

University of Vermont
Extension and Agricultural Experiment Station
Plan of Work
FY2000-FY2004

This integrated University of Vermont Extension and Agricultural Experiment Station Plan of Work is organized according to the CSREES National Goal Areas as defined by the Government Performance and Results Act (GPRA):

- Goal 1:** an agricultural system that is highly competitive in the global economy
- Goal 2:** a safe and secure food and fiber system
- Goal 3:** a healthy, well-nourished population
- Goal 4:** an agricultural system that protects natural resources and the environment
- Goal 5:** enhanced economic opportunity and quality of life for Americans

Overview

Faculty and staff at the University of Vermont Extension and Agricultural Experiment Station specifically are focused on meeting the needs of the state's citizens. Together these experienced and innovative professionals continually are working to seamlessly integrate higher education, research and outreach services to protect and enhance a quality of life that is characterized by a thriving natural environment, a strong sense of community, and a deeply rooted connection to agriculture. As Vermonters approach the 21st Century, they are presented with many opportunities, as well as challenges, that can be addressed most effectively through the many resources available at the state's only land grant institution. These challenges include, but are not limited to:

- **water quality**--protecting drinking water and identifying and mitigating sources of surface and groundwater pollution.
- **environmental hazards**--developing integrated pest management strategies to reduce the use of agricultural chemicals in greenhouses, apple orchards, and other agricultural activities.
- **agricultural vitality**--sustaining a healthy agricultural economy through improvements in production and financial management practices
- **food safety**--improving detection of food borne pathogens in processed foods before they reach consumers.
- **access to nutritious foods**--empowering limited-resource families to plan and prepare healthy meals.
- **competitive small businesses**--creating and expanding opportunities for small businesses and value-added agricultural and forestry products in an increasingly global marketplace.
- **community involvement**—training citizen groups and leaders to be effectively engaged in addressing increasingly complex community issues.
- **healthier lifestyles**—helping individuals achieve and maintain a healthy weight through diet and exercise regimens to reduce chronic disease risk.

- **opportunities for youth** – through 4-H, after school programs, and other activities, creating positive environments that encourage learning and personal growth.

The University of Vermont Extension's mission is to improve the quality of life for all Vermonters by bringing the benefits of research and technology to them. UVM Extension faculty and staff interact directly with many diverse audiences not just in program delivery, but in learning about and addressing the problems and opportunities affecting Vermonters. More than 100 citizens serve in advisory capacities to ensure that educational programming is targeted and relevant to areas that are important to Vermonters. Working collaboratively with other departments of the University, UVM Extension strives to strengthen efforts to ensure that educational resources remain accessible and relevant to the state's citizens. For many Vermonters, Extension is a critical gateway to higher education serving as the initial or only contact many individuals have with Vermont's land grant institution.

The mission of the University of Vermont Agricultural Experiment Station is to conduct applied agricultural research to benefit the citizens of Vermont. This mission is fulfilled through the following goals: 1) to ensure an adequate supply of food and fiber at a reasonable cost; 2) to enhance general health through improved nutrition; 3) to evaluate and improve environmental practices that may have an impact on the quality of life; 4) to promote the social and economic well-being of people; and 5) to guide the orderly development of communities and land use.

UVM's Centers of Excellence help to coordinate, conduct and promote much of the research that is supported by Agricultural Experiment Station funds, competitive private and public grants, sponsorships, and donations. Additionally, these centers utilize citizen advisory boards to inform and guide a research agenda that is responsive to local, state, and national needs and priorities. The Centers of Excellence include:

- Northeast Dairy Foods Research Center--a cooperative effort between U.S. dairy producers, UVM, Cornell University, and the agricultural industry to support the latest research in dairy food production, product quality and safety, and new value-added products.
- Food Science Center--a collaboration of food scientists and economic development specialists to assist in the development, production, and marketing of specialty food products.
- Center for Sustainable Agriculture--an interdisciplinary approach to integrating university and community expertise to promote sustainable farming systems throughout Vermont and the region.
- Center for Rural Studies--connecting information and technical expertise with communities, businesses and policy makers in researching rural issues and information dissemination.
- Proctor Maple Research Center--applied research in the production of maple sap and syrup.
- Vermont Water Resources & Lake Studies Center-- research and teaching in water quality, toxic substances, geology, fisheries, limnology, and related areas.

UVM's current and future success rests on a faculty and staff committed to: planning and implementing innovative research and outreach programs that demonstrate impacts; being accountable for their activities; forming and nurturing collaborative relationships; utilizing new technologies for research and programming innovations; and communicating effectively the results of their research and educational outreach programs. It is this commitment that underpins UVM Extension and Agricultural Experiment Station activities as we begin the new millennium.

From FY2000 through FY2004, UVM activities will be driven by new ways of communicating, planning programs and research, collaborating, and assessing our effectiveness. We will continue to build on our collaborative successes and seek additional opportunities to more closely connect higher education with research and outreach. The small size and nature of our institution and the small, rural nature of the state we serve creates significant opportunities for college students to provide needed service to communities through internships, research assistantships, and classroom projects. In addition to gaining invaluable hands-on experience at little or no cost to communities, students are able to have significant, positive impacts on the people, culture, environment, and economy of Vermont.

National Goal Area 1: an agricultural system that is highly competitive in the global economy.

UVM Extension Curriculum/Program Team: Agriculture.

Vermont farmers demonstrate a wide range of abilities and experiences that need to be addressed. In addition to being under substantial economic pressure and subjected to various topographical and climatic challenges, farmers and the production practices they adopt are under close scrutiny by the public. Producers are also under considerable land-use pressure. The farmer clientele represents numerous commodity groups with differing needs, resources, and technical expertise.

Vermont farms are striving to stay viable under adverse economic conditions. Regulatory, environmental and social issues have the potential to affect farm viability. Business and family-life decisions, based on reactions to these external forces, add more stress to an already stressful situation.

Agriculture in Vermont has been identified as a significant contributor to nonpoint source nutrient pollution/loading of Vermont streams, lakes, and groundwater through use of animal manures, fertilizers, and other agricultural inputs and farming practices. Legislation requiring the use of Accepted Agricultural Practices (AAPs) restricts some farming practices. Economic pressures make adoption of Best Management Practices (BMPs) difficult unless the practices are at least cost neutral or cost-share assistance is available.

