

Annual Report 2011



Solutions for the Future



2011 Annual Report

You are holding the Annual Report for fiscal year 2011 of UVM Extension, and the Vermont Agricultural Experiment Station (VT-AES) at the University of Vermont College of Agriculture and Life Sciences.

It has become a State House tradition each February to release this report to Vermont government leaders at a reception in their cafeteria. We like to think they attend to meet the scientists and program specialists whose work we highlight that afternoon. Truth be told, we've heard the call echo through the open stairwell of this venerable building, "Allenholm Farms apple pie, ice cream and sugar-on-snow in the cafeteria!" Another Vermont tradition.

Credits

CONTRIBUTORS & PHOTOGRAPHERS

Ron Chapman, Cindy Corkins, Cheryl Dorschner, Andy Dubak, Richard Fanus, Lars Gange & Mansfield Heliflight, Lisa Halvorsen, Debra Heleba, Dan Hudson, Jeanne Keefe, Douglas Lantagne, Jane Nevins, Robin Smith, Todd Stewart, Tom Vogelmann, Cathy Yandow.

DESIGNER

Kathy E Design

PHOTOS: FRONT COVER & THIS PAGE

Tropical Storm Irene delivered a collective calamity to Vermont more severe than any in most Vermonters' living memory. Irene also galvanized communities' support to clean up and rebuild. As you'll read in this report, the University of Vermont community played a significant role helping Vermonters recover from the storm. Cover: Lars Gange & Mansfield Heliflight photo. This page: Andy Dubak photos.



INSIDE

Deans' Financial Report	1
Agriculture	2
Environment	4
Nutrition, Health & Food Safety	6
Economic Development & Quality Of Life	8
Contacts	Back Cover



Deans' Message

Working Together with Vermonters

It was Vermont's own Justin Morrill who, 150 years ago, defined and launched public land-grant education in agriculture and practical mechanical fields, and in doing so trained the people who built our nation. This laid the groundwork for the Smith-Lever Act that formed the Extension service 100 years ago.

Morrill could never have envisioned how sophisticated his legacy would become with today's national emphasis on science, technology and engineering, nor how greatly University of Vermont agriculture and life sciences research and teaching is now infused with those disciplines.

Justin Morrill would be proud of how his home College of Agriculture and Life Sciences, the Vermont Agricultural Experiment Station and UVM Extension conduct research and outreach to improve the lives of Vermonters.

Our obligation to the people of Vermont is to leverage state and federal allocations by attracting additional grants and funding and return that investment to Vermont through scientific research and programs that help its citizens.

Outside grants and contracts accounted for more than \$9 million of the nearly \$24.5 million of the combined budgets of the Vermont Agricultural Experiment Station (VT-AES) and University of Vermont Extension in 2011, compensating for state and federal funding cuts. The charts at right demonstrate our research obligation by categories mandated by the USDA's National Institute of Food and Agriculture. However, as you'll see in the following pages, we categorize our collective efforts in service to Vermonters as: agriculture; environment; nutrition, health and food safety; community and economic development; and feature eight stories of stellar research and outreach projects in those areas.

Among those stories, one subject deserves special mention as well as the focus of our



Thomas Vogelmann, left, and Douglas Lantagne.

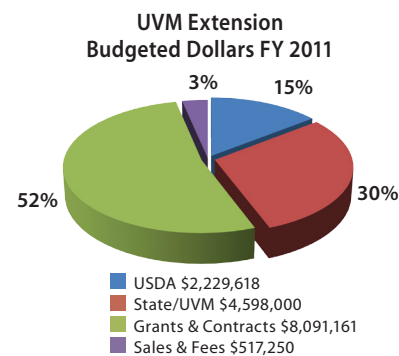
Cheryl Dorschner

cover photography. The unprecedented damage caused by Tropical Storm Irene last August was only surpassed by the deluge of volunteer help and dependable science-based resources from the University of Vermont community. UVM Extension specialists traveled the state assisting with animal vaccinations and solving problems. Faculty members offered a new course on rebuilding Vermont. Others quantified and mapped the extent of the damage. The University gave office and lab space to 32 state scientists and technicians whose offices were flooded. Untold members of the UVM community shoveled, cleaned, hauled, commiserated and inspired. Among these are Bob Parsons and Dan Hudson, whose stories are told in these pages.

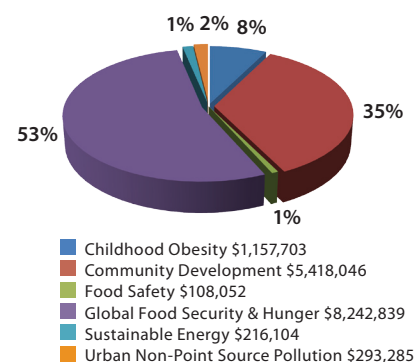
Visit our websites for further details of our financial reporting for fiscal year 2011, which runs from Oct. 1, 2010 through Sept. 30, 2011.

