

Outreach and Research



Entomologists Bruce Parker (left), Michael Brownbridge, and Margaret Skinner inspect an “indicator” plant that is being tested to see how early it attracts insects.

Partnerships are key to addressing the needs and improving the lives of Vermonters.

We are very pleased to present the Annual Report of the University of Vermont Extension and the Vermont Agricultural Experiment Station (VT-AES). Our programs are designed to meet the outreach and research needs of the state and are an important part of preserving and growing Vermont. Our work in fiscal year 2004—including 174 new and ongoing research projects and more than 360 significant education programs—was carried out by committed faculty, staff, students, and volunteers and was guided by dedicated and caring advisers.

We are grateful for the many Vermont citizens who serve as advisers (see page 6 for listing) at the program, region, College, and state level and help guide and evaluate our work. We meet with advisers at least twice a year to review priorities, resource allocations, and program impact. In addition, we use state-wide polls of Vermonters, meet with and listen to new and emerging partners, and seek opinions of local, state, and national policy makers to determine our program direction and research portfolio.

We are especially proud of the VT-AES and Extension faculty who have prevailed in obtaining competitive grants and contracts from both public and private organ-

izations. In fiscal year 2004, the VT-AES faculty successfully competed for more than \$8 million in funding for their research programs. Extension faculty successfully secured more than \$1 million in grant and contract funds to support outreach programming in fiscal year 2004.

You will may note that our 2004 Annual Report looks different than from reports of years past due to helpful feedback and guidance from our advisers. This shorter, more colorful, and reader-friendly version highlights the ways we have been addressing the needs and touching the lives of Vermonters. If you would like to have a full project or program summary, please visit our annual reporting web site at www.uvm.edu/vtaes. We welcome your thoughts about this new format.

WHAT ARE THE VERMONT AGRICULTURAL EXPERIMENT STATION AND UNIVERSITY OF VERMONT EXTENSION?

The Vermont Agricultural Experiment Station was established in 1886 as a state and federal partnership to serve the agricultural needs of the state through research. In fiscal year 2004, there were 174 new and ongoing research projects conducted at the Station, funded by both public and private sources. These projects covered a broad range of critical areas including agricultural

products and other agriculture-related economic opportunities; water quality; health and nutrition; and plant and animal gene function. Station researchers are nationally and internationally recognized for their excellence.

University of Vermont Extension was established in 1912 as a state and federal partnership to provide Vermonters timely, research-based education and information. Programs are offered throughout the state with a special focus on increasing agriculture business profitability, supporting forest and farm stewardship, promoting economic development, teaching nutrition and food safety, as well as strengthening life skills for youth. Extension made more than 100,000 Vermont contacts in fiscal year 2004. Information and education were provided through more than 360 significant Extension programs, collaborative community projects, the *Across the Fence* daily television show, as well as smaller-scale workshops and individual consultations.

HIGHLIGHTS OF 2004

- Our congratulations to Vern Grubinger and UVM's **Center for Sustainable Agriculture** for being selected to receive the 2005 Higher Education State Merit Award



Carol Delaney (right), small ruminant dairy specialist, evaluates the pasture for dairy goats at Long Field Farm in Cabot.

for Program Achievement by the New England Board of Higher Education. Vern, a UVM Extension small fruit and berry specialist, directs the Center. He and the Center's capable Extension staff and faculty have provided top-quality programs—such as Pasture Outreach, Land Link Vermont, the Small Ruminant Dairy Project, and the Vermont New Farmer Network—over the course of the Center's 10-year history. While the number of Vermont farms has held steady at about 6,000 over the past 30

years, agriculture has become much more diversified. There are approximately 1,500 dairy farms with another 4,500 farms of all sizes producing fruits, vegetables, non-dairy livestock, grains, ornamentals, etc. The UVM Center for Sustainable Agriculture and UVM Extension actively support diversified agriculture with production and marketing advice, business planning workshops and consultations, and networking opportunities to learn from other producers and organizations.

- Nutrition and food scientist Jean Harvey-Berino attracted national media interest through a Vermont Agricultural Experiment Station research project **addressing the national crisis related to obesity**. Jean appeared on *The Today Show* to discuss “Internet dieting” with Katie Couric and described her and colleague Stephen Pintauro's research that has provided treatment programs to more than 1,000 Vermonters. Together, they have demonstrated that the Internet is an effective vehicle for delivering interventions that promote long-term weight loss. The pilot online diet program, VTrim, helped participants lose an average of 21 pounds in six months—more than twice as much as those using a commercial weight-loss website. Research efforts also are being directed to develop obesity prevention interventions for preschool children to be delivered in preschool facilities. Other related efforts include Extension educational outreach programs leading to improved school lunches, personal food purchasing, meal preparation, and food consumption, as well as healthy activity-related knowledge, skills, and behaviors. These Extension programs impact an additional 2,700 Vermonters' lives.
- Extension's strength in youth programs increased when the **4-H After-School Program** was introduced in 2004



Students in a 4-H After-School Program in St. Johnsbury discover how a tornado is created during a 6-week weather phenomena program.

as an option for Vermont youth. Through partnerships with schools, hospitals, and other organizations to create these meaningful programs, we continue to bridge the gap between life skills taught through 4-H programs and standards-based education in the classroom.

