-254-4741.

Production and Management

What's Needling You?

By Dave Leggett

Many of you may recall hearing or reading about the Nebraska rancher who was accidentally injected with the bovine antibiotic Micotil 300 on March 8, 2003. There is no antidote for this medication, and the rancher died less than an hour after being brought to the hospital. The Nebraska Workforce Development, Department of Labor's investigator concluded that to help prevent future similar occurrences:

* Veterinarian and animal health distributors, prior to releasing Micotil, should require the purchaser to sign a product information fact sheet, every time a purchase is made, that indicates Micotil can be fatal in humans, and that there is no antidote for this medication.
* Users of syringe loaded medications should practice safe handling procedures during all phases of animal treatment.
* Veterinarians/Cattlemen should, when practical, consider using another less hazardous product.
* All companies/agencies responsible for the manufacture and/or approval of veterinary medicines and supplies should continue to devise new products that will reduce unintentional human exposure to accidental needle sticks/injections.

Are situations like this exclusive to Nebraska? Definitely not! It can happen with anyone, anywhere. Take note: the rancher in Nebraska was not even in the actual process of administering an injection. He was walking to the squeeze chute with syringe in hand, having loaded it previously in the barn's "vet room," when another animal hit a gate that knocked him to the ground, and this is apparently when he was injected. The preferred method would be to have the medication and the animal receiving it next to each other, thus reducing user exposure time. Some safe handling tips:

* Syringes should always be transported, whether empty or full, with the protective needle cap on. This may not always give 100% protection depending on circumstances and the force of a blow, but it is far better than carrying a syringe with an exposed needle.
* Don't preload syringes with drugs dangerous to people.
* Never carry the syringe in a pocket.
* Don't climb over fences and gates with uncapped needles.
* Never inject toward any part of your body or a co-worker's body.
* Don't place a syringe on the seat or dash of a vehicle, or in a saddlebag or backpack.
* Know the products you are using and what the hazards are. Read and heed label warnings.
* Use products only as directed.
* Properly restrain large animals.
* Clean and sterilize needles after use and change them frequently.
* Dispose of syringes/needles in puncture proof disposal containers.

If a needle stick occurs, call the emergency number on the product label and your physician and/or 911 if the situation requires it. Even if the syringe does not contain a lethal material, there can be significant soft tissue damage from a dull or bent needle and possible infection caused by bacteria or other foreign material. Think about falling in the barn, the needle becoming contaminated with feces or urine and then entering your skin.

With regard to Micotil 300, the manufacturer has developed a plastic shield for the 250 ml. bottle that provides more protection to the user's hand holding the bottle when inserting the needle. Perhaps this and other innovations will be available on more medications in the future.

What's needling you? Let's hope that it is not a syringe with a dangerous medication in it. Take all the precautions that you can for the sake of yourself, your family and your employees.

David Leggett is a Community Educator with Cornell Cooperative Extension of Saratoga County, NY. This article is reprinted with permission from Ag News of Saratoga County CCE.

URBAN AGRICULTURE

Re-Vision Farm: Enterprising Urban Aquaculturists

By Bernadette Logozar

Lat fall I had the opportunity to take a trip to Rutland, Massachusetts with Martha Pickard, Grazing Technician with Grazing Lands Conservation Initiative based with Adirondack North Country Association (ANCA). We were headed down to the annual Heifer International Training Weekend, this year it was based at Overlook Farm in Rutland, Mass. We were about an hour from Boston. The training topics for this weekend included Aquaculture and On-Farm Veterinary Skills. Martha and I each decided to cover one of the topics. This way we could bring all the information back to folks here in the North Country.

This meant I was able to head to Dorchester, MA (Boston) for a field trip on Aquaculture 101. We were heading to the Re-Vision House and Farm. Re-Vision House, Inc. (RHI) is a community-based, non-profit 501 (c) (3) organization whose mission is to promote the self-esteem and well being of teen mothers and their children by providing structured services and enriched housing for this most vulnerable population. They operate a shelter for homeless young women and their children in the Franklin Field neighborhood of Dorchester.

THE RE-VISION VISION

The Re-Vision Urban Agriculture Project has three main objectives shaping their work and directing development of the urban farm:
* Small-scale, green, economic development;
* Community food security; and
* Job training and education

These goals are woven into the fabric of the farm and the programs they operate.

Re-Vision Urban Farm is an organic micro-farm whose guiding vision is environmentally, economically, and socially sustainable urban agriculture. It aims to increase access to affordable, nutritious, culturally appropriate food for shelter residents and community members through our community-supported farm and greenhouses.

The farm grows a wide variety of food crops on three reclaimed urban lots totaling one-acre of growing space. It includes aquaculture production, community supported agriculture (CSA), farm stand, seedling coop, job training, educational programs, volunteer and employment opportunities.

AQUACULTURE AND AQUAPONICS

What is aquaculture and aquaponics? This is the cultivation of plants and animals for recreational or commercial purposes. Products include edible fish, shellfish (clams, oysters or shrimp), ornamental fish, recreational fish, live bait and aquatic plants.

Under the right conditions and with careful preparations, aquaculture systems can be profitable, both financially and emotionally. Aquaponics is creating a 'complete' system, which involves raising a fish product and a plant product. In the case of the Re-Vision Farm they were trying to rebuild their capacity to raise tilapia fish as well have the herbs, hot peppers and seedling houseplants growing hydroponically within the system.

During last November's Training Weekend at RE-Vision Farm we were able to learn about aquaculture and aquaponics, and help them build a more sustainable and 'low-tech' system. The original system they had been running was technically and labor intensive. It was a great system but management of this system took a lot of expertise, which was not always present at the farm.

They had been raising tilapia, a tropical fish for local Boston restaurants. After some fits and starts, the Farm had finally had a great batch of fish nearing harvest weight (1 1/4 lbs) when they experienced a power outage.

The result was the pumps regulating the water in the aquaculture system stopped and the careful balance of ammonia, pH and nitrites in the water fluctuated to such a degree they lost their entire fish crop (500 fish all almost market weight!). Thankfully the young generation of tilapia was in a smaller tank that was not on the main power grid of the rest of the system. So they did have a 'starter' for their next crop of fish.

What because painfully clear was the aquaculture system being used at the Re-Vision Farm, while a good system, was beyond the expertise and abilities of the farm managers and workers, so another system was needed-a low-cost self-sufficient system.

The three-story glass enclosed aquaculture system of Re-Vision Farm. They enclosed the back verandas on each story of the house.

LESSONS LEARNED

What did I learn? Here are some important considerations that should go into designing a system:
* Goals. It's essential to be clear about the primary goal of the system. Is it to produce food? Is it to create an educational tool? Is it to increase individual or community self-sufficiency?
* Resources. Do you have in place the resources needed to start and maintain the system? Is there access to water? Is there access to electricity for the pump, grow lights and fans? Is there natural light? Are grow lights and fluorescent lights needed? Wood: lumber, plywood, scrap wood? How will the water be heated?
* Protection. If the system is built outside is there protection from the elements?
* Fish. Some suitable fish for aquaponics include: tilapia, large mouth bass, sunfish, bream, crappie, koi, carp, pacu, Red Claw lobster, crayfish, brine shrimp.
* Plants. Some suitable plants for aquaponics include: leafy lettuce, pac choi, spinach, arugula, mint, watercress, chives, tomatoes, peppers, beans, and most houseplants.

The original aquaponics system at the Re-Vision farm was housed in three-story glass-enclosed structure off the back of the house. Essentially what they had done was enclose the verandas on each of the stories of the house. What we did is build the entire system for aquaponics on one story.

It was exciting to see the simplicity and potential come together. Given that the basics for the system were largely ready to go, by the time we left, the Re-Vision Farm was well on their way to a new low-tech aquaponics system. Eventually they may be able to triple their production of plant products if the same system is rebuilt on the upper stories.

Judy Lieberman, Farm Manager from Re-Vision Farm provided each of us with a packet of information to take with us. Included in this is a planning guide (things to consider), how-to build a low-tech aquaponics system, and some background on tilapia. If you are interested in knowing more about aquaculture and aquaponics, feel free to contact me at CCE here in Franklin County, 518-483-7403 or email me at bel7@cornell.edu. If you are interested in knowing more about Re-Vision Farm, be sure to visit their web site at: www.re-visionfarm.org.

Bernadette Logozar is an Extension Resource Educator with Cornell Cooperative Extension of Franklin County, NY.

The back part of the Re-Vision Farm 1/2 acre lot is a steep hillside. To reduce erosion and provide additional growing space. Top-level raspberries are growing; there are also cold frames and herb beds. In the back corner is a beehive, which keeps the farm in honey and provides another source of income.

Photos by B. Logozar

In addition to the crops raised in the aquaponics system, the farm has a 1/2 acre of land where they grow row crops during the season. Produce is sold to local restaurants, at the farmers' market as well as direct from the farm.

Besides row crops, Re-Vision Farm also have greenhouse crops year-round to supply lettuce and fresh herbs to their restaurant clients. They have also developed a pesto at the Farm, which they will be marketing as well.

STEWARDSHIP & NATURE

Dairy Producers: Is It Time To Take A Look At Your Phosphorus Fertilizer Rates For Corn?

By Karl Czymmek, Quirine Ketterings and Greg Albrecht

At one time, almost all agricultural soils in the Northeast could be described as phosphorus deficient. As commercial fertilizers became available, many starter materials included high amounts of phosphorus to address this deficiency. Blends such as 6-24-24, 8-32-16, 10-20-20, 19-19-19, and 15-15-15 provide high levels of phosphorus when applied at 200-300 pound per acre.

Today, the goal of building soil P fertility over time has been achieved in certain conditions: phosphorus is no longer the limiting nutrient for many dairy farm fields. In fact, about 50% of soil samples from New York State analyzed in 1995-2001 by the Cornell Nutrient Analysis Laboratory tested High or Very High for phosphorus. Fields that test High or Very High for phosphorus show little or no crop response to phosphorus from any source, even starter fertilizer!

So, if you are still using the same fertilizer blend or rate that you did 5, 10 or even 20 years ago, and you operate fields that have regularly received manure over the same period, this is probably a good time to take a look at your practices and maybe save some money in the process.

BACKGROUND

In the fall of 2003, the Cornell Nutrient Management Spear Program, Cornell Cooperative Extension, and PRO-DAIRY completed a 3 year study to test phosphorus fertilizer guidelines for field corn. Over time, Cornell guidelines have gained a reputation for being conservative and some consider them to be too low to support high crop yields.

Since new CAFO regulations require Land Grant guidelines to be followed for compliance, and AFO's are expected to follow the guidelines too, it became more important than ever for Cornell to re-test them and either: 1) adjust the guidelines; or 2) prove that the existing guidelines do support optimum yields. As a result, the NY Starter P Project was initiated with the following goals:

• Focus on testing corn silage yield and quality.
• Use sites that receive manure and those that do not.
• Work with real farm conditions at as many sites as possible all across the state.

THE TESTS

From a total of 78 locations, 65 were on farms and involved the producer, a local Extension Educator and/or other advisors. The other 13 locations were at research stations. Sites that mainly tested High or Very High for soil test phosphorus according to the Cornell Morgan soil test were targeted. The following treatments were used at most locations: 1) no starter; 2) 200 pounds 10-0-10; 3) 200 pounds 10-10-10; and 4) 200 pounds of 10-20-10 (research station trials) or the producer's normal blend and rate (on-farm trials).

RESULTS

On average, no matter the location, elevation, planting date, or soil drainage, the Very High soil test P sites (with or without manure) and High soil test P sites that received manure did not show a yield response to starter P at all. At High soil test P sites where manure was not applied, the corn responded to 10-20 pounds of P2O5 in the band.

This corn was produced without any phosphorus in the starter on a High soil test P location in Delaware Co in 2002. The plots yielded more than 25 tons of corn silage per acre. Similar plot yields were measured in 2003 and 2004. Photo by Karl Czymmek

On average there was a significant response to N in the starter band, even if used alone on high fertility fields. Also, there were no differences in the nutritional value of the corn or in plant maturity, even though a few of the no-phosphorus plots looked a little behind early in the growing season.

GUIDELINES

If you do not know what your soil test levels are, get them tested! On High or Very High soil test fields that receive manure, a straight nitrogen starter can be used, though some producers may choose to use around 10 pounds per acre or so of starter P2O5 in these situations. Starter fertilizers for corn should contain at least 10 pounds of N, but it is better to have 20-30 pounds. On manured sites, little or no potassium is typically required as starter fertilizer.

If the soil tests low or medium in K and you don't apply manure, you will also need to add some potassium fertilizer. For fields that do need some phosphorus in the starter, ask your fertilizer dealer for blends such as 16-8-8, 20-10-10, or 12-6-8 or something similar. If your supplier is unable to provide lower P materials this year, ask them to be in a position to do so next year.

For conventional liquid fertilizer users, mixing a 1:1 ratio of 30% N solution and 10-34-0 will make a 20-17-0. Mixing a 3:1 ratio of 30% N solution and 10-34-0 will make a 22-9-0.

Some producers are successfully using ammonium sulfate (21-0-0) in the starter at 100-150 pounds per acre. Ammonium sulfate can be more expensive than other sources of N on per unit basis but it very easy to handle and provides sulfur, though there is some question if at this point on manured fields extra sulfur is really needed. Due to the modestly stronger acidification effect of ammonium sulfate as compared to other N sources, its use can cause seedling injury if used on low pH fields (around pH 5.5 or less) and, in any case, will require somewhat more lime over time.

ACTION:

• Take soil samples and get them analyzed.
• Be sure to maintain the proper pH for corn: pH 6.2 is desired.
• Purchase low rate fertilizer augers and/or calibrate your corn planter fertilizer settings.
• Ask a CCE field crop educator or other advisor to help make sense of soil test reports and recommendations if you cannot.
• In most cases, apply 20-30 pounds of N in the starter band, up to 50 pounds is acceptable if you need a little more N and do not want to sidedress (if using urea to supply N in starter fertilizer, apply no more than 30 lbs of N in the band to reduce risk of causing seedling injury).
• On Very Low, Low and Medium soil test P fields, apply 20-30 pounds of starter P in the band at planting and supply the additional amount recommended (20-50 pounds) with manure or broadcast fertilizer where needed.
• On fields that get 10 tons of manure per acre or more: reduce starter P for corn to no more than 20-30 pounds P2O5 per acre, no matter the soil test.
• On High and Very High soil test P fields that receive manure, use nitrogen only in the starter band, or at best, a very low rate of P.
• Worried? Try a small plot out behind the barn to see for yourself.
• For more nutrient management information, see http://nmsp.css.cornell.edu/

Karl Czymmek is a senior extension associate with PRO-DAIRY, Quirine Ketterings is an assistant professor and Greg Albrecht is an extension associate with the Nutrient Management Spear Program in the Department of Crop and Soil Sciences at Cornell University. For more information about managing nutrients on your farm, contact your local Cooperative Extension office or visit http://nmsp.css.cornell.edu.

Success Without Starter P

Harmonie Farm is located in Delaware County, New York and is operated by Mike and Mark Mattson. The Mattson's cut phosphorus starter fertilizer levels down to 10-20 pounds of P2O5 per acre several years ago based on an intensive soil sampling program and after trying a few acres of N only in the starter and observing no yield differences.

