WINTER 2010

SMALL FARM QUARTERLY

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

Feature Articles

Supplement to Country Folks

SMALL FARM QUARTERLY - WINTER 2010

TABLE OF CONTENTS

Cover photo by Melody Ko: Sifiso Tavuyanago from Zimbabwe, growing her native maize at White Gate Farm in Dracut, Massachusetts.

SMALL FARM QUARTERLY

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

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

OUR GOALS ARE TO:

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

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Cornell Small Farms Program Update

SMALL FARMS PROGRAM TO HOST 2010 SUMMIT

The Small Farms Program will once again be hosting a state-wide Small Farms Summit in early March. Previous Small Farm Summits have provided an opportunity to reflect on progress to date in meeting the needs of New York's smaller farms. The Summit has also served to identify emerging opportunities that may warrant increased attention from those of us in research, education and other farm services and to cultivate new collaborations. We expect to once again offer video conference connections to locations around New York so that we may include the widest spread of farmers, researchers, extension educators, agency representatives and NGO leaders possible. To learn more about previous Small Farm Summits, visit: www.smallfarms.cornell.edu/pages/projects/smallfarmssummit.cfm

TWENTY-SIX STUDENTS GRADUATE BF 101 ONLINE COURSE

Small Farms Program staff Erica Frenay, who coordinates the NY Beginning Farmer Project, co-taught the online course "Taking Stock: Evaluating Your Resources and Choosing a Farm Enterprise" this past Fall. The course helped the 26 participants get clearer on their goals and mission, evaluate their physical soil and infrastructure resources, and choose farm enterprises best matched to their skills and situation. It included inspiring webinars connecting students to successful farmers, exercises, and lively online discussion. Michael Getty, a course participant, writes, "This course has really increased my excitement over my future in agriculture. All of the resources you have been providing help provide an increased confidence in the choices we have to make." To learn more about the NY Beginning Farmer Project, visit: www.nybeginningfarmers.org/

ENERGY ON THE FARM: FARMER'S STORIES

The Small Farms Energy Work Team, a project of the Cornell Small Farms Program, has published a series of profiles that explain New York's farmers' strategies for conserving energy and their investments in renewable energy technologies. The profiles will appear in a new "Farm Energy" track in the Small Farm Quarterly over the course of the year. The stories span everything from homemade biodiesel to radiant floor greenhouses. In addition to the profiles, the Small Farms Energy Work Team will be hosting "Energy Conservation" workshops around the state this Spring. To read the collection of profiles and learn more about the Work Team's projects, visit: www.smallfarms.cornell.edu/pages/projects/workteams/energy/energy.cfm

For more information about the Cornell Small Farms Program, and to search our extensive collection of on-line resources for small farms, visit www.smallfarms.cornell.edu.

URBAN AGRICULTURE

Goats, Sheep and Chickens in Your Suburban Backyard?

Not so fast, says this experienced sheep farmer.

By Martha Herbert Izzi

Recently the Boston Globe reported that two female goats were found abandoned in an industrial park in Norfolk, Massachusetts, a suburb located about 20 miles southeast of Boston. They were said to be "scared and a little on the thin side" but a local veterinarian found them to be in otherwise good health.

By no means does this event signal a trend but it deserves some thoughtful consideration as "urban farming" gains momentum in the mainstream media. Glossy magazines, books and newsletters are coming on line heralding the virtues of keeping goats, sheep and chickens, to name a few of the livestock that are reportedly gaining popularity in suburban neighborhoods. Talk to any garden supply company and they will tell you that their big sellers are designer chicken coops for the backyard enthusiast who yearns for fresh eggs and juicy chicken parts.

THE GOOD NEWS

The good news is that thousands of suburbanites are discovering the extent to which they can produce their own food at least part of the year. As a result they are being encouraged to turn their demanding, and often extensive lawns into productive healthy food sources to extend their "sustainable living" lifestyles - sometimes under the guidance of a "personal gardener" or tutor. Thousands have become devoted converts to locally grown, fresh produce and meats. They are drawn to farmers markets, organic farms, cooperatives, and they are largely responsible for the remarkable growth in community supported agricultural programs.

So the idea of owning a few cute backyard livestock is not all that surprising. But those writers and publications who are making the idea of owning a few ruminants or chickens seem like an easy venture have a responsibility to inform inexperienced readers and potential owners of the needs and behaviors of domestic livestock, especially ruminants. The rush to have "billy and nanny" is similar to the "puppy under the Christmas tree syndrome." That story often has an unhappy ending as families discover that owning a dog is a major commitment of time, patience and money.

THE BAD NEWS

Goats are canny creatures who will work relentlessly on a gate or an exit until they figure out how to get what they want. And most of the time, that's OUT. It is not difficult to imagine the mood of the next door neighbor who wakes up to find the intrepid goats browsing on his garden, shrubs, outdoor furniture or whatever suits them.

Goats, especially Alpines, are jumpers, amazing jumpers, who can scale very high fences and usually are stopped only by very high or electric fencing. Not a good idea in the suburbs. Goats can be noisy and, combined with a few chickens in the clutches of a rooster, the tranquil environs of the neighborhood are easily shattered.

Then there is the issue of suburban vets who are not likely to come out to "Bonney Drive" when an animal has scours or is down for some other reason. Most vets won't let a scouring animal in their offices for a quick visit and most vets who treat dogs, cats and guinea pigs are not called to treat the various parasites and serious illnesses that a ruminant can develop.

In reality the growth of backyard livestock must be seen as a fad much in the way that owning alpacas, emus and cashmere goats became a fad in recent years. But we didn't hear of abandoned animals very much with those particular fads. Sadly, I suspect we'll hear of more abandoned animals in industrial parks, school yards and shopping centers if the idea of suburban backyard livestock spreads much further.

THE "COMMUNITY FARM" ALTERNATIVE

An alternative which is gaining ground in some places is the idea of an urban or suburban farm located in the local community and operated by a serious and experienced farmer who is hired and paid a salary, perhaps on tax-free land owned by the municipality. "Community farms" are indeed beginning to sprout up in more places than you might expect. Imagine this happening in every community! The idea gives new meaning to the phrase "community supported agriculture!"

As an alternative to backyard suburban livestock, community farms can be a more appropriate way to engage children and their parents in healthy eating, connecting them to their food sources and teaching the joys and delights of being around livestock -- especially goats!

Martha Herbert Izzi is from Bel Lana Farm in Shrewsbury,Vermont. She can reached at mhizzi@yahoo.com.

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Small Farm Quarterly is Recruiting!

We are looking for several new members to join the Small Farm Quarterly Editorial Team, and we are always looking for new writers and photographers. We are especially looking for editors and writers from outside of New York State, so that we can improve our coverage of New England and Pennsylvania small farm issues and innovators. All SFQ editors and writers are volunteers. If you're interested, please contact Violet Stone at 607-255-9227 or vws7@cornell.edu.

Local Foods & Marketing

Here's The Beef!

RK Farms' Kathy Engel worked with her local consumer co-op to meet their stringent requirements and build a local supply of high-quality, grass-fed beef

By Jennifer Wholey

Who doesn't love a little more variety? The ability to make informed choices has always been an important value for shoppers at GreenStar Cooperative Market, a member-owned consumer co-op in Ithaca, NY. Recently, GreenStar began offering more options to its meat-buying members. RK Farms, owned by Kathy Engel and Bob Preston, is GreenStar's newest supplier of beef.

Since its inception in the 1970s, Greenstar was a primarily a vegetarian food co-op. But in 2003 GreenStar members voted in two referendums to allow and govern the sale of red meat in the store, and in 2004 the co-op's "Criteria for the Fair Treatment of Animals" was established. The referendums require a team of GreenStar members to conduct inspections of any farm wishing to sell their products at the Co-op.

"GreenStar's member-owners decided in 2003 that they wanted GreenStar to sell only local, humanely-raised, natural meats," said Felix Teitelbaum, marketing staff and member of the Inspection Team, which ensures that the strict rules regarding the animals' living conditions, diet and method of slaughter are being followed.

The criteria outlined by the referendums are so stringent that only one supplier, Englebert Farms, which has sold pork and beef at the co-op since 2007, met the requirements until August, when RK Farms began selling beef at GreenStar. In compliance with the criteria governing GreenStar's sale of red meat, RK Farms beef is hormone- and antibiotic-free, 100-percent-grass-fed, all-natural and produced within 40 miles of Ithaca.

On May 22, GreenStar's Inspection Team visited the farm in East Steamburg, NY. The Team, which also includes General Manager, Grocery Assistant and a member-at-large, decided the farm meets GreenStar's criteria and approved RK's meat for sale at the Co-op.

Kathy Engel worked in GreenStar's Bulk Department from 2001-2003 and has worked in Grocery since 2007. "Working in the store helped me to understand our customers' interests and focus my efforts on raising beef that is in line with the ethical and environmental values of our membership," said Kathy.

RK Farms is home to ten Angus breeding cows, two Herefords and one Devon bull, named Rosco. "The Devon breed is one of the most ancient lines of English cattle, historically noted for superb tenderness and flavor. Devon cattle fell from favor with the advent of industrial feedlot beef management, because the animals fatten too quickly on grain and do not grow as large as modern beef types," Kathy noted. "Devon are 'grass cattle,' meaning they retain the genetic predisposition to fatten well on grass alone." RK is working to cross-breed the grass genetics of Devon back into the prime grading line of Angus cows.

The farm is also a member of the Seneca Beef Producers, who, with the help of a grant from the NY Farm Viability Institute, are conducting a cattle DNA project. Using hair samples taken from 15 producers' herds within the group, the breeding group DNA will be tested for genetic markers that indicate feed efficiency, tenderness and overall quality. The results of this project will help farmers to make breeding decisions that will improve their businesses. RK, for instance, plans to use the information to acquire cows with a predisposition for tender meat.

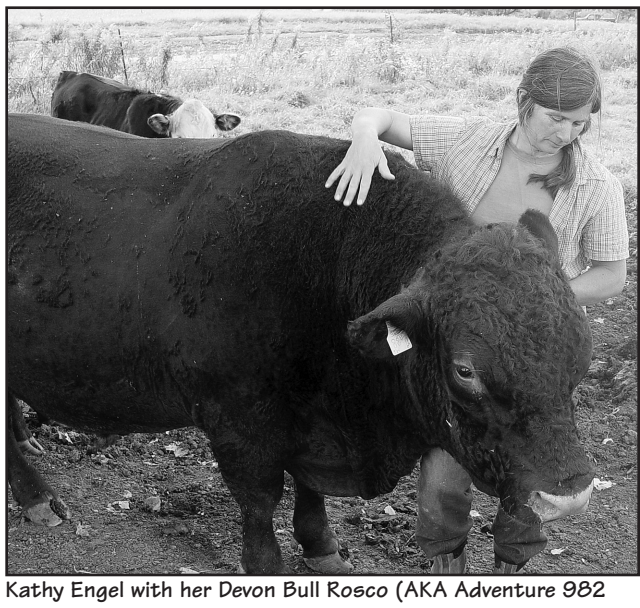
RK's products are now fully approved for sale at GreenStar, but they did not initially meet all of the Co-op's required criteria. The two areas of concern were an unfenced drinking water source and the use of a chemical wormer. Unfenced water sources have the potential to let animals track contaminants into the water. The area has now been fenced, and the cows can safely drink from a newly-installed trough.

RK's prior use of the wormer ivermectin was not specifically prohibited by GreenStar's policies, which require producers to use preventative health care methods that control parasites without the use of wormers. After meeting with the Inspection Team, RK agreed to discontinue using the wormer. Instead, the cows are fed a mineral and herbal supplement and are put into more intensive rotation grazing. These practices are able to effectively control parasites in the animals without the use of chemicals.

"I shifted my parasite-control focus to better pasture management. I added some pasture divisions to improve pasture rotation and switched to a mineral supplement with kelp and diatomaceous earth used by organic dairy farmers," Kathy explained. "By strengthening the overall resistance of the animals, parasite problems are minimized." She added, "I installed fences and troughs on the home farm to improve water quality and help break the parasite cycle."

GreenStar also stipulates that no chemical herbicides or fertilizers be used on the pastures on which the cows graze. RK's "home farm" meets this qualification, but during the summer the animals graze on Finger Lakes National Forest land under the Hector Grazing Association grazing permit.

This past summer the Forest Service tried to curb non-native invasive species on Forest land using chemical treatments. However, the Service used manual removal techniques in the areas grazed by RK's cows. Kathy was the first producer to work with Hector Grazing to discourage chemical weed control, and she is thankful that both the Association and the Forest Service were receptive to her requests for exempting the pasture used by her cows.



Kathy Engel with her Devon Bull Rosco (AKA Adventure 982 Rosco) bred by Adventureland Farm in Lodi, NY.
Photo by Joe Romano

The changes have improved RK's operation, and the best part is that RK and GreenStar worked together to address the issues in question. "I feel totally comfortable selling RK's beef having toured and screened the farm," said Jason Blake-Beach, Grocery Assistant and member of the Inspection Team.

"RK Farms' relationship with GreenStar has been progressive and cooperative in that we have worked together to build a local supply of high-quality, grass-fed beef that saves the customer money," said Kathy. "GreenStar buys directly from several small local farms, allowing the producer to distribute directly to the store. This reduces costs and shortens the carbon path from farm to table."

GreenStar's Inspection Team is pleased to have helped a local supplier bring their product successfully to market. "We are really happy that RK was willing to adjust their practices to comply with GreenStar's requirements. We are helping our producers farm more sustainably," said Felix.

This success is a testament to the strong commitment of GreenStar's staff and member-owners to local, sustainably-produced food. RK Farms adapted its practices to comply with GreenStar's criteria and thus expand its market, and GreenStar is now able to provide more variety to its customers. It's a win-win for all parties involved, including the cows.

This article first appeared in GreenLeaf, the newsletter of GreenStar Cooperative Market, and is reprinted with permission. Author Jennifer Wholey was an intern with GreenLeaf when she wrote this article. For more information about RK Farms visit devonangus.com or contact Kathy Engel at rkfarms@devonangus.com.

Grazing

Breeding and Marketing Grass-Fed Beef

From GeneStar to GreenStar

By Kathy Engel

My original intention as a cattle farmer was to market replacement heifers and feeder calves to grass fed beef producers. The idea of crossbreeding Devon and Angus cattle to improve forage efficiency by increasing rumen capacity and decreasing metabolism has proven to be very practical. As in the old days, grass beef farmers require animals that grow steadily without high energy feed.

An interesting affirmation of the metabolism assumption came out of the DNA analysis the Seneca Beef Group is been doing with GeneStar and the New York Farm Viability Institute. Jim Brown, a Seneca Beef member who is in his seventies, is a Charolais breeder in Fayette, NY. The DNA test results showed that Jim has animals in his herd that top the charts in feed efficiency along with marbling and tenderness.

In all our discussions, Jim has been saying that selecting for docility is a key factor in breeding cattle that will produce tender beef. This observation is based on his lifelong experience working with cattle in many situations. When Pfizer sent a geneticist to discuss results with our group, he was surprised by the exceptionally high values within Jim's herd of continental animals. When the scientist started discussing how well the herd had scored, Jim told him, "don't tell me about my top cattle, I know they're good, tell me how to improve the ones at the bottom."

This kind of country wisdom is in danger of being obscured by swinging trends in breeding to improve the profitability of feedlot based cattle production. Cattle did not evolve in feedlots and animals that stress easily are not easy keepers. A step back to the type of beef genetics that were functional before WWII, when cattle were raised on pasture without intensive inputs of corn and silage is necessary to sustain a farmer, a farm and a herd of cattle on sunlight and grass.