Management of disease, insect and weed competitors must be accomplished in an ecologically sound manner taking into account a systems approach for economic plant and animal production. Vermont growers need continuous training and updating on pest management systems to combine biological, cultural, physical, and chemical control tactics that are compatible and effective and that minimize economic, health, and environmental risks.

Currently, the Vermont agricultural community is undergoing a tremendous transformation that is affecting all aspects of the resource base. Profitability is a major problem. Vermont agricultural enterprise managers and families will need improved management and business skills to be viable and competitive in the 21st century. At the same time, Vermont citizens and policy makers are becoming increasingly detached from agriculture and its role in the food system, the economy, and the working landscape. In order for the Vermont agricultural industry to remain economically viable and continue to effectively serve society's need for an adequate volume of safe food at reasonable prices, the public must become better informed about agricultural issues.

Extension programs need to be responsive to these new and different challenges and provide technical information and expertise to some and develop appropriate options for assistance for others. Our programs will encourage adoption of more efficient production and marketing practices for the region and adapt, where necessary, information available from other sources so that it is of maximum applicability to the situation in Vermont.

UVM Extension Agricultural Priorities

It is the mission of the UVM Extension Agriculture Curriculum/Program team to support and encourage people in the Vermont agricultural industry to make a living, improve their quality of life and strengthen communities by managing human, land, and capital resources in an ecologically sound and economically competitive manner.

In the area of agricultural competitiveness, UVM Extension is strengthening its focus on the profitability of farms and other agricultural operations through educational programs directed at financing and production efficiencies. We seek to improve the business management skills of farm families and other entrepreneurs to enhance the viability and vitality of the Vermont agricultural economy.

In addition to non-credit classroom activities, outreach efforts continue to include workshops and seminars, one-on-one counseling and technical assistance, and the preparation and distribution of educational materials and information. The use of distance education technologies such as interactive television and satellite conferencing, help expand our educational capacity, and increase our accessibility to Vermonters throughout the state, as well as enhancing our ability to collaborate with other professionals beyond Vermont's borders.

Research and teaching programs in sustainable agriculture are coordinated through the Center for Sustainable Agriculture at the University of Vermont in conjunction with colleagues in both the Agricultural Experiment Station and Resident Instruction in the College of Agriculture and Life Sciences. A new student intern program is being offered this year through the College and the Center. Extension personnel may have a direct link to this program as student advisors. Other personnel have instructor, adjunct, or regular appointments with on-campus academic departments, participating in both research and teaching. Additional Extension faculty and program staff are members of research and teaching project teams working with a variety of topics and clientele in both animal and crop agriculture.

UVM Extension agricultural specialists have established a variety of linkages within the University of Vermont and with other public and private organizations. These connections and collaborations are critical in the assessment of customer needs, program planning, implementation, and impact evaluation.

These linkages include:

- UVM College of Agriculture & Life Sciences Departments and Farms
- UVM Center for Sustainable Agriculture
- UVM School of Natural Resources
- UVM Continuing Education
- Vermont Department of Agriculture, Food & Markets
- Vermont Department of Economic Development
- Vermont Agency of Environmental Conservation
- Vermont Technical College
- Sterling Institute
- Miner Institute
- Farm Service Agency
- Natural Resource Conservation Service
- Natural Resource Conservation Districts
- Extension, Research, and Teaching personnel in other institutions, i.e., Penn State, Cornell, U-Conn, and UNH
- commodity associations
- Yankee Farm Credit and other farm financial institutions
- Agri-Mark, St. Albans Cooperative Creamery and other agricultural marketing organizations
- New England Federal Milk Order Administrator
- Dairy Herd Improvement Association
- Northeast Organic Farming Association
- Veterinarians
- Private consultants
- Vermont House and Senate Agricultural Committees
- Senator Leahy and Jeffords, Congressman Sanders
- Northeast Dairy Compact Commission; feed and fertilizer dealer associations
- K-12 educators
- Ag in the Classroom
- Lake Champlain Basin Program
- Environmental law Center at Vermont Law School
- Shelburne Farms
- Vermont Farm Bureau
- Rural Farm Family & Vocational Rehabilitation Program
- Women in Agriculture Network
- Vermont Interactive Television
- lawyers, tax consultants and financial managers
- New England Culinary Institute
- Fletcher Allen Health Care

Part of the mission of the UVM Extension Agriculture Curriculum/Program Team to "promote a vital agriculture in Vermont through the provision of information and educational programs for diverse audiences. The following objectives will guide the UVM Agriculture team's efforts for FY2000 to FY2004:

- To teach leadership and management skills and the use of effective tools for comprehensive decision making.
- To teach production and marketing practices that minimize detrimental impacts and promote the wise use of natural resources upon which agriculture depends.
 - To demonstrate and communicate to the people of Vermont the values of agriculture and its interdependence with communities.
- To encourage future generations to value and become engaged in agriculture.

UVM Extension Agricultural Programs and Activities

Programming Objective: To teach leadership and management skills and the use of effective tools for comprehensive decision making.

| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
|---|---|---|----------|---------------------------------------|--------------------|---|
| Agricultural Business Management | Business Management Courses | Two-part business management course/workshops | Long | *Producers *Farm Families | New England States | UVM Dept. of Community Development & Applied Economics |
| | Farm Financial & Tax Mgmt | Short Courses/ Workshops & on-site consultations | Long | *Producers *Farm Families | New England States | UVM Dept. of Community Development & Applied Economics |
| | Farm financial management on-site visits | Financial management consultations with individual producers | Long | *Producers *Farm Families | New England States | UVM Dept. of Community Development & Applied Economics |
| | Holistic Resource Management | Help people identify resources, values, and decisionmaking skills to meet their own goals of sustainability | Long | * Farm Families | New England States | |
| Dairy | Farm Labor Service | Establish service & develop educational curriculum | Long | *Dairy Producers | New England States | UVM Dept. of Community Development & Applied Economics |
| | Total Farm Mgmt | Courses integrating agronomy & business management aspects of plant & animal production | Long | *Dairy Producers *Crop Producers | New England States | UVM Dept. of Community Development & Applied Economics |
| | Farm Discussion Groups | Monthly producer-led, Extension-facilitated meetings | Mid | *Dairy Producers | New England States | UVM Depts. Of Community Development & Applied Economics, Plant & Soil Science, Animal Science |
| | Milk Mktg, price risk mgmt, and policy issues | | Long | *Dairy Producers | New England States | UVM Depts. Of Community Development & Applied Economics, Animal Science |
| Non-Dairy Livestock | Producer Information & Awareness | Newsletters & producer meetings | Long | *Non-dairy Livestock Producers | New England States | UVM Dept. of Animal Science |
| | Master Shepherd Program | Series of 6 intensive classes to encourage commercial production of small ruminants | Mid | *Small Ruminant Producers (hobbyists) | New England States | UVM Depts. Of Plant & Soil Science, Animal Science |
| | Sound Ag Practices | Integration of environmentally sound land use practices & agricultural production | Long | *Non-dairy Livestock Producers | New England States | UVM Depts. Of Plant & Soil Science, Animal Science |
| | Marketing Alternatives & Opportunities | Newsletters & producer meetings | Long | *Non-dairy Livestock Producers | New England States | UVM Depts. Of Plant & Soil Science, Animal Science |