Then, in 2002, they switched to zone-till corn. Though they were a little concerned that colder, wetter soil conditions expected with zone-till would result in slower early season growth, they also switched over to N only starter for all fields that get manure, whether the fields are Medium, High or Very High soil test P.

After three years of this system, the Mattson's are optimistic about zone-tilling corn with N only starter. They find that corn yields are as good as ever and using one relatively low rate of fertilizer makes planting easier.

MARKETING

Valley Farmers

Livestock Producers Co-op Taps Expanding Market for Grass-Fed Meats

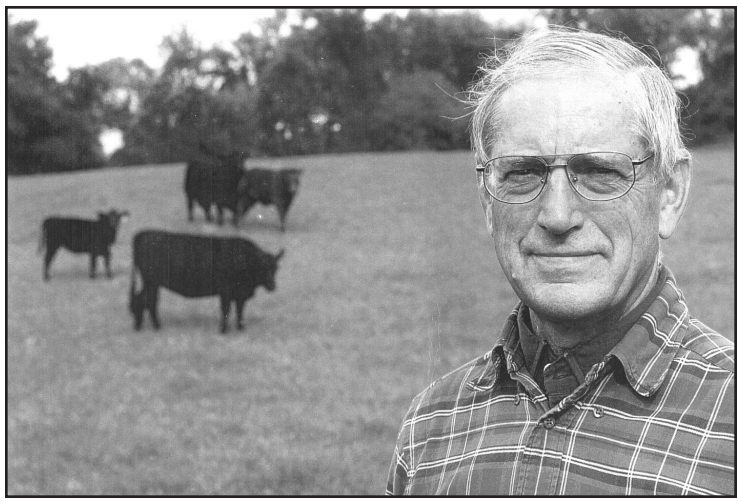
By Stephen Kaye

Year 2000. A meeting room at Columbia County Cooperative Extension. About sixty seasoned and not so seasoned farmers talk about growing beef but also how difficult it is to sell. Sell at the local auction and get a price guaranteed to make you wonder why you farm, prices that hurt and maybe made you cry.

Or do you sell to the freezer trade and get those calls telling you the beef was tough, or next year the customers you thought you had moved away, and how do you get your animals slaughtered when the only plant is booked three months in advance? All these questions and a general feeling of hopelessness.

Later, 2000. Mark goes to NYC to sell his beef to restaurants. I go to NYC to sell my beef to other restaurants. Why don't we get together and save gas with one trip?

Another meeting, Columbia County Coop Extension. A new processing facility has opened near Hartford, CT, about 75 miles away. How can we use it economically? By shipping at least six animals at once. One of the growers has 50 maybe 100 animals available. How do we sell six animals at once? Go public, on the web, find buyers for freezer beef. Buyers anxious to buy local and support local farmers. Sounds good but is it good enough?



President of Valley Farmers, Stephen Kay and his cows.

One month later. A meeting sponsored by the Regional Farm and Food Project. Jo Robinson speaks. She talks about grass fed beef. She says it is healthier, has something called CLA and Omega three. It sounds pretty good. We have been feeding minimal grain to finish our animals. She was saying no grain. Is that possible? Can you really do it? If it's possible, and if she is right, then this is going to be big. This may be our marketing tool, the one that will differentiate our beef from all the other beef. If word gets out, we will be there. If she is right, word is sure to get out sooner or later.

One month later Valley Livestock Marketing Cooperative is formed. We are going to do what no one in our region has yet done: grow and market grass fed beef. We start reading the Stockman Grass Farmer Journal.

One year later we are selling grass fed beef to a few customers. We send a truckload to the new Hartford facility and find out that it is hard to match orders with animals. We have beef left over and what do we do with it? I take two boxes home and put them in my freezer. Mark does likewise. Inventory management problems.

We get a web page, a photographer, a designer, a brochure. We get our website up and running. We take some ads, add some members. We deliver to our restaurant customers and to a growing number of local customers and a few folks who find our website.

Then I get a call from a long time customer who writes books and articles and says he is writing a piece for the NY Times about beef. I tell him about grass fed and he listens. I tell him to talk to Jo Robinson and read her website, check out her sources. He stops by and buys some beef.

Nearly a year later the lid comes off. Michael Pollan on the front page of the NY Times Magazine Section announces to the world that grass fed is a healthy, environmentally sound alternative to the industrial beef that his article was really about and which he pretty well exposed as an ugly, unhealthy and unsound compromise based on the economics of volume production.

Grass fed is now in the public domain. The phones ring, editors and food writers want to know more, come and photograph grass fed cows, write food articles, feature articles, and now the phones keep ringing and it takes one hour just to answer the emails.

2004. Valley Farmers has expanded to ten members working like mad to produce enough beef to fill our orders. Restaurants call and we tell them our story: We deliver when we have it and we deliver what we have. Don't call us, we call you. Don't ask the price and don't expect it on any particular day. If that works for you, you may get a call provided you are in our delivery area, have a small restaurant, serve specials, can cook grass fed, pay promptly and support local farmers.

We now work the restaurant trade through a distributor who has trucks and drivers and is willing to put up with NYC traffic, constant turnover of chefs and sous chefs, credit risks, breakdowns, tickets and weather that cancels delivery schedules… in short, a job we were glad to give to someone else.

Our customer lists grows, our backorders grow, the cattle we find take maybe two full years to finish, and maybe longer. Finishing on grass is an art form, or maybe a cult, requiring soul, religion and good, no, great grass. We experiment with grass forages, plant weird varieties of clovers and alfalfas, read the Stockman Grassfarmer for the latest theory, make baleage out of oat hay, sorgum, field peas.

We plant red clover in our hay fields, something we thought we would never do because clover is so hard to dry, but since we will bale it green it may be OK. We are engaged in a huge experiment, we are using heritage breed cattle, crossing Angus with Devons, trying New Zealand seedstock, Australian Murray Greys.

We find that niche marketing is a real business. We are concerned with customer relations, quality control, systems, programs, packaging, scheduling, advertising, website design, and business plans. We are also concerned with soil fertility, breeding, calving, animal health, feed values and hundreds of details. Being farmers, however, helps, because farming is always about field solutions to unforeseen problems. You fix it and plough ahead.

We are sustained by the joy of our customers when they discover a great product that they can trust and feed their family. We are sustained by customer loyalty and feedback. The connection of the grower to the consumer is an important part of the food system. We go to farmer's markets where this relationship is created, extending our marketing reach. We do special things like ship some fresh meat to Chicago or fill an order for a wedding feast, a pig for a back yard cookout in Brooklyn, supply for special events at the Culinary Institute. We have added pastured poultry to our mix and grass fed venison.

No one said farming is easy. We learn from our mistakes, gain wisdom, not just that of the fields, but of the marketplace. When we can send the grower a fat check for his animal, we know we are doing something right.

Stephen Kaye is President of Valley Farmers. For more information contact Stephen at 845-868-1826 or sk092300@aol.com, or visit the Valley Farmers website at www.valleyfarmers.com.

New Farmers

Farmers Share Their Start-Up Stories

PASA Pre-Conference Inspires Beginning Farmers

By Madeleine Charney

Participants interested in what it takes to "get started" as a farmer, climbed aboard Track One of PASA's (Pennsylvania Association of Sustainable Agriculture) pre-conference during the 14th annual Farming for the Future conference in State College, Pennsylvania. On February 3rd, one hundred new and aspiring farmers (with 50 more on a waiting list!) were treated to five lively case studies presented by farmers who have succeeded in making farming their livelihood. The blend of presenters' unique stories and ingenuity created fertile ground into which the audience could sow their own ideas.

BLUEGRASS BEEF

Sarah Rider grew up in suburban Philadelphia as a self-proclaimed "horse girl." By the age of 22, with a degree in agroecosystems from Penn State under her belt, she began to ease her way into sole proprietorship of BlueGrass Beef. "Like all good ideas, it started with reading some good books," Sarah mused.

Three years ago, when she began renting a farmhouse, the landowner approached her about the potential for raising beef on his land. It was after sharing with him what she learned from these good books (e.g. Joel Salatin's You Can Farm) that Sarah "fell into farming." Soon after their conversation, five steer were grazing just beyond her doorstep.

Based on that experience, she arranged four other rental agreements in her neighborhood. She notes that flexibility, collaboration, and ongoing dialogues with the landowners have been the keys to success with this "patchwork" system. In one instance, she sold the breeding stock of her herd to the landowner while retaining the beef cattle and bull calves for quicker finishing and cash flow.

Having worked for three years at a local CSA (community supported agriculture) provided Sarah with a built-in customer base, support, and a market for her products. Staying in close communication with her customers has also proved to be of immeasurable value. Although she has investigated how to market her products at food shows and gourmet shops, she finds that it is her local customers who know and trust her and are willing buy nearly anything she sells. Besides being enamored of her grass-fed beef, her poultry and eggs turn around quickly as well.

GREEN HAVEN FARM

Brian and Holley Moyer know how to spin straw into gold. A prime example was the exceedingly muddy day when the chicken pens needed rotating on their 27-acre, steeply sloped property. With no mechanical equipment and an injured back to boot, Brian proceeded to cut the wire off the front of the pens. Allowing the 250 chickens to roam within the boundaries of electric netting, Green Haven Farm's "day range system" was born. Labor was further reduced as the pens now only need to be moved every other day (instead of daily).

Starting small with 50 chickens and borrowed equipment, nine years later their operation has expanded to include sheep products. "You've got to use all of the animal," implores Brian. Chicken feet are sold to ethnic shops, the satiny feel of sheep skins allure customers at their market stand, and even sheep heads are in demand as a Muslim delicacy.

Like all the pre-conference speakers, the Moyers recognize that customers deeply value meeting the farmers that stand behind these products. Of equal importance is setting goals and maintaining careful records. QuickBooks is their tool of choice and trying to stay honest with themselves their main challenge around this task.

Joining organizations such as PASA and American Pastured Poultry Association expanded their network and knowledge of a job they clearly love. Brian describes the work as varied, with "no doldrums about it." He wrapped up their presentation with a personal motto: "There is no finish line; it's all one big journey."

HALF PINT FARM

A background in classical languages and anthropology is not what you'd expect to fuel an agricultural business venture. But these are the respective degrees first earned by Mara and Spencer Welton of Half Pint Farm. Handy with a checkbook and being a former owner of a massage business helped Mara hone her business management skills. As Peace Corps volunteer she taught small business courses while Spencer taught beekeeping based on books he had read.

One unified lesson they both learned was the importance of observation. Later, as a graduate student of Sustainable Systems at Slippery Rock College, Spencer ran the small market garden and tracked the buying habits of their customers. Soon afterward, the couple became employed at a farm in Vermont where they scoured the produce lists posted on the cooler doors of their customers' restaurants when making deliveries for the farm. They noticed trends and prices, building the knowledge and experience that led them to the Incubator Farmer Program at the Intervale in Burlington.

The Intervale provides the machinery, greenhouse space, land, and storage. The Weltons supply the labor and marketing savvy. No-interest credit card deals were the source of the $3,000 they needed for startup. Their crops of choice – baby and specialty vegetables. "If it's not baby, it's got to have color. If it doesn't have color, it's got to be a funky variety that no one else is selling," explains Mara.

Like the Moyers, the Weltons credit their careful record keeping with their ability to guide their business to higher places. Both couples hold regular business meetings, the Weltons giving theirs the whimsical name "The Half Pint Farm Conference." Twice a year, over dinner and a written agenda, they process all aspects of their completed records. "It makes decision making that much easier," Mara adds.

Both couples also agree that the majority of their time is spent marketing, delivering, and selling. Wednesday is the only day the Weltons are actually on the farm all day. But this formula seems to be working. By setting and achieving their monthly goals, their farm income doubled after the first

Continued on next page

Resource Spotlight

Magazines for Beginning Farmers

New and aspiring farmers, take note! The refrain of the more seasoned farmers who presented at the PASA pre-conference was that successful farming takes ingenuity. The following four publications contain articles highlighting this aspect of the trade.

Successful Farming: For Families that Make Farming and Ranching Their Business
Published monthly / www.meredith.com
Annual U.S. subscription $15.95 / 800-374-3276
Each issue is split into sections for Business, Production, Family, Personal, and Features. Articles devoted to new farmers appear under "Up By Their Bootstraps." Recent topics include "How to Keep Your Family Farm Partnership a Happy Dream, " Start-up Farm Survives and Grows with Tight Cost Control," and "Five Steps to Help You Survive Switching to a New Computer." A regular column called "Machinery Pete" offers advice on maintaining and restoring farm equipment.

Countryside & Small Stock Journal
Published bi-monthly / www.countrysidemag.com
Annual U.S. subscription $18.00 / 715-785-7959
An informal publication whose mission statement includes "a desire for maximum personal self-reliance and creative leisure," and "a taste for the plain and functional." Serving mainly homesteaders, feature articles fall under headings such as the woodlot, the smithy, the cow barn, and the beehive. Recent articles include "Dressing Well on a Budget," "The Far Out Farms' Off-Grid Brooder," "Build a Wood-burning Cookstove from a Steel Barrel," and "Extra Income on an Acre." Extensive classifieds include opportunities for bartering, building alternative energy, and purchasing handicrafts and health items.

AgVentures: Today's Ideas on How to Profit from Your Land
Published bi-monthly / www.agventures.com
Annual U.S. subscription $21.00 / 888-474-6397
Articles are divided into five main sections: livestock, aquaculture, niche market, niche crop, and state aid. Each issue profiles farmers and their innovative operations such as starting a kangaroo farm, harvesting and marketing seaweed from your pond. The state aid section focuses on one state per issue and provides valuable information about programs for grants and loans. Back issues may be ordered from the detailed list at the end of each issue.

Farm Show
Published bi-monthly / www.farmshow.com
Annual U.S. subscription $19.95 / 800-834-9665
This maverick exchange of ideas for improving and creating farm equipment and production is open to any unique contribution. Inventors, marketers, distributors, and manufacturers are invited to participate in this marketplace. Focusing on new products and product evaluations, no advertising is accepted. Recent articles include "Making Money Selling Corn Silk," "Made-It-Myself Snowmobile," "He Runs His Pickup on Veggie Oil," and "Do-It-Yourself Chicken Plucker." Letters from readers offer additional tips for time- and money-saving approaches. An annual addendum called "The Best of Farm Show" highlights that year's "crème de la crème."

Madeleine Charney, New England Small Farm Institute.

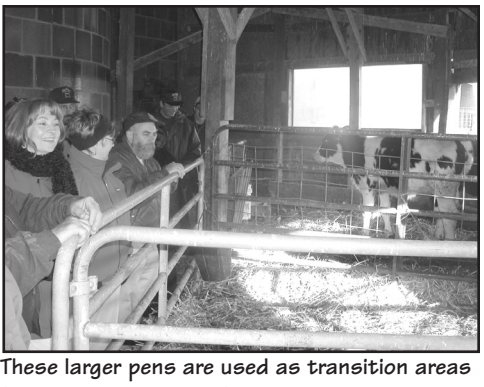
COWS AND CROPS

Heifer Replacement Operation

By Larry R. Hulle

Mark and Richard Hoyt operate a 130-200 contract heifer replacement and custom forage crop farm in Walden, NY. In 1995 they purchased 33 acres and in 1997 they purchased 40 acres with two barns, a feedlot and house at their present location to complete their operational needs. They farm 500 tillable acres of which 150 acres are in corn, 200 acres of alfalfa and 150 acres of grass.