I switched from marketing calves to marketing beef when I started constructing a website to advertize Devon/Angus replacement heifers. Selling feeder calves was my solution to the problem of what to do with the steers without selling them into a feedlot. I started composing an outline of the economic advantages of buying feeder calves to finish on grass and inadvertently convinced myself that a person could actually make a living by raising grass fed beef.

Frankly, I had been dubious and wanted to simply sell animals and let someone else take the marketing risk. From that point on, I concentrated on working with GreenStar to make high quality local beef more available and affordable for our customers. GreenStar's cooperative approach is making the effort successful. Yet, I still want to sell replacement heifers. I regret sending my best animals to market for beef when they could be more valuable to someone else as breeding stock. Hopefully, in another year or so, I should have enough calves on the ground to give that plan another try.

For more information about RK Farms, their beef, and their cattle, visit devonangus.com or contact Kathy Engel at rkfarms@devonangus.com.

Need Info?
Visit the Cornell Small Farms Program online at www.smallfarms.cornell.edu.

HORTICULTURE

Getting Your New Blueberry Planting Off to a Good Start

Part 2: Extra Care Now Equals Big Yields Later

By Cathy Heidenreich & Marvin Pritts

In the previous issue we discussed getting your blueberries established on a firm foundation by carefully selecting and preparing the planting site well in advance of your target planting date. As the planting date approaches, here are a few more helpful hints to ensure you have many bountiful years of succulent blueberries to harvest!

ENSURING A SEASON LONG HARVEST
Remember individual varieties ripen over 2 to 5 weeks and differ in their ripening periods (early, mid, late, something in between). Select varieties across fruiting seasons to make yours a season long blueberry harvest: Plant two (or more) varieties with similar bloom times in alternating pairs of rows for the best cross pollination.

Choose your varieties to fit your needs. Are you interested primarily in fresh fruit? Fruit for freezing or processing? Larger, smaller, sweeter, or more flavorful berries? Nursery catalogs provide detailed descriptions of varieties and their characteristics. Table 1 lists Highbush blueberry varieties for a season-long harvest.

Table 1. Highbush blueberry varieties for season long harvest*

Very Early	Early	Early-Mid	Mid	Mid-Late	Late	Very Late
Earliblue	Duke	Bluejay	Atlantic	Berkley	Brigitta	Elliott
Bluetta	Hannah's Choice	Draper	Bluecrop	Bluegold	Coville	Aurora
	Ivanhoe	Northblue	Bluehaven	Bonus	Darrow	Liberty
	Reka	Northland	Blueray	Chandler	Jersey	
	St Cloud	Patriot	Cara's Choice	Herbert	Lateblue	
		Spartan	Hardyblue	Legacy		
			Sierra	Nelson		
			Toro	Rubel		
				Superior		

READY TO PLANT!
Plant your new blueberries as soon as the soil can be worked in late April through mid-May. Plants should be spaced 4 feet in-row; and at least 10 feet between rows. You will need approximately 1,089 plants per acre using this spacing. Mature plants may reach 3-4 ft in width. Be sure to allow sufficient room at planting to get machinery between rows at maturity. If you are considering a Pick Your Own (PYO) operation, your rows should not exceed 200 ft in length so your customers won't need to carry berries long distances.

Additional organic matter may be added by mixing a gallon of pre-moistened peat moss into the planting hole soil before backfilling. Peat holds soil moisture and nutrients, helps to lower pH, and improves soil texture, allowing better root penetration. Bales should be saturated with water and allowed to soak several days before planting. Incorporating peat into the entire row before planting is even better (but expensive).

Your planting holes should be wider than deep to accommodate blueberries' shallow spreading root systems. Set plants at the same depth they were planted in the nursery. Spread roots out, firming soil around them as you backfill. To further reduce planting stress, prune back the top 1/3 of the newly set plant and rub off any flowers buds as they appear. Flower buds should be removed for the first 2 seasons after planting to promote good plant establishment.

THE FINISHING TOUCHES
Drip irrigation may be laid either under or over mulch. Irrigate immediately after planting with 1 inch of water to help settle soil around roots. In general, blueberries need 1-2" of water per week, either by rainfall or irrigation, or a combination of the two. A rain gauge placed in the planting will help in measuring precipitation.

Mulch applied after planting helps suppress weed development, keeps blueberry roots cool, and helps conserve soil moisture. Softwood sawdust is the most common mulch used; wood chips, bark, straw, corn stalks and/or combinations of these are also suitable. The mulch material should be composted at least 9-12 months prior to use.

Apply mulch in a 3 foot wide strip (flat surface, not rounded or heaped) centered on the plants; mulch should be 3-5" thick. Landscape fabric may be used under the mulch for added weed suppression. Any cultivation of the area immediately adjacent to the plants needs to be extremely shallow (3") to avoid damage to developing roots.

While mulch helps in suppressing weeds in first year blueberry plantings, hand hoeing/weeding may still be necessary. Some contact (post-emergent) herbicides can be used to spot treat weeds during the planting year.

Mulch will need to be renewed every 2-3 years. Additional weed management measures (hand weeding/hoeing and/or herbicides) will also be needed on an annual basis to maintain a weed free planting. A word of caution - it is easier to do a little weed management each year than to try to reclaim a planting once perennial weeds and weedy tree species have become established.

Blueberries 8 weeks after planting - note drip irrigation Photos by Cathy Heidenreich

Bumblebee quad placed in planting to supplement native pollinators

Mature blueberry planting covered with bird netting at harvest

Permanent sod middles between blueberry rows are highly recommended. Work at Penn State University suggests hard fescues (80 lb/A) may be the best choice for this purpose. They are slow growing (less mowing) and withstand a lot of traffic. Fall-planted (Aug-Sept) sod middles tend to establish better than those planted in spring (Apr-May).

THE EARLY YEARS
Plant Nutrition - If you have done your preplant soil amendment homework correctly, no fertilizer is needed the planting year. Begin fertilizing the year after planting. Blueberries, unlike other plants, prefer ammonium forms of nitrogen (N), rather than nitrate forms - so no 10:10:10 for them! Choose instead an ammonium based nitrogen source, such as ammonium sulfate or urea. Urea, the less expensive ammonium based fertilizer, may be used when your planting is at the required pH. If your planting pH still needs to be lower, select ammonium sulfate instead; the sulfate portion of this ammonium-based fertilizer helps to further lower pH. Table 2 provides some general guidelines for fertilizing blueberries.

Table 2. Fertilizing Blueberries

Planting Age	Amount (actual N)	Amount by N source: Ammonium sulfate	Urea	Comments
0	0 lb/A			Soil should be adjusted to pH 4.5 prior to planting.
1	15 lb/A	73 lb/A	33 lb/A	Use ammonium sulfate where soil pH is >5.0. Split application between May and June
2	20 lb/A	98 lb/A	43 lb/A	"
3	25 lb/A	122 lb/A	54 lb/A	"
4	35 lb/A	171 lb/A	76 lb/A	"
5	45 lb/A	220 lb/A\	99 lb/A	"
6	55 lb/A	268 lb/A	120lb/A	"
7+	65 lb/A	317 lb/A	141 lb/A	"

Calculation: (lbs/A actual N desired ÷ percent N in nitrogen source) x 100 = lbs/A in nitrogen source

Fertilizer	% actual N in fertilizer
Ammonium sulfate	20.5
Urea	46.0

Pruning - Generally speaking, little or no pruning is required during the first 7-8 years of your blueberry planting. New canes emerge each year, eventually giving rise to a mature plant with about 16-20 canes of varying ages (2-3 canes for each year). When the oldest canes reach 7-8 years of age they become less fruitful and are removed. Do prune out any dead or injured canes by cutting them out at ground level.

Pollination - Blueberry flowers are not easily pollinated by honey bees; conventional hives may provide a moderate degree of pollination improvement. Native wild bees such as bumble bees are the most efficient blueberry pollinators. Quads of bumblebees may be purchased and placed in plantings if supplemental pollinators are needed. One source for bumblebee quads is Green Methods.com (http://green-methods.com/site/biocontrols/bombus/),

DID SOMEONE SAY BLUEBERRY COBBLER?
Your blueberry planting should begin producing a fruit crop the third year after planting. Harvest ripe fruit 2-3 days after it turns blue for best flavor and fruit size. Roll ripe berries from the cluster into the palm of your hand with your thumb. Limit fruit depth in containers to 2" to reduce bruising and speed cooling of fruit. Berries should be harvested every 2-3 days during the harvest period. Pick during the cool periods of the day, and refrigerate ripe fruit promptly. Avoid harvesting wet fruit to minimize possible fruit rots. Enjoy!

Cathy Heidenreich is the NYS Berry Extension Support Specialist. She can be reached at 315-787-2367 or mcm4@cornell.edu. Marvin Pritts is professor and chair of the department of Horticulture at Cornell University College of Agriculture and Life Sciences. He may be reached at 607-255-1778 or mpp3@cornell.edu.

DID YOU KNOW?

* Blueberries are members of the same plant family as rhododendron, azalea, Indian pipe, cranberry, huckleberry, and heath.

* This plant family, the Ericaceae, requires acid soil for good growth.

* Three types of blueberries are harvested commercially in the US: lowbush blueberry (wild cultivated), rabbiteye blueberry, and highbush blueberry.

* Highbush blueberry bushes take 8 years to mature, reaching 6 to 8 ft in height, 3 to 4 ft in width, and producing 8 lb of fruit annually.

* After flowering in the spring, blueberries produce fruit for about a 2 month period.

* Well-maintained blueberry plantings survive and produce for an average of 40 to 60 years!

Resource Spotlight

Selecting Blueberry Varieties

Cornell Nursery Guide for Berry and Small Fruit Crops
An annually updated list of blueberry and other small fruits varieties and the nurseries that sell them. Provides contact information for each nursery.
www.fruit.cornell.edu/Berries/nurseries/index.html

Cornell Guide to Growing Fruit at Home - Blueberries
www.gardening.cornell.edu/fruit/homefruit/7blueberries.pdf

Highbush Blueberry Production Guide (NRAES Publication #55)
By Marvin Pritts and James Hancock.
Available from: Northeast Regional Agricultural Engineering Service (NRAES), Cooperative Extension, 152 Riley-Rob Hall, Ithaca, NY 14853 or order on line
www.nraes.org/

SMALL FARM ENERGY

Get Ready
Right to the Root Zone: Radiant Heated Greenhouses

Veteran organic farmer Dick de Graff grows produce year-round at Grindstone Farm in Pulaski, NY.

By Adrienne Masler

The NY Small Farms Energy Work Team is a statewide group of agricultural educators. The Work Team's goal is to assist small farmers in finding strategies to reduce energy costs and invest in affordable renewable technologies to power their farm in the post peak-oil era. Over the next year, the Farm Energy Work Team will be featuring profiles of farms with innovative energy projects.

WINTER PRODUCE

Four miles east of Lake Ontario, the winters are long, cold, and snowy. Finding fresh local food in the cold months might seem impossible, but Grindstone Farm sells produce year-round. Two greenhouses equipped with energy efficient heating systems have enabled Dick de Graff to sell 70% of his own produce throughout the winter season.

He supplements his winter sales with purchased produce. One of Dick's greenhouses utilizes radiant floor heat, which warms the soil for fresh salad green production all the way until Christmas. Another greenhouse makes use of germination mats on concrete which heat the rooting area only and make it possible for Dick to seed onions as early as February.

Dick started Grindstone Farm in 1981 and the farm has been certified organic by NOFA-NY since 1988. Over the years he's transitioned from wholesale and U-pick marketing to a CSA and a "healthy food box" subscription servicem in which customers can order produce by subscription as available without making the season-long commitment of the CSA.

Dick's wife works off the farm; he hires local interns each growing season. Dick is growing on about 30 acres and has some acreage in a pasture/vegetable rotation and some in permanent pasture. The farm will produce over 200 different varieties of vegetables and fruits in 2009, along with 100 turkeys and 10 pigs.

GERMINATION MATS AND A RADIANT FLOOR

Over the farm's almost 30 years of operation, Dick has learned to look for ways to make his work easier without adding to his expenses. He first attempted a radiant floor greenhouse in 1996 and it worked well... until the pipes froze.

Germination mats get Grindstone's seeds started earlier.

The space was then used as an unheated greenhouse and as storage until 2006, when Dick decided to lay rubber germination mats over the concrete.

The mats are connected to a 40-gallon water heater; hot water hoses alternate with hoses for returning cooler water to the heater. Three years later, the rugged mats are holding up well. The mats can be installed in concrete, but Dick saved money and time by not retrofitting his greenhouse. He now starts seeds here beginning in late winter and stores winter squash in the fall, unheated, of course.

Another greenhouse was built in 1999 and a radiant heat system was installed about seven years ago. A wood-fired boiler sends hot water through underground pipes, keeping the soil warm. Dick can use row cover when the weather is coldest to keep his plants warm and maximize fuel efficiency. He uses this greenhouse primarily for season extension in the fall and drains the pipes after Christmas to prevent freezing. Careful digging to avoid damaging the pipes is a must.

Grindstone's wood-fired boiler.

GETTING IT RIGHT

Dick figures that Grindstone could produce greens year-round with his radiant heat systems, depending on available sunlight. What he isn't sure of is the return on his winter fuel investment: grocery-store greens are available at lower prices than Dick can afford to charge in January and February. Lettuce was grown in the second greenhouse this winter without using the radiant system, but increasing the temperature would increase production. However, Dick hopes to extend the CSA into the winter months, which may create a viable market for Grindstone winter greens.

Though he does have some loans, Dick has made many of his capital investments out-of-pocket. He says that it took a few years to get his radiant systems going and that it's important to focus on doing each step right and getting a return on the initial investment. He's an advocate of radiant heat, whether in homes or in greenhouses: "If your feet are warm, the rest of you is warm," he says.

Radiant heat keeps the Grindstone greenhouse green all year, shown here in July.

An ATTRA (National Sustainable Agriculture Information Service) publication documents research related to root zone, or radiant, heating systems. According to ATTRA, "By maintaining an optimum root zone temperature, greenhouse air temperatures can be lowered 15(F."

To learn more about Grindstone Farm, see www.grindstonefarm.com. To learn more about radiant heat systems, visit http://attra.ncat.org/attra-pub/rootzone.html. To learn more about energy resources for small farms, visit www.smallfarms.cornell.edu /pages/resources/production/energy.html.

Adrienne Masler is a student intern at the Cornell Small Farms Program and a senior at Cornell. She may be reached at amm428@cornell.edu.