Programming Objective: To teach leadership and management skills and the use of effective tools for comprehensive decision making (Continued)

| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
|--|-------------------------|---|----------|--|--------------------|---|
| Non-Dairy Livestock (Continued) | Sustainable Production | | Long | *Non-dairy Livestock Producers | New England States | UVM Center for Sustainable Agriculture |
| Farm Safety | Vermont Farmedic Course | Courses, field day presentations, high school programs | Long | *Producers *Farm Families | New England States | |
| Rural & Farm Family Vocational Rehabilitation Program | RFFVRP | | Long | *Farm Families & individuals coping with debilitating accidents or illnesses | New England States | |
| Women in Agriculture Network | WaGN | "Growing Places" curriculum for potential ag entrepreneurs; special interest short course; one-on-one support and consultation. | Short | *Women and minorities interested in starting/expanding agricultural businesses | New England States | UVM Depts. Of Community Development & Applied Economics, Plant & Soil Science, Animal Science |

Programming Output Measures: To teach leadership and management skills and the use of effective tools for comprehensive decision making.

| Program | Output Measures | Targets | | | | |
|--|---|---------|--------|--------|--------|--------|
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Agricultural Business Management | # of Ag business management courses offered/# of locations | 2/3 | 2/3 | 2/3 | ? | ? |
| | # of Farm Financial & Tax Mgmt workshops conducted | 5 | 5 | 5 | 5 | 5 |
| | # of workshop participants | 200 | 200 | 200 | 200 | 200 |
| | # of farm ag business visits | 30 | 30 | 30 | 30 | 30 |
| | # HRM workshops offered | 2 | 2 | 2 | 2 | 2 |
| | # HRM participants | 12-24 | 12-24 | 12-24 | 12-24 | 12-24 |
| Dairy | % of Vermont dairy farmers joining/using Farm Labor Service | 10/50 | 15/60 | 20/60 | 25/65 | 30/70 |
| | # Total Farm Mgmt Courses Offered/# of locations | 2/3 | 2/3 | 2/3 | 2/3 | 2/3 |
| Non-Dairy Livestock | # Farm Discussion Groups | 8 | 8 | 8 | 8 | 8 |
| | # Producer information & awareness meetings | 5 | 5 | 5 | 5 | 5 |
| | # Master Shepherd Courses conducted annually | 1 | 1 | 1 | 1 | 1 |
| | # Master Shepherd Course attendees | 16 | 16 | 16 | 16 | 16 |
| | # Sound Agricultural Practices Meetings | 5 | 5 | 5 | 5 | 5 |
| | # Marketing Alternatives & Opportunities Meetings | 5 | 5 | 5 | 5 | 5 |
| | # Sustainable Production Meetings | 5 | 5 | 5 | 5 | 5 |
| Farm Safety | Number of Vermont Farmedic course participants | 80 | 80 | 80 | 80 | 80 |
| WagN | Number of participants completing Growing Places | 25 | | | | |
| | Number of participants completing business plans | 5 | | | | |
| Rural & Farm Family Vocational Rehabilitation Program | Number of people with disabilities served | 150 | 150 | 150 | 150 | 150 |

Programming Impact Measures: To teach leadership and management skills and the use of effective tools for comprehensive decision making.

| Program | Impact Measures | Targets | | | | |
|--|--|---------|--------|--------|--------|--------|
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Agricultural Business Management | % Ag Biz Mgmt participants reporting positive impact on farm profitability | 50 | 50 | 50 | 50 | 50 |
| | % Ag Biz Mgmt participants reporting approved loan applications | 50 | 50 | 50 | 50 | 50 |
| | % Ag Biz Mgmt participants reporting changes in operational or managerial activities | 50 | 50 | 50 | 50 | 50 |
| | % Farm Financial & Tax Mgmt participants reporting improved understanding of tax policy | 85 | 85 | 85 | 85 | 85 |
| | % Farm Financial & Tax Mgmt participants preparing intergenerational transfer plans | 75 | 75 | 75 | 75 | 75 |
| | # Documented cases of implementation of recommendations leading to improved decision making and marketing | 4 | 6 | 12 | 15 | 15 |
| | % Holistic Resource Management graduates reporting improved or satisfactorily sustained financial performance | 33 | 33 | 33 | 33 | 33 |
| Dairy | % farms still in production due to improved labor availability | 5 | 10 | 15 | 20 | 25 |
| | # farms remaining in production due to Farm Labor Service | 5 | 15 | 35 | 50 | 75 |
| | # dairy farmers/processors using futures and options | 25/5 | 50/5 | 100/5 | | |
| | # of clients reporting increased net worth | 10 | 10 | 10 | 10 | 10 |
| | % farm discussion group participants reporting significant operational changes to achieve personal and business goals and objectives | 60 | 60 | 60 | 60 | 60 |
| Non-Dairy Livestock | # producers with increased acreage for livestock production | 4 | 5 | 7 | 9 | 12 |
| | # Master Shepherd participants expanding to commercial scale production | 2 | 2 | 2 | 2 | 2 |
| | % Master Shepherd participants utilizing one or more recommended practices | 100 | 100 | 100 | 100 | 100 |
| Farm Safety | % participating farms reporting reduction of on-farm hazards | 5 | 5 | 5 | 5 | 5 |
| | % participating farms reporting cost savings as a result of a safer farm environment | 5 | 5 | 5 | 5 | 5 |
| | % participating farms improving farm working conditions | 20 | 20 | 20 | 20 | 20 |
| Women in Agriculture Network | % Growing Places graduates reporting increased learning | 50 | | | | |
| | # new ag businesses started or expanded | 10 | | | | |
| Rural & Farm Family Vocational Rehabilitation Program | # of people with disabilities achieving goals | 65 | 65 | 65 | 65 | 65 |