They use a 48' X 100' X 10' bunk silo for their storage at the home farm which can hold over 1000 tons of 1st cutting haylage and corn silage. When they truck the fresh forage they will wait a day to let the silage set to increase the volume they can haul. A good tractor trailer load will be approximately 28-29 tons per load. They can haul the forage to the buyers and can truck 70-80 tons per day as needed.



These larger pens are used as transition areas from the smaller milk feeding pen areas to the large outside bunk feeding style pens.

Richard (left) and Mark Hoyt hosted a one-day Dairy Tour in November of 2004.

Prices will vary per year depending on quantity, quality and on the market. Mark and Richard employ 1 hired man that is a retired dairy farmer to run the tractors and equipment. They have several buyers throughout the county.
They make all their own grain, utilizing over 150 tons of ear corn each year.

They purchase soybeans and minerals to make an 18% Protein feed for their heifer raising business. The young calves feed is top dressed with additional protein and energy as needed. They also purchase Calf Milk Replacer.

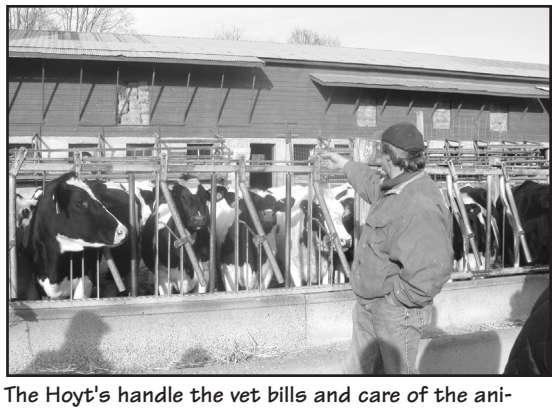
Heifer Replacement Operation
Mark and Richard have worked with several dairy farmers over the years, raising dairy herd replacement heifers. While most of their agreements are verbal, they have been able to work out conflicts with good communication and a give and take on each side. Their current heifer raising arrangements include the Hoyt's doing the trucking in both directions for local farmers and they will pick up the newborn calves and raise them until they are due to freshen.

Currently no payment changes hand until the pre-freshening heifer is delivered back to the farm owner. The Hoyt's may need to alter this arrangement in the future to a monthly payment plan based on the number of animals they are raising for each farm. They will board or raise animals on a per day basis and prefer to have these animals during the winter months.

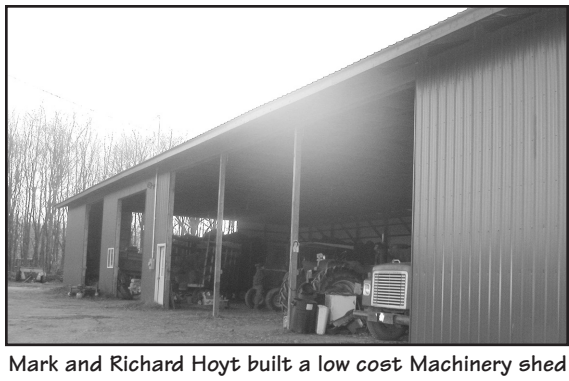
The animals up to 6 months of age are housed in smaller pen areas inside the barn until they are dehorned and ready to be moved to larger pens. Heifers are fed Milk Replacer until 12-14 weeks of age depending on their size. All housing is done on a size basis for a total of 6 different sized groups. The Hoyt's have been able to hold their mortality rate to 2-3% and the risk is shared between the grower and Owner. All animals are bred by natural service to a Jersey bull.

Larry Hulle is a Dairy Science Educator with Cornell Cooperative Extension of Orange County, NY. He can be reached at (845) 344-1234 or lrh6@cornell.edu.

This article first appeared in the December 2004 issue of Hudson Valley Agricultural Newsletter in Orange County.



The Hoyt's handle the vet bills and care of the animals including routine vaccination shots. Richard discusses the use of the 50 headlocks that allow them to easily handle the animals for their vet needs.



Mark and Richard Hoyt built a low cost Machinery shed with used parts from other county barns and now have a storage area 140' X 50' with very high doors for ease of storing large machinery. Total cost was approximately $35,000.00. The Hoyt's do their own repair work on their machinery.

Start-Up Stories

Continued from prev. page

year. "We are a small farm, we grow small things, and we use small equipment," says Spencer, referring to their one-acre parcel and the only piece of mechanical machinery they own -- a small garden tractor.

WIL-DEN FAMILY FARM
Bill and Denise Brownlee have seen it all. Part of their presentation at the PASA Conference included a litany of hurdles they faced during their early years of farming together: Severe weather, a spike in the price of corn, a drop in the price of pork, and a fatal bird-borne disease. "But we're still in the pig business, " said Denise with a smile.

Their combined skills and commitment to Wil-Den Family Farm is obvious in the many ways they've adapted along the way. Beginning in 1994, Bill left his job at a confined pig operation to launch their outdoor pig production. Visiting several such units beforehand helped him see the benefits of this choice. They started with 55 sows and a $10,000 loan from Farm Services, far less than a confined operation would cost.

Innovation is another cost-saving habit of theirs. When a nearby greenhouse went out of business, the Brownlees acquired the abandoned fiberglass fishtanks, cutting a hole in each and flipping it over. Voila! – farrowing huts. They also minimize labor by laying out the farm in a pie shape. The central hub in the middle facilitates easier transfer of livestock between lots; food and water is accessed around the periphery of the "pie."

As for marketing devices, Denise commented on the customers' need to see the products with their own eyes, and taste them as well. The tantalizing aroma of pork burgers on the grill steered many more potential buyers to their booth at the markets. Educating them is another important service; Denise provides information about the different cuts as well as recipes for preparing them.

They've also found that advertising in local papers is much more effective if a photo of the farmer and their animals are included. They suggested that aspiring farmers tap into local small business development centers. Fresh ideas (like starting a meat CSA) are always just beyond the bend, so Bill and Denise keeps reading their favorite publication, The Stockman Grassfarmer.

PLEASANT VALLEY FARM
According to Paul Arnold, "There IS money to be made in farming!" His farming career was initiated in the nursery industry where he learned business strategies, including how to motivate a large crew. Joining forces with his wife Sandy, who holds a degree in botany, their skills compliment one another as they don many hats to get their job done. "A farmer must be a technician, a manager, and an entrepreneur," Paul adds.

A good accountant doesn't hurt either. They've saved countless dollars by employing one who specializes in agriculture. One of their fiscal goals is to put $10,000 back into the farm every year. Like the Weltons, the Arnolds "played the 0% interest game," using credit cards to borrow $10,000 (with a $40,000 mortgage) to start their fruit and vegetable operation, Pleasant Valley Farm.

Purchasing 40 acres in 1988, they lived in a pop-up trailer for two years while building their house. After four years in business they were eligible for an operating loan through Farm Credit. They also purchased an additional 20 acres. Their recommendation is to avoid a mortgage that exceeds ten years.

The Arnolds also stressed the value of keeping farm buildings central on the property and building the vitality of the soil, one acre at a time. Spending smart and investing in well-built systems (like their high-end irrigation lines) allow them to engage in long term investments in the form of IRAs for themselves and their children. Their closing remark, echoing all the farmers that day, was to "keep good records!"

The farmers invited you to contact them for more information about their experiences and operations:

Sarah Rider, BlueGrass Beef - pastured beef
Centre Hall, PA 16828
Phone: (814) 364-2516
bluegrassbeef@yahoo.com

Brian and Holley Moyer, Green Haven Farm - pastured chickens and lamb
Fleetwood, PA
610-944-9349
BrianM22@aol.com

Mara and Spencer Welton, Half Pint Farm - specialty vegetables
Burlington, VT
(802) 316-6073
halfpintfarm@hotmail.com
www.halfpintfarm.com

Denise and Bill Brownlee, Wil-Den Family Farm – pastured pork
Jackson Center, PA
814-786-7438
denisebrownlee@hotmail.com

Sandy and Paul Arnold, Pleasant Valley Farm – fruits and vegetables
Argyle, NY
(518) 638-6501
sparnold@capital.net

Madeleine Charney is the Informational Resources Manager at the New England Small Farm Institute in Belchertown, Massachusetts www.smallfarm.org. She can be reached at 413-323-4531 or madeleinec@smallfarm.org.

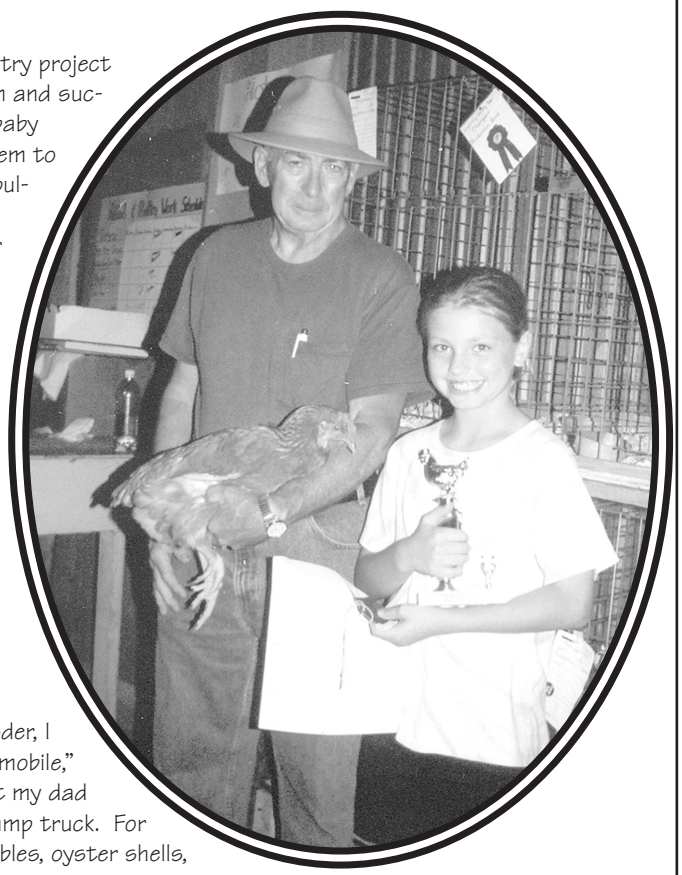
Small Farm Quarterly

Youth Pages

Chicks to Champions

By Mary Katherine Zielonka, Wyoming County Eggers 4-H Poultry Club, Bennington, NY, age 11

I never thought my 4-H poultry project was going to be so much fun and successful. I decided to raise baby chicks in hopes of taking them to the fair when they became pullets. With the help of my mom, I ordered 25 Red Star chicks that arrived in a shoebox size container through the mail.



Mary Katherine with Harold Knapp, poultry judge, and "Juliet," Red Star champion at the Wyoming County Fair. Photo by Deb Zielonka

I had made a brooder in the basement from a refrigerator box, so their new home was ready with a water container, food, shavings, thermometer and a light. Every day I checked the temperature, watered, fed them and cleaned their shavings.

When they outgrew the brooder, I moved them into our "chick mobile," a movable chicken coop that my dad and I built in the box of a dump truck. For weeks I fed them layer crumbles, oyster shells, fresh cut grass and let them range in the yard for bugs.

Before I knew it, it was time to get Ruby and Juliet, my best two pullets, ready for fair. After giving them a bath, blow-drying their feathers and clipping their toenails and beaks, they looked BEAUTIFUL! The judges thought so too because Juliet won Wyoming County Fair Champion Egg Production Bird and Ruby received a blue ribbon. I enjoyed showing so much that now I am raising bantam silver laced Wyandottes. I've shown them at Mumford's Agricultural Society Fair and at the Genesee County Agricultural Fair. I would like to breed these chickens and show their offspring. Hopefully, they will become champions, too.

This project taught me that to be successful it takes a lot of effort but in the end it's all worth it. Also, I learned not to be afraid to get involved with new experiences because you can meet some awesome friends.

Mary Katherine blow drying "Ruby", the Red Star's feathers. Photo by Deb Zielonka

For more information about 4-H Animal Science projects and Cornell University on-campus animal science experiences visit: www.ansci.cornell.edu

4-H A Defining Choice

By Bethany Hobin, Arcade, NY – Age 17

Where I live in Wyoming County there aren't a lot of kids my age close enough to socialize with. For a long time my closest neighbor was a mile away. So, 4-H events are well-needed. Since I joined when I was eight, I have been constantly busy; going to horse shows, educational contests, and meetings. I compete in educational contests such as horse bowl, hippology, horse judging, and public speaking. I have worked my way up through county, regional, and state levels and have found my knack. After a lot of hard work and patience, I reached the national level for horse judging. Thanks to the public speaking skills I learned through my years in competition in 4-H I received 12th place in the oral reasons contest. This was a large accomplishment for me.

As a teen I started to have an interest in dairy animals. I wasn't really educated about them. I began attending conferences and learned about careers in dairy, and learned who I needed to talk with to get more information. After making contacts, I realized what I wanted to go to college for and make my career: heifer boarding.

Learning isn't the only thing that 4-H has done for me - it has also been fun! I have received many award trips from the Wyoming County 4-H Leaders Association. I have gone on an interstate exchange trip to Virginia and agribusiness tours around our county. One trip that really stands out in my mind is the 4-H Agribusiness Careers Conference at SUNY Cobleskill. This conference addressed different interests in agriculture. Going on this trip helped me realize that Cobleskill was my college of choice.

Now that I am older, I realize how much 4-H has done for me. I am a very outspoken, confident person. The public speaking skills I learned have helped me achieve respect from both professors and the public. I have also received many scholarships due to my achievement. But I believe one of the most important things that I got out of my 4-H experience was the friends I made that will stay with me forever.

Beth enjoys some down time at the fair. Photo by Robin Hobin

ACTIVITY

Agriculture and You:

GROW A GIANT BEAN PLANT

Adapted from Mary Jane Rissacher
Cornell Cooperative Extension of Albany County

Supplies needed

Scarlet Runner Bean seeds*	2 liter soda bottle
Measuring tape or twine	Potting soil
Tray to put under bottle	Stapler

Instructions

- Get an adult to help you cut the soda bottle in half and make drain holes in the bottom of the bottle. Discard the top and clean the bottle with soapy water.
- Fill bottle with dampened potting soil.
- Insert seed 1" deep in the soil along the edge, so you can see it from the outside. Pat soil around and water.
- Staple measuring tape or twine to the side of the bottle directly over the seed. Place the bottle on a windowsill and attach the other end of tape to the top of the window.
- Keep track of how fast it grows!