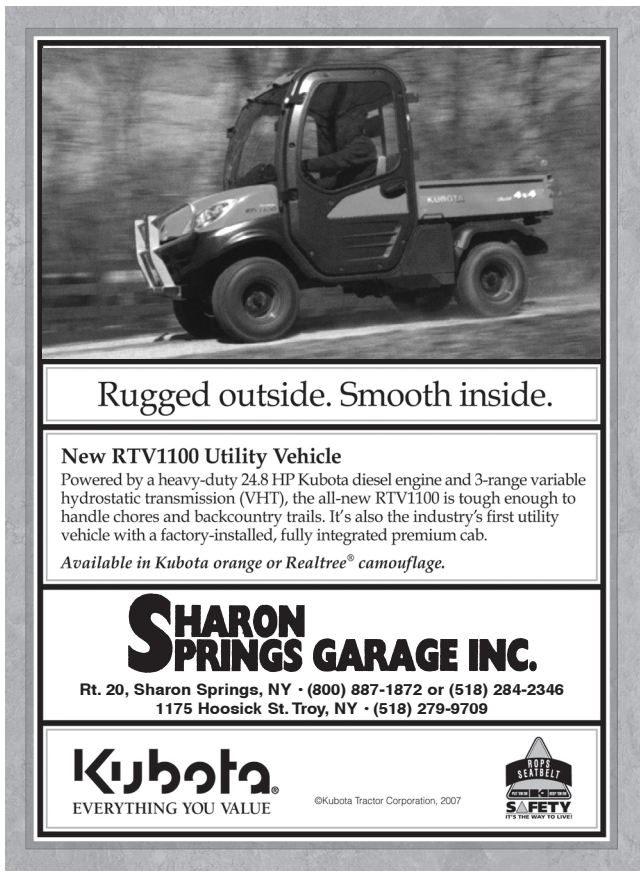
Resource Spotlight

Small Farm Energy Innovations

Clean Energy Farming: Cutting Costs, Improving Efficiencies, Harnessing Renewables
This publication is free from SARE: www.sare.org/publications/energy.htm.

Farmers Handbook for Energy Self-Reliance
May be downloaded at: www.agenergysolutions.org.

Cornell Small Farms Program
www.smallfarms.cornell.edu/pages/resources/production/energy.cfm.



Cows and Crops

The Future of Conventional and Organic Farming in a Carbon-Constrained World

By Brian Aldrich

In July, with help from a Northeast SARE professional development scholarship, I attended the annual meeting of the Northeast Branch of the American Society of Agronomy in Portland, Maine. The theme for the opening plenary session was "The Future of Northeast Agriculture in an Energy-Limited World", and the meeting ended with a special session on "Advancing Organic Production Systems in the Northeast". I would like to share with you some of the highlights from these sessions.

THE CHALLENGE TO FEED THE WORLD

The backdrop for the meeting was the long-term sustainability of global agriculture, including society's increasing concerns over global warming, limiting greenhouse gas emissions, and our dependence on non-renewable energy. The organic agriculture movement arose in part in response to the perception that our modern agricultural system is not sustainable. Like society as a whole, agricultural professionals are just beginning to try to wrap their heads around how we are going to feed the world with less reliance on fossil fuels, and someday without using them at all (once they are gone). This would be a formidable task even if the population of the world was static. When you add the fact that there may be three billion more people on earth by 2050, the situation gets very sobering.

Modern agriculture in the developed world is based upon cheap energy. In his talk "Productive Potential of Northeast Agriculture in an Oil-Limited, CO2-Enriched World", John Jemison (University of Maine) explained that by one estimate, our modern food production system requires 10 calories of input energy for every calorie of food energy produced. In the past, the tried and true principles of agronomic research were to increase yield, create a plentiful and affordable food supply, take advantage of efficiencies of scale, control pests, and solve problems with technology. In the future we will need to better fit crops to their environment and soils, and pay the true cost of producing our food. He stated that genetically modified crops have not increased yield, although they have made farming easier.

THE ADVANTAGES OF GRASS-BASED AGRICULTURE

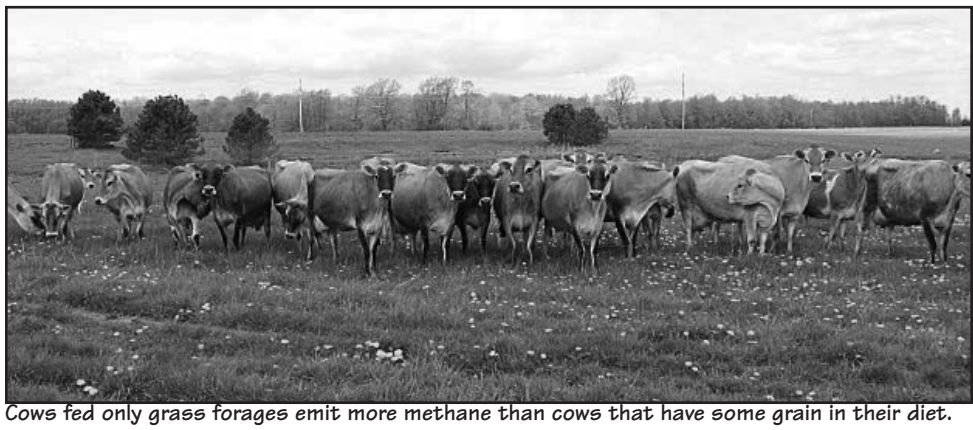
E. Ann Clark (University of Guelph) spoke on "Why Grass-Based Livestock is the Future for the Northeast." She explained that livestock production systems overall produce 18% of the greenhouse gases coming from human activity. There's an ongoing debate over whether greenhouse gas emissions are higher in systems where cattle are grazed and fed grasses vs. those that include more grain in the diet. As far as the cow alone goes, adding grain to the diet does decrease the amount of methane emitted, by favoring rumen bacteria that produce propionate instead of acetate. (The acetate pathway is associated with higher methane production.)

But we must also consider the greenhouse gases produced by the cropping systems that feed the cow. Conventional cropping systems used to produce grain emit more greenhouse gases than those that produce grass. Dr. Clark explained that life-cycle analyses of the total systems show that grass-based agriculture emits fewer greenhouse gases than grain-based agriculture. She holds the views that "Arable [tillage] agriculture is inherently unnatural, and hence, unsustainable.", and that "Organic agriculture, in so far as it relies on [mechanically cultivated] bare soil, has also failed the test of sustainability."

Perennial grasses, on the other hand, mimic nature, and store more carbon in the soil (in the form of organic matter) than crops that are produced with annual tillage. Tillage aerates soil and accelerates the breakdown of organic matter by providing more oxygen for the decomposers. In the absence of tillage, organic matter levels build up under grasses. "Grass is the forgiveness of nature," she said, meaning that grass agriculture compensates for the higher environmental impact of annual row crops. The more we can bring back grazing and permanent covers, the more we will be able to reduce the greenhouse gases produced by livestock agriculture.

ORGANIC DAIRIES

Along that line, organic dairy herds spend more time on pasture than conventional herds, and any grains they consume cannot be produced with inorganic nitrogen fertilizer. These practices help reduce the carbon footprint of organic dairies, because natural gas is used in the manufacture of nitrogen fertilizer.



Cows fed only grass forages emit more methane than cows that have some grain in their diet.
Photos by Brian Aldrich

Conventional corn production using mechanical tillage and manufactured nitrogen fertilizer requires more energy and emits more greenhouse gases than do perennial grass forages.

In his talk on the organic dairy industry in New England, Bob Parson (University of Vermont) said that 20% of the dairies in Maine and Vermont are organic, which is the highest concentration in the country. Many of these farms would no longer be in business if they did not convert to organic production, which until 2009 brought them a higher price for their milk. Looking back at the time of this writing, the price for organic milk was still higher than the price for conventional milk in 2009, but the profit margins will probably turn out to be tighter for organically produced milk. See the sidebar for more on how organic dairies have been faring during the recession.

ORGANIC SMALL GRAINS FOR FEED AND BREAD

Purchased feed such as corn grain is one of the largest costs of milk production, and many dairies in northern New England can't even grow corn for silage due to the short growing season, such as in the "Northeast Kingdom" of Vermont. To help organic dairies produce some of their own grain, Rick Kersbergen (University of Maine) is conducting field trials with small grains. It's challenging because organically grown grains vary greatly in quality. Small grains offer a diversity of harvest options as well as help to spread harvest labor over the growing season. Planting date is critical for the success of winter grains, which must be sown by Sept.15 in Maine. Rick will report on the results of these trials in a future issue of the Small Farm Quarterly.

There is renewed interest in locally grown small grains for human consumption, too. In "Reweaving Our Breadbasket", Ellen Mallory (University of Maine) explained that Maine needs to add 3,000 acres to meet the demand for organic bread wheat. She is conducting trials with both winter and spring wheats. There are survival concerns for winter wheat in northern Maine, and Fusarium head blight is also an issue. Weeds can be a problem in spring wheat, so Ellen visited Denmark to see how they use tine weeders and uniform seeding to control weeds in spring wheat. We'll invite Ellen to report the results of her studies in a future issue, too.

ON WHERE WE GO FROM HERE

As I reflect on all that I learned in Maine, I think the agriculture of the future will have to combine elements of both conventional and organic methods. As information improves on the potential severity and pace of climate change, we will need to make the transition to agricultural systems that reduce greenhouse gas emissions and use energy more efficiently. To achieve that we'll need policies that level the playing field so that the off-site costs of using fossil fuels are included in the cost of using them, be it by taxing their use, carbon trading, incentives for renewable energy, or some combination of these. The agriculture of the future needs to be the one with the smallest carbon footprint. Like ecosystems, I think an agricultural economy that is experimenting with a variety of methods -- conventional, organic, or other -- is inherently the most resilient. We will need to draw on the best features of many approaches to create an agriculture that is truly sustainable.

Brian Aldrich is an Agriculture Resource Extension Educator with Cornell Cooperative Extension of Cayuga County in Auburn, New York, and the field crops editor for the Small Farm Quarterly. He can be reached at 315-255-1183, ext.225, e-mail bsa9@cornell.edu.

Organic Farming

How Organic Dairies Are Farming

By Brian Aldrich

The success of the organic dairy industry has been based on the growing number of consumers willing to pay more for organically produced milk. Bob Parson, an agricultural economist with the University of Vermont, explains that the number of organic dairies started growing especially fast in 2006, in anticipation of a pending tightening of the transition rules. Initially, organic feeds (which are more expensive) only had to make up 100% of the ration for the last three months of the one-year transition period from conventional production to organic certification. This rule was changed in 2006, such that organic feeds must now be fed for all 12 months of the transition period. This makes the transition period even more challenging because the farm only receives conventional prices for their milk during transition, while producing it with more costly organic methods. Eighty herds converted to organic production in 2006. Organic dairies made money that year and were able to buy new equipment. In 2007, as more organic dairies entered the market, the demand for organic feed increased. The price of organic feeds rose in turn, and net revenues for organic dairies decreased as a result. In 2007, conventional dairies did slightly better than organic dairies, and the reverse was true in 2008.

2009 opened with the price of milk far below the cost of production for conventional dairies, which are losing money at an average rate of $700/cow/year. In addition to the global recession, Bob Parson cited the end of the droughts in Australia and New Zealand and the use of same-sex semen as factors behind the global glut of milk that is keeping milk prices low. Organic milk sales have also been affected, dropping at a rate of 15% since the fall of 2008. With the drop in demand, processors have been limiting the amount of organic milk they will pick up for the fluid milk market.

As of June 2009, the excess organic milk was being sold at conventional prices for the cheese market at $10.00/hundredweight. As a result, Bob predicted few if any dairies would enter the organic market in 2009. He thinks most organic dairies will be able to hold on until demand comes back, but the "Golden Age" of organic dairies is likely over. Some organic dairies will go out of business, while those that can reduce costs will be in the best shape. "To survive in a commodity business, a firm must be the lowest cost producer," he said, and organic dairies are no exception.

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Community and World

French Lesson

What can we learn from the French concept of "terroir" -- the notion that the complex combination of soil, climate, cultivation, and local tradition defines the essence of our foods and wines?

By Bob Weybright and Cheryl Leachr

For several years, there has been a lot of discussion in the US about the survival of local agricultural production. The suggested strategies all have merit and may be part of the many tools a modern agricultural business will need to be competitive. For the purposes of this article, I thought we would take a look one strategy that has received a fair amount of press in the past decade, "terroir". The reason is, it is my good fortune to be living in France - arguably the originator, or at least hot bed, of terroir - and I would like to shed some light on why the French are known for their passionate embrace of terroir, based on living as an American in the south of France.

First and foremost the concept of terroir ties into to the fact that the French really, really love good food. Food is an essential part of each day and is a key element to a quality of life that is not easily replaceable. For example, an hour-long lunch (time for a "proper hot meal" as we were told early in our tenure here) is quite normal. In fact it is not politically correct to eat at your desk (at work), and you can expect to be told so if you do.

Because food is such an important part of the lifestyle here, there is a solid understanding of what foods are supposed to taste like. The French's love of food means it is common knowledge when foods taste best and where it comes from (no mandatory COOL here!!!). Place of origin includes knowledge of the specific growing region, not just the country of origin. Produce, meats, cheese, and dairy products all have tags or labels that identify what country and region it is from.

It is the passion for taste that drives purchase decisions. Indeed, the French hold no grudges when it comes to quality food. For example, as soon as Florida grapefruit come into their prime season they are brought in to replace the Spanish fruit, but this does not happen with the oranges. Taste trumps location!!

Selection of foods for intended use is paramount. At a typical market there are 6 varieties of tomatoes, 4 varieties of plums, 6 varieties of potatoes, 4 varieties of onions, 2 varieties of carrots, 3 varieties of strawberries (when they were in season). Each variety is used differently based on the recipe. A gratin dauphinois cannot use the same potato as a frite to be sure.

To make it worthwhile financially for the farmers, a quality and use-based pricing system is used. For example tomatoes have a range of prices based on ripeness, method of ripeness, and intended use. Regardless, they all get worked "down through the system" daily. For example (Euro's here are converted at a rate of 1? equal to $1.42 US) fancy vine ripened cherry on stem, $8.24; the ones that fell off the vine yesterday $6.82; small vine ripened on stem, $5.24; vine ripened that fell off the stem (left over from yesterday), $3.69; hot house vine ripened, $3.27; and Roma $2.13.

A similar pricing structure is used with cheeses as well. Comté prices vary as much as $2 per pound depending on its age and reputation of the creamery. This is a perfectly acceptable range in prices, because consumers make their decision based on intended use. There is nothing worse than getting a young cheese when you need a nicely ripened cheese for your recipe, it just doesn't cook up the way you want.

Pricing is clearly indicated according to each individual item and according to quality. Individual vendors will then further differentiate from each other by their produce knowledge and by their interaction with the consumer. At the local market where I shop there are at least 4 vegetable vendors selling right next to each other. It is not uncommon for all of them to have pretty much identical produce (much like a US farmers' market) selling for as much as $0.09 per pound different from each other. It is clear that pricing is not done based on vendor consensus but according to their financial needs.

At the same time each vendor is working to establish a relationship with each of their customers (even an American with limited French). Each time I go to buy produce, I must first be greeted and asked how I am doing by the fruitier; it is then expected that I return the courtesy, if I want to be part of the "regular" crowd. We then ring up and pay for the produce; but that remains an incomplete transaction until...we then wish each other parting wishes (merci beaucoup, au revoir, est bon journay).

All this does not take a lot of time, but it does make for a solid and human connection that is based on respect and appreciation of each other. Will this work in the US where seconds count in the day, I can't say. But it is something to be aware of when training staff to interact with your customers.

Another noticeable element in the French markets is that there is always someone on staff to provide help with finding specific items or to answer questions about the food items. There is always a sample for people to taste (with fruits, vegetables, and wines) or to examine the interior. Customers need access to information about the varieties you are selling, and you need to be able to explain why you chose those varieties... hopefully it relates to taste and not just because you can grow a ton of it easily.

Yes, growing to satisfy tastes takes more work than growing what the guy, gal, or farm business down the road grows, but the rewards and customer commitment to your business are worth it.

Bob Weybright is a consultant and Principal at Weybright & Associates, Inc. where he focuses on strategic business development. Cheryl Leach is with the New York Food Venture Center at Cornell University's Geneva Experiment Station. This article is part of the "Smart Marketing" series, published by Cornell's Department of Applied Economics and Management. You can view additional Smart Marketing articles at http://hortmgt.aem.cornell.edu/smart_marketing.