*~Thomas Vogelmann, Dean
Vermont Agricultural Experiment Station*

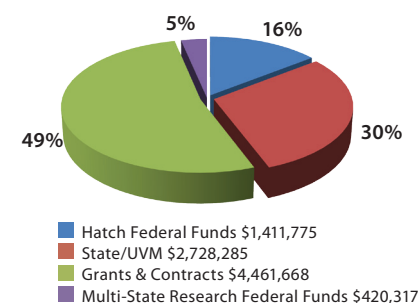
*~Douglas Lantagne, Dean
UVM Extension*



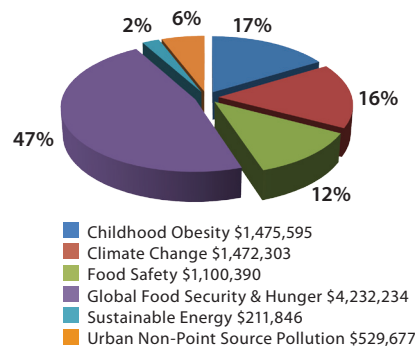
UVM Extension Budgeted Dollars by National Goal Area FY 2011



VT Agricultural Experiment Station Budgeted Dollars FY 2011



VT Agricultural Experiment Station Budgeted Dollars by National Program Area FY 2011



AGRICULTURE

~ UVM Extension

Helping Farmers Get Back to Business after Irene

David Ainsworth considers himself to be one of the lucky ones. Although his 450-acre dairy farm in South Royalton was impacted by Tropical Storm Irene, he didn't lose any animals or equipment nor was there structural damage to any of his buildings. He's also secured enough feed to get through the winter to May when he can turn his 50-cow herd out to pasture again.

He wasn't as confident in late August when much of his crop land flooded. Like most Vermont farmers, he had never seen damage as severe as this before and wasn't sure what to do. So he turned to UVM Extension for answers.

"Two-thirds of our field corn was lost – one-third outright, laid horizontal to the ground," the fifth-generation farmer explains. "The rest was so silty that we chose not to chop."

"In a typical year we grow all our own hay and corn and routinely sell to others. We are certified organic. The first cut of hay gets sold to a vegetable grower in town who raises organic beef. The second cut is for us. But this year Mother Nature interfered."

Dan Hudson, an Extension agronomist based in St. Johnsbury, visited the farm, armed with the most current information about managing flood-damaged fields and harvest management of flood-damaged crops.

"After Irene there was an initial period of shock as farmers surveyed the damage on their farms and tried to figure out what to do next and how to get back on their feet," says Hudson, who documented damage and worked with farms throughout the Connecticut River watershed. "Every farm was a little different. Some fields were heavily contaminated. Others only had a thin film of silt. But the big question everyone was asking was, 'Should I harvest?'"

Little research has been done on harvesting silt-contaminated corn and hay for silage, so flood-related issues were addressed on a farm-to-farm basis using available information. However, UVM researchers and Extension specialists gathered data and samples for research studies to prepare for similar future scenarios.

"In collaboration with UVM Extension, a team from the University of Delaware, renowned for its work on fermentation and silage production, also visited Ainsworth's and other farms in the state," Hudson notes, "to collect samples of heavily silted silage in order to generate preliminary data toward future research efforts."



Dan Hudson

Flooding from Tropical Storm Irene damaged more than 6,000 acres of corn in Vermont, creating a serious feed shortage on many farms.

In Irene's aftermath, Extension faculty and staff visited affected farms throughout Vermont, not just dairy operations, to provide advice and assistance on matters ranging from farm management and financial decisions to safety procedures and coping with stress. UVM Extension also set up a lab to test feed for mycotoxins, molds that can sicken cows, and established an Emergency Management Center through a UVM SharePoint web site to match farmers with available resources for the Agency of Ag and other partners.

To date 476 farms have reported losses totaling \$20 million statewide although the actual figures may be significantly higher. Approximately 6,000 acres of corn, 7,000 acres of hay, 225 acres of soybeans and a few thousand acres of pasture were damaged, primarily by flooding. Vermont's vegetable growers, some of whom lost their entire harvest, saw losses of \$3 million with damage to 600 acres of vegetables and fruits.