Overall, University of Vermont 4-H reached more than 10,000 youth through 4-H clubs and other programs. Eighty-seven percent of the youths involved in 4-H clubs reported an increase in important life skills such as leadership, communication, self-responsibility, healthy lifestyle choices, useful/marketable skills, and decision-making. Approximately 20% of Extension's total budget is dedicated to 4-H programming. We continue to provide statewide support for our wonderfully talented and dedicated 4-H volunteer leaders who work with our Vermont youth and with Extension 4-H Educators located in offices across the state.

- Funding from the Vermont Housing and Conservation Board launched Extension's **Farm Viability Project** to help farmers holistically assess their farm operations and establish a business plan. In 2004, faculty and staff delivering this intense one-on-one program reached out to more than 40 farms and assisted 24 agriculture operations in establishing a business plan. The results are powerful—with finalized business plans prompting farmers to expand, or to transfer assets to the next generation within a family, or to diversify their farm operations to develop value-added products. One of the people working hard to make this program a success is Ken Leach, a 2002 graduate of the UVM and Vermont Technical College 2+2 Program. This program, which builds leadership abilities within agriculture in Vermont, is generously supported by the Vermont legislature.



Pear thrips are among the insects that might be controlled by an environmentally friendly, whey-based bio-control agent being developed by a team of researchers.

- Nutrition and food scientist Mingruo Guo is collaborating on a research project with entomologists Bruce Parker, Michael Brownbridge, and Margaret Skinner to develop a **whey-based, environmentally friendly bio-control agent** that incorporates naturally occurring insect-killing fungi. If successful, this product will be usable on organic crops as well as provide an alternative pest management strategy for greenhouses and forests. Other research conducted by Mingruo includes the production of a whey-based furniture finish, another environmentally friendly product that has spawned a new Vermont company.
- Controversial issues in the **Green Mountain National Forest**, which lies within six different counties and 44 towns in Vermont, include proposed wilderness designations, timber harvesting, and trail use conflicts.



Bryant Watson (standing, left) of VAST and Jim Northup of Forest Watch discuss a map of a proposed wilderness area at a meeting in Berlin facilitated by Extension specialist Lisa Chase.

Comprehensive planning for the Green Mountain National Forest was augmented by UVM Extension efforts, led by Extension faculty member Lisa Chase, to find common ground and share information among stakeholders. An issues-education forum approach was combined with an assessment of local socio-economic status and demographic trends, forest users and uses, access and travel patterns, community relationships, economic ties, and land use patterns and perceived needs. UVM's Center for Rural Studies provided census and other valuable data that contributed to the discussion of the five-year plan.

- The **effectiveness of constructed wetlands** to remove pollutants from dairy effluent is being addressed at the Paul Miller Research Center on Spear Street in Burlington by plant and soil scientist



Open boxes provide access for sampling to determine the efficiency of different treatments in the constructed wetlands.

Aleksandra Drizo. This innovative project is testing four different strategies of wetland operation to remove dissolved organic compounds, ammonia and nitrate, and phosphorus from wastewater of the dairy operation. Initial results demonstrate the effectiveness of river bulrush in removing dissolved organics and nitrogen-containing compounds and slag filters in removing dissolved phosphorus. These efforts represent an effective system that can be implemented by Vermont dairies to help protect the water quality of Lake Champlain.

- **Forests, Fields, and Futures**, is a program designed to reduce middle school youth academic failure and dropout rates, brings together students, teachers, and administrators to work with all students on community-building projects and student mentoring. In just three years, there is evidence of academic improvement such as more students making the honor roll and fewer stu-



Seventh graders from Oxbow High School build a two-mile community hiking trail as part of Extension's Forest, Fields, and Futures program.

dents failing. In addition, students, teachers, and administrators report increased student engagement with the school. A program manual is being drafted to offer to other schools interested in enhancing student success through a hands-on natural resources-related program.

On the following pages, you'll find a bulleted list of how University of Vermont Extension programs and Vermont Agricultural Experiment Station research projects are relevant—particularly to and for Vermont.

CHALLENGES

Despite these successes, this was a challenging budget year for UVM Extension and the VT-AES. Due to a decade of level federal funding, there were insufficient funds to cover increased salary and operating expenses. This necessitated a reduction in operating expenses and faculty (four Extension faculty and two VT-AES faculty) in order to develop a short-term sustainable budget.