Programming Objective: To teach production and marketing practices that minimize detrimental impacts and promote the wise use of natural resources upon which agriculture depends.

| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
|------------------------------------|------------------------------|--|----------|--|--------------------|--|
| Agronomic Crops & Soils | Field/Forage Crops | *increase adoption of Sustainable Ag practices *increase knowledge & use of Integrated Crop Management *encourage adoption of ag practices that maintain, improve soil & water quality, productivity *provide information on ag production, marketing | Long | *Producers *Producers *Producers, Home owners *Producers, Home owners | New England | UVM Dept. of Plant & Soil Science |
| | Pasture Management | *Profits for Livestock *Pasture Management *Lamb production profitability | Long | *Producers *Producers *Producers | New England | UVM Dept. of Plant & Soil Science |
| | Soybeans | *Encourage production of soybeans for food and feed | Mid | *Producers | New England | UVM Dept. of Plant & Soil Science |
| | Crop Management Database | *Encourage & support use of computerized crop management | Long | *Producers | New England | UVM Dept. of Plant & Soil Science |
| Horticulture | Apples | *Enhancing orchard production through sustainable ag practices *Education, workshops, on-site consultations re: environmentally sound horticulture, pest management practices | Long | *Tree fruit producers *Tree fruit producers | New England | UVM Dept. of Plant & Soil Science |
| | Vegetables & Small Fruits | *Provide timely, useful information to commercial vegetable & berry growers *Increase consumer awareness of the value of local agriculture | Long | *Producers *Consumers | New England | UVM Dept. of Plant & Soil Science |
| | Ornamentals | * Provide information & training to professional and amateur growers on economic, safe, environmentally sound practices | Long | *Commercial Producers, Home horticulturalists | New England | UVM Dept. of Plant & Soil Science |
| | Maple Production & Marketing | *Encourage producer adoption of best management practices to improve quality & profitability of maple sugar industry | Long | *Maple sugar producers | New England | UVM Dept. of Plant & Soil Science Proctor Maple Research Center |
| | Christmas Trees | *Provide information & programs on current production, marketing issues | Long | *New & established growers | New England | UVM Dept. of Plant & Soil Science |
| | Master Gardener Program | *Teach home horticulture practices that promote wise use of natural resources *Train volunteers to staff helpline service | Long | *Amateur horticulturalists, Home gardeners *Volunteers | New England | UVM Dept. of Plant & Soil Science |

Programming Objective: To teach production and marketing practices that minimize detrimental impacts and promote the wise use of natural resources upon which agriculture depends (Continued)

| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
|-----------------|----------------------------|--|----------|---|--------------------|--|
| Livestock | Dairy Cattle | *Improve knowledge of feeds & nutrition, crop production, manure management, animal health, reproductive physiology *Improve communications, people management skills *Support dairy farmer discussion groups *Facilitate communications between producers & other industry professionals | Long | *Producers *Producers, farm employees, public *Large intensive producers, low input producers *Producers, Industry professionals | New England | UVM Dept. of Animal Science |
| | Dairy Goat & Sheep | *Master Shepherd Program to provide animal science and business information to support establishment of small ruminant dairy operations | Long | *Producers | New England | UVM Dept. of Animal Science |
| | Non-Dairy Livestock | *Increase producer awareness & adoption of sustainable production practices *Encourage establishment of new livestock operations *Equine management, nutrition & breeding workshops | Long | *Producers *Potential producers *Equine producers | New England | UVM Dept. of Animal Science |
| | Milk Quality Laboratory | *Provide milk quality, udder health diagnostic expertise | Mid | *Producers, veterinarians, dairy producers | New England | UVM Dept. of Animal Science |
| | Animal Health | *Provide producers with information on HACCP plans, bio-security procedures, residue avoidance | Long | *Producers | New England | UVM Depts. of Animal Science, Nutrition & Food Science |
| | Forage Analysis Laboratory | *Provide forage and soil analysis services | Long | *Producers, Ag industry | New England | UVM Dept. of Animal Science UVM Dept. of Plant & Soil Science |
| Pest Management | Apple IPM | *Increase & support IPM implementation in commercial orchards | Long | *Commercial apple producers | NY, New England | UVM Dept. of Plant & Soil Science |
| | Maple IPM | *Conduct studies & educational programs on significant insect pests | Long | *Maple sugar producers | New England | UVM Dept. of Plant & Soil Science |
| | Vegetable IPM | *Conduct studies & educational programs on significant insect pests | Long | *Commercial vegetable producers | New England | UVM Dept. of Plant & Soil Science |
| | Greenhouse IPM | *Conduct studies & surveys on pesticide use *Transfer IPM technology to reduce grower reliance on commercial pesticides | Long | *Commercial growers *Commercial growers | New England | UVM Dept. of Plant & Soil Science |

| | | | | | | |
|--|------------|--|------|------------------------------|-------------|-----------------------------------|
| | Forage IPM | *Provide pest management & integrated crop management training | Long | *Commercial forage producers | New England | UVM Dept. of Plant & Soil Science |
|--|------------|--|------|------------------------------|-------------|-----------------------------------|

Programming Objective: To teach production and marketing practices that minimize detrimental impacts and promote the wise use of natural resources upon which agriculture depends (Continued)

| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
|------------------------------------|--|---|----------|-----------------------------|--------------------|-----------------------------------|
| Pest Management (Continued) | Master Gardener Program | *Provide IPM, entomological, plant disease training & support | Long | *Volunteer Master Gardeners | New England | UVM Dept. of Plant & Soil Science |
| | Plant Diagnostics Laboratory | *Provide disease, insect, weed identification services & management recommendations | Long | *Commercial growers, public | New England | UVM Dept. of Plant & Soil Science |
| | NAPIAP | *Provide Vermont information re: use & efficacy of pesticides & alternative control practices | Long | *EPA | New England | UVM Dept. of Plant & Soil Science |
| PAT | *Provide training on safe, efficacious use of pesticides & integration of alternatives in crop pest management | | Long | *Producers | New England | UVM Dept. of Plant & Soil Science |