"As tough as it has been, there's not a rash of farms that have stopped farming because of Irene," Vermont Agriculture Secretary Chuck Ross says. "Extension was very responsive and worked extremely hard with farms, reaching out immediately after the flooding. They also partnered with other organizations to organize the relief efforts that farms needed."

To provide information as well as put farmers in touch with appropriate agencies for additional assistance, UVM Extension worked with various state and federal agencies including the Vermont Agency of Agriculture, Food and Markets; the U.S. Department of Agriculture Farm Service Agency and the Natural Resources Conservation Service.

"One of my goals is to take opportunities that Irene gave the Agency of Agriculture and Extension and build upon it," Ross says. "This effective partnership is really useful to the evolution of agriculture in the state."

~Lisa Halvorsen



AGRICULTURE

~ Vermont Agricultural Experiment Station

Handing Over the Farm to the Next Generation

“Failure to plan is planning to fail.”

“Any estate that has one penny, or more, can be the cause of a fight.”

“A Vermont farmer would rather endure three weeks of below zero weather, than talk about his feelings.”

These are just a few of Bob Parsons favorite sayings, oft repeated during his talks to farmers on how to transfer businesses, estates and assets. Parsons, an agricultural economist with both the University of Vermont College of Agriculture and Life Sciences and UVM Extension, gives about five such talks and workshops every year throughout the U.S.

Before an audience, Parsons is animated and engenders bursts of laughter, not just the nervous laughter of recognition and discomfort about planning for the afterlife either.

MAKING THE MOST OF A LEGACY

The audience for “Farm Transfer & Succession Planning” one day in January was the Vermont Christmas Tree Growers Association gathered at the Vermont Farm Show in Essex Junction. They were there to grapple with the same issues that any property owner faces unless he wants to cash out his assets. Parsons led listeners through the personal issues such as procrastination, fairness versus equity and children’s interests and abilities to inherit family businesses. He highlighted tax law changes, estate planning basics and various transfer options. His is also a crash course in business structure.

He speaks from research: Parsons’ material comes from a four-year, nationwide comprehensive study of the ways families transfer their small and medium-sized farms to the next generation – a critical component to the future of U.S. agriculture. The study, was funded by a \$468,000 USDA National Research Initiative grant and five grants from the Northeast Center for Risk Management Education totaling \$265,000. Its conclusions mirror Vermont’s farm



landscape. The average age of a farmer nowadays is 57, a decade older than in the 1970s. Trends show more absentee landowners and more complicated



Bob Parsons spreads the word about how farm families can transfer assets to relatives or other beneficiaries. His research findings are translated into talks, workshops and one-on-one consultations. Here he’s giving advice on the “Across the Fence” television show broadcast statewide.

regulations. On the other hand, the number of small farms is on the increase as are efforts to preserve farmland. That’s why Parsons’ presentations resonate with his audiences.

“In the 1980s on the way into heart surgery, he asked his wife not to sell the farm.”

He speaks from experience: Parsons tells the tale of his own dad, 88, who created a business plan to hand over his Pennsylvania farm to his adult children yet routinely plans which trees to plant next year. “Now that is long-range planning,” says Parsons, confessing that his dad wasn’t always so well organized. “In the 1980s on the way into heart surgery, he asked his wife not to sell the farm.”

Parsons leaves his audiences with plenty to think about, a 12-page PowerPoint handout and the suggestion that they contact the University of New Hampshire for its websites and course tapes. Serious attendees may meet one on one later.

“This was helpful for a lot of people here,” said James Horst, surveying the crowd of about 60 attendees that day. His take-away message was “people – the spouse and kids – have to be all thinking and acting in the same direction.” Horst, a Bennington tree farmer with some 300 acres, says he has been through farm transfer as a recipient. And now he’s on the giving end.

“My kids are young, in their twenties – they need time to decide what they want to do,” he says, so his plan includes, “I’ve got to keep alive for a long time.”

~ Cheryl Dorschner

ENVIRONMENT

~ UVM Extension

Academy Fuels Teens' Interest in the Outdoors

Pawlet 4-H'er Tom Becker leaned over the side of the canoe and scooped up a water sample from Buck Lake in Woodbury.

With a water quality kit, he quickly analyzed the sample, jotting down some numbers before paddling off to collect additional data to assess the lake's health.

As a participant last July in the fourth annual Natural Resources Management Academy (NRMA), sponsored by UVM Extension and the Vermont Department of Fish and Wildlife, he learned about the environment and Vermont's natural resources, including its water ecosystems, and how to conduct fieldwork, all valuable for his future as a forester.

"I like being outdoors and first thought about a career in wildlife biology. But I wanted to get a feel for forestry and found the session on trees last year very interesting."