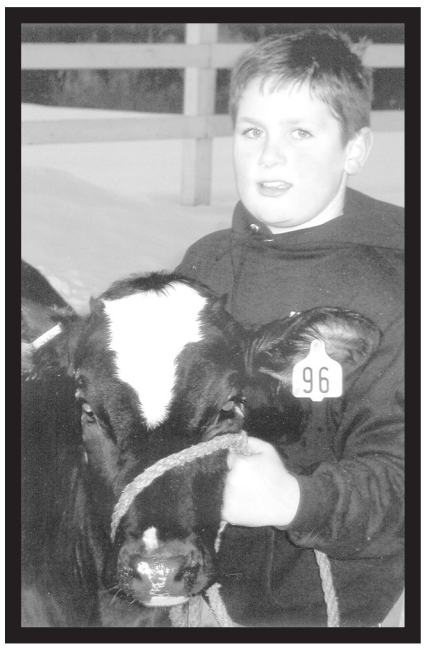
*Other pole bean seeds will work

Agriculture and You *is brought to you by* **New York Agriculture in the Classroom,** *helping kids and adults understand and appreciate the importance of agriculture in their lives. Find out more at www.cerp.cornell.edu/aitc.*

Farming is Fantastic!

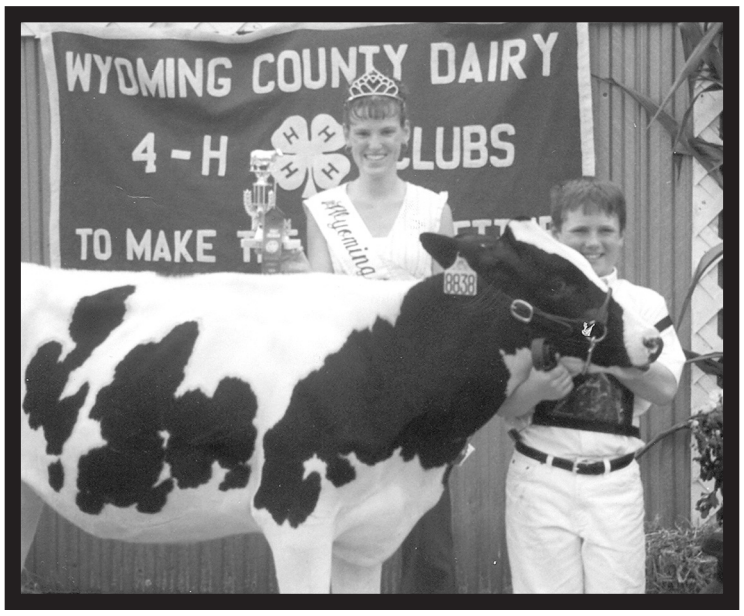
By Jacob Dueppengiesser, Straightliners 4-H Club, Wyoming County, NY, age 10

Hi, my name is Jacob Dueppengiesser. I live on a dairy farm in Perry, N.Y., owned by my dad and two uncles. I really enjoy working with my family on our dairy. My eight-year-old brother, Jared, and I have to feed our show heifers each night after school. We also bed calf pens, sweep floors, and check for sick calves on weekends. The farm is a fun and busy place for us!



Jacob with his new calf "Abby". Photo by Roxanne Dueppengiesser

This past year, I participated in the Wyoming County 4-H Win-A-Calf program. I kept monthly records on my calf, Debresia, born on December 3, 2003. I recorded her weight, as well as her feed intake, bedding used, and labor needed to care for her. Each month, I answered five questions on different dairy topics and wrote a story about my calf's progress. I had a farm visit and an interview with 15 members from the 4-H dairy committee. I had fun and learned a lot from the project but what amazed me the most was how much it cost to raise my calf, especially in the first two months. The part I liked best was showing my calf in showmanship at the fair!



Jacob and "Debresia", accepting the Champion Advanced Beginner Showmanship trophy at the Wyoming County Fair from Wyoming County Dairy Princess, Ashley Konka. Photo by Angela Waligora

Wyoming County Bank sponsors the Win-A-Calf program each year and gives the winner $500 towards a registered calf of the 4-H'ers choice. I was this year's winner of the calf and picked out a calf from Walt Faryna of Halo Farms in Perry. My calf's name is Halo Bond Abby and I'm excited to raise her and show her at the fair.

I decided to give my brother, Jared, a heifer calf born this past December from my first cow (Debresia's dam), which was a gift to me from our friends Doc and Sally Galton. I wanted to help him get started since others helped me. My brother looks forward to participating in this year's Win-A-Calf project with his calf.

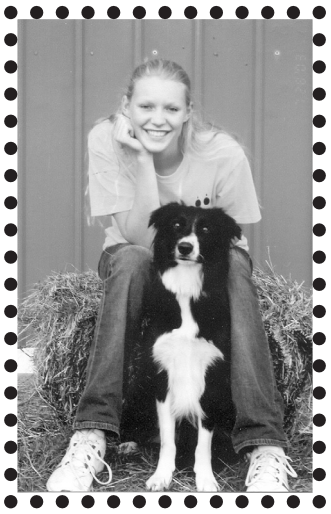
I love being in 4-H because I really enjoy showing cows, meeting new friends, participating in dairy judging and dairy bowl, and serving as president of our Straightliners 4-H Club. I've learned a lot!

Growing up on a farm is great because there are so many opportunities to learn about life, work, and have fun!

From City to Country

By Deandra Johnson, Fillmore, New York, Age 16

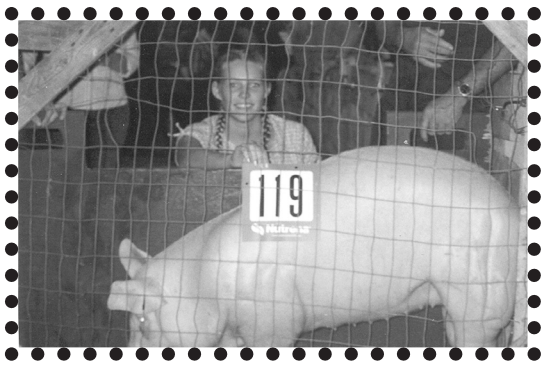
My parents, sister, and I moved here from Buffalo when I was seven years old. I live on a small farm in Fillmore, New York, on a very secluded dead-end road. I have a horse, a sheep, a cow, four goats, six dogs, chickens and several other animals. I joined the Southern Rebels 4-H Club in Wyoming County when I was eight.



Deandra and "Saydi" take time out from an agility contest. Photo by Alicia Johnson

4-H is something I enjoy very much. I've learned how to raise, care for, and train animals. My very first year in 4-H I had dairy and sheep projects. I raised my own lamb and showed her for four years, and I have been raising and showing pigs for the last three years. I showed goats for two years and have shown dairy every year since I was eight.

For the last three years I have shown my Border Collie, Saydi. She is my most prized animal. I have learned so much from raising her. Saydi has given me companionship and faithfulness, and has taught me about the responsibility and care it takes to train her. The enjoyment of showing her in dog obedience and agility is challenging but rewarding. I have taken Saydi to the New York State Fair each of the last three years, and have earned Grand Champion and Reserve Champion in obedience, and Reserve Champion in agility. I have put a lot into my 4-H projects and I have gotten a lot out of it.



Deandra and her hog at the Wyoming County 4-H Meat Animal Show. Photo by Kellie Millhollen

Teamwork

By Olivia Sherman, Perry, NY, Wyoming County 4-H Dog Agility Club, age 11

The best thing happened to me on Christmas morning when I was eight years old. I learned I was getting a puppy! The very next day we got to meet him and bring him home. It was love at first sight and I named him Oliver. He is a West Highland white terrier. His fur is all white but his eyes, nose, nails, and skin are black. We quickly became best friends and when he was old enough, we started 4-H dog obedience. The following spring, we also joined the Wyoming County 4-H Dog Agility Club.

Olivia snuggles with "Oliver". Photo by Laree Sherman

In dog obedience I have learned how to heel my dog at my side, the figure eight, recall, stand for examination, the down and sit. Each spring I have moved up to a more challenging level.

Agility is when your dog goes over an obstacle course at the handler's command. Some of the fun things we learn are various jumps, a tunnel, a dog walk, an A-frame and sitting or lying down on a table.

Olivia and "Oliver" proudly displaying their NY State Fair Grand Champion award.

Oliver and I worked hard all summer preparing for dog show day at county fair. This year's dog show turned out to be a memorable one! In the morning, we participated in the agility portion. All the sights, sounds, smells, and new location of the course really overwhelmed Oliver and to sum it up, he bombed it! It was upsetting and disappointing for me but my family, 4-H friends, and leaders gave me the support and confidence I needed to compete in the afternoon obedience competition. We received a blue ribbon in my class and also qualified for the state fair dog obedience competition. This turned out to be one of the most exciting days of my life. We received the Grand Champion award in our class at the 2004 New York State Fair!

I have learned so many lessons through my dog project. When showing an animal, they have bad days and get nervous just like we do. You just have to build self-confidence, practice, and believe you can do it. It's up to you and your animal friend to work as a team.

In my spare time with Ollie, I like to cuddle on the couch, play games, bake homemade dog biscuits, and even take family bike rides. Oliver rides in my sisters outgrown child's seat on the back of a bicycle.

I call that teamwork!

The Youth Page is written by and for young people. Many thanks to 4-H youth from Wyoming County, NY, for most of the material in this issue. (www.cce.cornell.edu/wyoming)

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! Authors need not be 4-H members….

Write 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

FOREST AND WOODLOT

Maple Flavors and Syrup Grading

By Stephen Childs

All maple syrup is not created equal. The flavors of maple syrup vary significantly from producer to producer, from various production systems, from different production areas, from year to year with a single producer and even from specific woodlots. One only needs to serve as a maple syrup judge at a fair or maple meeting to experience the range of flavor diversity. These flavor distinctions can be part of developing customer loyalty as they find that another producer's syrup is "just not the same".

Sometimes the flavors are less pleasing and this can lead to difficulty keeping customers. Noticeable and even severe flavor problems can often be identified and the cause corrected. The recognition of off flavors and the severity of those flavors is part of the rules and regulations for grading maple products in New York State.

The New York State Agriculture and Markets Circular 947 "Manufacture, Distribution and Sale of Maple Syrup and Sugar" quite broadly describes how off flavors influence the syrup grade. The rules define several flavor related terms. First, "damage" means any defect that materially affects the appearance, edibility or shipping quality of the syrup or sugar.

Second, "serious damage" means any defect that seriously affects the edibility or market value of the syrup. Badly scorched syrup, buddy syrup, fermented syrup, or syrup that has any distasteful foreign flavor or disagreeable odor shall be considered seriously damaged. For syrup to be labeled as Grade A for table use it must have good flavor and odor, be practically free from damage and practically clear. No serious damage is acceptable.

The rule also states that the syrup shall have a good maple flavor characteristic of the color. For syrup to be labeled as Grade B for reprocessing or "Extra Dark for Cooking" it must have fairly good characteristic maple flavor, shall be fairly free from damage, fairly clear, and free from serious damage. In other words a syrup that has a clearly identifiable off flavor would not be legally marketable as either Grade A or Grade B and could only be sold in bulk as substandard.

Henry Marckres with the Vermont Agency of Agriculture, Food and Markets has pulled together some excellent information on maple syrup off-flavors, their likely causes, and tips to avoid these problems. The following information has been edited from material he has written.

OFF-FLAVORS AND THEIR CAUSES

Chlorine (Sodium) - A solution of chlorine and water has often been used to clean sap tubing systems and storage tanks. When these systems were not fully rinsed afterward it would leave a residue. A chlorine off-flavor often destroys the maple flavor and may have a salty flavor.

Detergents - A detergent flavor in syrup may taste soapy, or have a perfume odor or flavor.

Paints - Often paints used on the inside of galvanized sap buckets and holding tanks contained a fish oil base. This type of paint should never be used on any surface that is in direct contact with sap or syrup. The flavor derived from this material may have an oily taste.

Metallic - This off-flavor usually is the result of prolonged storage in metal syrup cans or storing bulk syrup in poor quality metal barrels. The recommendation for metal syrup cans is to only pack what will be sold in a three-month period

Plastic - The type of material that causes this off-flavor is most often a nonfood grade plastic or a plastic not meant for exposure to hot syrup. This creates a bitter flavor or a flavor that tastes the way some plastics smell.

Filters - There are several off-flavors that can be attributed to the way filters are manufactured or the methods used to clean and store them. New filters: During the manufacturing process filters can pick up and retain a slight chemical odor and flavor. Before use, they should be boiled in clear water and dried thoroughly. If not, they impart a chemical flavor to the syrup. Once used, filters should never be washed with any detergent, as they may pick up detergent residue in the fibers. After the season is over, filters should be washed in water and dried thoroughly before storing in a dry location free of contaminating odors. Filters not dried thoroughly will mold, creating musty off-flavor when hot syrup is filtered through them the next season. Never store filters with mothballs.

Defoamers - Many different products are used to reduce the foaming of the boiling sap during evaporation. Only a small amount is needed to control foaming and using too much will create an off-flavor or rancid taste in the syrup.

Chemicals - The technology used in producing syrup today often requires the use of powerful cleaners and preservatives. It is very important to follow the manufacturer's recommendations carefully and rinse thoroughly before continued use. The off-flavor usually relates to the smell of the chemical used.

Lubricants and Fuels - Care should be taken to avoid contamination of the sap or syrup from exhaust fumes or improperly operating equipment. Also, only food grade lubricants should be used in any pumps or equipment that comes in contact with sap or syrup. Off-flavors attributed to this type of contamination will taste and smell just like the contaminant smells.

Ferment - Fermented syrup usually develops from one of two problems with the product. If syrup has not been boiled enough to concentrate the correct amount of sugar, then the syrup may work like apple cider. At times, we find correct density syrup fermented and that is usually from syrup stored in barrels that have not been properly cleaned. Depending on the type of ferment, it may have an alcoholic or fruity taste. Severe ferment may have a foamy appearance.

Sour Sap - As the weather warms near the end of the sugaring season, sap left in a tank begins to warm, basically beginning to spoil the sap. Syrup made from this sap has a ropy appearance when poured and is very sour.

Burnt Niter - When sap is boiled, minerals that are in the raw sap precipitate out of the solution and form niter that collects in the compartment in the front pan where the syrup is being drawn off. The syrup will have a burned taste the syrup burning.

Scorch - This off-flavor is a burned flavor in the syrup. Operating the evaporator with too low a level of product in the front pan actually bums the syrup.

Earthy flavor - Tapping into punky wood, dark colored or stained areas in the tree, or cracked wood produces syrup with this off-flavor. The flavor tastes and smells like garden soil.

Metabolism - This is an off-flavor that is attributed to changes in the metabolism of the tree due to a warming of temperatures. The resulting flavor has been described as woody, peanut butter, or popcorn. An almost cardboard like flavor may be present. A chocolaty smell may be detected.

Buddy - Buddy syrup is usually produced during the late season. The tree begins to produce buds, and the sap takes on a distinctive quality that is transferred into the syrup. Buddy syrup usually tastes chocolaty, almost a tootsie roll type flavor.

At the New England Grading School we had the opportunity to sample many of the off flavors known to damage the maple syrup flavor. Learning to identify these off flavors should be helpful to recognize the likely source of a production problem. I would like to conduct similar schools in New York in the future but to be effective I need to have samples of off flavored syrups. I would love to accept donations of a gallon or less from any producer with some off flavor batches available. I would be grateful for any sample you might be willing to donate.