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NORTHEAST SARE

Sustainable Agriculture Research & Education

Welcome to the Northeast SARE Spotlight! With each issue we share news and information from the Northeast Sustainable Agriculture Research and Education Program, including examples of how SARE grant recipients are introducing new approaches to sustainable agriculture.

Upcoming SARE Grant Deadlines

The Northeast Sustainable Agriculture Research and Education (SARE) program is a USDA competitive grants program supporting agriculture that is profitable, environmentally sound, and good for communities.

New! Graduate Student Grants - Due May 31st
Northeast SARE is offering a new grant program to graduate students doing research in sustainable agriculture. The grant will allow the student, under the supervision of a faculty advisor, to explore topics that will benefit farmers and add to our understanding of sustainable farm systems. Awards are capped at $15,000 and can run up to two years, and the money can be used for labor, materials, and other direct costs associated with a research effort. Proposals can cover a wide range of topic areas -- cropping systems, pest management, livestock health, farm energy production, soil quality, or the institutional purchase of local food, for example. Proposals can be submitted on line from mid-April until May 31, 2010.

Agroecosystems Research Grant - Preproposals Due Late Spring
Preproposals for long-term research projects that will explore the ecological interactions that are the basis of sustainable agriculture. The goal of the this grant is to develop a greater understanding of these interactions and to promote new models of farming systems designed around them so that in the future farmers will be able to minimize the use of external, energy-dependent inputs while optimizing the use of on-site natural resources to maintain productivity.

Research and Education Grants - Preproposals Due Late Spring
Emphasis is on farmers making measurable changes that enhance sustainability through improved profits, better stewardship, and stronger farm communities. Projects designed to have a secondary influence on the behavior of consumers and the general publics are also within the scope of the program, and we encourage proposals that recognize the interaction between the farm and the community.

Professional Development Grants - Preproposals Due Late Spring
These grants are for organizations to develop and deliver training, specifically agricultural training with sustainable content. Awards typically range from $60,000 to $200,000. The program emphasis: Training the trainers; disseminating sustainable practices and technologies; advancing new content; Seeking measurable, verifiable change that leads to the improved and widespread practice of agricultural sustainability.

Ground Covers for Wine Grapes

Art Hunt established two species of ground cover beneath his grapes, significantly reducing the need for under-the-row herbicides and between-the-row mowing.

By Violet Stone

THE FARM
When Joyce and Art Hunt began farming Hunt Country Vineyards in Branchport, NY, in 1973, they became the fifth generation to steward the land. Knowing that their farm had provided livelihoods for their ancestors dating back to the mid eighteen hundreds, they adopted a personal mission to manage the land with long-term productivity and sustainability in mind.

The Hunts use a soil fertility program in which they mix grape pomace from the fall's pressings with horse manure and wood chips, applying the resulting nutrient-rich compost to young or weak vines. They are producing biodiesel to fuel their farm equipment on-site with a simple processor in a section of their original 1860's barn. And, in 2005, a SARE Grant helped the Hunts launch a multi-year trial in which they're assessing the use of permanent ground cover on their vineyard floor to reduce the need for under-the-row herbicide use and between-the-row mowing.

THE SARE TRIAL
The first step in preparing the trial was to identify cover species that would spread aggressively without robbing sunlight, water or nutrients from the vines. The Hunts had observed that ground ivy (Glechoma hederacea), a common weed in their vineyard, had persevered for decades despite herbicide use. Aside from being hardy, ground ivy grows to a maximum height of four or five inches, maintains a relatively shallow root system, and tends to crowd out other weeds. There was plenty already available on the farm for propagation, so the Hunt's collected cuttings in the winter and used a portion of their SARE funding to hire a local greenhouse operation to root them in plugs for spring planting.

As a second ground cover, they selected Tall Fescue (Festuca arundinacea), a species of grass also characterized by hardiness and shallow roots. Fescue had an additional advantage of dying off in the late fall, decomposing into a carpet of natural mulch by the spring.

Normal bare row, sprayed with pre-emergent herbicide, with fescue between rows

The Hunts mapped out many variable planting combinations for the ivy and fescue in a research plot containing 17 rows (about 2 acres) of concord grapes. Planting combinations included ivy beneath the vines with fescue between the rows; fescue beneath the vines with fescue between the rows; ivy beneath the vines with mowed grass between the rows; and fescue beneath the vines and mowed grass between the rows. Several rows were set aside as controls, replicating the Hunt's standard practice of bare earth beneath the vines with mowed grass between the rows.

By spring the fescue, which they had no-till drilled before the ground froze, was sprouting on the vineyard floor. A crew funded partially by the SARE grant set to work digging holes, adding compost and planting the plugs of ivy in to the bare ground. Space constraints in the greenhouse meant the ivy plugs only filled in about one third of the area needed, so the crew transplanted ivy from elsewhere in the vineyard to fill in the empty spaces. To further encourage establishment, the ivy was watered once and hand-weeded twice over the course of the summer.

Dormant (late March) English Ground Ivy under the row with mowed natural cover between the rows

RESULTS
As the season progressed, Project Coordinator Jamie Hawk collected measurements of the percent cover of ivy, vine pruning weights, and grape yield. Both the ivy and fescue rooted better than expected considering the herbicide residue in the soil and an especially warm, dry season. By the end of the growing season, the ivy had covered over 40% of the bare earth under the vines. The Hunts did not notice any considerable difference in the growth rate of ivy raised in the greenhouse compared to the ivy they transplanted directly from other areas in the vineyard. The ivy transplanted directly from wild patches didn't suffer as much burning but was slower growing.

After three years, the Hunts haven't observed any significant adverse effects of the ground cover on the health or vigor of the Concord grapes, as indicated by grape yield or vine pruning weights. They have continued to improve the density of the cover through spot planting the ivy and seeding the fescue in areas of low concentrations. They anticipate that the competition could actually help to curtail excessive vigor on some varieties.

Tall fescue under the row with mowed natural cover between the rows

Photos by Art Hunt

Vinifera, for example, tends to be overly-vigorous and slower growth could help the species to harden off and better withstand the winter.

If the Hunts continue to observe positive inter-relationships between the vines and the ground covers over the next few seasons, they plan to establish variations on the ground covers in many more mature areas of their 50 acre vineyard. They anticipate that incorporating ground covers on a larger scale will lead to significant economic savings in reduced herbicide costs, labor, and farm machinery use.

And they hope that by limiting herbicide usage, they'll be able to minimize soil erosion and compaction and reduce soil and groundwater pollution. If the Hunts can demonstrate their success with permanent ground covers, vineyards all over the region could become more economically viable while also improving the health and productivity of the land for the next generation.

To read the full annual report from this trial, SARE GRANT FNE05-547, visit: http://www.sare.org/reporting/report_viewer.asp?pn=FNE05-547&ry=2006&rf=0

Violet Stone is the NY SARE Outreach Coordinator. She may be reached at 607-255-9227 or vws7@cornell.edu. You can also reach Art at 800.946.3289 or info@HuntWines.com

Learn more about the Northeast SARE Program by visiting http://nesare.org or by contacting:
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Small Farm Quarterly Youth Pages

The Youth Pages are written by and for young people. Many thanks to Cornell Cooperative Extension of Ontario County for contributing to this issue. We believe there's a bright future or young farmers in the Northeast. Whether you live on a farm or only wish you did, we'd love to hear from you!

More information about the Cornell Cooperative Extension 4-H Youth Development program can be found at: http://nys4h.cce.cornell.edu

Raising Sheep Weaves Many Opportunities Together

By Ethan Kennedy, Western Livestock Wranglers 4-H Club/Cool Clovers 4-H Club, Ontario County

I started raising market lambs when I was six years old. I enjoyed that, but the market lambs get sold every fall and I was looking for a year round project. I did some research on different breeds of sheep and I decided to get into Romney as they are a dual-purpose breed, meaning they are used for their meat and their wool. In 2007, I started with one ram and two ewes. One of the ewes was bred that year. She had triplets her first year, two died. I learned a lot about breeding sheep that first year.

My main focus with this project is showing my sheep. I have shown at the Ontario County fair, the NY State Fair, The Eastern Nationals in Maryland, and NY State Sheep and Wool Festival in Rhinebeck, NY. Sheep are judged both on their conformation and their fleece. The judge especially looks for uniformity and crimp of the wool. This year I won Supreme Fleece at the New York State Fair in the Youth Show.

Over the last two years I have learned a lot about the processing of fleece. I usually shear my sheep in December. I then have my raw fleece processed at a wool mill, where they clean it and turn it into roving. After that I may dye some, spin some and even weave some of it. At this point I am ready to sell the wool that I am producing and am always looking for ways to expand the marketing of my wool.

I have been showing now for seven years and I have learned a lot. This year I had two sets of twins from two ewes, and currently I have three ewes bred. My flock has grown to ten and I hope to continue to grow and improve my genetics. My goal is to someday have a National Champion.

For information about raising sheep visit the 4-H Resource Directory: http://www.cerp.cornell.edu/4h/ or NYS 4-H Animal Science sheep website http://www.ansci.cornell.edu/4H/sheep/index.html www.ansci.cornell.edu/4H/swine/index.html

Ethan enjoys showing sheep and marketing wool

My 4-H Horticulture Story

By Kathryn Lawson, Castle Clovers 4-H Club, Ontario County

I have been involved in 4-H since I was six years old. I helped with our family gardens, but was mostly indifferent, as I was not very fond of squash - about the only thing that grew well in our clay-filled soil. I never really did much with plants, preferring animals, and up until last year the plant fanatic in my family was my brother with his pond garden. I liked the look and smell of herbs, but my family couldn't find a use for my more exotic herbs in our everyday cooking.

Then, a 4-H leader gave me some sedums, and I was hooked! I loved their small size, and the fact that they could be in the ground or in containers, and generally crowded out any weeds that dared intrude upon their space - no weeding! I was also amazed by how quickly they grew. An inch long cutting taken in early May is now in October a plant with a sprawl of about a foot! My front porch became a nursery as my interest in container gardens and dish gardens grew with my cuttings. I finally fulfilled my wish for an herb garden when we took out a dead tree. When it came down, the stump was ground down, leaving a perfect hole in the ground filled with wood chips. I replaced the chips with field soil, and ta-da, I had a garden plot! The local farmer's market and other nurseries had many cool herbs for sale, and I had a few that had managed to overwinter the previous year in pots.

Over the summer, I assisted some young 4-H members just starting to learn about plants in a city environment. In July, I entered some of my sedums in the Ontario County Fair, and was told that I could bring some of my herbs and a dish garden to the State Fair. At the State Fair, my herbs did well, and my sedum dish garden got a blue ribbon and a rosette that awarded "Special Recognition for Outstanding Exhibits".

Forcing some tulip and paperwhite (narcissus) bulbs into bloom this winter is my current project in container gardening, until my garden and containers pick up again in the spring. I hope to add to my sedum and hen-and-chicks (a hardy succulent) collections, and possibly experiment with growing a bonsai tree, as they have always interested me. Whatever I end up doing, I can guarantee that I'll have fun!

For information about horticulture projects visit the 4-H Resource Directory: http://www.cerp.cornell.edu/4h/ or Cornell Garden Based Learning http://blogs.cornell.edu/garden/

Sedum plants seed Kathryn's interest in gardening

Finger Lakes Ag Camp 2008-2009

By Katie Mason, Moonlight Maniacs 4-H Club, Ontario County

This year, I had the opportunity to attend the 4-H Agricultural Career Camp. Before attending I didn't know much about agriculture, and I wanted to be a school teacher. After attending the first session at Conesus Lake, I realized that I was going to learn a lot from this camp series. Some of the sessions were: viticulture, horticulture, dairy, ag business, ag mechanics, livestock, and small farm management. After visiting the dairy session, I decided that I did not want to be a teacher anymore and that my heart is with agriculture.

After the Ag Career Camp, I had become very interested in the dairy industry and that I might like it as a potential career. I asked the owners of Half Dutch Farm in Clifton Springs if I could work for them during the summer. The owners are friends of my parents' and I was ecstatic that I could become their summer employee. The only difficult part of this was that I live thirty minutes away from the farm, but they allowed me to live at the farm with them during the week, and then I would go home on the weekends.

Once my summer started I was excited but very nervous. My first day went really well, and after I learned the ropes, everything went smoothly. My job was to assist in taking care of the calves and heifers. I dumped water buckets; fed milk, water, and grain; and put down new bedding for the calves. In the heifer barn, I pushed up silage feed and fed hay. Although I enjoyed working, I did not like having to be up at 5:30 every morning. Working on the farm gave me an idea of what farm life is like, and I really enjoyed it.

Because of my experiences at the Finger Lakes 4-H Ag Career Camp and working on a dairy farm this summer, I know that I want to have a career in agriculture. I am interested in dairy and crops, so I believe that is what I want to study in college. If I had not attended the 4-H Ag Career Camp, I would not have as much knowledge about agriculture as I do now. The 4-H Ag Career Camp has inspired me to change my dreams and experience new things.

Ag careers camp inspired Katie to be a future dairy specialist

Fun with Horses

By Sarah Anderson, 4-H member, Ontario County

I have been involved with horses - caring for them, riding, and competing for seven years. It is fair to say that I love horses.

This fall the Ontario County 4-H Program offered a project put together by Dr. Beth Albrecht from Finger Lakes Race Track in Canandaigua, New York. Many speakers were brought in that taught us all about the track. We had two grooms who taught us how to wrap legs and I found it very helpful. Then we learned from a trainer, a jockey and racing officials. The trainer talked about how he feeds his horses and how he trains. The jockey explained how he got into the racing business and how he just loves to ride. The racing officials explained how they judge the races. The officials are three men/women that watch the races. They all watch the horses and jockeys to be sure there is no interference.

The experience of watching races and learning the greatness of horses was very interesting. There are many people out there that watch horse racing and think that people are forcing the horses to run. This is not true as most horses love to run. It is what they are bred and raised to do. One day I would love to be an exercise rider. They exercise the horses' in the morning to get them fit and ready to race. My Dad and Mom worked at the track, my Mom as a groom and my Dad an assistant trainer/exercise rider. This is interesting work that combines my interest and love of horses with knowledge and skills that I have gained.

For information about working with horses visit the 4-H Resource Directory: http://www.cerp.cornell.edu/4h/ or NYS 4-H Animal Science horse website http://www.ansci.cornell.edu/4H/horses/index.html


Sarah enjoys riding and all that she learns from her horses

SMALL FARM SPOTLIGHT

A Garden of Opportunities

Frey's Dahlias in Oregon grows multiple products with just one crop

By Sandy Buxton

Acres of multi-colored blooms stretched over the fields. The occasional person is glimpsed through the leaves as they maneuver through the splendor traveling around the rows and blocks of plantings.

Frey's Dahlias of Turner, Oregon is a fascinating place to visit. Sharon Frey, owner, has spent the last 19 years building a unique business in this corner of the fertile Willamette Valley.

The Oregon climate provides a wonderful place to grow dahlias. With a climate zone rating of 8, Turner has a climate similar to that of Georgia for us on the East Coast. Many homeowners do not have to dig the tubers each year just cut the stalks off after a frost and mulch them. The goal is to keep the tubers from freezing solid or being drowned in wet soil.

The Freys do dig their dahlias because one of the products they sell is dahlia tubers. Mailed in April/May in time to plant, Sharon ships dahlias all over the country. Each year the Oregon Department of Agriculture inspects her fields and operation to insure that she is disease free, allowing her to sell bulbs and potted plant.