It also prompted the Rutland County homeschooler to enroll in forestry classes at Green Mountain College this year. He credits the academy with exposing him to different natural resources-related fields and opportunities.

He is not alone in his avid interest in the outdoors. This past summer 25 teens attended NRMA at the Green Mountain Conservation Camp at Buck Lake. Most hunt and fish. All explored nature and met others with similar interests.

NRMA was developed by 4-H educator Lauren Traister to provide quality environmental education for teens. And the concept is working. Evaluations from the most recent academy indicated that 88 percent of participants increased or greatly increased their understanding of issues related to natural resources management. About 72 percent increased or greatly increased their desire to pursue school or a career in the natural resources.

In 2011 NRMA offered workshops on bird identification, water quality, ecological planning and the science behind climate change. A canoe scavenger hunt taught compass and mapping skills while night fishing provided a chance to learn new techniques and study fish habitats. Although both the workshops and recreational



activities are what draw the kids to the program, according to Traister, NRMA's real value is connections.

"It connects kids to nature and new opportunities as well as to professionals in natural resources-related fields. Some kids line up internships or find a mentor for community projects."

"It's a great informal avenue for them to ask questions and get



Lisa Halvorsen

Amanda Varney, Fairfax (center) collects a water sample from Buck Lake with the help of Peter Davidson, Rutland, and Lyndsay Potter, Fletcher, during a lake assessment workshop at the fourth annual Natural Resources Management Academy.

advice from professionals at a time when many are starting to think about future career opportunities and education," adds Amber van Zuilen, camp coordinator, Vermont Fish and Wildlife Department.

Strong friendships also develop. "I have never seen kids bond as quickly as they do here," Traister says. "They share common interests, but it's more than that. They also listen and learn from their peers."

"We're all here to have fun and learn about nature. That's the common ground. The icebreaker," Bayli Bienvenue of Addison explains. "I'm still in touch with people I met last year from a couple of counties away. That's the kind of friendships that form here."

Traister notes, "NRMA reinforces what these kids already want to do. It provides the tools to further explore the natural world around them but also grows their self esteem and helps them along this critical journey to becoming adults."

For Peter Davidson of Rutland, who wants to be a forester, the weekend provided the opportunity to explore all aspects of the outdoors. "As a forester, there are lots of things to think about. You need to know about wildlife habitat and where not to log and about recreational uses of forests. I learned a lot last year and will definitely be back next year," he says.

Waitsfield teen Robert Danaher has attended every academy and also hopes to return next summer – this time as a counselor. "I enjoy knowing as much about nature as I can. The workshops are different every year and always useful. It's fun learning new things like bird watching and plant identification."

"UVM Extension (through 4-H) has found a great way to get youth connected with our natural resources through hands-on education that youth enjoy," van Zuilen concludes. "For some this is their first real immersion into our natural resources, whereas others come back year after year. Whether this is their first or fourth year, they take away more knowledge of our environment, personal growth and friendships."

~Lisa Halvorsen

ENVIRONMENT

~ Vermont Agricultural Experiment Station

How Plants Communicate

In the three floors of daylight-filled laboratories and offices of UVM's Jeffords Hall, plant research and verdant plants thrive.

Likewise, the surrounding gardens soak up east- and west-facing sunshine and flourish as outdoor classrooms and proving grounds for theories and hardiness trials.

However, few people realize that deep below this gleaming two-year-old, biological science building, are two large locked rooms of 13 mausoleum-like chambers. Here, heavy doors clank open to reveal fragile sprouts reaching for red or white fluorescent light, their roots stretching into vermiculite, water and bacteria in this controlled environment called the growth chambers.

It's the root nodules of these sprouts that interest Jeanne Harris, because under the microscope in her lab she sees evidence that those roots exchange molecular signals with soil bacteria to trigger these legumes to form nodules, which the bacteria then infect. She and colleagues want to know what regulates nodule formation and how it evolved.

Her work is part pure scientific curiosity and part possible practical use. Legumes – including alfalfa and soybeans – are important food crops for animals and humans, because they store protein in their seeds and nitrogen in their roots. The nitrogen-laden roots add fertility back into the soil in which they grow, so optimal growing conditions could mean reducing the use of expensive and polluting added fertilizers. Crop production might benefit from understanding how to regulate the growth of nitrogen-fixing nodules or how to space plants to maximize yield. Also, how these plants signal might be a predictor of their response to rapid climate change.

PLANTS GET THE FIX

“Plants essentially make choices all the time – the only plants that survive are the ones that make good choices,” says Harris, who is an associate professor of plant biology. Legumes' choices include whether to put their energy into leaf, stem, root or nodule growth or seed production. Of course, plants' life-long resources come only from where they stand – it's not like they can move to better digs.