We will continue to provide the highest level of service to the state as we develop new and additional funding sources for UVM Extension. UVM Extension enacted efforts that include establishing an annual fund-raising campaign, improving program marketing, initiating cost recovery and cost accounting systems, and sharpening specific program focus. In addition, both Extension and VT-AES will continue to rely upon entrepreneurial faculty to secure grant funds to enhance programs and research.

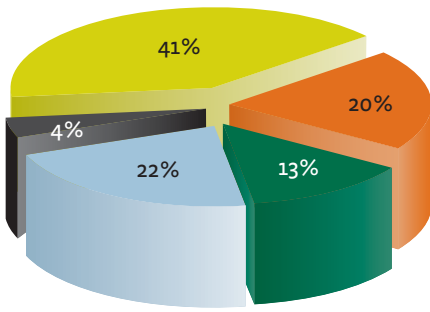
FY-2004 FUNDING: STATE-FEDERAL PARTNERSHIP

The work of University of Vermont Extension and the VT-AES is made possible through the support of a state and federal partnership. State support augments both Extension's outreach and Station research efforts by matching federal funds from the United States Department of Agriculture (USDA). These funds assist faculty in seeking other competitive funds and partnerships.

In fiscal year 2004 (*see chart on next page*), 41% of University of Vermont Extension expenditures were supported by the State and 20% were supported by federal Smith-Lever funding. In addition, Extension faculty, staff, and volunteers were engaged in more than \$1 million in other federal and competitive grants and contracts.

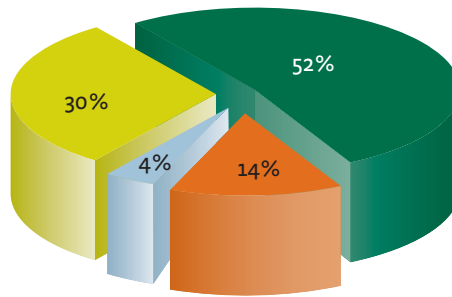
In fiscal year 2004 (*see chart on next page*), 30% of the Vermont Agricultural Experiment Station expenditures were supported by the State and 18% were supported by federal Hatch funds. The remaining VT-AES expenditures were supported by competitive grants and contracts secured by Station researchers; faculty associated with the VT-AES successfully secured grants and contracts accounting for more than \$4 million, or 52% of the expenditures.

UVM Extension Expenditures
FY 2004



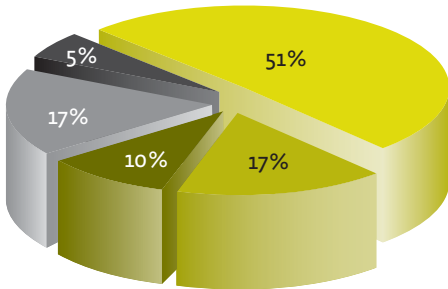
- USDA-Base — \$1,681,096
- State/UVM — \$3,360,448
- USDA-Earmarked — \$1,791,354
- Grants & Contracts — \$1,101,536
- Sales & Fees — \$335,271

VT Agricultural Experiment Station Expenditures
FY 2004



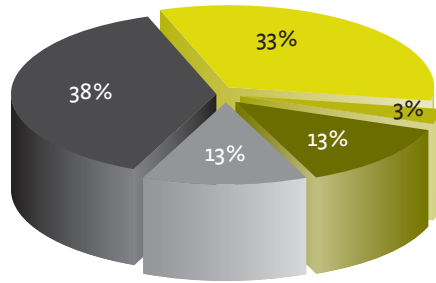
- Federal Funds-Hatch — \$1,067,509
- State/UVM — \$2,347,771
- Federal Funds-Multi-state — \$319,187
- Grants and Contracts — \$4,073,240

VT Agricultural Experiment Station Expenditures
by National Program Area — FY 2004



- Competitive Agricultural Systems
- Natural Resources & Environment
- Food Safety
- Nutrition
- Economic Opportunity/Quality of Life

UVM Extension Expenditures
by National Program Area — FY 2004



- Competitive Agricultural Systems
- Natural Resources & Environment
- Food Safety
- Nutrition
- Economic Opportunity/Quality of Life

“We are especially proud of the VT-AES and Extension faculty who have prevailed in obtaining competitive grants and contracts from both public and private organizations.”

LOOKING AHEAD

As we conclude our report, we thank the UVM Extension and VT-AES faculty and staff for a year of hard work and dedication.

Our future lies in hiring and retaining the very best faculty and staff who focus on the educational and research needs of Vermont communities. We will seek new partnerships to enhance our program and research impact while pooling scarce resources and minimizing duplication. Our faculty will continue to work to be successful in the world of competitive grants and contracts. We are committed to being creative and ambitious to better serve the needs of Vermonters. We will explore opportunities for private donations and other new funding sources, improve the marketing of our programs and research findings, and build new relationships at the

local, state, and regional levels. These and other efforts will be indicators of University of Vermont Extension and the Vermont Agricultural Experiment Station as strong organizations focused on positively impacting and improving the quality of the lives of Vermonters.



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