Dahlia blooms abound at Frey's Dahlias in Turner, OR. Photos by Sandy Buxton

For pick-your-own customers, the stand is simple but provides information, directions and a place to collect money. The farm also has an area with a canopy for shade and chairs to encourage visitors to enjoy the view.

Customers use the marking stakes and order form to help track their favorites while in the field.

But these wonderful roots are only one piece of the business. Sharon's main summer activity is selling blooms at the Saturday farmers' market in Salem, OR.

As one of the more than 120 vendors at the market, Frey's Dahlias is able to have a tremendous display during bloom season. Sharon also sells potted plants for those market goers who want a more complete experience.

By selling two or three parts of the plant, Sharon has developed a system allowing her to promote and maximize her marketing efforts. Additionally, she offers pick-your-own cut flowers at the farm from mid-August until mid-October. At $.75/bloom spike, bouquet hunters are encouraged to come out and view the flower fields in all of their glory.

Another market that Sharon picks for are local florists and a wholesale flower market that meets early in the week. This allows her to keep the plants in good shape by keeping the blooms picked and plants deadheaded.

The field stand is extremely simple with directions for cutting blooms and a metal money box bolted to the side. But it also includes an order form for tubers and information about bloom size and plant height designations.

As visitors wander around the field blocks looking at the flowers and the names on the stakes, it is almost impossible to choose your favorite. There is so much variety displayed. While it may seem easy to say red, pink or yellow, there are dozens of other questions: pompom or dinner plate, tall or short, cactus style or rolled, variegated or plain, single bloom or multi-flowered, and the list goes on.

There are some risks involved with having customers in the field picking, such as over zealous cutting or breakage from maneuvering around the plants. But the benefit from exposing the flower lovers to the plants surely outweighs the risk. It's hard to resist purchasing some for the home garden when you're faced with such a visual tapestry. The flowers' allure is timeless and worth the effort involved with digging and storage here in the Northeast.

Frey's Dahlias is an interesting model for developing a business and managing risk. Sales can be stretched across much of the year by selling several different products but actually only producing one general item. Sharon always knows how many tubers were produced before she starts taking and filling orders.

Her biggest risks relate to weather, and to fluctuations in the number of buyers showing up at the market to purchase bouquets. She does have the ability to irrigate the plants, and no one controls the wind. As for the customers, she relies on a multi-prong approach and uses her multiple sales locations to dilute the risk. However, there is no disputing that dahlias and other cut flowers are luxury items. While they are edible, no one is going to buy them for a food source!

A feast for the eyes and the soul as one experiences the beauty of these flowering plants, Frey's Dahlias offers an interesting window into how a business can add value and profit to its bottom line. The bonus is developing a location that allows one to work amid such scenery.

Sandy Buxton is a Resource Educator with Cornell Cooperative Extension of Washington County. You can reach her at 518-746-2560 or sab22@cornell.edu. For more information about Frey's Dahlias please visit www.freys-dahlias.com.

New Farmers

This Land is Our Land

The New Entry Sustainable Farming Project helps make dreams come true for immigrant farmers in Massachusetts

By Hugh Joseph and Jennifer Hashley

EWhen Seona Ban Ngufor, 56, a native of Cameroon, West Africa arrived in Lowell, Massachusetts, she found herself in an urban city taking care of her brothers' children by day and working the night shift in a local nursing home. She never dreamed she could get access to nearby farmland to grow and market traditional African crops.

IMMIGRANT FARMERS

Historically, immigrants have been a key to the sustainability and expansion of US farming. Even today, a large share of new immigrants, particularly refugees, has an agricultural heritage. In Fresno, CA, over 1,000 Southeast Asian refugees established independent farms over the past two decades - benefitting their health and overall quality of life while providing income and employment.

In 1998, New Entry Sustainable Farming Project (New Entry) began to provide the same opportunities to immigrants in Eastern Massachusetts. We initially targeted Lowell, home to more than 20,000 Cambodian refugees and eventually to thousands of African immigrants. Fortunately, there was farmland next door in Dracut, where pilot and farmer John Ogonowski provided 15 acres of land for these new trainees.

It was a shoestring effort to start. For three years before he lost his life when terrorists flew his plane into the World Trade Center on September 11, 2001, John spread compost and plowed the land, set up irrigation, helped put up a greenhouse and shed, and offered advice to the farmers. New Entry, in tandem, did recruitment, training, fundraising, and helped farmers with crop production and marketing.

SHARING RESOURCES

Over time, we expanded to four training sites, where new producers lease individual plots from a quarter-acre to two acres. They share tools and equipment, irrigation, cold storage and greenhouses, and grow specialty and traditional crops (such as bok choy, African maize, mustard greens, water spinach, bitter melon, and amaranth) using organic methods. Over the years, farmers from many African nations and some from Latin America have joined the program. This was a model for urban farmers that really worked.

These producers show a talent for growing ethnic crops traditional to their homelands, but needed help to obtain seeds, manage irrigation, and access good markets. Because mainstream educational resources are not useful to audiences with low-literacy and limited-education, we developed our own courses focusing on production, harvesting, marketing, business planning, and farmsite management.

Field workshops demonstrate the practical skills for tillage and planting, pest and weed management, watering, harvesting, and sales. We produce videos and design instructional materials in Plain Language, and provide translation in multiple languages as needed.

New Entry is co-sponsored by Tufts University and by Community Teamwork, Inc. in Lowell. Tufts students are an invaluable resource in developing training materials and helping with many project activities. In addition, USDA, Extension, farm business owners, non-profit farm organizations, and established producers provide a range of technical assistance and other essential services to our farmers.

OVERCOMING BARRIERS

Because access to farmland is a major element of independent farming, New Entry set up an interactive farmland data base on its website where any interested producer can find available land. In tandem we sponsor a farmland matching service to help new entry producers negotiate leases with landowners.

Marketing is also a major challenge for smaller producers, since ethnic crops compete head on with cheap imports when sold to stores and restaurants, and farmers' markets often demand too much time for those with regular jobs. In response, World PEAS (Producers Enhancing Agricultural Sustainability) was started in 2005 as a cooperative marketing enterprise.

With careful planning, multiple producers supply sufficient quantities and diversity of crops to serve wholesale markets such as grocery stores, and direct-to-consumer initiatives such as a CSA. In 2009, 20 different producers combined products to supply CSA shares to more than 300 families.

COMPREHENSIVE TRAINING

New Entry's core program has evolved into a 4-year land-based experiential training program designed to support independent farm enterprises. We actively incorporate transitional farm planning into the technical assistance, helping farmers to find land, to develop business plans for self-sustaining independent operations, and to identify land and resources for expanded production. This frees up land on the training sites for new producers and builds a growing base of suppliers for World PEAS.

After three seasons on a training site, Seona Ban had built enough experience to move last year to a 2-acre plot in Dracut that she leases and farms independently. She sells at farmers' markets and supplies World PEAS - juggling the competing demands of family, full-time employment, and a growing farm business.

Lydia Sisson is another recent graduate who took a job on a farm for a season to gain practical skills. We then helped her locate and lease a 5-acre farm complete with irrigation, access to equipment, and a landowner willing to collaborate with her on off-site marketing. In 2009, Lydia began her own 50-share CSA program, called Luna Farms.

After more than a decade, New Entry, in collaboration of dozens of partner organizations, is approaching its goal of providing an alternative model to formal agricultural schooling for beginning farmers. The timing seems propitious, as interest in beginning farming in the region has exploded, while agricultural schools have been refocusing their curricula toward landscaping, turf grass, and floriculture.

Seona Ban Ngufor is one of many immigrant farmers growing traditional crops in Massachusetts with help from the New Entry Sustainable Farming Project. Photo by Hugh Joseph

In addition to immigrants, our program now reaches out to farm laborers, farm interns and apprentices, career changers, and other US-born new entry farmers. Since demand for our program now exceeds our capacity to respond, we are rapidly building up distance education resources, accessible through our website (www.nesfp.org).

These include farming resources, risk management guides (in Plain Language), and online beginning farmer courses tailored to new Massachusetts-based beginning producers (in development). In addition, we have a farm employment referral guide that lists opportunities for aspiring and beginning farmers to obtain 'on the job' training at established nearby farms.

More broadly, Massachusetts has a wealth of resources and services for beginning farmers. New Entry is looking to develop a statewide partnership model to promote more efficient access to training, technical assistance, land access, marketing, and other services among a widening base of smaller-scale farmers. It's a novel approach that, for beginning farmers, can't happen too soon.

To find out more about the New Entry sustainable farming project, visit www.nesfp.org.

Hugh Joseph is an assistant professor with the Program on Agriculture, Food and Environment at the Friedman School of Nutrition Science and Policy at Tufts University. He can be reached at hugh.joseph@tufts.edu or 617-636-3788. Jennifer Hashley is the Director of the New Entry Sustainable Farming Project. She can be reached at nesfp@tufts.edu or 978-654-6745.

Women in Agriculture

The Connecticut Women's Agricultural Network

By Trish Manfredi

The Connecticut Women's Agricultural Network was born at an informal get-together in Elaine Frost's kitchen at Frostfire Farm in Goshen, Connecticut in the spring of 2006. Elaine thought Connecticut should have a WAgN, inspired by the Vermont WAgN.

WHAT's A WAGN?
WAgNs are agricultural networking and support systems for women who are farming, or planning to start a farm. While their focus is mainly on women, all are welcome to join. WAgN or a variation can be found in many states. Farms operated by women, particularly in the Northeast, are small in scale, with 50% under 50 acres, and many feature value-added products.

Nationally, in the past 20 plus years the number of women who are principal operators of farms in the U.S. has doubled. Women-operated farms often use sustainable agricultural practices and many farming women are one or more generations away from farming. Many have made a mid-career transition to farming. Often they have limited farming or business experience and aren't connected to traditional agricultural organizations.

Connecticut is experiencing a growth in the number of farms, with the 2007 USDA data showing a 17% growth in the number of farms, to 4,917. Connecticut has 2,928 women operating farms, with 1,466 as the principal farm operator. Connecticut ranks in the top 10 states with women as principal farm operators with sales nearly $29 million!

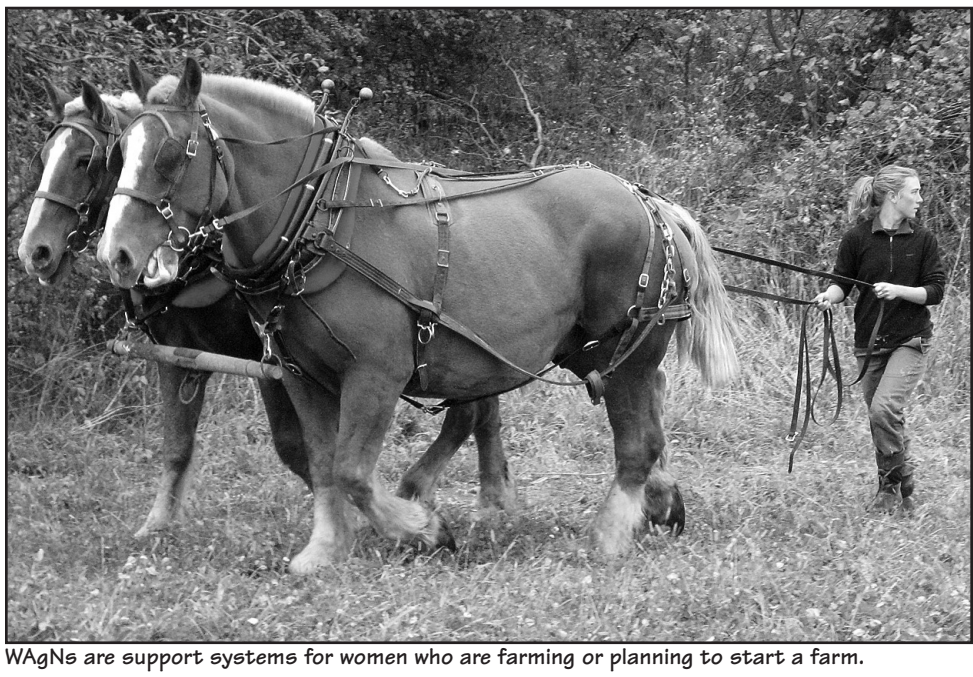
FARMING IN AN "URBAN STATE"
Connecticut is considered an urban state, with the US Census categorizing its eight counties as either metropolitan or micropolitan in nature. This urban environment offers both challenges and opportunities to those in agriculture. High cost of land is the biggest challenge for new farmers, along with town government (there is no county government) and a myriad of different regulations. On the plus side, there is a strong local food ethic in the state, a strong farmers' market system, and active farm-to-chef and farm-to-school programs supported by the Connecticut Department of Agriculture.

I had worked with a women's agriculture group in Massachusetts and with the Growing New Farmer's Project of the New England Small Farms Institute in Belchertown, MA before retiring from UMass Extension to live in the farming community of South Glastonbury, CT. I work part-time for University of Connecticut Cooperative Extension, and was asked by Nancy Bull, Associate Director of Extension, to work with Elaine Frost and other women farmers in our Connecticut.

GETTING STARTED
Several informal strategy sessions with an increasing number of interested women led to the first 'Gathering' at the 4-H Educational Center at Auer Farm in Bloomfield. The Gathering was networking at its best, guided by special guest, Mary Peabody, Director of Vermont WAgN.

As the idea spread by word of mouth and energy was being generated among farming women, formal support for CT-WagN came from the CT Department of Agriculture, the University of Connecticut Cooperative Extension System, and USDA's Risk Management Agency. A steering committee of farm women and supportive resource people was formed, and CT-WAgN was launched with a commitment to helping women succeed at starting, sustaining, and supporting ag-related endeavors through educational programming and networking.

The Steering Committee provided direction for a series of twilight meetings, including a tour of a diversified farm in Salem, the Snooty Foods commercial kitchen in Oxford, and several other Gatherings. Jaime Smith of the CT Department of Agriculture and Candace Bartholomew of Cooperative Extension succeeded in getting the first grant from the Northeast Center for Risk Management Education at the University of Delaware. The Northeast Center has since awarded UConn Extension two additional grants to support programming for beginning and small farms thorough 2010.



WAgNs are support systems for women who are farming or planning to start a farm.

Display for CT-WaGN

EDUCATIONAL PROGRAMS
Over the past three years, CT-WagN held a very successful conference on labor issues, along with a tour of Whole Foods Supermarket to get insight into how the chain buys local. Another Gathering included a display of both raw and value-added products, promoting lively discussion and leading to a 2009 workshop "Getting Your Product to Sell Itself." This workshop looked at how packaging can increase sales of value-added products like goat milk soaps, herbs, baked goods, and jams.

A networking dinner in spring 2008, with Denise O'Brien, founder of Iowa's Women, Food, & Agriculture Network as keynote speaker, honored Becky Clark, owner of Griffin Farmstead (value added goat products) for sustaining her farm, Beth Salsedo, Director of the 4-H Education Center at Auer Farm for supporting agricultural education for youth, and Megan Haney, Marbledale Farm, for overcoming challenges to start a farm at a young age.

In 2008, we held four workshops around the state on Introduction to Business Planning. Both lenders and grant makers require a business plan, and having a business plan is also essential in directing growth and being profitable. With a number of other agencies, CT-WAgN co-sponsored a Women's Agricultural Business Summit in March 2009, which brought together a financial resource people and those dreaming about starting a farm as well as those beginning and growing their farms. This was followed by a mini-conference on marketing in June 2009, featuring three women entrepreneurs whose products have unique marketing strategies.