The secret to legumes' unusual nitrogen-fixing ability is their symbiotic association with soil bacteria. In order for these nodules (Harris points to a pink bump covered in loose white cells on a plant stem, just below a lateral root) to fix nitrogen, they have to feed the bacteria sugar at the expense of their own growth.

“A plant needs to make enough nitrogen – not too much, not too little – because in doing so, the plant has to use its energy to feed that bacteria sugar,” says Harris.



The source of that chemical energy in the first place is light energy. Plants use the red light portions of the spectrum for photosynthesis, stripping out almost



Cheryl Dorschner

Jeanne Harris studies legumes' intricate sensing network that helps plants choose when to grow, develop nitrogen-fixing root nodules and how to adapt to changing light levels – potentially important for agriculture and to understand response to climate change.

all the red light that hits the leaf, but far red light is not harvested and passes through the leaf to plants below. Plants take advantage of that difference and use the ratio of red to far red light to tell them whether they're shaded or in full sunlight.

So in her USDA Hatch grant experiments, Harris and colleagues regulate red/far red light to test how that affects legumes' ability to grow nodules. Harris's findings may indicate that plants shaded by other plants, realize they're going to get increasingly less light, so they actually respond and predict – at the cellular level – budgeting for less sugar by stopping nodule growth or producing many fewer, Harris explains.

Light is just one aspect that Harris and her research team study. Others include salinity and nitrogen available in soils and root architecture. The signaling network gets even more complicated and fascinating as these factors are layered. For instance, it turns out that red light both stimulates nodule growth and turns off signaling of stress hormones. Curiously, soil nitrogen and salinity regulate root architecture by modulating these same hormones.

“We think that the fact that the same hormones respond to multiple environmental inputs means that they can function to integrate lots of complex signals from the environment and distill it down to very simple instructions: whether or not to make a nodule. It also makes the system very flexible and able to respond sensitively to small changes in the environment.”

“Trying to use this research to inform agriculture, helps us make the best use of these plants – for instance, get the best yield by growing them in optimum conditions,” says Harris. “We're not at that point yet in the research, but I can imagine it going in that direction.”

~ Cheryl Dorschner

~ www.uvm.edu/vtaas

NUTRITION, HEALTH & FOOD SAFETY

~ UVM Extension

Farmers Raise the (Roll) Bar for Tractor Safety

The Vermont Rebates for Roll Bars program is helping to save lives, one tractor at a time.

Just ask Selina Rooney of Mud City, who recently retrofitted her circa-1970s International 666 with roll bar and a seatbelt. Although she has never experienced a tractor rollover, she knows just how dangerous farming can be. She lost her uncle in a farm accident several decades ago and can rattle off a list of neighboring farmers who have had close calls.

UVM Extension launched the Vermont ROPS (rollover protective structures) program in September 2010, the second program of its kind in the country.

“Every farm in our area has had some type of accident. Not necessarily a rollover, but a potentially serious accident,” says Rooney, who runs a vegetable CSA (community-supported agriculture) and helps manage the sugaring operation on her parents’ 100-head dairy farm. “We have a high-altitude hill farm. Driving a tractor on wet grass on a hill is a rollover just waiting to happen.”

UVM Extension launched the Vermont ROPS (rollover protective structures) program in September 2010, the second program of its kind in the country. It offers a 70 percent rebate (up to \$765) to farmers who want to retrofit an older-model tractor with a rollover protection kit, which includes a roll bar and seatbelt. Farmers can call a special hotline number for information on what to order for their particular model then work with their local dealers to have the equipment properly installed.

Matt Myers, UVM Extension program coordinator, believes that it’s one of the best decisions an agricultural producer can make.



“Accidents happen fast,” he says, noting that one in 10 farmers will roll over a tractor in his or her lifetime, making this the single deadliest type of mishap on U.S. farms. “Many of those accidents result in serious injury or death, which could have been avoided for a one-time investment of a few hundred dollars.”



Lisa Halvorsen

Matt Myers, ROPS program coordinator, visits with Selina Rooney on her parents’ Mud City farm after the retrofit of her older-model tractor.

Given Vermont’s hilly terrain and large number of small farm operations that have older equipment – anything manufactured pre-1986 when roll bars became standard issue on tractors – Myers is not surprised that the Northeast region has the highest rate of tractor overturns in the country.

Neither is Dr. Julie Sorenson of the New York Center for Agricultural Medicine and Health/Northeast Center for Agricultural and Occupational Health, which administers both the New York and Vermont ROPS programs.