Stephen Childs is the NYS Extension Maple Specialist. You can reach him at 607-255-1658 or slc18@cornell.edu.

Help Learn More About Maple Syrup Flavor!! Cornell's Maple Program Looking for Samples

In 1982 the Agricultural Experiment Station of the University of Vermont conducted a study comparing the US and Canadian methods of color grading maple syrup. The study showed that significant differences existed between visual and spectrophotometer color grading of syrup. Over 150 different samples of syrup were used in that study.

With the ongoing discussion of changing the grading of maple syrup to an internationally accepted system we feel a reexamination of color grading comparisons is crucial. The Cornell Maple Program is soliciting one pint samples of various grades and classifications of maple syrup from throughout New York State. These samples will be used to run a thorough comparison of visual and light transmittance methods of color grading.

Samples can be delivered to either the Uihlein Sugar Maple Research and Extension Field Station, the Arnot Forest, 110 Fernow Hall on Campus, given to your local Cornell Cooperative Extension Maple Team Educator or sent to: Stephen Childs, NYS Extension Maple Specialist, 110 Fernow Hall, Cornell University, Ithaca NY 14853. All samples need to be in place by May 1st, 2005. Your donation to this research is greatly appreciated.

NON-DAIRY LIVESTOCK

Equine Emergency!! Wound Care Basics for Your Horse

By Dave Leggett

I was recently thinking back to a situation that occurred many years ago on our family farm. Early one morning I discovered my father's yearling stallion tangled in a barbed wire fence. Amazingly he let me cut the wire and untangle his leg without flinching a muscle. Treatment of his wounds led to a full recovery, but I recall that from a first aid standpoint we were unprepared for an emergency situation. Let me pass along some very useful advice:

HAVE AN ACTION PLAN

1) Keep your veterinarian's number by the phone
2) Also have a back-up veterinarian's number in case your regular vet. is unavailable.
3) Know in advance the most direct route to an equine surgery center in case you need to transport the horse.
4) Post the names and phone numbers of nearby friends and neighbors who can assist you while you wait for the vet.
5) Prepare a first aid kit for the barn and make sure everyone knows where it is.
6) Also keep a first aid kit in your horse trailer or towing vehicle, and prepare a basic version to carry on the trail.

FIRST AID KIT

Here is a short list of essential items to get you started (*Material that should be sterile):

1) *Cotton roll
2) *Contact bandage
3) *Cling wrap
4) *assorted Gauze pads
5) *Gauze wrap
6) Adhesive wrap and adhesive tape
7) Leg wraps
8) Sharp scissors
9) Hemostats
10) Steel cup or container
11) Rectal thermometer
12) Surgical scrub and antiseptic solution
13) Latex gloves
14) Flashlight
15) Permanent marker pen
16) Pliers (to pull nails)
17) 6" diameter PVC tubing cut in half the long way (like a gutter) into lengths of 1 ? to 2 feet (for emergency splinting)

EMERGENCY WOUND CARE

The initial steps you take to treat a wound can prevent further damage and speed healing. How you proceed will depend on your individual circumstances, and you must exercise good judgment. The following should be viewed as guidelines:

1) Catch and calm the horse to prevent further injury. Move the horse to a stall or other familiar surroundings if this is possible without causing distress or further injury. Providing feed can be a good distraction.

2) Get help before attempting to treat or evaluate a wound. It can be difficult and dangerous to try to inspect or clean the wound without someone to hold the horse. You can't help the horse if you get injured.

3) Evaluate the wound. Here are some examples of situations where your veterinarian should be called:
A. There appears to be excessive bleeding
B. The entire skin thickness has been penetrated.
C. The wound occurs over or near a joint.
D. Any structures underlying the skin are visible.
E. A puncture has occurred.
F. A severe wound has occurred in the lower leg at or below knee or hock level.
G. The wound is severely contaminated.

4) Consult your veterinarian before attempting to clean the wound or remove debris or penetrating objects, as you may cause further damage or bleeding. Large penetrating objects should be stabilized to avoid damaging movement if possible. Don't put anything on the wound except a compress or cold water.

5) Stop the bleeding by covering the wound with a sterile, absorbent pad (not cotton), applying firm, steady, even pressure to the wound.

6) Do not medicate or tranquilize the horse unless specifically directed by your vet.

7) If the eye is injured, do not attempt to treat. Wait for the veterinarian.

8) If a horse steps on a nail or other sharp object, and it remains in the hoof, first clean the hoof. Consult your veterinarian before you remove the object. If so advised, carefully remove the object. As you remove it, mark the exact point of entry with tape and/or a marker and note the depth of penetration so the veterinarian can assess the extent of damage. Apply antiseptic to the wound, and wrap to prevent further contamination

9) All horses being treated for lacerations or puncture wounds will require a tetanus booster.

I hope this information may be useful to you. It is much better to be well prepared to take care of your equine friend. The information presented above is adapted from a brochure developed by the American Association of Equine Practitioners (AAEP.) You can find more information about horse health at AAEP's web site for horse owners, www.myhorsematters.com.

David Leggett is a Community Educator with Cornell Cooperative Extension of Saratoga County, NY.

STEWARDSHIP & NATURE

Look Who's Living In Your Alfalfa

By Ken Wise

Alfalfa fields serve as home to mammals, birds and insects as sunrays of spring touch and warm the hills and valleys of the Northeast. Some travel only a few feet, others journey for hundreds of miles to find your farm. Most of these travelers do no harm to your alfalfa.

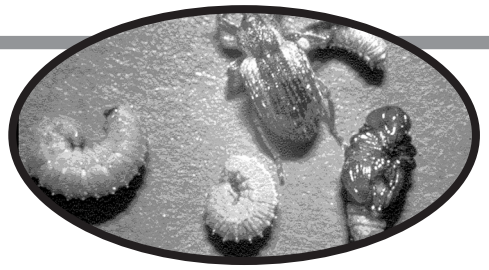
But one early riser is an exception to the rule. Along the edges of alfalfa fields lives a light brown sleepy adult weevil that is 3/16 of an inch long and awakes in the spring to march into fields. If you are alert and look close you can see the alfalfa weevil which has a band of darker brown down the center of its back and a long snout as it awakes from a long winter slumber and comes back to their summer home—your alfalfa fields!

It is hard to imagine that a single female alfalfa weevil will lay up to 1,500 eggs in clusters of 9 to 40 inside alfalfa stems. Look close and you may see small puncture holes in those fresh spring stems. The small puncture holes can be feeding holes or be a location where the female weevil has laid a cluster of eggs inside the stem of alfalfa. Alfalfa weevil will also lay eggs in a henbit a weed that sometimes infests alfalfa fields.

Carefully open the stems and take a look. Newly laid eggs are clear to a light yellowish in color. As they develop, the eggs will turn brown with a dark spot at the apex. These uninvited guests hatch as 1/16 inch tiny larvae and grow to 3/8 inches long to cause most of the damage to your alfalfas. These larvae are light green with a white stripe down their back and a dark brown head. They will lose no time feeding on your alfalfa.

Weevil larvae are legless and crawl up the stems to where they eat small holes into young leaf buds. These alfalfa buds provide young weevil larvae nutrition and protection from the elements and many predators. When damaged leaves unfold they have a shot hole appearance where the larvae have fed. As larvae begin to mature they go through 4 molts where they increase in size and appetite.

As with most insects, the temperature controls how quickly alfalfa weevils develop. By keeping track of the daily maximum and minimum temperatures you can calculate the accumulated "degree-days" (the daily GDD = maximum temperature + minimum temperature/2 – 48 degrees base temperature) which can help you predict how quickly the weevils are developing.



Alfalfa Weevil Life Cycle
Photographer: Keith Waldron, NYS IPM

More importantly, you will know about when the larvae's 4th instar (molt) are feeding on alfalfa. At this stage—just before they turn into adults—larvae are consuming 80 percent of all the alfalfa they'll ever eat. So if you are scouting and find you are over threshold, you know it's time to act.

Accumulated Degree Days for Peak Occurrence

(50%) of Alfalfa Weevil at a given Life Stages

Stage	Degree Days
Egg hatch	280 DD
Instar 1	315 DD
Instar 2	395 DD
Instar 3	470 DD
Instar 4	550 DD
Cocooning	600 DD
Pupa	725 DD
Adult emergence	815 DD

Ok—now you know that alfalfa weevil can use your fields as a summer home. The next question is, how do you determine if you have enough alfalfa weevils to cause economic (yield and quality) loss?
Monitor alfalfa weevil weekly from mid-April through June. Because weevil populations can build up over the life of the alfalfa stand, monitoring fields that are two or more years in production is critical to determine infestation levels. Start weekly field sampling in fields at about 350 degree-days (base 48F0) which is about mid April.

WEEKLY FIELD SAMPLING:

• Pick 50 alfalfa stems at random throughout the field.
• Look for the small "shot holes" in the leaves that indicate that larvae are feeding.
• Record the percentage of alfalfa stems that show the "shot hole" feeding damage in the top 3 inches of the canopy.
Before the first cutting if 40% of the stem tips show feeding damage, you are at the "action threshold." It's time to do something!

The good thing is that alfalfa weevil can generally be controlled by harvesting. If you reach an action threshold within a week to 10 ten days of your normal 1st cutting date, early harvesting will help avoid economic, yield, and forage quality losses. Alfalfa weevils only have one generation per year and are typically not a problem after first harvest.

Occasionally, weevil can damage alfalfa regrowth after harvest. This damage may be more evident in the windrow areas, and can be more noticeable under cool or droughty weather conditions. If you find that 50 percent of the new growth is damaged, with many small larvae present, a chemical control may be warranted. To select an insecticide, consult the current issue of Cornell Guide for Integrated Field Crop Management or check on the internet at, www.fieldcrops.org.

To complete their life cycle, weevils spin a round net-like cocoon around their developing pupa. These cocoons, about the size of a pea, may be found inside rolled up leaves within the alfalfa canopy or towards the base of the plant. Normal cocoons contain a healthy weevil pupa which looks much like a resting green weevil. As it nears completion of its development the pupa will turn brown before emerging as an adult.

This weevil is not the only insect that comes looking for a dinner in alfalfa. Many of these insects are natural enemies of alfalfa weevil. One group of these are tiny beneficial wasps called parasitoids. Some parasitoid species attack weevils in their egg stage, other types attack larvae, and still other types attack adults.
One common type of weevil parasite, Bathyplectes spp, lays it's eggs in late instar larvae just before they pupate. The parasitoid egg hatches and the young wasp

Continued on next page

Urban Agriculture

East NY (City) Farms!

At this community operated farmers market, urban entrepreneurs sell their produce side by side with New York State farmers

By Linda Ameroso

Entering its 7th season, East NY Farms! is one of New York City's first community operated farmers' markets. Located in East New York, Brooklyn, the market is open every Saturday from June through November. Residents no longer have to travel out of the neighborhood just to get farm fresh produce. In fact, on a typical Saturday, collards and callaloo grown within walking distance are found on tables next to fruits and vegetables grown by regional farmers, all freshly picked, all improving the health, economy and spirit of a neighborhood.

Urban Agriculture Coordinator Georgine Yorgey (second to left) leads the Youth Internship program. She is dedicated to the success of the market, every market seller, and particularly to the growth of each youth intern.

This market offers local residents the opportunity to be "in business," and you can buy foods grown, foods cooked, and products made by East New Yorkers, while shopping to live entertainment! You also get to speak with real friendly farmers, and of course visitors such as politicians, community developers, and others who see this market as a winning model in a strengthening neighborhood.

"The goal of the East NY Farms! project is to organize youth and adult residents to address food issues in their community by promoting local and regional sustainable agriculture and community-based economic development."

Current partners take this mission very seriously and work hard at increasing this market's impact in all of New York City. Partners include Cornell Cooperative Extension, Local Development Corporation of East New York, United Community Centers, and Pratt Institute Center for Community Economic Development - along with a very committed and growing body of community resident volunteers, and a working body of employed neighborhood youth.

In 2004, the market grew 7%, with overall total sales of $89,150, purchased by 11,570 customers. The market supports four New York State farmers, whose sales account for most of this figure. This past year, sales of produce grown "in the neighborhood" were almost double, up to $9,294. The total number of local urban growers was 22, up from 18 in 2003, and 7 were new to the market. Another benchmark of success is with the individual neighborhood growers, four of whom significantly expanded their "farm" business.

The market has also firmly established its Community Supported Agriculture (CSA) program. In 2004, 25 local households were provided 23 shares (over 4,700 pounds of fresh produce) over a 21 week season, with over $7,000 in income for the CSA farmer who grows using certified transitional organic methods. Staff worked closely with residents who are now ready to run the CSA on their own this coming season! That's power to the people - locally.

DEVELOPING YOUNG LEADERS

The Youth Internship Program is a vital part of this market. Every year, 18 to 20 young people are employed as paid interns. They are trained to grow and sell produce and to help other urban market gardeners, some senior citizens, to grow and sell produce. This past year youth made major modifications on their own production site which doubled sales over last year to $3,882.

A vital part of every aspect of this project, the youth interns also set up the market, measure sales and volume, help participating NYS farmers, and get involved with community outreach. Youth grow personally too, through curriculum, structure, scheduling, and opportunity. Returning youth are selected as "assistant youth leaders" and can work as an "assistant market manager" or with publicity and public speaking.

A total of 8 young people participated in conferences, ranging from the Heifer International North American Youth Conference in Dolores Hidalgo, Mexico, to the Community Food Security Conference in Milwaukee, WI. Youth speak with local community members about their work, as well as the many visitors who want to know how this market is such a success.

East NY Farms! held its first nutrition education conference, "Healthy Foods, Healthy Families," which focused on issues such as obesity, identified as statistically significant in East New York. Eighty individuals from the community, local government, and food and health related agencies around NYC exchanged ideas and learned more about the issues. Commitment was made to develop a plan to address food availability and community health, and includes the start up of a food coop when money becomes available. Students from Hunter College are helping with an assessment that details the types of food and prices found in East New York – a document already available for decision making.

The W. Rogowski Farm is 1 of 4 participating farmers at E NY Farms! market. Cheryl Ann Rogowski won the MacArthur Foundation "Genius Award" in recognition of her contributions to family farming as a commercial enterprise and catalyst in community development. The Rogowski's contributions are well represented in many farm market and CSA efforts in NYC.

Photo by Linda Ameroso

If you were to ask local residents what they think, you can be sure that the East NY Farms! market is a welcomed addition to this community's health and local economy.

For more information about East NY Farms!, or if you are interested in selling your produce at community based farmers' markets in New York City, contact John Ameroso, Cornell University Cooperative Extension in NYC, at (212) 340-2946 or jma20@cornell.edu.

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Living In Your Alfalfa

Continued from prev. page

feeds on the developing pupa effectively killing the weevil before it completes it's development.

If you find a weevil cocoon and instead of a healthy green to brown weevil pupa you find a small dark brown egg-shaped structure about 1/8 inch long you have found the cocoon of a Bathyplectes parasitoid. The natural predator has devoured the alfalfa weevil pupa. Biological control in action!

Now is the time to make sure this unwelcome guest doesn't take over your alfalfa fields. So as you start hear spring birds chirp and fields start to green plan your monitoring program now for alfalfa weevil and avoid possible alfalfa yield and quality losses.