In the fall of 2009, four Financial Planning Workshops were held around the state, and in spring 2010, a mini-conference on Commercial Kitchens will be held. How to establish a licensed commercial kitchen has been one of the most frequently asked questions over the past 18 months.

E-NETWORKING
A key component of CT-WAgN is the moderated e-list, which enables members to connect with each other easily via email. The e-list announces CT-WAgN events as well as those of other organizations and agencies, and provides a place to ask questions and get answers from both peers and resource people. The moderated list is relatively free of 'spam' and now has nearly 300 members.

Instructions for joining the moderated e-list can be found at www.ctwagn.com. There is no charge to join CT-WAgN. Information on current and future programs is posted on the website. Questions about CT-WAgN and its programs can be directed to me, Trish Manfredi at ctwagn@cox.net.

Trish Manfredi is Director of the Connecticut Women's Agricultural Network with University of Connecticut Cooperative Extension.

We Want To Hear From You

We welcome letters to the editor - Please write to us! Or send a question and we'll do our best to answer it. We're also looking for beautiful, interesting and/or funny small farm photos to print.

Write or email Joannna Green,
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Cows and Crops

Frost Seeding

An old technique for new reasons

By Gary Goff, Ilana Goldowitz, Meagan Black and Rich Taber

Back when time, farming equipment, and fuel were scarce and expensive (sound familiar?), farmers relied on a seeding technique that minimized the need for those resources, yet produced acceptable results. It was called frost seeding. Simply stated, the technique consists of spreading grain, legume, or grass seeds on fields in late winter so that the seeds can filter down into the soil via the small cracks caused by the freeze-thaw cycle that occurs in late winter and early spring.

While the crop establishment success will not match the results of more thorough and traditional field preparation (plowing, harrowing, planting, cultipacking), the cost/benefit ratio of frost seeding may be quite acceptable for some applications. Whenever farm machinery and fossil fuels to run them can be reduced there are environmental as well as economic benefits.

Many farmers and rural landowners are interested in improving grasslands for wildlife or establishing food plots for wildlife. Typically, people interested in such conservation or wildlife plantings don't have much time to devote to the project, aren't working on large acreages, and don't have large-scale farm equipment. But, the good news is that they also don't need superb crop establishment and growth. Frost seeding techniques may be very well-suited for their limitations, yet meet their needs.

GRASSLANDS AND GRASSLAND BIRDS DECLINING
Grasslands were never a major component of the overall landscape in the Northeast. But they were and continue to be a critical habitat type for native wildlife species. Before European settlement, the vast majority of the Northeast was covered in forests, but perhaps as much as 10% was in grasslands resulting from clearings by Native Americans, fires, flood plains, wetlands, and beaver activity along smaller streams.

As of about 1880, nearly 80% of NY State was in farms. The abandonment of subsistence farming through the late 1800's and early 1900's created a bonanza of grasslands for songbirds and other wildlife. However, through natural succession, the old fields are now reverting to shrubland and forest land. Currently over 62% of the state is forested and once again we may be back to about 10% grassland coverage, but the quality and quantity of the habitat is declining.

Most of our current grasslands consist of old fields, and active farm pastures and hayfields. Threats to these unique habitats include loss and fragmentation due to housing development, natural succession, invasive exotic plants, control of fires, intensive stocking of pastures, and early mowing of hayfields. Between 1966 and 1994, 7 of the 8 bird species that are dependent on grasslands for their breeding habitat, became threatened or endangered in at least one state in the Northeast.

Farmers obviously must utilize their lands to make a profit, but most are also interested in bird conservation and are willing to make some concessions, provided production isn't cut too severely. Similarly, rural landowners generally are very interested in protecting and improving grassland bird habitat. Turkey and deer hunters spend large amounts of time and money establishing food plots for their favorite game species.

Grasslands that contain a fair amount of legumes such as clover and trefoil provide good food resources for deer and turkey, while providing excellent habitat for grassland birds. Legumes have the capability to "fix" nitrogen from the air into root nodules, thus reducing the need to add nitrogen as a fertilizer. The resulting legumes have higher protein levels which makes them very nutritious for wildlife and insects. Frost seeding is a technique that yields good benefits for a minimum of effort for all these different landowner objectives.

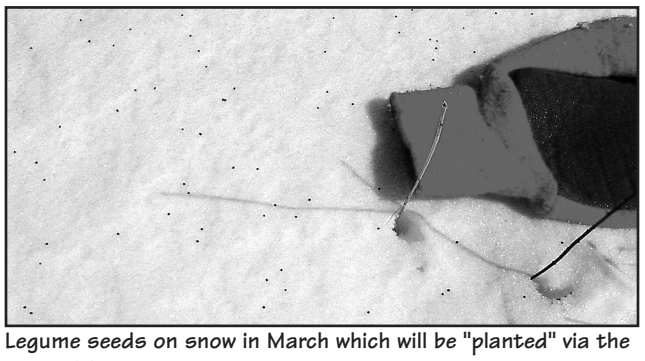
Grassland birds are dependent on grasslands to provide food and cover or shelter throughout their breeding and nesting season. Different bird species prefer somewhat different habitat characteristics such as field size, height of vegetation, density of vegetation, and tolerance of brush and trees. Frost seeding is well suited to establish clover and trefoil, which are both legumes. When the roots of legumes die, the nitrogen they captured from the air is available to other plants in the field, thus the addition of nitrogen will increase the overall productivity of the grassland which in turn increases the overall production of insects (including pollinators) that are dependent on the plants for food and cover.

Red clover and trefoil established after one growing season
Photos by Gary Goff

Nearly all grassland songbird bird species feed their nestlings insect larvae or adults exclusively when in the nest. Turkey poults, bobwhite quail, and ruffed grouse chicks also feed almost exclusively on insects. Of course later on in the summer season, grasslands produce seeds for many of these same bird species.

ESTABLISHING LEGUMES WITH FROST SEEDING.
Clover and trefoil seeds must come in contact with bare soil in order to germinate, develop roots and grow. Fortunately both these species have fairly dense but small seeds that allow them to move down through the thatch of old vegetation and work into the small fissures created by the freeze and thaw cycle of early spring. The relatively light and fluffy seeds of grasses are not suitable for frost seeding.

Any site preparation that reduces the volume of standing vegetation or thatch in the field before the legume seeds are broadcast, improves the likelihood of germination and growth. Several techniques can be used alone or in combination to prepare the field for frost seeding. These include: grazing, harrowing, herbicides, burning, and mowing. The goal is to remove or kill as much volume of the current vegetation as possible to allow the seeds to come in contact with the soil, and also to reduce competition in the spring.



Legume seeds on snow in March which will be "planted" via the cycle of freezing and thawing in the late winter and early spring

FROST SEEDING TECHNIQUE AND SCHEDULE
1. Pre-treat the field at the end of the growing season to cut, remove or kill current vegetation. The treatment you use will depend on your resources, but all work reasonably well. If you have any livestock, mob grazing them on the site that you would like to frost seed the following spring will help to remove existing vegetation.

2. Broadcast seeds at end of winter (March) onto snow. Be sure to inoculate the seeds as recommended and use 2X the typically recommended planting rate.. Seed is inexpensive compared to traditional site preparation costs. A hand-held cyclone seeder works well for fields of just a few acres. For bigger plots, there are several types of relatively inexpensive broadcast seeders which can be attached to the three point hitch of a tractor, or behind All Terrain Vehicles.

After two growing seasons we had very good establishment of red clover and birdsfoot trefoil

3. Mow site in early July (after ground nesting birds have fledged) to set back competing vegetation and allow legumes to get more sunlight. Set mower at legume height. Mow for a couple consecutive seasons to help legumes get better established.

RECENT RESEARCH
Cornell University undergraduate interns worked on establishing and monitoring a frost seeding planting during the summers of 2006 and 2007 at the Arnot Teaching and Research Forest in the Southern Tier of NY State. The objectives of the project were to test which pre-seeding treatment would yield better establishment of red clover and trefoil, and document impact of the planting on nitrogen content of the soil and insect populations. Research test plots were established such that the results could be statistically analyzed. Five treatments were tested, all were frost seeded:

1. Control: Legumes were frost seeded into an un-treated, abandoned agricultural field in March 2006
2. Herbicide: A combination of glyphosate and triclopyr + 2,4-D ester was applied in Oct. 2005 before frost
3. Mow: test plots were mowed close to the ground in Oct. 2005
4. Disk: test plots were disk harrowed in early Nov. 2005, one pass only
5. Herbicide and disk: same plots were both herbicided (Oct.) and disked (Nov.)

All treatments except the control were mowed in July 2006 and 2007 at the height of the legumes to give the young legumes more sunlight.

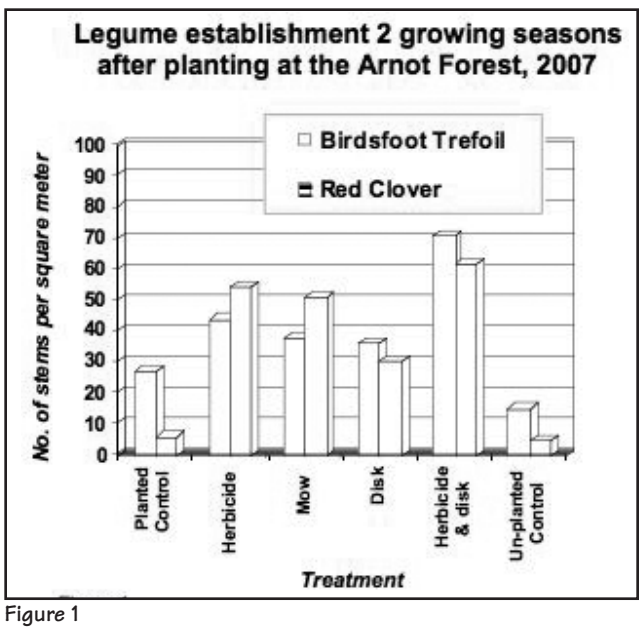


Figure 1

The results of the various treatments are presented in Figure 1. After two growing seasons, both red clover and trefoil were well established, averaging at least 30 stems per square meter for all treatments except for the planted control. The planted control had a few more stems per square meter than the unplanted (outside plots) control where neither legume was planted. Even though all treatments had more clover and trefoil stems than the planted control, only the dual treatment of herbicide and disk had statistically significant more red clover than either control and statistically significant more trefoil than the unplanted control.

We also compared nitrogen levels in the soil and number of insects on the various plots, but could find no statistically significant difference between any treatment plots and the unplanted control. These results were not too surprising however as it may take more than two growing seasons for the nitrogen levels to increase (especially at these relatively low densities of legumes) and for the insect populations to similarly respond.

Frost seeding of legumes can be used to increase the density of clover and trefoil in abandoned agricultural fields. Many treatments that landowners have at their disposal to first remove or kill the established vegetation before frost seeding are likely to improve the establishment of the legumes. Repeated treatments or combination treatments may further improve establishment.

In conclusion, the age-old technique of frost seeding can be a viable method to establish legumes in food plots and grassland habitats. The results may not be as dramatic as conventional tillage, but people with limited time and machinery resources can see surprisingly good results.

Gary Goff is a Sr. Extension Associate in the Dept. of Natural Resources at Cornell. Ilana Goldowitz and Meagan Black were undergraduates at Cornell who worked on the frost seeding project. Rich Taber is a Natural Resources Communication Specialist with Cornell Cooperative Extension of Chenango County. *Much of this article is based on work funded by The Connecticut Hill Field Experience Research Fund, the National Wild Turkey Federation, and Cornell University.*

Resource Spotlight
Frost Seeding

Frost seeding, a cheaper alternative
www.omafra.gov.on.ca/english/crops/facts/98-071.htm

Managing grasslands for birds in fields and on farms
http://scnyat.cce.cornell.edu/grassland

Non-Dairy Livestock

When do Sheep Need Shelter?

By Ulf Kintzel

An unpleasant day in the middle of February of 2009 prompted me to write this article. It was a very windy day with driving rain, snow, sleet and ice. The temperatures fell from the lower 40s to just above freezing. The wind gusts exceeded 50 mph. We lost power several times. In short, it was nasty.

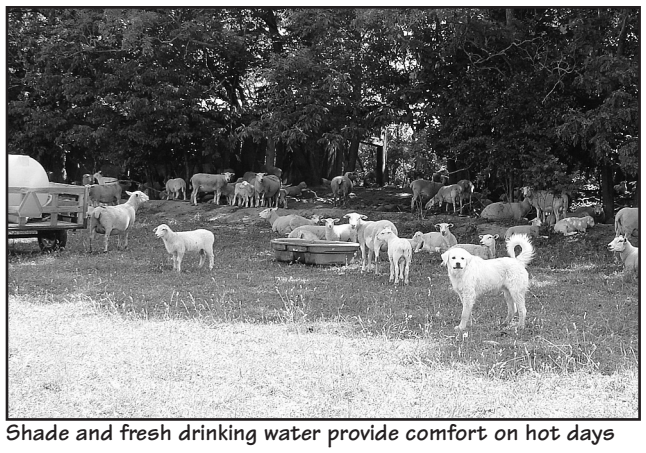
I had bedded my sheep the night before at an Eastward facing slope that wraps halfway around a homestead, knowing that the wind would shift from Southwest to Northwest. This way I was confident the sheep would have enough shelter from the wind. Yet, being the shepherd that I am, I was still a bit concerned in the morning when I heard the wind howling and the rain beating on the window.

The moment it got light I drove out to the flock. To my amazement some of the sheep hadn't sought shelter from the wind at all. They not only were lying down in the middle of the flat part of the pasture, they were also facing the wind chewing their cud - a clear sign of feeling comfortable.

These ewes that are in part freshly shorn and their young lambs have access to the shed behind them and will seek it should it start raining or get cold and windy

Last September marked my 25th anniversary in sheep farming. Yet, sheep still are able to surprise me. So, how tough are sheep really when it comes to the weather? When is shelter from the elements appropriate and when should we not be tempted to spoil the flock?

Right now we are in the midst of winter which brings cold weather and snow. Sheep cope without any problems with temperatures in the single digits and below zero as long as there is no wind. Wind changes everything. Temperatures in the teens are hard to handle if the wind blows at significant speed. However, that does not mean at all that we need to put the sheep in a barn because of this. An old shed, a thick hedgerow or even a little hill that breaks the wind are entirely enough to make it comfortable for the flock.



Shade and fresh drinking water provide comfort on hot days

In early spring sheep that are just shorn and young lambs alike are sensitive to cold or rainy days. This can lead to hypothermia which can lead to pneumonia. The flock should have access to shelter like a barn or a shed. Just getting behind the hedgerow might not do it on a rainy day. In fact, I believe this is the most critical time when it comes to the necessity of shelter for the flock.

Late spring is usually not a time that one has to worry about weather conditions. The sheep usually re-grew some wool. The lambs are big enough to withstand the elements simply by their body mass. However, I do remember a very wet June in the late 90s when I was still in Northwest New Jersey. It rained heavily several days in a row and the ewes and lambs never got a chance to dry out between rain showers. The adults and the older lambs coped with these conditions very well. Younger lambs ran the risk of catching pneumonia.

Summer brings a different set of weather conditions to think about. Dry heat is often not a thing to worry about until the temperatures reach the high 80s. However, when the humidity

It was 5 degrees that February morning but no wind. Obviously, the sheep are not bothered by the cold weather

Photos by Ulf Kintzel

is high sheep feel already uncomfortable in the high 70s and low 80s. Shade may not be a necessity but the flock will feel more comfortable if the noon hours can be spent in a hedgerow or under a few trees. It is definitely time to offer shade when the sheep start panting and seek shade next to each other. Milk production and gain of weight are in my opinion likely to be higher when the sheep are offered this comfort.