“The great thing about ROPS is that they are 99 percent effective with the use of a seatbelt although just the ROPS alone is considerably effective in reducing the extent of the roll,” Sorenson says. “In the New York program we’ve identified approximately 63 close calls amongst 500 individuals who’ve installed ROPS through us, so we are already making a difference.”

Sorenson adds that “the value of this program to farmers is that it removes the major hurdles to retrofitting – the cost, logistics and motivation. The program is also very flexible, allowing farmers to install folding or rigid ROPS or even a canopy or cab.”

“Without the ROPS rebate program, we would not have considered it because of the cost,” Rooney admits.

Vermont ROPS works closely with the Vermont Agency of Agriculture, Food and Markets; the Vermont State Farm Bureau and tractor dealers in the state. It’s funded by private and public donations including Cooperative Insurance Companies of Middlebury, its principal sponsor, and UVM Extension.

“We’ve raised enough money to retrofit more than 200 tractors in the first 18 months of the program,” Myers says. He hopes to see funding – and those numbers – increase in coming years.

“Think about your family and your farm,” Rooney advises other farmers. “What happens if you have a serious accident? Can your farm survive? Even if this program saves just one life, it is worth it.”

~Lisa Halvorsen

NUTRITION, HEALTH & FOOD SAFETY

~ Vermont Agricultural Experiment Station

Balancing Food Safety & Flavor

Farmstead cheese is one of the great successes of 21st Century dairying. But last year, the cheese industry faced several recalls and multi-state *E. coli* outbreaks causing illness. Federal regulators are scrutinizing raw-milk cheesemakers with an eye toward unprecedented strict laws. Meanwhile, raw-milk cheesemakers and connoisseurs maintain that their practices are safe and the flavor of their cheeses is dependent upon unadulterated ingredients.

Refereeing this fierce debate with solid scientific data are University of Vermont research scientists at the Vermont Institute for Artisan Cheese (VIAC) – experts in cheese safety and food-borne pathogens.

“I’m interested in making sure that we can forward traditional cheesemaking practices and ingredients in this era of food safety challenges,” co-director of VIAC, Catherine Donnelly said in a widely acclaimed video produced last year by the American Society for Microbiology.

“We found the absence of large-cheese-associated outbreaks to be remarkable, because compared with other commodities that’s not the norm.” she says. “But in studies looking at instances where cheeses made from pasteurized milk were involved in outbreaks, we realize that the most significant threat to cheese safety isn’t the use of raw milk – isn’t the cheese itself – it’s actually post-process recontamination either from the aging environment or introduction by humans of pathogens on their hands after the cheese is made. It’s really recontamination that poses a threat. It’s irrelevant whether cheese is made with raw or pasteurized milk.” Donnelly is one of the nation’s foremost experts on microorganisms affecting food safety, especially *Listeria*.

She concludes that *Staphylococcus aureus* carried on human hands or cows’ udders causes the most problem in cheeses. *Staph aureus* allowed to grow to high population levels produces toxins that make people sick. *Listeria* and *Salmonella* are sometimes also problematic as well as, though very rarely, *E. coli*.

Another problem that cheesemakers encounter are viruses that live in the cheesemaking environment, called bacteriophage that attack bacterial starter cultures and cause the batch to fail. Cheesemakers guard against bacteriophage by keeping the cheesemaking facility sanitary.



Donnelly’s \$45,000, three-year Hatch grant was renewed and her USDA APHIS grants have totaled more than \$600,000 over several years. These continue to pinpoint both the vulnerabilities in the large-commodity food system that contribute to



Cheryl Dorschner

Catherine Donnelly, one of the nation’s foremost experts in *Listeria* and other food-borne pathogens, says that high quality and flavor of cheeses are the result of the ingredients, techniques and microorganisms. The safety of cheeses is the result of best practices.

the spread of pathogens while simultaneously demonstrating that centuries-old techniques used in artisan cheeses rely on the culture of beneficial microorganisms.

Donnelly believes that while regulation is one way to control food borne pathogens, education is another. VIAC teaches food-safety practices and past grants enabled her staff to do on-site risk-reduction programs for cheesemakers.

Donnelly and Dennis “D.J.” D’Amico, a senior research scientist and lab manager for VIAC, are poised to use their scientific findings to continue to inform the Food and Drug Administration (FDA) and Health Canada as they evaluate the food safety of soft-ripened, raw-milk cheeses.

Donnelly and D’Amico predict that the debate among the interests of small and large-scale cheesemakers and the FDA will intensify in the coming year over a circa 1940s federal rule that requires cheese to be aged for 60 days before it is deemed safe to eat. The law was aimed at hard cheeses such as Cheddar that become inhospitable to pathogens as they dry out during aging. When raw-milk cheeses age, the chemicals, acids and salt in the cheese also destroy harmful bacteria, and since types of cheese differ greatly, scientists such as D’Amico and Donnelly conclude that the 60-day rule is simplistic at best.