Programming Output Measures: To teach production and marketing practices that minimize detrimental impacts and promote the wise use of natural resources upon which agriculture depends.

| Program | Output Measures | Targets | | | | |
|---|---|-----------|-----------|-----------|-----------|-----------|
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Agronomic Crops & Soils | % farms completing comprehensive nutrient management plans | 12% | 25% | 50% | 50% | 50% |
| | # farms adopting comprehensive crop record keeping systems for decision making | 25 | 25 | 40 | 50 | 50 |
| | # of Certified Crop Advisors trained | 30 | 35 | 40 | 45 | 50 |
| | # farmers participating in private & agency sponsored crop management services | 90 | 100 | 110 | 120 | 120 |
| | % increase in participation in crop management services | 5 | 5 | 5 | 5 | 5 |
| Horticulture | % apple growers planting more efficient rootstock | 35 | 40 | 50 | 50 | 50 |
| | % apple growers utilizing productivity enhancing pruning techniques | 45 | 55 | 65 | 65 | 65 |
| | % increase in growers conducting leaf nutritional analysis | 55 | 75 | 85 | 85 | 85 |
| | % increase pack-out fruit after CA storage (Shoreham Co-op) | 75 | 80 | 90 | 90 | 90 |
| | # textbook sales: Sustainable Vegetable Production | 500 | 1000 | 2000 | 2000 | 2000 |
| | # video sales: Innovations in On-Farm Marketing | 100 | 200 | 300 | 300 | 300 |
| | # on-farm consultations | 600 | 600 | 600 | 600 | 600 |
| | # grower newsletters | 7 | 7 | 7 | 7 | 7 |
| | # phone, e-mail, mailed consultations | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |
| | # producers and other attending conferences | 2,500 | 2,500 | 2,500 | 2,500 | 2,500 |
| | # clients on e-mail distribution network | 100 | 150 | 250 | 300 | 350 |
| | # Vermont Public Radio commentaries | 12 | 12 | 12 | 12 | 12 |
| | # new maple producers that become active in UVM Extension programs | 50 | 50 | 50 | 50 | 50 |
| | # contacts with UVM Extension web sites (Apple, Maple, Master Gardener, Ornamentals, Plant Diagnostic Clinic) | 10,000 | 15,000 | 20,000 | 25,000 | 25,000 |
| | # farm & home garden soil tests/manure analyses run by the UVM Ag & Environmental Testing lab | 4,000/200 | 4,200/210 | 4,400/220 | 4,400/220 | 4,400/220 |
| | # participants in Home Horticulture courses | 175 | 175 | 175 | 175 | 175 |
| | # Home Horticulture newsletter recipients | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 |
| # Home gardening questions answered by Extension-trained volunteers | 12,000 | 12,000 | 12,000 | 12,000 | 12,000 | |
| Livestock | # new farmer discussion groups | 2 | 2 | 2 | 2 | 2 |
| | # active discussion group participants who adopt at least one recommendation | 30 | 30 | 30 | 30 | 30 |
| | % of discussion group participants who express high levels of satisfaction with the program | 85 | 85 | 85 | 85 | 85 |
| Pest Management | % program participants who change one pesticide practice as a result of training | 75 | 75 | 75 | 75 | 75 |
| | % program participants who plan to adopt at least one recommended integrated pest management practice | 25 | 35 | 55 | 60 | 60 |

Programming Impact Measures: To teach production and marketing practices that minimize detrimental impacts and promote the wise use of natural resources upon which agriculture depends.

| Program | Impact Measures | Targets | | | | |
|------------------------------------|--|---------|--------|--------|--------|--------|
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Agronomic Crops & Soils | % producer participants reporting decreased losses or more efficient management as a result of adopting recommended Integrated Crop Management practices | 40 | 50 | 60 | 60 | 60 |
| | % producers demonstrating improved knowledge of recommended ICM practices | 70 | 70 | 70 | 70 | 70 |
| | ICM Case studies analyzing relationships of producers & their neighbors | 2 | 2 | 2 | 2 | 2 |
| | # Farmers/consultants who will adopt/continue to use the Vermont Crop Management Database | 25 | 25 | 25 | 25 | 25 |
| | % increase in participants in crop management services | 5 | 5 | 5 | 5 | 5 |
| | # Farms where cropland is managed using a fully integrated, comprehensive nutrient management plan to reduce non-point source pollution | 25 | 25 | 25 | 25 | 25 |
| Horticulture | # vegetable growers reporting enhanced profits | 150 | 150 | 150 | 150 | 150 |
| | % grower participants reporting greater profits/decreased losses as a result of better disease management | 20 | 30 | 30 | 30 | 30 |
| | % growers demonstrating improved knowledge of plant disease control methods & their environmental impacts | 50 | 60 | 70 | 70 | 70 |
| | % increase in knowledge of ornamental producers of best management practices | 5 | 5 | 5 | 5 | 5 |
| | % producer survey respondents reporting cost savings as a result of implementing recommended orchard practices | 10 | 15 | 25 | 30 | 30 |
| | % of producer survey respondents reporting higher quality fruit as a result of implementing recommended orchard practices | 10 | 15 | 25 | 40 | 40 |
| | % producer survey respondents reporting decreased fertilizer bills due to implementation of leaf nutritional analysis | 10 | 15 | 25 | 25 | 25 |
| | % program participants utilizing new orchard practices | 50 | 60 | 70 | 70 | 70 |
| | % maple producers demonstrating improved knowledge of best management practices for maple production & marketing | 40 | 40 | 40 | 40 | 40 |
| | % maple producers reporting adoption of better management practices including erosion control & woodland management | 40 | 40 | 40 | 40 | 40 |
| | % maple producers upgrading older equipment to lead-free stainless steel | 30 | 30 | 30 | 30 | 30 |
| | % maple producers reducing lead to below 250 ppb in maple syrup | 85 | 85 | 85 | 85 | 85 |
| Livestock | % of sheep pasture managed intensively | 10 | 15 | 20 | 20 | 20 |
| | % farmers adopting biosecurity changes | 15 | 15 | 15 | 15 | 15 |