Fall is usually a worry free month. It is neither too warm nor too cold. Windy and/or rainy conditions have little to no impact on the sheep. It is simply not cold enough, the sheep have a long enough fleece and the lambs are big enough.

Generally speaking, as long as the sheep are given a choice, whether it is shade in the summer or a windbreak in the winter - they will choose what is right for them as long as they know it is there. If the wind howls or the sun shines and the sheep don't seek the option we offered - don't worry about it. They know best. Forcing them into a barn can bring a whole new set of problems since bacteria that thrive in the moist air of a barn may cause the disease we tried to avoid. Remember, just because we feel comfortable or uncomfortable in a certain kind of weather does not at all mean the sheep feel the same way.

Of course, my assessment is based on healthy, well fed and well cared sheep. Sheep that are too skinny, have parasites, are sick, or limp may not be as resilient as described in this article.

Ulf Kintzel owns and manages White Clover Sheep Farm (www.whitecloversheepfarm.com) in Rushville, NY where he breeds grass-fed White Dorper sheep. He can be reached at 585-554-3313 or by e-mail at ulf@whitecloversheepfarm.com.

Home and Family

Help for Home Owners

USDA's Single Family Home Repair Loan and Grant Program

By Thomas Becker

Dean and Betty Bieber own and operate a dairy farm outside of Prattsburgh, New York. The farmhouse (circa 1817) is historically known as the Pratt House from Captain Joel Pratt, settler of the Prattsburgh area. Last summer, the roof of the house started to leak and with the low milk prices, the Biebers could not afford to replace the roof. USDA Rural Development provided a 1% loan for 20 years to finance the roof replacement. This loan was part of the Single Family Home Repair Loan and Grant Program.

"We are glad that Rural Development had this program, and the staff was very helpful in getting the application processed" said Betty

Pratt House, side view.

Pratt House, front view.

Bieber. As we go into winter, the Biebers have a dry home and this historical site is protected from the elements. For more information on USDA Rural Development programs, contact the Rural Development state office at (315) 477-6400 or visit Rural Development's web site at www.rurdev.usda.gov/ny.

Thomas Becker is an Area Specialist with USDA Rural Development in Bath, New York. You can reach him at 607-776-7398 ext. 4, or Thomas.Becker@ny.usda.gov.

Need Info?

Subscribe to the Small Farms Update, a monthly email newsletter with announcements, upcoming events, resources, funding and farming opportunities and more. Send an email to smallfarmsprogram@cornell.edu. Please provide your name, farm name, postal address, and county.

NEW FARMERS

Passionate About Poultry

By Martha Herbert Izzi

Bridgette Tojek of Short Tract, NY is the owner of I-Tang-O, a small farm in northern Allegany County, NY. In 2007, Bridgette participated in the "Beginning a Successful Small Farm" WNY Regional Training sponsored by the NY Beginning Farmer Project with funding from the NY Farm Viability Institute. While coming to the program with minimal experience in farming and unsure if she had the production knowledge to get started, Bridgette had a clear vision for her chosen farm enterprise. Free range eggs, poultry and vegetable production were suited to her interests and the family acreage.

BEGINNING FARMER TRAINING

Following the completion of the Beginning Farmer training, Bridgette continued to work with assistance from Cornell University Cooperative Extension and the ACCORD Corporation to develop a business and marketing plan for her farming enterprise. With the goal of developing a profitable part-time enterprise, fleshing out the details for marketing and financial tracking became as essential to success as gaining valuable knowledge of production techniques.

"Resources like the Guide to Farming in NYS have been extremely valuable for me during the start-up phase of my business," she says. "I knew what I wanted to accomplish but wasn't always sure where to find the information I needed to proceed." [Editor's note: the Guide to Farming in NYS is available online at www.smallfarms.cornell.edu]

A NEW BREED

In addition to raising rare breeds, I-Tang-O is currently in the process of developing breeds of chicken that will be unique to I-Tang-O Farms; one that will represent the brown egg layer, a green egg layer and a white egg layer. The brown egg layer has been named the I-Tang-O Papiseed and the white egg layer is I-Tang-O's very own Triple Crown. The farm's plan also includes helping conserve rare heritage breeds including Black Minorca, Dark Brown Leghorn (single comb), White Face Black Spanish, Silver Laced Polish and the Speckled Sussex.

Bridgette's objective is for the poultry to be a self-sustaining entity, generating enough sales that the chickens will pay for their own feed as well as generate a profit for the farm. A priority for the I-Tang-O Farm is providing the freshest pastured poultry products, herbs and vegetables to the public, remaining reasonably priced so that the economically challenged will still be able to purchase their high quality products.

I-Tang-O farms provides premium pastured poultry products, maintaining a flock that has been certified by the New York State Dept of Agriculture and Markets Typhoid-Pullorum free. Edible eggs can be purchased on farm or at the Angelica & Belmont Farmers Market. The laying hens are fed flax seed, and are free ranged to produce an outstanding edible egg. Market garden vegetables in season along with herbs may be purchased on farm or at the farmers markets. Dried herbs are available online year-round.

A UNIQUE MARKET: BACKYARD POULTRY NEWBIES

Bridgette is also focusing on the promotion of small backyard flocks while providing the education to consumers to safely raise birds in small spaces. Fertile eggs can be purchased online or on farm, and customers can choose a breed suited to their interest including the I-Tang-O Papiseed. Not sure what breed of poultry is suited to you? Designer flocks can be requested online as the farm offers multiple packages for urban backyard flocks.

Bridgette also offers a consulting service for those first-time customers wishing to engage in flock-raising for rural or urban settings. Her first step in placing flocks is to encourage prospective buyers to investigate their town's ordinances, as city or municipal codes may limit the type and number of birds.

The benefits of backyard flocks are Bridgette's selling points. Natural insect and pest control, a source of composting material, companionship, and fresh, healthy food for families. Bridgette believes these living lawn ornaments can provide entertainment while also fostering a sense of self-reliance in flock owners.

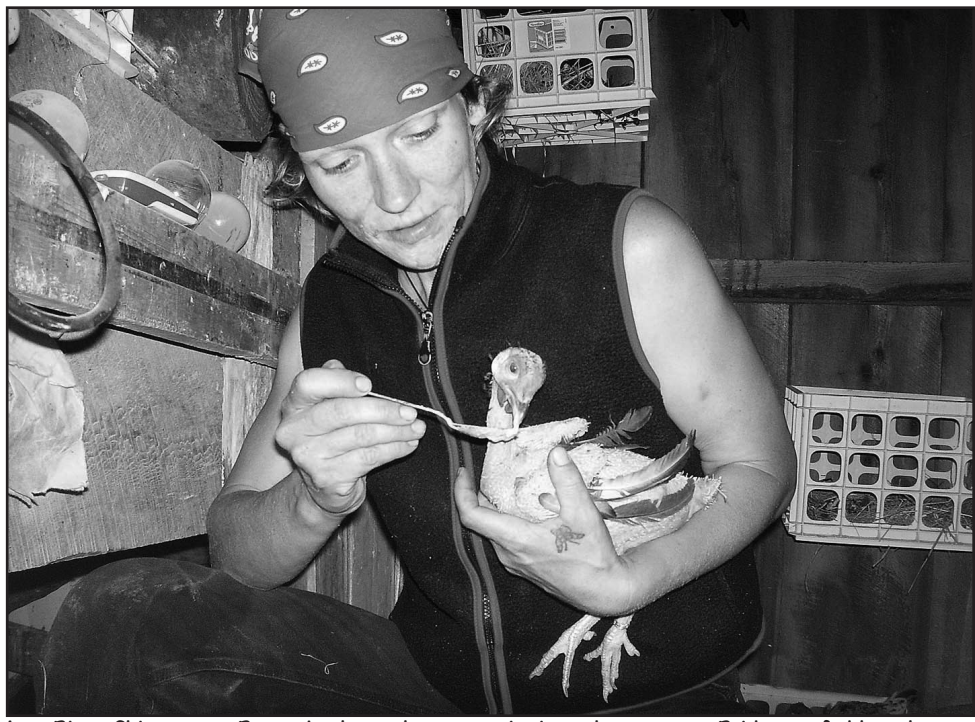
Renting an incubator and brooding kit helps first-time enthusiasts get started without all the upfront costs of purchasing equipment. Better yet, purchasing three-week-old chicks eliminates the need for supplemental heating and may be a good idea for newbie. How about renting a brooding hen and allowing her to tend to your future flock through the first 3 months? Yet another option offered by I-Tang-O Farm.

Bridgette has a Bachelors degree in Animal Science from Cornell University where she focused on animal nutrition, ethics and welfare. She offers educational presentations that provide a glimpse of rural life to urban families. "There is nothing quite like watching life burst forth from the earthly soil or the sandy shell of the egg," she says. It's a passion she hopes will encourage others to become farmers in the future.

For more information on I-Tang-O's poultry and vegetable offerings, please visit the farm online at www.i-tang-o.com. For more information about the NY Beginning Farmer Project, check out www.nybeginningfarmers.org.

Lynn Bliven is an Ag Issues Leader in Allegany and Cattaraugus County Cooperative Extension. She has been providing beginning farmer training for many years and has served on the leadership team for the NY Beginning Farmer Project since it started in 2006. Lynn can be reached at lao3@cornell.edu or 585.268.7644.

Bridgette Tojek clips feathers so her Silver Laced Polish Hen, Stella can have a better view of her world. The heavy feathering inspired Bridgette to cross the Silver Laced Polish with a Rhode Island Red to modify the top hat and improve vision. Photo by Sara Tojek



Itsy Bitsy Chica was a Brown Leghorn that was missing a key enzyme. Bridgette fed her the enzyme daily, in yogurt, so she could keep her feathers on. She lived about a year with the help of an altruistic Speckled Sussex that protected her from the flock. Photo by Rachael Erb

Bridgette's Silver Laced Polish Hen, Stella, sunbathing on the free range. Photo by Bridgette Tojek

This good mama hen "Crescent" is the 4th generation in Bridgette Tojek's attempt to create a breed to represent NY. She plans to introduce two lines to the American Poultry Association in a few years, a red line , The Empire, as well as a Silver Line, The Liberty Belle (hen) and The Liberty Bell (rooster.) Photo by Bridgette Tojek

Women in Agriculture

Stress Management for Women Farmers

Part 2: Coping Strategies

By Kristin Reynolds, University of California Small Farm Program

Editor's note: This is Part 2 of a two part series on women farmers and stress. Part 1 described the many sources of stress you may encounter as a woman in agriculture.

WOMEN AND STRESS MANAGEMENT
Mainstream research on stress responses has long held that the "typical" response to stress is "fight-or-flight" in which people face stress (fight) or avoid it (flight). However, 90% of stress research has tested men only. More recently, research has suggested that a hormone in women called oxytocin acts to calm women in stress.

While it is still believed that women, as well as men, experience the fight-or-flight reaction, an additional behavior pattern, referred to as "tend or befriend," may also enable women to deal with stress. "Tend or befriend" refers to behaviors such as care-taking and seeking out support networks that are used as a way to cope with stress, and are a tactic with which many women are familiar.

DESTRUCTIVE VERSUS CONSTRUCTIVE COPING
The way that individuals react to stress obviously varies with each person at any particular point in time. Fatigue, health status, depression, social environment, excitement, elation and invigoration all influence how one experiences and copes with stress. Though people do deal with stress in many ways, it is important to recognize that not all coping strategies are positive or constructive.

Examples of destructive coping include over-consumption of alcohol or constant worry. Effects of not dealing with stress constructively may include sleeplessness, depression, anxiety, or prolonged anger. It has been found that farmers (women and men) tend to be reluctant to seek professional help when stress gets severe, but there are many ways to manage stress constructively (see sidebar.)

NETWORKS AND STRESS MANAGEMENT
As discussed above, seeking peer relationships and social networks can be an important part of stress management for women, and these can include networks of other women agriculturalists. Women's agricultural networks may consist of a small group of local women farmers or ranchers who get together informally to talk about farm or ranch management, or even more personal issues at their operations. Or, they can be more formal community or regional groups that hold regular meetings for focused discussion of technical or regulatory issues in agriculture.

Whatever their form, networks can facilitate farmer-to-farmer information exchange and have been found to be helpful to women who balance the many pieces involved in a sustainable agricultural livelihood. Through social networks, women farmers and ranchers have also gained new perspectives, garnered moral support, and exchanged experience-based advice on farm and ranch management.

In addition to purely social relationships, informal or organized networks of women farming or ranching peers may help individuals cope with personal stresses of farm or ranch life. They may also empower women farmers and ranchers by enabling them to recognize their historical and current roles as members and leaders of the agricultural community. Several successful examples of women networks have been documented by researchers and women farming organizations. See the Resource Spotlight for details.

CONCLUSION
This article has addressed stress and stress management on the farm, with a focus on how women may experience and manage these aspects of agricultural lifestyles. There are many ways that individuals deal with stress in their lives, ranging from individual self-care to peer-based support networks.

Perhaps the most important parts of managing the many sources of stress inherent in agriculture today are to recognize them; to take active steps to control unnecessary stressors; and to maintain the balance between distress (negative stress), and eustress, (positive stress).

Managing stress constructively will help cultivate balance both on the farm, and within you. It is critical to your individual well-being and to the overall sustainability of the farm.

Kristin Reynolds is Program Representative with the University of California Small Farm Program. This article is adapted from "Stress Management for Women Farmers & Ranchers," available online at www.sfc.ucdavis.edu/Docs/stress_management.pdf.

SOME CONSTRUCTIVE WAYS TO DEAL WITH STRESS:

- Recognize the symptoms of stress.
- Recognize any destructive behaviors you may use to deal with stress.
- Recognize what has worked for you in past times of stress, and use those strategies when needed.
- Locate the source of stress and address the source, not just the symptoms.
- Know your limits.
- Learn to accept what is realistically beyond your control.
- Delegate tasks to others, as appropriate.
- Take care of yourself (eating regular, healthful meals; sleeping; resting; exercising; etc.)
- Include aerobic, physical activity as a part of your weekly routine.
- Make time for fun.
- Make time for relaxation.

Resource Spotlight
MANAGING STRESS

Pennsylvania Women's Ag Network
http://wagn.cas.psu.edu

Women's Agricultural Network at the University of Vermont
www.uvm.edu/~wagn

Women's Agricultural Network of Maine
www.timeandtide.org/wagn_-_home

Connecticut Women's Agricultural Network
www.ctwagn.com

Stress Management Briefs, University of Minnesota Extension Service
www.extension.umn.edu/distribution/familydevelopment/DE7269.html

Stress Management for Couples, North Dakota State University Extension Service
www.ag.ndsu.edu/pubs/yf/famsci/fs285.pdf

Stress Management-Taking Charge (Lesson 2 in series), Clemson University Cooperative Extension
www.clemson.edu/psapublishing/pages/FYD/HEL67.PDF

Time, Work, and Family Stress Management Fact Sheet, Kansas State University Cooperative Extension Service
www.oznet.ksu.edu/library/famlf2/mf2253.pdf

Horticulture

Cover Crops Case Studies - Gary's Berries

In this episode, our intrepid Extension agent pulls out all the stops in a harrowing battle against Nutsedge

By Molly Shaw

When a piece of fallow ground is plowed up and regrows a thick crop of nutsedge, you know you're in for a battle.