“The 60-day rule wasn’t based on real science,” D’Amico told “The New York Times” last spring. “The pathogens have changed and the cheeses have certainly changed. But the rule has not.” D’Amico’s research was the subject of much media attention, including the “Atlantic,” ABC and Fox News.

The FDA is reassessing the rule as it applies to soft cheeses, so the regulations are likely to change.

Expect the debate to heat up – but not the raw milk used in cheesemaking.

~ Cheryl Dorschner

~ www.uvm.edu/vtae

ECONOMIC DEVELOPMENT & QUALITY OF LIFE

~ UVM Extension

Parenting Program Helps Build Stronger Families

When parents separate or divorce, their kids' lives can suddenly be turned upside down. They may feel sad or confused about why their parents are no longer together, scared about what will happen to them and mad that they have no choice in the matter.

Coping with Separation and Divorce (COPE) provides a road map for parents to help them guide their children through this transition. The four-hour seminar, a collaboration between UVM Extension and the Vermont Court's Family Division, focuses on how families experience divorce including the typical reactions of children, their needs and how to soften the overall impact on the family.

"The program has a strong focus on bringing in the children's voices," says Marcia Bedig, COPE program manager. "COPE encourages parents to begin to resolve conflicts by having that conversation about what's best for the children. It helps them learn to refocus on their children's futures, which is why this program is so important."

Ed Nasta, a father of seven from Jericho, agrees. He attended the seminar at the Chittenden County Courthouse in Burlington in Fall 2011.

"Until you go through it, you don't appreciate the information. The class really helped me appreciate the perspective of the kids involved and the critical need for parents to manage things in a way that doesn't adversely impact them," he says. "The video clip of kids telling their stories was powerful although hearing other parents' stories helped me know that I am not the only one dealing with these issues."

COPE began as a pilot program in Orange County in 1992 although quickly expanded to all 14 counties as courts realized its value. Today the Vermont court system requires all parents with minor children who are filing for separation, divorce, dissolution, establishment of parentage or changes in parental rights and responsibilities to take the seminar. Nearly 40,000 people have completed the program with around 92 percent of participants saying that they will use information to be a better parent, according to Bedig.

"Many people complain at the beginning about having to take the class," she adds, "but by the end they are usually moved. Some people even stop their filing after COPE."

Liz Smith, who participated at the Franklin County Courthouse in 2010,



Lisa Halvorsen

COPE program manager Marcia Bedig (left) reviews teaching materials with Liz Smith, a former class participant interested in joining the teaching staff to share her experiences with other parents.

"The class really helped me appreciate the perspective of the kids involved and the critical need for parents to manage things in a way that doesn't adversely impact them."

found the seminar so enlightening that she approached Bedig about being trained as part of the teaching team.

"Before I went to the class, I was one of those people who thought that I do not need to be here," the mother of two from St. Albans says. "I was skeptical that I could learn anything because I'm a social worker and have worked with families in similar situations my whole career."

Instead, she was surprised at how beneficial the session was for her and her family.

"I've learned to communicate with my ex-husband better and am more sensitive to what my kids are going through. I can put myself in their shoes and remember where they are developmentally, which helps me when I talk to them and listen to their concerns."

"Class evaluations indicate that participants are appreciative of COPE's educational methods that allow for the presentation of information in a lively manner, encouraging important conversations and a platform for their questions," Bedig says. "When parents gain awareness and skills, the potential negative impact of separation and divorce on children is lessened."

"When a family is in crisis, the parenting batteries get low because they are coping with so much. COPE helps recharge those batteries."

~Lisa Halvorsen



ECONOMIC DEVELOPMENT & QUALITY OF LIFE

~ Vermont Agricultural Experiment Station

Many Crops Make a Living

Apples, vegetables, perennial and annual flowers, cider, cut flowers, baked goods, eggs and specialty products – Adams Apple Orchard started in 1972 as an IBM retirement project for John Adams of Williston. But over the past 25 years it grew into a diverse farm market for John, his wife Peggy, their son Scott and daughter Kim Adams Antonioli.

“Diversifying is what makes us survive, be open from May 1 through Christmas and allows us to support three families,” says Antonioli, one December Saturday as she helps 4-H club kids set up a bake sale in her shop. Fundraisers like this not only draw customers, but reflect this entrepreneurial family’s central role in the community.