Programming Impact Measures: To teach production and marketing practices that minimize detrimental impacts and promote the wise use of natural resources upon which agriculture depends (Continued)

| Program | Impact Measures | Targets | | | | |
|------------------------|--|---------|--------|--------|--------|--------|
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Pest Management | % producers using new IPM strategies | 20 | 20 | 20 | 20 | 20 |
| | % producers reporting decreased losses or more efficient management as a result of adopting recommended Integrated Pest Management | 40 | 50 | 60 | 60 | 60 |
| | % ornamental producers reporting savings or profits as a result of using recommended IPM practices | 20 | 30 | 30 | 30 | 30 |
| | % growers showing increased knowledge of pest management strategies the judicious use of pesticides | 50 | 60 | 70 | 70 | 70 |
| | % growers demonstrating increased knowledge of IPM & the environmental benefits of using IPM | 20 | 20 | 20 | 20 | 20 |

Programming Objective: To demonstrate and communicate to the people of Vermont the values of agriculture and its interdependence with communities.

| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
|------------------------------------|-------------------------|---|----------|--|---------------------|--|
| Agricultural Communications | VT AG Fact Sheets | Informational leaflets providing current ag industry information | Long | *Legislators *General Public *Extension Advisors *Extension faculty/Staff | | UVM Dept. of Community Development & Applied Economics, UVM Center for Rural Studies |
| | Public Policy Education | Information materials provided to dairy industry | Long | *Dairy industry *Producers | NY, PA, New England | |
| | Field Day & Fairs | 20 Demonstrations & workshops conducted annually at county fairs and field days | Long | *General Public *Producers | | |

Programming Output Measures: To demonstrate and communicate to the people of Vermont the values of agriculture and its interdependence with communities.

| Program | Output Measures | Targets | | | | |
|------------------------------------|--|---------|--------|--------|--------|--------|
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Agricultural Communications | # Vermont Ag Fact Sheets produced | 3 | 3 | 3 | 0 | 0 |
| | # Demonstrations & workshops at Field Days & Fairs | 20 | 20 | 20 | 20 | 20 |
| | # Public policy newsletters | 12 | 12 | 12 | 12 | 12 |
| | # Public policy newsletter recipients | 300 | 300 | 300 | 300 | 300 |

| Programming Impact Measures: To demonstrate and communicate to the people of Vermont the values of agriculture and its interdependence with communities. | | | | | | |
|---|---|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Agricultural Communications | # Public policy success stories | 2 | 2 | 2 | 2 | 2 |
| | # additional young people pursuing agricultural or natural resource education/careers | 10 | 10 | 20 | 20 | 20 |
| | # of reported instances where VT Ag Fact Sheets are incorporated in educational or informational programs | 25 | 25 | 25 | 25 | 25 |

| Programming Objective: To encourage future generations to value and become engaged in agriculture. | | | | | | |
|---|--------------------------|---|----------|--|--------------------|--|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Youth Education & Outreach | 4-H | Information & technical assistance to 4-H clubs conducting agricultural projects | Long | *Youth *Volunteers | All 50 states | UVM Depts. of Plant & Soil Science, Animal Science |
| | Vermont Farm Youth Corps | 320-hr hands-on program for youth of supervised ag-related employment | Long | *Youth (16-21) *Host farmers, employers | | |
| | Applied Ag Research | Linking college students in conducting agricultural research (soy bean test pilots) | Mid | *College students (interns) | | |

| Programming Output Measures: To encourage future generations to value and become engaged in agriculture. | | | | | | |
|---|--|---------|--------|--------|--------|--------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Youth Education & Outreach | % Vermont Farm Youth Corps participants completing summer work experience | 80 | 80 | 80 | 80 | 80 |
| | # Youth/#Volunteers completing a 4-H ag education program | 400/25 | 400/25 | 400/25 | 400/25 | 400/25 |
| | # Student reports of crop & field management practices | 30 | 30 | 30 | 30 | 30 |
| | # Youth completing embryology program | 1,500 | 1,500 | 1,500 | 1,500 | 1,500 |
| | # Youth, families, volunteers indicating increased appreciation for ag education & information | 10,000 | 10,000 | 10,000 | 10,000 | 10,000 |

| Programming Impact Measures: To encourage future generations to value and become engaged in agriculture. | | | | | | |
|---|--|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Youth Education & Outreach | # youth participants pursuing education or careers in agriculture | 10 | 10 | 15 | 20 | 20 |
| | % Farm Youth Corps hosts & participants indicating desire to continue involvement in agriculture | 75 | 75 | 75 | 75 | 75 |
| | # youth reporting increased knowledge about livestock | 3,000 | 3,100 | 3,200 | 3,300 | 3,300 |
| | # 4-H volunteers exhibiting increased capacity to deliver 4-H ag programs | 40 | 40 | 40 | 40 | 40 |
| | % youth at 4-H ag field day reporting increased knowledge about ag | 85 | 85 | 85 | 85 | 85 |
| | % 4-H youth continuing interest in diversified agriculture | 85 | 85 | 85 | 85 | 85 |
| | % students reporting gain in knowledge from working on ag projects | 75 | 75 | 75 | 75 | 75 |
| | % participating at-risk youth staying in school | 75 | 75 | 75 | 75 | 75 |
| | % youth participating in programs entering or returning to VT farms | 5 | 7 | 8 | 10 | 10 |

Extension Agricultural Curriculum/Program Team Evaluation

UVM Extension's agricultural curriculum/program team is working together to develop appropriate evaluation strategies to assess effectiveness and impact. Program specific evaluations will be conducted using periodic surveys, analysis of records, personal observations, and other appropriate methods to assess progress in meeting the output and impact measures identified in this plan of work.

A variety of assessment methods will be used as appropriate to the activities being evaluated. Surveys at meetings and through discussions with producer group representatives will help to determine general client changes in knowledge and behavior relating to the movement toward more informed use of production strategies. Included will be indicators to help measure increases in knowledge and changes in practices that result in more environmentally and economically sound production practices over a period of time.