That's what happened to Gary Phelps when he was starting his part of the Cover Crop project, funded by Cornell Cooperative Extension and the NY Farm Viability Institute in 2007-2008. Gary runs Gary's Berries, a 3-acre U-pick blueberry farm in the south-east corner of Tioga County. He plowed that small piece of ground in spring 2007 to prepare it for planting more berries.

Nutsedge looks like grass, but it's not. It's a sedge. Pluck a plant and roll the base of the stem between your thumb and forefinger. If it is three-sided, it's a sedge -- "sedges have edges," as the saying goes. Sedges aren't easily controlled by the normal grass-specific herbicides commonly used in berry crops. Gary decided he wanted to try to control the nutsedge with cover crops and tillage alone, no herbicides initially.

Nutsedge does particularly well in wet areas, and Gary has a seepy heavy soil). It's a perennial, and reproduces by rhizomes (underground horizontal roots), and by making little tubers -- "nuts" -- off its roots.

Resource Spotlight
Cover Crops Decision Tool

Thomas Bjorkman, Vegetable Specialist at Cornell's Geneva Experiment Station and leader of this cover crop project has compiled the hard-learned lessons of many farmers into concise, helpful hints on how to make your chosen cover crop work. Check out his Cover Crop decision tool at www.nysaes.cornell.edu/hort/faculty/bjorkman/covercrops/why.html, so you don't have to learn the lessons the hard way.

It starts making new tubers in June, so in our nutsedge attack strategy we decided to try and keep new tubers from forming by disturbing the plants with plowing in June. We would then stress the nutsedge by growing a thick smothering cover crop for the rest of the summer.

For the next two years we planted various heat-loving summer cover crops like sorghum-sudangrass, buckwheat, and Japanese millet. We covered the ground during the winter with winter rye, or with a forage brassica, one that would winterkill.

Our major lessons were that in a dry summer (hard to remember, but 2007 was dry), broadcasting and disking in the cover-crop seed wasn't good enough-seedlings didn't have enough moisture to get a good start and the soil wasn't firmed over the seeds. Consequently, our stands were too thin to suppress weeds. We learned to seed on the thick side of the published seeding rates for weed control, and we realized a cover crop can't out-compete established weeds. (A chisel plow is not always aggressive enough to kill established weeds before cover crop seeding.)

In 2008 we decided to try the "bare fallow" tactic. During June the field was disked every week. We were determined to keep the nutsedge from making new tubers, and it seemed to work. By June 25, surviving nutsedge plants from the disked plots didn't have any tubers, but undisturbed plants in the next field over sure did. Then we got a decent stand of buckwheat established in July, although the heavy seeding rate of 100 lbs/A didn't suppress the nutsedge as well as it should have.

An uneven stand can often be traced back to inadequate seeding equipment, in this case an uncalibrated hand held spreader, incorporation with a disk, and no firming of the soil over the seed. But many small scale vegetable farmers have to do the best they can with the equipment they already own.

Spring 2009 rolled around, and Gary was ready to use glyphosate, a systemic non-selective herbicide, to finish the nutsedge off. Round-Up is one brand name of glyphosate, there are many others. Gary waited until the remaining nutsedge had sprouted in late spring, then he sprayed it. If he was starting again, Gary says he'd use glyphosate on the sod before he plows it up. Glyphosate suppresses the nutsedge, but one application doesn't totally eradicate it.

In early July we planted half the field to Japanese millet and the other half to buckwheat. This time we broadcast the seed over chisel plowed ground, then firmed it into the soil with a roller. Our cover crops turned out perfectly-thick, and without a weed under them. We attribute that success to a combination of factors:
1. It was the third year working this soil and using cover crops, so the weeds were hurting by this time.
2. Glyphosate helped suppress the remaining nutsedge in early summer.
3. We had good seed-to-soil contact because we rolled the seed into the ground. If you're feeling cheap, an old bedspring dragged behind the tractor is reported to work well too.
4. We had adequate rain this year for seed establishment.

Not rocket science, perhaps, but lessons learned the hard way are long remembered.

Molly Shaw is a Fruit and Vegetable Specialist with the Cornell Cooperative Extension office in Tioga County, NY. She can be reached at (607) 687-4020 or meh39@cornell.edu.

Gary Phelps of Gary's Berries in Owego is almost obscured by the tall Japanese millet. There is no nutsedge surviving underneath that shady cover. Photo by Molly Shaw

STEWARDSHIP & NATURE

Agricultural Environmental Management:

For the Love of Farming

By Barbara Silvestri & Mark Kenville

Dairy farming is close to the hearts of Bos Haven Farm's third generation of owners, Tim and Carolyn Marshall. Located in the Wappinger Creek and Sprout Creek Watersheds in the Hudson River Valley, Bos Haven's land is both picturesque and under intense development pressure.

The Marshalls realize that a love for farming is not enough; they need to be proactive if they want their land to stay in farming as the Hudson Valley changes. Working with the Dutchess County Soil and Water Conservation District has been a key to their success.

The original 50 cow, 258-acre dairy was purchased by Tim's grandfather in 1946. Tim's father took over the operation, expanding the acreage of the farm and increasing the milking herd to 150 head. In 1963, the farm was incorporated under the name Bos Haven Farms, with Tim taking an active role.

Tim now farms over 480 acres, known as the home farm, and rents a few hundred more acres for grain and hay production. His acreage varies as land is sold and sometimes developed. If the new owner wishes to have the land farmed, Tim is the farmer of choice.

DAIRY OF DISTINCTION

The Marshalls are proud of their dairy being among the inaugural winners of the New York Dairy of Distinction award in 1984 and are equally gratified with the recognition they have received for their conservation efforts, which date back even farther.

"Since 1966, our farm has been the host site for the Soil and Water District's Conservation Field Day, which has given hundreds of local fifth and sixth grade students a hands-on opportunity to learn about farming and conservation practices," said Tim. In 1978, the Marshalls were honored to receive the District's "Cooperator of the Year Award" and most recently they were presented with the "Goodyear Award for Outstanding Stewardship" from the National Association of Conservation Districts.

The farm originally signed up for a Conservation Plan in 1953 to help prevent soil erosion and protect water quality. Working with USDA and the District, Tim's grandfather determined that strip cropping and diversion ditches would be beneficial to the farm and the environment. The next phase of the plan involved implementing a crop rotation of field corn, hay and alfalfa.

NUTRIENT MANAGEMENT IMPROVEMENTS

Over the past 30 years, major nutrient management improvements have been implemented for both conservation and efficiency:

Nutrient management plan. The plan prescribes the spreading of manure to best meet the needs of the crops. "We were concerned with the loss of nutrients and our effect on water quality," remarked Tim. "We wanted to be sure our farm practices wouldn't impact another farm or someone's well, the nearby creek or even the Hudson River."

Tim explained that before implementing their plan, they had a terrible system for spreading manure. "It took too much time and effort and wasn't maximizing the value of the manure," he said. "Better manure management helped cut fertilizer costs - and at the same time was the right thing to do environmentally."

Manure storage. Installation of a manure storage tank resulted in huge time savings, especially in the winter months. Tim describes the equipment issues for handling wet manure in the winter as being a nightmare before the storage was put in. "Over the years the storage has paid for itself in the more efficient use of the manure as fertilizer," said Tim.

Milk house waste. The Marshalls also diverted milk house waste from a creek that runs through the farm into a newly constructed slurry store, a considerable $25,000 investment 30 years ago. "Our conservation practices have been incorporated based on good business sense, as well as environmental impact," said Tim.

In more recent years, the farm has been a recipient of state funding for water quality improvements based on their participation in their Soil and Water District's AEM Program. The Marshalls have worked with the District through the entire AEM assessment, planning, implementation and evaluation process. Their AEM Farm Plan details the conservation needs on the farm and positions them to apply for cost-share funding to help implement structural changes.

Next on the agenda is working with the District to apply for state AEM funds to help make improvements identified in their plan to protect a nearby stream including the installation of new concrete and gutters, relocating milk house waste pumps, and upgrading equipment for getting manure to the slurry store.

KEEPING THE COWS

A few years ago, Tim decided he was no longer able to both manage cows and raise forage crops. He found a young local farmer, Brian Donovan, who wanted to milk cows but needed a barn and a feed supply. Tim continues to work the farm, raising crops and hay on land not being grazed.

Though he no longer owns the cows that grace his barn, Tim likes the new roommates. He explains, "The only reason I farm is to feed the cows." If it weren't for those cows, he surely would not be out in the field on a tractor every day. Commodity farming just isn't his style.

The Marshalls are very enthusiastic about the dairy operation remaining a key component of Bos Haven Farms. They demonstrated their commitment by investing in the construction of a new silo and shade greenhouse for the cows in 2005. The dairy operation now includes 150 milking cows and 130 replacement heifers, producing more than two million pounds of milk per year.

While Bos Haven is not a regulated CAFO farm, Tim feels all farms should be environmentally focused, explaining that, "good conservation practices are also good for the bottom line of the business." He utilizes the resources and personnel of his local District and is very proactive, frequently calling for their input in anticipation of changes.

"Tim's always thinking ahead," said Myra Lawyer of the Dutchess County Soil and Water Conservation District. "He's very knowledgeable and truly cares about conservation, both as a responsibility and a business concern. Additionally, Tim has always been open about what he is doing and willing to take the time to talk to other farmers so they can understand what he's done and how it benefits his business and the environment."

PRESERVING THE FARM

The change in the ownership of the dairy cattle has not changed the Marshall family's desire to see their land remain a working farm. Recently, the home farm acreage has been put into an easement that will forever limit its development. Its location in the core farming area identified in Dutchess County's farmland protection plan makes it an integral piece of property for the two towns in which it lies. Both towns have supported the purchase of development rights with matching dollars.

Tim Marshall of Bos Haven Farm and Dutchess County Soil and Water District Executive Director Ed Hoxsie, dicuss the success of strip cropping as a conservation practice for erosion control.
Photos by Myra Lawyer, Dutchess SWCD

Bos Haven Farm's partnership with their Soil and Water District includes hosting their Annual Conservation Field Day since 1966. The event has given hundreds of local fifth and sixth grade students a hands-on opportunity to learn about farming and conservation practices.

Happy cow at Bos Haven. The Marshall family is committed to keeping dairy cattle on the land at Bos Haven farm for many years to come.

Tim Marshal of Bos Haven Farm explains that "better manure management helped cut fertilizer costs - and at the same time was the right thing to do environmentally."

"It's important to the environment to keep soils and farms in production. Agriculture is a better use of open land. Farming preserves the community's character, helps lower costs of municipal services, and, if farmed responsibly, is good land conservation," added Tim.

The AEM program is free, and in addition to helping farmers identify and address environmental concerns, the process documents good stewardship. To get started, call your county Soil and Water Conservation District today to schedule a free, confidential AEM Assessment for your farm. To learn more about out AEM, view the AEM Worksheets (under 'Technical Tools') or to locate your County Soil and Water Conservation District office, visit: www.nys-soilandwater.org.

Barbara Silvestri is the Information & Education Program Coordinator with the NYS Soil & Water Conservation Committee in Albany, NY. She can be reached at 518-457-3738 or barb.silvestri@agmkt.state.ny.us. Mark Kenville is the Director of the New York Center for Dairy Excellence, which is a farmer-led nonprofit group that awards grant funds for applied research and outreach education projects that help farms increase profits and provide models for other farms. He can be reached at 315-453-3823 or mkenville@nycde.org

Cows and Crops

Catch the Early Worm!

Spring worming is more effective than fall worming in controlling cattle parasites, says Dr. Mike Hildreth of South Dakota State University

By Sandy Buxton

"Cattle parasites are like weeds. As a farmer you have to understand how they function so you can break their cycle and improve the health and profitability of the herd." So says Dr. Mike Hildreth, Professor of Veterinary Science at South Dakota State University. By developing a different mindset when looking at cattle worms, he says, it is possible to see their impact and develop strategies to handle them.

The first point to understand is where the "housing" costs for these weeds show up. Cattle worms will reduce weight gain, increase winter feed costs, lower body condition scores, lower conception rates, reduce immunity especially in weaned calves and reduce carcass quality simply because of how the worms may migrate through the animal's body.

During several studies that measured these costs, Dr. Hildreth found impact at relatively low levels of parasite infestation. With a group of steers on test, Eggs per Gram (EPG) of fecal matter was found to be 35 EPG, with an economic loss of 18.45 pounds/animal or $13.65/head. In a group of heifers, the average EPG count was 22, but the weight loss was 22.59 pounds/animal or $15.14/head.

This means that there is a loss of 10-15 pounds/calf for every 100 days they spend on pasture if the cattle worms can not be appropriately controlled. Across a group of animals the increase in feed needed as well as time to grow to target weights will increase production costs substantially.

In the past, the focus for parasite management has always been on fall de-worming to reduce the number of worms the animals bring into winter pasture areas. But according to Dr. Hildreth this tactic only targets 10% of the parasite population actually in cattle because of the parasite's lifecycle.

A better approach that is now being encouraged is to perform a spring de-worming. This helps to target the worms that are on the grass and soil when the animals are first turned out. This will reduce the number of parasites that will be around to re-infect the animals through the summer months, which continues to reduce the pressure the parasites are causing on the animal's health.

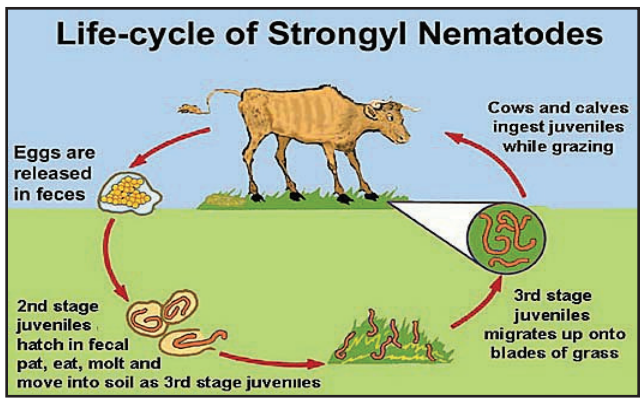
This is a new focus, and appears to have some momentum among cattle producers. Treat the worms where they are vulnerable by disrupting their system for infecting the herd. Normally, the juvenile parasite larvae have overwintered in the pasture and climb up the stems waiting to get eaten by a cow so they can enter the digestive tract. The parasite reproduces and then passes eggs out in the manure. These eggs then hatch and are ready to infect the calf just about the time it would start seriously grazing as the mother would begin to wean it.

If the adult cow with a young pre-weaned calf has been treated with a de-wormer then this cycle is disrupted and the calf will not become infected. The cost reduction of this system comes from both improved gains as well as reduced need to catch and de-worm the animals during the pasture season. Improved health benefits and carcass appearance will also either reduce costs or increase income.

This study by Dr. Hildreth while focused in a more rangeland situation, still has direct application to growers here in the Northeast. Since we grow animals in much tighter pasture situations we are prone to higher levels of parasites on the grazing areas. We are also grazing often for 150-200 days/season so improving gain by 20-30 pounds is also beneficial.

So, think about these parasites or "weeds" in your pasture and what they might be costing you. Sometimes it might be more than you think. Develop a plan and take action, it may make you some money and reduce the stress on your animals. At the same time, we recognize that drug resistance is already a serious concern in sheep and goat herds as they work to control parasite populations. Finding low chemical methods for control of cattle parasites will also be important for beef producers.

For more info on parasites from Dr. Hildreth visit http://biomicro.sdstate.edu/Hildrethm/CattleParasites/strongylecontrol.html.



Understanding the lifecycle of the cattle parasite helps to focus where it is possible to disrupt its attempt to infest the animals.
Graphic courtesy of South Dakota State University

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