Chyi-lyi (Kathleen) Liang visits perhaps 5-10 Vermont farms such as this one every week as part of her varied research projects that include marketing strategies for apple producers, winemakers, on-farm tourism and organic and diversified farms – all share what the University of Vermont identifies as an important focus: food systems research.

Since she arrived at UVM in 1998, Liang has juggled 25 research projects in addition to teaching. They range from nitty gritty measure of phosphorus and *E. coli* from silage run-off to tasteful evaluation of marketing strategies for award-winning Vermont wines. All told she’s been a leader in bringing in more than \$2,225,000 in grants. And Liang’s research doesn’t shy away from controversy. After two unconventional, high-profile studies tracked the marketing and distribution of Vermont milk, she naturally raised the ire of stakeholders when she concluded, to put it mildly, “there is a market disorder between producer, handler and consumer. My results were not popular with the stakeholders but created a ripple effect that led right to the USDA,” Liang says.

As a result, her newest project is a three-year, USDA National Institute of Food and Agriculture farm research grant for more than \$470,000.

In it, she’s evaluating what may just be the crux of the relationship between small- and mid-sized farms and the well being of local communities and the gap between food producers and “food scarcity” – people who go hungry.

By surveying Vermont and New England farmers, she’s testing the hypothesis that a multi-functional approach enhances the long-term sustainability and prosperity of both farmers and the communities in which they are located. “Multifunctional approach” means, sell directly to customers,



Cheryl Dorschner

As part of her research, Kathleen Liang, left, helps Vermont farms diversify and sell directly to customers. For John Adams, Kim Antonioli and Peggy Adams of Adams Apple Orchard & Farm Market in Williston apple products are key, but many more offerings round out the year.

promote agri-tourism, offer specialty foods and include off-farm employment. Already, over 4,000 farmers have filled out her surveys, and she’s crunching existing statistics.

She explains, “my Hatch and USDA research aims to answer:

- What’s going on in the food market from producer to distributor to consumer?
- What else are farmers doing to supplement their incomes?
- What innovative strategies do farmers implement; did these improve long-term profitability?
- What do consumers think about these farms?”

NATIONAL CHANGE IS IMPERATIVE

Besides questioning assumptions, Liang’s research often sets up fresh opportunities. While many other efforts to help farmers focus on raising productivity or cutting costs, one hallmark of her projects has been entrepreneurial efforts converting existing resources into new revenue.

“Farmers are looking for four-season opportunities,” she says, and she has helped them find unexpected project launches such as maple wine, wild rice, shitake mushrooms, ginseng and on-farm tourism.

Liang believes that ultimately her results will address an even larger issue – “how to get food directly from farms to people who are going hungry” by overcoming obstacles such as “no access, no information, no marketing channels,” she says. “We will find out where the gap is and how to close that gap.

“Although my Hatch projects focus on Vermont, the bigger impact of my long-term research is to create systematic approach to understand food issues, Liang says. “Most small farmers struggle to survive, and there is an increasing rate of poverty among children in this country. Something has to happen in the food system to make sure we produce good quality food for people who need them the most.”

~Cheryl Dorschner

CONTACT US

Vermont Agricultural Experiment Station
College of Agriculture and Life Sciences
Thomas Vogelmann, Dean
thomas.vogelmann@uvm.edu

Morrill Hall, UVM
146 University Place
Burlington, VT 05405-0106
(802) 656-0137

Advisory Board

Roger Allbee, Townshend
Ray Allen, South Hero
Tom Berry, Colchester
Megan Camp, Shelburne
Patricia Coates, Jericho
Robert Foster, Weybridge
Kayla Gatos, Jericho
Patricia Heffernan, Shelburne
Victor Izzo, Burlington
Peter Karnezos, Colchester
Fred "Chico" Lager, Williston
Richard LeVitre, Colchester
David Marvin, Hyde Park
Jenny Nelson, Ryegate
Mim Nelson, Concord, Mass.
Robert Paquin, Shelburne
Chuck Ross, Hinesburg
Robert Ullrich, Charlotte

UVM Extension

Douglas Lantagne, Dean
doug.lantagne@uvm.edu
19 Roosevelt Highway, Suite 305
Colchester, VT 05446-5933
(802) 656-2990, 1-866-622-2990

Advisory Board

Ray Allen, South Hero
Tom Berry, Colchester
Jen Carp, Colchester
Patricia Coates, Jericho
R. Monty Fischer, Hardwick
Alexandra Glover, Newfane
Kay Henry, Waitsfield
Beth Kennett, Rochester
Rick Marsh, Jeffersonville
Jenny Nelson, Ryegate
Ann Nygard, Lyndonville
Bill Rowell, Sheldon
Art Whitman, North Bennington