A comprehensive survey instrument mailed to statewide list of commercial growers will help to assess impact of all methods of program outreach (newsletters, site visits, conferences, etc.) and will complement evaluation efforts specific to individual program efforts (textbook, presentations, farm visits, etc.).

In addition, participants at all crop management programs will be surveyed with post-meeting evaluation forms used to assess perceived values of educational materials presented. Selected case studies will provide specific examples of the benefits of changes in farm management practices.

Agricultural Stakeholders

Faculty and staff on the UVM Extension Agriculture Curriculum Team are in constant contact with their stakeholders throughout the year. There are some 50

commodity/trade associations serving the Vermont agricultural community. We work with nearly every one of these associations at some time during the year. In this way, Extension faculty and staff can identify program needs and gain insights as to the relative priorities the stakeholders would place on the program needs.

There is, however, one caveat to this process. Most individual stakeholder groups would put a high priority on program needs for their particular situations. The Curriculum Team then must review all the requests for Extension programming and information delivery, determine which issues need attention, which ones they have the resources to carryout, and prioritize the issues in terms of which issues are to receive the most and first attention. Those, then become the priority focus areas for a particular year.

Following are some examples of how our faculty and staff interact with their clientele/ stakeholders to identify focus areas needing Extension programming attention.

Tax Management Education-- There are four formal times each year that extension faculty obtain "stakeholder" input for tax education programs: 1) May - meeting with IRS representatives, private practice tax accountants and leadership of Vermont Tax Practitioners Association to plan tax education curriculum; 2) June - meeting with Vermont Tax Department (Tax Commissioner and head of Taxpayer Services) to plan role of Vermont Tax Department in UVM Tax Schools; 3) October - meeting with IRS representatives, private practice tax accountants and leadership of Vermont Tax Practitioners Association to design specific tax education curriculum for November tax schools; and 4) December - meeting with IRS representatives, private practice tax accountants, leadership of Vermont Tax Practitioners Association, and Vermont Tax Commissioner to review tax schools completed for that year utilizing evaluation data from each school, and carry out forward planning for upcoming tax education programs. In addition to these formal meetings, Extension faculty periodically attend the monthly meetings of the Vermont Tax Practitioners Association in Waterbury.

Each year more than 300 tax practitioners & ag producers attend the seminars. Each year the planning group (consisting of practitioners, consumers, IRS personnel, consultants, and Extension personnel) meets many times to determine the needs of the clientele for that year and for the ensuing year program. The last meeting was in late December to look at the program and to determine the applicability of the contents and make adjustments for the future. This information was used to help write the current Agricultural Business Management Team faculty Personal Performance Plans.

Agricultural Business Management Workshop-- The program does have an Advisory board that met last year and directed Extension on what programs within the Agricultural Business Management series to present for this year. Extension also looks to advisors to assist in modifying the program to meet the needs of the clientele. Advisory board members include dairy producers, non-livestock producers, FSA employees, a banker, and other industry personnel. Extension also uses participant evaluations on a weekly basis and modify the next session based on the previous week's evaluations.

Rural & Farm Family and Vocational Rehabilitation Program-- The Rural Farm Family Vocational Rehabilitation Program (RFFVRP) has active citizen groups in the Northwest and Northeast regions. Groups meet twice or more per year for a number of different reasons including input into the program and to provide direction to the program. These citizen groups also provide a support network for themselves and for

others who have some sort of disability. Program staff listen to the concerns of the group and often receive insightful information on how to best address current issues. Many of the program specifics are directed by Extension's state partner--the Vermont State Vocational Rehabilitation that funds the RFFVVRP.

Farmer Discussion Groups--Several Vermont Extension programs have an active and growing set of farmer discussion groups. In addition to sharing information of mutual interest, farmers in the groups also identify current needs and suggest topics and programs that should be incorporated in Extension programming for the coming year.

Horticulture, Pest Management, and Agronomy/Soils--Faculty and staff involved in plant science and pest management programs within the Agriculture Curriculum/Program team have active meetings with stakeholders including the Plantsmen Association, apple production associations, crops advisors, and meetings in the state with advisory groups specific with plant production professionals. These meetings are done annually with leadership executive boards and at specially called meetings.

Other agricultural advisors include the members of the State Agriculture Advisory Council, UVM Extension Regional Advisory Board, the members of the agricultural industry, other government agencies, educators, producers who complete workshop evaluations, and the Soybean and Grain industry and producer advisory board. These advisors have been very instrumental in leading programmatic efforts in conservation (EQIP, flood and ice storm disasters, TOADS), pest and nutrient management, soybean conferences, workshops, tours, research and demonstration trials, and workshops and the latest research on Bt Transgenic corn effects on Deoxynivalenol (Vomitoxin).

All these stakeholders take an active and overlapping role in driving educational programs and teaching style. They are involved in needs assessment, program implementation, support, marketing, and reporting. Results and updates of efforts are continuously shared with all advisors. This leads to future planning which becomes a continuous and credible process. Many advisors take an active role in all phases of program implementation.

UVM Agricultural Experiment Station Agricultural Research

UVM Agricultural Experiment Station researchers are utilizing both federal, state and other public and private grant funds to conduct innovative and timely research which addresses many issues facing Vermont agricultural producers and consumers. The Northeast Dairy Foods Research Center continues to provide technical assistance and referral services to Vermont food processors, as well as promote the use of a variety of dairy products. UVM researchers will continue to collaborate with colleagues from the Northeast to provide resources in response to the increasing processing, production, marketing, and food safety technical assistance needs of small agricultural entrepreneurs. In the area of agricultural competitiveness, researchers continue to focus on milk quality, dairy herd health, production efficiencies, quality cheese production, apple orchard management, and maple syrup production.

With funding from the Northeast Dairy Foods Research Center and USDA/CSREES, UVM scientists are identifying factors that affect the quality of cheese

products. Researchers are continuing to study ways to prevent the deterioration of mozzarella cheese in frozen prepared foods. The use of magnetic resonance imaging-- first developed to assess human injury and illness--is being used to study and evaluate slit defects in cheddar cheese. In addition to improving detection methods, researchers are continuing to study the possible microbiological and chemical parameters associated with slit defects and potential preventative control measures.