Ken Wise is the Eastern New York IPM Area Educator for Field Crops and Livestock, with the Cornell University/ NYS IPM Program. He can be reached at (518) 434-1690 or klw24@cornell.edu.

COMMUNITY/WORLD

One Farming Philosophy That's Stood the Test of Time

By Bill Henning

Webster's dictionary defines the word 'utopia' as a place of ideal perfection. It also indicates it is an imaginary place. For a very young boy in the 1950s utopia was not imaginary. It was his cousins' farm in Newton, Ontario.

Chores began before sunup. The first glimpse of the day came through the little window by the narrow back stairway that wound down to the kitchen. The wood-fired cook stove would already be warming up. The spring on the back door would close it tight and the crisp air of the morning would wake you up on the narrow walk to the barn.

Upon entering you would get the undivided attention of every cow, all twelve of them. Norman did the milking while Earl did the feeding. The milk was carried to the separator. The cream went into cans that were then taken out to the road where a truck picked them up. The skim went to the calves and to the hogs.

Half a dozen sows were kept. Besides providing a market for the skim, they also cleaned up the fallen apples in the orchard. Market hogs supplemented the milk income and provided another source of meat. The butchering was done on the farm. It was a mid-winter job. Meat would go into sausage, be smoked, or canned – all on the farm.

About three hundred hens also provided money from egg sales, not to mention a lot of chicken soup.

A huge garden produced more than enough vegetables for the year. Early on, these were canned in the summer kitchen, which was really the original log cabin when the farm was first settled. As time progressed the summer kitchen succumbed to age and it was replaced with a mudroom.

Earl was a 'barnyard engineer'. He could make just about anything. As a result they had vastly automated things like harvesting grain, even with a threshing machine, and putting up loose hay. At that time hay was harvested once in mid summer. Small grains were grown for feed and straw, while all the corn went into silage. Grain was processed in their own mill. Norman did bookkeeping, both for the farm and for the local hardware store on a part time basis.

Over the years this little farm never changed very much. It didn't need to. The farm directly provided most of the essentials for living. To use income from cream to buy potatoes would be unthinkable. Besides the essentials, it provided more than an ample amount of dollar income. They were able to pay cash for everything. They lived simply. They even made their own soap. But by their standards, they did not go without.

By today's standards this might not sound like an easy life. Lets study that a moment.

To begin with, they were self-employed. They had more control over their future than an employed worker, especially when compared to today's corporate culture. They were not competing with anybody for size, production, or status. How many cows you or your neighbor milked was never even a matter for discussion.

Utopia - Newton, Ontario, 1956

Reason for concern or anxiety was never apparent. They knew what worked and what didn't. There was no need to buy items like crop insurance or futures contracts. They handled the unexpected through diversity, by adapting, using reserve supplies, and by self-insuring -- saving for a rainy day.

They had time. Great meals were always eaten together at a huge table in the big kitchen. A twenty-minute nap always followed lunch. Visits with the neighbors were frequent. All the neighbors were also farmers. And, there was also time for pranks and games, no matter how old you were.

That was my utopia, for I was that young boy.

There are a lot of people who will tell you that can't be done today. People's opinions are often the result of a particular paradigm they hold. And a paradigm is determined, to a great extent, by one's personal experience.

There are several areas throughout the United States, where communities provide the experience for that simpler paradigm. Yates County, in New York, is one of those areas. It has close to 230 small dairy farms that average, with little variance, about 40 cows on 100 acres. This community of farms shares many of the characteristics found on that farm of my utopia.

It is conservatively estimated by members of the Yates community that there are at least 300 young boys in the county that aspire to farm in this manner. It would appear that this philosophy has not only stood the test of time, it still has a future.

Bill Henning and his wife Kathleen operate a grass-based beef and sheep farm in the Finger Lakes region of New York. He is also the Small Farms Specialist with PRO-DAIRY/CCE-NWNY Dairy, Livestock, and Field Crops Team.

COWS AND CROPS

Soybeans Offer Small Growers Income Through New Contract Program

Both Organic and Non-organic Crops Wanted

By Kara Lynn Dunn

In 2004, Steve Carr grew 200 acres of soybeans and sold them to the Ag Pro processing plant in Massena. This year, as Ag Pro's contract grower program coordinator, he is encouraging other farmers to do the same. Ag Pro is interested in contracting 15,000 acres of beans for 2005 and would like half of those acres to be organically farmed.

"I expect to write some 10 acre contracts as well as contracts for hundreds of acres of beans," says Carr, who has 30 years' experience as an agronomist and has grown soybeans in three Midwestern states and New York.

To encourage organic production, Ag Pro is paying $450/ton for organic beans. Contracts for growing six to eight varieties of non-organic beans are offered at a lower price level. At capacity, the Ag Pro plant can process 150 tons of beans a day.

He says the price Ag Pro is offering for organic soybeans "may be lucrative enough that farmers in southern New York State may be interested. For the GMO and conventionally produced beans it may not be feasible for farmers to truck the beans more than 150 miles to the plant in Massena," he adds.

Growers can raise about one ton of beans per acre. Carr will be supplying technical assistance to the growers contracting with Ag Pro in 2005. He has been conducting "Soybean 101" seminars throughout New York to help growers understand the basics of growing soybeans and how contract growing works.

Developing a soybean industry in New York State offers opportunities for sideline farm-based enterprises focused on custom harvesting, storage and trucking.

To learn more about Ag Pro's contract grower program, call Steve Carr at 315-324-6587 or 315-764-5611.

MARKETING

The Good News About Animal Fat

By Julie Berry

A trans fatty acid in milk and meat products is raising interest from both farmers and consumers because of its amazing array of health benefits.

The fatty acid, conjugated linoleic acid (CLA), is proven through animal and some human studies to help prevent cancer, prevent diabetes, prevent obesity and promote muscle development, reduce cholesterol, enhance the immune system and enhance bone mineralization.

While trans fatty acids are in general recognized as the "bad fats" that contribute to heart disease, exceptions are being made for those that contain CLA. On January 1, 2006 when the US Food and Drug Administration begins requiring labeling of the amount of trans fats in foods and dietary supplements, CLA will be omitted.

What exactly is CLA? Molecularly, CLA is a fatty acid that has two double bonds on adjacent carbon atoms. Practically, CLA is a fatty acid that is made in the rumen and udder of ruminants, including beef and dairy cows. CLA has slightly different isomers, or physical structures, that in part account for the array of health benefits.

Foods derived from animals are the only source of CLA and foods from ruminant animals, such as cattle, contain much more CLA than foods from nonruminants, such as pigs. Dairy products from ruminants are estimated to have nearly double the CLA concentration of meat. However, CLA is a fatty acid so its content in dairy products is dependent on the CLA concentration in the fat of the raw milk.

CLA is unusual because it can both stop the growth of tumors and prevent new ones from forming. At Cornell University, Dr. Dale Bauman's animal science group designed a dairy cow diet to enrich CLA levels in milk, then collaborated with Dr. Dave Barbano's food science group to create CLA enriched butter. This butter, which contained high levels of the cis 9, trans 11 isomer, was then used by researchers at the Roswell Park Cancer Institute in studies of breast cancer in rats.

"This study was among the first to show that a naturally occurring anticarcinogen, fed as a component of a naturally produced food was anticarcinogenic in a biomedical cancer model," wrote Dr. Bauman on his group's CLA Web site.

Cancer studies like the ones done in rats have not and will not be conducted in humans, because humans ethically should not be knowingly exposed to carcinogens. Several epidemiological studies that track a large group of people for a long period of time, including a Finnish National Public Health study and a Harvard Medical School study of 89,000 nurses, support a "protective effect" associated with milk consumption.

Data from these and other studies led the National Academy of Sciences in 1996 to state that "...CLA is the only fatty acid shown unequivocally to inhibit carcinogenesis in experimental animals."

CLA can also reduce fat. In humans, the cis 10, trans 12 isomer of CLA lowers fat. CLA doesn't melt fat off humans, instead it prevents fat from building up. However, dose, duration and the chemical composition of CLA impact effectiveness. Additional studies need to be conducted to evaluate if sex or age impact effectiveness of CLA. Meat products have the highest amount of the 10, 12 isomer, but this isomer only accounts for approximately 2 percent of the total CLA, which is much less than what is needed to have these fat-reducing effects. However, dietary supplements with enriched 10, 12 isomer levels may be effective.

CLA may also have benefits for diabetics. In a study at Northwest Hospital, referenced in the Annual Review of Nutrition, people with type 2 diabetes who supplemented their diet with 6 grams of CLA a day for 8-weeks significantly decreased fasting blood glucose, plasma leptin, body mass index and weight. CLA makes rats that are predisposed to diabetes, or have irregular blood sugar levels, produce more insulin and makes them more responsive to this insulin. So, if CLA works the same way in humans, diabetics might be able to take less insulin, because their bodies would be more sensitive to the insulin they have and they might be able to produce more of it.

CLA also has reduced atherosclerotic plaque formation in rabbits, but more research needs to be conducted to evaluate prevention of atherosclerosis and its role in reducing cardiovascular disease in humans. However, this is an exciting area of research in which the form of CLA found in milk fat has been shown to have these anti-atherogenic effects in the biomedical studies with animal models

Human trials have not been conducted yet, but animal trials suggest that CLA may promote maintenance of lean body mass during immune stimulation, especially in wasting diseases such as cancer or AIDs, and during late stages of autoimmune diseases such as lupus. CLA may also help reduce type I hypersensitivity reactions, leading to less severe immune responses to allergens, according to a review in Pharmacological Research "Conjugated Linoleic Acid: Implications for Human Health."

CLA is believed to exert these favorable impacts because it seems to control the production of a family of molecules, called eicosanoids, that are found in virtually every tissue of the body. These eicosaoids send signals to other molecules by functioning as hormones, which play a role in the development of many diseases, including cancer. The immune system can be modulated by CLA, because through eicosanoids, CLA modulates the production of cytokines. Cytokines are chemical messengers that tell other immune systems when the body is sick. These immune cells then break down muscle to provide energy to fight disease.

Cytokines also cause bones to weaken and waste. So, by modulating cytokines and eicosanoids, CLA may prevent osteoporosis.

The challenge for farmers is to identify how to create dairy products with the highest amount of CLA. Pastured animals seem to produce higher levels of CLA. And the genetics of some cows seem to make them better at producing CLA. A number of studies, including my honors project with Dr. Dale Bauman at Cornell University, determined that feeding diets with high amounts of certain plant oils, including sunflower oil, stimulates CLA production. The New York Department of Agriculture and Markets also recently funded another feeding trial on a Cayuga dairy.

Processing may play some role as higher fat dairy products, such as butter, have higher CLA content than lower fat products, such as skim milk. Dietary supplements of CLA don't seem to have the same potency as animal products that contain CLA, and they aren't regulated by the Food and Drug Administration, so variations in concentration can occur.

In addition to the excellent source of calcium, high quality protein, energy and a variety of vitamins and minerals, scientists through research on CLA are continuing to prove the value of milk and other dairy products in a healthy and balanced diet.

Julie Berry is a Community Educator with Cornell Cooperative Extension of Jefferson County. This article first appeared in the Watertown Daily Times.

STEWARDSHIP AND NATURE

Beneficial Bats

By Kim Grant

Bats belong to the order Chiroptera, which means hand-wing. They are among the most diverse and geographically dispersed mammals. Of the 4,000+ species of mammals, bats comprise approximately 1,000 of the species; only the rodent family has more species. The ability to fly sets bats apart from all other mammals; flying squirrels actually glide.

Bats are found in all climates except the most extreme desert and polar regions. Dietary requirements are also very diverse, and include insects, fruit, nectar, pollen, blood, fish and other vertebrates. Some bats in northern climates hibernate during the cold season while others live in mild equatorial regions and enjoy year-round food supplies. Unfortunately, bats are highly susceptible to environmental and habitat disruption despite their adaptations and abundance.

North America is home to approximately 40 species of bats; the majority of these are insect feeders. New York State is home to nine species of bats, all of which are voracious insect eaters. Only two of these species are readily seen and tend to roost in large colonies occupying man-made structures. They are the little brown bat and the big brown bat.

The most likely bat you will see on an evening stroll in the Northeast is the little brown bat, Myotis lucifugus. This little bat is smaller than a mouse and ranges in color from brown to gray. They are most often spied roosting in buildings, usually old barns, located near a water source like a pond or a stream. Roosts may consist of a couple of individuals or can be a large nursery colony numbering in the hundreds. Care should be taken not to bother these nursery colonies; the pups are very susceptible to disturbances.

Little brown bats, as well as all other insect eating bats, employ echolocation in catching airborne insects. This has led to the common misconception that bats are blind. Bats can actually see quite well! These little bats are able to catch up to 1,200 insects in an hour; just imagine what a colony can consume in an evening. Mosquitoes beware! Little brown bats will leave their summertime breeding and feeding grounds to hibernate in caves of suitable temperatures. Look for them to return to your evening skies in late April or May with a healthy appetite for insects.

Big brown bats, Eptesicus fuscus, are commonly found in the same roosts as the little brown bat. Buildings seem to be a favorite roosting area but you may also find these bats in caves, tree hollows or other natural crevices. Big brown bats are also insect eaters and can consume quite a number of insects each night. A colony of 150 big brown bats can consume enough cucumber beetles to prevent the laying of more than 33 million rootworm larvae each summer. Rootworm larvae are one of the more destructive crop pests to farmers. Big brown bats usually hibernate for the winter months in caves, but they can sometimes be found under eaves or shutters hibernating alone. These amazing bats are able to survive sub-freezing temperatures by carefully regulating their metabolism.

Little Brown Bat Photo by Roger Barbour

The other species of bats found in the Northeast are solitary in nature and tend to roost away from man-made structures. They utilize tree hollows, crevices, bark and leaves. These bats include the Silver-haired bat, Lasionycteris noctivagans; Hoary bat, Lasiurus cinereus; Red bat, Lasiurus borealis; Small-footed Myotis, Myotis leibii; Eastern Long-eared Myotis, Myotis septentrionalis; Eastern Pipistrelle, Pipistrellus subflavus and the endangered Indiana Myotis, Myotis sodalis.

Bats play an essential role in keeping night flying insects and farm pests under control. If one bat can catch over a thousand insects in an hour, imagine the dent a colony can make in nighttime biting insects. In Bracken Caves, Texas, the colony of 20 million Mexican free-tails Tadarida brasiliensis consumes 200 tons of insects each evening! In the biologically diverse rainforests, bats are primary pollinators for numerous plant species. In fact, bats pollinate more rainforest species that any other pollinator.

I recommend reading Merlin Tuttle's book, America's Neighborhood Bats, or logging onto Bat Conservation International's website at www.batcon.org for more information on the amazing bat diversity found in our region and around the world. So next time you are out for a hike at dusk, look above, you may see some bats zigzagging overhead in pursuit of some insects.

Chris Grant and his wife Kim own Indian Chimney Farm in Lansing, NY. They raise and sell top quality alpaca and alpaca clothing, train performance horses, and more. This article and others by Chris and Kim are posted on their web site at www.indianchimneyfarm.com.

BUSINESS MANAGEMENT

New York State Ups Its Minimum Wage

Make Sure Your Small Farm Is In Compliance

By Joan Petzen

The New York State minimum wage increased to $6.00 per hour as of January 1, 2005. It will increase to $6.75 per hour as of January 1, 2006 and to $7.15 per hour as of January 1, 2007. Any increase in the federal wage above the state rate will result in an increase in the state's minimum wage. The New York State Department of Labor web page is your resource for minimum wage information, www.labor.state.ny.us/index.html.

NEW YORK MINIMUM WAGE STANDARDS FOR FARM WORKERS

The Minimum Wage Order for Farm Workers applies only to farm workers employed on farms where the total cash remuneration paid all persons employed on the farm exceeded $3,000 in the previous calendar year.

The Minimum Wage Order for Farm Workers provides that all workers, with certain exceptions, must be paid at least $6.00 per hour. This wage became effective on January 1. 2005. It will increase to $6.75 per hour as of January 1, 2006 and to $7.15 per hour as of January 1, 2007. This does not include members of the employer's immediate family and minors under 17 years of age employed as hand harvest workers on the same farm as their parents or guardians and who are paid on a piece-rate basis at the same rate as employees over 17.

Minimum Wage Requirements for New York State Farms (Rate per Hour unless Otherwise Indicated)		
Farm Minimum Wage[1]	January 1, 2005	$6.00
	January 1, 2006	$6.75
	January 1, 2007	$7.15
Youth aged 16 and 17 (certificate needed)		
Harvesting		
First Harvest Season		$3.60
Second Harvest Season		$3.80
Third Harvest Season		$4.25
Non-harvesting		
First 300 Hours		$3.60
Second 300 Hours		$3.80
More than 600 Hours		Farm Minimum Wage
Youth under 16 (farm work permit required)		$3.20
1. The state general minimum wage for nonagricultural workers is the same.		

The wage order permits specified allowances to be deducted from the minimum wage for meals and lodging supplied by an employer. However, an allowance for lodging is not permitted in the case of seasonal migrant workers. Payments in kind may be permitted at not more than the farm market value.

Minimum Wage Allowances for New York State	
Meals[2]	$1.70
Lodging (dormitory style) and Utilities[3]	
Single occupancy (per week)	$18.95
Multiple occupancy (per employee per week)	$12.65
House or Apartment and Utilities[4]	
Individual employee (per day)	$5.00
Employee whose family resides with employee (per employee per day)	$8.00
Payment in kind (milk, eggs, meat, etc.) acceptable to the employee	Cost or farm market value
2. No allowance for meals may be considered part of the minimum wage if a seasonal migrant employee earns less than $254 in a two-week period other than by reason of a voluntary absence.	
3. This allowance cannot be used for migrant workers.	
4. This allowance cannot be used for migrant workers. When a house or apartment and utilities are provided by the employer (no lodging allowance is permitted if utilities are not provided), a fair and reasonable value of comparable facilities in the area or the rates listed.	

POSTING REQUIREMENTS

Employers must post a summary of the wage order in a conspicuous place in their establishment. A copy of the minimum wage order poster is available at the NYS Department of Labor web site, www.labor.state.ny.us/pdf/ls110.pdf. A copy of the general work agreement must also be posted. A farm work agreement must include but is not limited to:
1) Full name, address and telephone number of the employer,
2) The location and type of work,
3) Housing arrangements, including cost, number of rooms, cooking arrangements,
4) Allowances, if any, for meals and lodging to be deducted from wages,
5) Benefits to be provided by the employer,
6) Wages to be paid and time of payment,
7) Period of employment,
8) All other planned payroll deductions,
9) Non-economic terms and conditions of employment, and
10) Overtime provisions

Sample copies (both in English and Spanish) of the farm work agreement are available on the web from the New York Farm Bureau, www.nyfb.org.

These regulations are all aspects of the New York State Minimum Wage Order for Farm Workers. There are other regulations that farm employers must adhere to. Many times it is unclear which rules apply to farms that employ only family members. A fact sheet summarizing the labor regulations that apply to farm families, "Family Farms and Labor Laws" is available on the web at www.cce.cornell.edu/allegany-cattaraugus, look in the farm management section of the agriculture page. This fact sheet will give farm families good insight into the regulations they need to follow and keep up with.

Joan S. Petzen is Extension Issue Leader for Agriculture & Natural Resources, and Business Management with Cornell University Cooperative Extension of Allegany/Cattaraugus Counties. This article is based on information provided by the NYS Department of Labor at: www.labor.state.ny.us/index.html, and in the bulletin Farm Labor Regulations by D.A. Grossman & J.D. Minard, Department. of Applied Economics and Management, Cornell University.

COWS AND CROPS

Are You Growing the Most Advantageous Crop?

By Bill Henning

The 2005 Cornell Guide for Integrated Field Crops Management is out and about the countryside now. I still think 'Cornell Recommends' is a lot easier to say. The new guide says, "Alfalfa may still be the queen, but perennial grasses are starting to storm the castle..."

In recent years we have discovered that perennial grasses, when properly managed, can compete very favorably with alfalfa and corn silage in dairy rations. While it is highly unlikely that the grasses are ever going to eliminate alfalfa and corn silage, they do offer more options to better match soil types, micro-climates, and time management. The table shows how the different grasses compare under different situations.

Fifty or sixty years ago it was not uncommon to take one cutting of hay. The cutting edge of grass management today is taking four, sometimes five, harvests per season. But it's not hay. Hay crop silage or baleage is required. Harvesting the hay crop as silage reduces the weather risk and allows us to get the crop off the field quicker. Regrowth starts sooner and we can take more cuttings - about every 30 days.

Another aspect of modern management is cutting before the seed head emerges. This can produce forage that approaches 90% of the energy of corn silage with twice the protein. Thus from harvesting in the vegetative state we get high quality and from multiple cutting we get tonnage.

Obviously high tonnage of high quality forage requires a well-fed crop. This generally means maintaining soil pH at about 6 or better with P and K fertility based on soil analysis. It also requires 100 pounds of actual N per acre at green-up and 50 pounds of N after each cutting, except the last cutting of the season when no N would be applied.

While grass growth is very water dependent this management appears to work rather well in both wet years and dry years. Bruce Tillapaugh of Wyoming County Cooperative Extension has been conducting grass trials for the last several years. On poorly drained soils he has obtained yields that would rival corn silage on similar soils. On moderately drained soils he has topped 28 tons on a 65% moisture corn silage equivalent.

Should you be taking a closer look at perennial grasses? That depends on your particular set of circumstances. Everyone's farm is unique. There is a chance that grasses just might be the 'tweak' you're looking for if you feel your forage program just isn't quite what you'd like it to be.

		Forage	***Fit***		
	Poor Drainage	*Excessive Drainage*	*pH Tolerance*	*Winter Survival*	*(Heading Date) **
*Best * (Early)*	Reed Canary	Reed Canary	Tall Fescue	Reed Canary	Orchard
	Timothy	Tall Fescue	Reed Canary	Timothy	Perennial Rye
	Tall Fescue	Orchard	Timothy	Tall Fescue	Reed Canary
	Smooth Brome	Smooth Brome	Orchard	Smooth Brome	Smooth Brome
	Perennial Rye	Timothy	Perennial Rye	Orchard	Tall Fescue
*Worst * (Late)*	Orchard	Perennial Rye	Smooth Brome	Perennial Rye	Timothy

Forage Fit. Adaptation of various forages to environmental conditions.

HORTICULTURE

Stepnoski Farm -- Adapting to Changing Markets

By Bernadette Logozar

Seven years ago, Cathy and Frank Stepnoski decided to move house and home. Originally from the Eastern part of Long Island, Frank worked as a plumber and Cathy was a hairdresser. They also worked in between in the greenhouse and vegetable growing business. They started their farm in Northern New York from "scratch". Frank's skills in the construction business have enabled the Stepnoskis' to do all the construction work for the greenhouses themselves. "With a lot of help from our families when they visit" said Cathy.

When asked why they chose to relocate to the North Country, Cathy says, "We wanted to get into farming on a full-time basis, and raise our children in a more rural area. The North Country reminded us of how Eastern Long Island was when we were growing up." Besides, the North Country had "the most affordable farm land left on the Eastern seaboard and allowed us to get a start," adds Frank.

DIVERSIFYING OUT OF DAIRY….
The Stepnoskis' ran a small dairy full-time alongside their full-time greenhouse operation until May 2004 when they sold their cows. They put up their first greenhouse in 2001, added four more in 2003 and another four last year. 2004 was the first year of producing only vegetables on the farm. They presently have 16,000 square feet under cover in production, plus three acres available for field vegetables. Ultimately, Frank says their goal is to have 20,000 square feet under cover.

Stepnoski Farm used to grow pretty much everything from Arugula to Zucchini, A to Z, plus herbs and fresh cut flowers, but have streamlined their production for the 2005 season. With rising fuel costs nipping at their heels, Frank and Cathy have had to rethink what they would grow and how they would market their products.

SPECIALIZING IN CUT FLOWERS…
With this in mind, Stepnoski Farms is shifting from producing mostly vegetables to a focus on fresh cut flower production. "This year we will be doing 90% cut flowers and the rest vegetables, mainly hot house cucumbers, melons and tomatoes," says Frank. "This way we can start the greenhouses a bit later and put more energy into finishing the plants than in starting them."

Their products are also naturally grown. Although, Stepnoski Farm is not certified organic, they are the closest you can come. Any products they use are approved for organic growers.

ACTIVELY PURSUING NEW MARKETS…
As for marketing their product, Cathy and Frank are always looking for options and alternatives. Last year, they supplied vegetables to five local restaurants and also marketed at local farmers markets. The Stepnoskis' are currently members of the Adirondack Farmers' Market Co-operative (AFMC) and the tri-county Adirondack Harvest Marketing Project.

This year Stepnoskis' plan to attend multiple farmers' markets in addition to their retail markets and a few wholesale accounts, such as a fresh cut floral supplier. Cathy will be managing the AFMC Malone Farmers' Market. They also sell directly to customers right from their farm stand.

If you would like to know more about the Stepnoskis' greenhouses and how they made the switch from dairy farming, you can call them at (518) 483-9725 or email them stepfarm@northnet.org. For more information about any of the details contained in this article or assistance on marketing in NNY you can contact Bernadette at CCE Franklin County at 518-483-7403 or via email at bel7@cornell.edu.

Bernadette Logozar is Rural & Ag Economic Development Specialist with Cornell Cooperative Extension of Franklin County. For more information or assistance on marketing in NNY you can contact her at 518-483-7403 or bel7@cornell.edu. An earlier version of this article first appeared in Franklin County CCE's Rural & Ag Economic Development Quarterly, April-June 2003.

Stepnoski Farms is changing the landscape of agriculture in NNY. Shown here are four of their 9 greenhouses, which are in production 3/4 of the year. Photographer: Cathy Stepnoski

Stepnoski Farms bring customers in Franklin County fresh vegetables at reasonable prices. Stepnoskis also supply produce to several restaurants in Malone, Plattsburgh and Saranac Lake. Photographer: Cathy Stepnoski

Stepnoski Farms offer a range of colorful bedding plants for sale during the annual "Plant Day" at local farmers' market in Malone, NY. Photographer: Bernadette Logozar

MARKETING

Great Product, Great Market - But How Do You Connect the Two?

By Jude Barry

You work at producing a great product to meet that market desperate for your product, but then what? What is the most effective way to get that product to your customer?

One would think getting product from A to B is a relatively straightforward process, but there are a number of factors to consider to ensure that your distribution arrangements are effective for your business. To explore some of the considerations for distribution from the farm to the customer, we can divide distribution options into 2 major categories; distribution directly from the producer and third party distribution.

Distribution options – Producer delivery. Bibbens Farm, Weedsport, NY.

DISTRIBUTION DIRECTLY FROM THE PRODUCER

Distribution direct from the producer is a common way for small farms to reach niche markets and has both pros and cons for moving product from A to B. For some producers direct distribution is a cost effective use of their time. For others it is not. Direct distribution methods include:

Customer pick up. Direct distribution arrangements where the customer comes to the farm include retail farm markets, some CSAs, Pick-Your -Own operations, and other on-farm arrangements. Often a niche market is being reached and the prices commanded could be relatively high depending on the service and quality provided on the farm. Having your customer come to you may seem like a cheap method of distribution because the customer is putting gas into his or her own vehicle and sometimes even picking the produce!

However, there are costs to the farm which are worth considering. If a customer sets foot on your property, there are liability risks and subsequently expenses to manage those risks. In addition to sensible property management, adequate liability insurance to cover the property can minimize liability damage to the business.

In addition to purchasing your product, customers coming to the farm will want to engage in some of your time. People require attention, particularly those who come to the farm for the "experience." They might want to know what the beef was fed or just spend 5 minutes chatting about the weather. We all know that time costs money. Depending on how many customers arrive in the day, you may need additional employees or the help of other family members to handle these sales.

Farmers' Markets. At a farmers' market the producer takes product to a central location for customers to purchase and take away. These customers may be retail customers, in other words consumers, or wholesale customers.

The advantages of distributing through a farmers market are that these markets operate at predictable times, allowing for planning. There may be minimal vehicle costs, although a vehicle to transport to the farmers market still needs to be maintained. In addition liability insurance for distribution is typically paid for by the market. Although the producer still needs to maintain some liability insurance for food products sold, risk to the producers business can be somewhat reduced.

Those that stand at farmers' markets in the rain and 100o weather will also tell you there are disadvantages compared to driving around in a climate-controlled cab! Produce quality can suffer in adverse weather as can the producer! As with all direct marketing methods, farmer's markets require considerable preparation, selling time and product shrinkage.

Producer delivery. This once popular method of distribution seems to be making something of a come back among small farmers in some areas. It can be cost effective to provide local deliveries of large, high-value orders such as meats and specialty products, where the cost of third party distribution can be very high. It is important, however, to calculate all of the actual costs of delivering goods. Depreciation on vehicles, gas and time are factors that should be included in calculating the cost of delivery, and resulting profitability.

THIRD PARTY DISTRIBUTION

This kind of distribution involves selling to a third party for delivery to the final customer. This includes:

Cooperatives. Many cooperatives are formed as a result of the need to cooperatively distribute product. They are usually producer owned and governed and so are set up to meet the unique needs of producers. For smaller producers cooperatives can provide economies of scale for cost structure and may also help to overcome supply issues for larger orders.

A cooperative is a legally incorporated business entity that requires upfront capital, organization and time commitment on the part of its members. Cooperatives might assist in all or part of the distribution issue. Product still has to reach the cooperative for distribution. In the case of milk, most cooperatives collect. In the case of fresh produce where season and orders vary considerably, many small cooperatives require produce be delivered to a central location.

Distribution Options – Farmers' Markets. Vaughn Anna, Auburn Farmers Market Photographer: Jude Barry

Private delivery service. With internet sales increasing at a rapid rate, private delivery services are expanding. Services can be anything from local, regional, into metropolitan areas or global. How perishable a product is and how it needs to be packaged will influence whether or not a product can effectively be sent via a private delivery firm.

High-value food products are increasingly marketed via such services. Meats, fruit, wine and cheese are some examples. Costs of such a delivery service may not be more expensive than other distribution methods, but they are usually paid by the customer, which in turn requires a specific type of buyer willing to pay those costs.

Agricultural wholesalers and private distributors. These are known as some of the "middlemen" that serve in the distribution network. Wholesalers and private distributors tend to serve regional, state and national areas. These folks tend to be specialists and so can provide a relatively cost effective and efficient service. They also generally have established markets that they serve, which can be restrictive, but can also offer specific opportunities for different producers. Naturally as everyone is trying to make a living, these folks have costs. However, in a similar way to cooperatives, as they are distributing for a number of people and are likely to benefit from backloads, their costs may be more efficient than delivering directly.

There are many distribution options for small farmers, but getting the right option at the right price can make the difference between a well-marketed product and a poorly-marketed product. Both the producer and the customer experience the distribution price and service, therefore having the right formula for moving product into the hands of the customer is vital to remain competitive.

Jude Barry is an Extension Associate with the New York Agriculture Innovation Center in Cornell's Department of Applied Economics and Management. She can be reached at 607-254-4741 or jab267@cornell.edu.

MARKETING

The Good News About Animal Fat

By Julie Berry

A trans fatty acid in milk and meat products is raising interest from both farmers and consumers because of its amazing array of health benefits.

The fatty acid, conjugated linoleic acid (CLA), is proven through animal and some human studies to help prevent cancer, prevent diabetes, prevent obesity and promote muscle development, reduce cholesterol, enhance the immune system and enhance bone mineralization.

While trans fatty acids are in general recognized as the "bad fats" that contribute to heart disease, exceptions are being made for those that contain CLA. On January 1, 2006 when the US Food and Drug Administration begins requiring labeling of the amount of trans fats in foods and dietary supplements, CLA will be omitted.

What exactly is CLA? Molecularly, CLA is a fatty acid that has two double bonds on adjacent carbon atoms. Practically, CLA is a fatty acid that is made in the rumen and udder of ruminants, including beef and dairy cows. CLA has slightly different isomers, or physical structures, that in part account for the array of health benefits.

Foods derived from animals are the only source of CLA and foods from ruminant animals, such as cattle, contain much more CLA than foods from nonruminants, such as pigs. Dairy products from ruminants are estimated to have nearly double the CLA concentration of meat. However, CLA is a fatty acid so its content in dairy products is dependent on the CLA concentration in the fat of the raw milk.

CLA is unusual because it can both stop the growth of tumors and prevent new ones from forming. At Cornell University, Dr. Dale Bauman's animal science group designed a dairy cow diet to enrich CLA levels in milk, then collaborated with Dr. Dave Barbano's food science group to create CLA enriched butter. This butter, which contained high levels of the cis 9, trans 11 isomer, was then used by researchers at the Roswell Park Cancer Institute in studies of breast cancer in rats.

"This study was among the first to show that a naturally occurring anticarcinogen, fed as a component of a naturally produced food was anticarcinogenic in a biomedical cancer model," wrote Dr. Bauman on his group's CLA Web site.

Cancer studies like the ones done in rats have not and will not be conducted in humans, because humans ethically should not be knowingly exposed to carcinogens. Several epidemiological studies that track a large group of people for a long period of time, including a Finnish National Public Health study and a Harvard Medical School study of 89,000 nurses, support a "protective effect" associated with milk consumption.

Data from these and other studies led the National Academy of Sciences in 1996 to state that "...CLA is the only fatty acid shown unequivocally to inhibit carcinogenesis in experimental animals."

CLA can also reduce fat. In humans, the cis 10, trans 12 isomer of CLA lowers fat. CLA doesn't melt fat off humans, instead it prevents fat from building up. However, dose, duration and the chemical composition of CLA impact effectiveness. Additional studies need to be conducted to evaluate if sex or age impact effectiveness of CLA. Meat products have the highest amount of the 10, 12 isomer, but this isomer only accounts for approximately 2 percent of the total CLA, which is much less than what is needed to have these fat-reducing effects. However, dietary supplements with enriched 10, 12 isomer levels may be effective.

CLA may also have benefits for diabetics. In a study at Northwest Hospital, referenced in the Annual Review of Nutrition, people with type 2 diabetes who supplemented their diet with 6 grams of CLA a day for 8-weeks significantly decreased fasting blood glucose, plasma leptin, body mass index and weight. CLA makes rats that are predisposed to diabetes, or have irregular blood sugar levels, produce more insulin and makes them more responsive to this insulin. So, if CLA works the same way in humans, diabetics might be able to take less insulin, because their bodies would be more sensitive to the insulin they have and they might be able to produce more of it.

CLA also has reduced atherosclerotic plaque formation in rabbits, but more research needs to be conducted to evaluate prevention of atherosclerosis and its role in reducing cardiovascular disease in humans. However, this is an exciting area of research in which the form of CLA found in milk fat has been shown to have these anti-atherogenic effects in the biomedical studies with animal models

Human trials have not been conducted yet, but animal trials suggest that CLA may promote maintenance of lean body mass during immune stimulation, especially in wasting diseases such as cancer or AIDs, and during late stages of autoimmune diseases such as lupus. CLA may also help reduce type I hypersensitivity reactions, leading to less severe immune responses to allergens, according to a review in Pharmacological Research "Conjugated Linoleic Acid: Implications for Human Health."

CLA is believed to exert these favorable impacts because it seems to control the production of a family of molecules, called eicosanoids, that are found in virtually every tissue of the body. These eicosaoids send signals to other molecules by functioning as hormones, which play a role in the development of many diseases, including cancer. The immune system can be modulated by CLA, because through eicosanoids, CLA modulates the production of cytokines. Cytokines are chemical messengers that tell other immune systems when the body is sick. These immune cells then break down muscle to provide energy to fight disease.

Cytokines also cause bones to weaken and waste. So, by modulating cytokines and eicosanoids, CLA may prevent osteoporosis.

The challenge for farmers is to identify how to create dairy products with the highest amount of CLA. Pastured animals seem to produce higher levels of CLA. And the genetics of some cows seem to make them better at producing CLA. A number of studies, including my honors project with Dr. Dale Bauman at Cornell University, determined that feeding diets with high amounts of certain plant oils, including sunflower oil, stimulates CLA production. The New York Department of Agriculture and Markets also recently funded another feeding trial on a Cayuga dairy.

Processing may play some role as higher fat dairy products, such as butter, have higher CLA content than lower fat products, such as skim milk. Dietary supplements of CLA don't seem to have the same potency as animal products that contain CLA, and they aren't regulated by the Food and Drug Administration, so variations in concentration can occur.

In addition to the excellent source of calcium, high quality protein, energy and a variety of vitamins and minerals, scientists through research on CLA are continuing to prove the value of milk and other dairy products in a healthy and balanced diet.

Julie Berry is a Community Educator with Cornell Cooperative Extension of Jefferson County. This article first appeared in the Watertown Daily Times.

STEWARDSHIP AND NATURE

Beneficial Bats

By Kim Grant

Bats belong to the order Chiroptera, which means hand-wing. They are among the most diverse and geographically dispersed mammals. Of the 4,000+ species of mammals, bats comprise approximately 1,000 of the species; only the rodent family has more species. The ability to fly sets bats apart from all other mammals; flying squirrels actually glide.

Bats are found in all climates except the most extreme desert and polar regions. Dietary requirements are also very diverse, and include insects, fruit, nectar, pollen, blood, fish and other vertebrates. Some bats in northern climates hibernate during the cold season while others live in mild equatorial regions and enjoy year-round food supplies. Unfortunately, bats are highly susceptible to environmental and habitat disruption despite their adaptations and abundance.

North America is home to approximately 40 species of bats; the majority of these are insect feeders. New York State is home to nine species of bats, all of which are voracious insect eaters. Only two of these species are readily seen and tend to roost in large colonies occupying man-made structures. They are the little brown bat and the big brown bat.

The most likely bat you will see on an evening stroll in the Northeast is the little brown bat, Myotis lucifugus. This little bat is smaller than a mouse and ranges in color from brown to gray. They are most often spied roosting in buildings, usually old barns, located near a water source like a pond or a stream. Roosts may consist of a couple of individuals or can be a large nursery colony numbering in the hundreds. Care should be taken not to bother these nursery colonies; the pups are very susceptible to disturbances.

Little brown bats, as well as all other insect eating bats, employ echolocation in catching airborne insects. This has led to the common misconception that bats are blind. Bats can actually see quite well! These little bats are able to catch up to 1,200 insects in an hour; just imagine what a colony can consume in an evening. Mosquitoes beware! Little brown bats will leave their summertime breeding and feeding grounds to hibernate in caves of suitable temperatures. Look for them to return to your evening skies in late April or May with a healthy appetite for insects.

Big brown bats, Eptesicus fuscus, are commonly found in the same roosts as the little brown bat. Buildings seem to be a favorite roosting area but you may also find these bats in caves, tree hollows or other natural crevices. Big brown bats are also insect eaters and can consume quite a number of insects each night. A colony of 150 big brown bats can consume enough cucumber beetles to prevent the laying of more than 33 million rootworm larvae each summer. Rootworm larvae are one of the more destructive crop pests to farmers. Big brown bats usually hibernate for the winter months in caves, but they can sometimes be found under eaves or shutters hibernating alone. These amazing bats are able to survive sub-freezing temperatures by carefully regulating their metabolism.

Little Brown Bat Photo by Roger Barbour

The other species of bats found in the Northeast are solitary in nature and tend to roost away from man-made structures. They utilize tree hollows, crevices, bark and leaves. These bats include the Silver-haired bat, Lasionycteris noctivagans; Hoary bat, Lasiurus cinereus; Red bat, Lasiurus borealis; Small-footed Myotis, Myotis leibii; Eastern Long-eared Myotis, Myotis septentrionalis; Eastern Pipistrelle, Pipistrellus subflavus and the endangered Indiana Myotis, Myotis sodalis.

Bats play an essential role in keeping night flying insects and farm pests under control. If one bat can catch over a thousand insects in an hour, imagine the dent a colony can make in nighttime biting insects. In Bracken Caves, Texas, the colony of 20 million Mexican free-tails Tadarida brasiliensis consumes 200 tons of insects each evening! In the biologically diverse rainforests, bats are primary pollinators for numerous plant species. In fact, bats pollinate more rainforest species that any other pollinator.

I recommend reading Merlin Tuttle's book, America's Neighborhood Bats, or logging onto Bat Conservation International's website at www.batcon.org for more information on the amazing bat diversity found in our region and around the world. So next time you are out for a hike at dusk, look above, you may see some bats zigzagging overhead in pursuit of some insects.

Chris Grant and his wife Kim own Indian Chimney Farm in Lansing, NY. They raise and sell top quality alpaca and alpaca clothing, train performance horses, and more. This article and others by Chris and Kim are posted on their web site at www.indianchimneyfarm.com.

Continued from prev. page

My first spray application, on May 10, was applied when the garlic was at 18" height, using a drift guard to protect the garlic as much as possible. While there was damage to the lower 1 or 2 leaves in the form of tip burn it later proved to be cosmetic. The four subsequent applications seemed to have little visible effect on the then mature garlic and I removed the drift guard for the final 2 applications.

All test plots demonstrated effective broadleaf control but those that were sprayed on both sides of the row were almost totally devoid of broadleaf weeds. With regard to the garlic crop, I saw no difference in plant size, maturity date, quality, yield, and bulb size between the test and control plots.

This field trial revealed a substantial saving of labor for in-row cultivation of garlic. It would require 20 hours to manually in-row weed half an acre. One can basally spray the same plot in 1 hour. This represents greater than a 90% reduction in labor!

THE IMPORTANCE OF SPRAYER TECHNOLOGY AND KNOW-HOW

It is important to understand the equipment and technology prior to embarking on a spray program. To this end I received training and equipment recommendations from Dr. Andrew Landers at CornellCornell. I am convinced that without this knowledge and the selection of appropriate equipment this project would have been unsuccessful. I have seen studies that indicate a large percentage of spraying programs suffer from inadequate equipment and applicator knowledge. Therefore the following principles should be understood prior to starting your own program.

The goal in herbicide spraying is the uniform application of the product on the weeds. Uniform application is achieved through the use of calibrated spraying equipment and selected travel speed. Sprayer calibration is accomplished by selecting the proper combination of pressure, volume and spray pattern for the target species.

As large droplets frequently bounce off leaves and small droplets drift, controlling droplet size minimizes drift, improves effectiveness of the product, and reduces waste. Droplet size is a function of pressure and nozzle flow rate. With no pressure controlling mechanism, the droplet size varies constantly with pressure changes in the sprayer and a poor result is certain along with inefficient and ineffective use of the herbicide.

Consequently it is necessary to understand and control the below three variables: To control pressure I used a device called a CFValve (Constant Flow Valve). It provides a constant flow regardless of varying input pressure. The second variable, the nozzle provides the flow rate and pattern. The third variable, travel speed, is necessary in maintaining accurate applications. Gallons per acre are a function of nozzle flow, pressure and travel speed. I used a Solo backpack sprayer with the CFValve @ 21.5 psi and a TeeJet XR11002VS nozzle. This produced a medium droplet @ 20 gallons per acre.

Five applications on a half-acre required 50 gallons of product. The purchase of a 55-gallon drum of 10% acetic acid vinegar costs $67. Thus the cost of each treatment is $13 versus 18 hours of manual labor. Shipping cost varies based on shipping distance and is not included in the equation. At conclusion of this project no soil pH changes were found.

All vinegar is produced from natural fermentation. The common white distilled vinegar I used is made from a source of corn-based ethyl alcohol. This vinegar is available in concentrations of 5-30%. A 55-gallon drum of 10% white vinegar, at the writing of this report, was $67 FOB the Fleischmann's plant in North Rose, NY. Higher strength 20% white vinegar is $122 per drum from the same source.

In this field trial I applied product at 20 gallons per acre, thus five applications on an acre would require 100 gallons of product. It would make good economic sense to purchase the 20% strength and dilute it with water 1-1, saving the expense of shipping two drums of 10% strength weighing 568 pounds each.

Finally consider the potential damage done to a small percentage of garlic plant while manually cultivating: My garlic sells at $4/lb. or $1/bulb. If one were to damage only a total of 1% of the plants on an acre during the 5 manual cultivations, rendering them un-saleable, it would represent a product loss greater than the cost of the vinegar!

As of this writing, the Organic Materials Review Institute(OMRI) has informed me that vinegar is approved for this use in organic production. At the end of the season vinegar has an advantage over other herbicides in that it can be mixed with oil and water and tossed with your salad. Vinegar the incredible edible herbicide!

The full report will be available from SARE at their website sometime in the future. Meanwhile I would be happy to forward it per your request. It is in Microsoft Word format.

Disclaimer: This is not for those inexperienced in dealing with caustic chemicals. The misuse of vinegars of >10% acetic acid can cause serious eye damage. (USDA-Beltsville).

Fred Forsburg raises garlic mixed vegetables and pastured poultry at Honeyhill Farm in Livonia, NY. As a relatively new farmer and an active networker, Fred is happy to share what he's learning with others. Feel free to contact him at 585.346.3829 or fnforsburg@usadatanet.net.

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