Basic and applied maple research at the University of Vermont (UVM) began in the early 1890's and the Proctor Maple Research Center was established in 1946. Research has centered on the sugar maple tree (*Acer saccharum* Marsh.) and its products--sap and syrup. Funding for research comes from Federal, State, and private sources. Much of the applied research has provided new and/or improved techniques for efficient sap collection and evaporation systems and for improvement of maple syrup quality and sweetness while basic research has contributed to an improved understanding of the physiology and towards the continued health of sugar maple trees. Researchers are also identifying the genetic markers which dictate sap sweetness in sugar maples.

Pure Vermont maple syrup is a high visibility product associated with high levels of quality. Stringent state standards regulate maple syrup production to ensure purity and to promote consumer confidence in a safe, premium product. Recent concern regarding the potential for lead contamination in the storage and processing of raw sap has motivated UVM researchers to identify potential sources for contamination. Research is being conducted to assist producers in detecting lead levels in syrup and in finding the most expedient, cost-effective measures to reduce and eliminate contamination.

Apples, an important component of Vermont's agricultural diversity and economy, require intensive management at all levels to produce high quality fruit and to remain profitable. The UVM Apple Team is providing the scientific and technical expertise necessary to help apple growers remain competitive in local, national and international markets while maintaining a sustainable agriculture system. Vermont has developed an integrated orchard management approach in which horticultural and pest management aspects have been interwoven.

Dairy research will continue to focus on herd health and production issues. Researchers are continuing to study ways to enhance dairy herd resistance to mastitis and improve other mastitis control practices. A team of researchers at the University of Vermont is making significant progress in developing ways to boost cows' natural resistance to mastitis infection by enhancing the animals' ability to produce anti-bacterial proteins. Researchers have been able to modify a bacterial gene that will help animals produce a bio-active antibacterial protein called "Lysostaphin." Continuing research will assess the overall effectiveness of the introduced "Lysostaphin" gene in test animals as well as its successful introduction into actual dairy cows.

Additional dairy herd research is focused on reducing non-productive dry periods by analyzing mammary gland development, other growth factors, and the regulation of nutrient use in dairy cows. An ongoing needs assessment of 250 Vermont dairy herds will continue to guide the dairy research agenda.

The table below describes the agricultural research that has been approved and/or funded through the Vermont Agricultural Experiment Station's competitive Hatch process. Faculty participating in regional projects must also submit research proposals to a competitive peer review process. Successful Hatch proposals may be awarded funding for up to three years. As shown in the table below, Hatch funds are helping to support research in the areas of dairy production, processing and policy, greenhouse ornamentals, apples, poultry, maple syrup and plant breeding.

| Vermont Agricultural Experiment Station Competitively Approved/Funded Research in Agriculture | | | |
|---|------------------------|---|---|
| Research Title | Current Award Duration | Target Audience or Commodity | Extension Linkages |
| Improved Propagation Methods of Select, Ericaceous Woody Ornamental Plants for use in the Vermont Landscape | Short | * Greenhouse ornamentals producers * Home gardeners * Landscapers | * Master Gardener Program * Extension Greenhouse/Nursery Specialist |
| Regulation of Nutrient Use in Food Producing Animals | Long | * Dairy producers * Animal health professionals | * Extension dairy specialists, crop specialists |
| Manure Management on grass hay to improve nutrient use efficiency, yield & forage quality | Short | * Dairy producers | * Extension dairy specialists, crop specialists |
| Relative importance of genotypic vs environmental factors in the invasiveness of reed canary grass | Mid | | |
| Regulation of mammary development and lactation | Mid | * Dairy producers * Animal health professionals | |
| Effects of Freezing Conditions & Soil Moisture on Herbaceous Perennial Hardiness | Mid | * Greenhouse ornamentals producers * Home gardeners * Landscapers | * Master Gardener Program * Extension Greenhouse/Nursery Specialist |
| Multidisciplinary Evaluation of New Apple Cultivars and Rootstocks for Vermont | Mid | * Apple producers | UVM Apple Team (combines research, extension & higher education) |
| Federal dairy policy and price transmission in New England and US dairy markets | Mid | * Dairy producers * Dairy processors * Policy makers | |
| Hormonal Control of Growth and Energy Use by Chickens Deficient in Amino Acids | Mid | * Poultry producers | |
| Genetic Markers for Sap Sweetness in Sugar Maples | Mid | * Maple syrup producers | * Extension maple syrup specialists |
| Characterization of the function of proline-rich cell wall proteins available in arabidopsis | Mid | * Plant breeders | |
| Chemical, Phsyio-chemical & microstructural factors that affect the functionality of cream cheese | Short | * Dairy processors | * Extension dairy specialists * Extension small ruminant specialist |
| Genetic Variation in <i>Lathyrus maritimus</i> Bigel.: A Wild Legume with Agronomic Potential | Short | * Dairy producers * Agronomists | |
| Managing parasites of pastured livestock on organic farms | Short | * Dairy producers * Animal health professionals | * Extension dairy specialists * UVM Center for Sustainable Agriculture |

UVM Extension and Agricultural Experiment Station Resource Allocation

Human Resources (Agriculture)

| Goal 1--Agriculture | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|-------------------------------------|--------|--------|--------|--------|--------|
| Extension: Professional FTEs | 21.66 | 21.66 | 21.66 | 21.66 | 21.66 |
| Extension: Paraprofessional FTEs | 2.25 | 2.25 | 2.25 | 2.25 | 2.25 |
| Research: Professional Days | 11.58 | 11.58 | 11.58 | 11.58 | 11.58 |
| Research: Paraprofessional Days | 10.64 | 10.64 | 10.64 | 10.64 | 10.64 |

Fiscal Resources (Agriculture)

| Goal 1--Agriculture | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|----------------------|---------|-----------|-----------|-----------|-----------|-----------|
| Extension Dollars | Federal | 682,738 | 682,738 | 682,738 | 682,738 | 682,738 |
| | State | 682,738 | 682,738 | 682,738 | 682,738 | 682,738 |
| | Total | 1,365,476 | 1,365,476 | 1,365,476 | 1,365,476 | 1,365,476 |
| Research Dollars | Federal | 740,051 | 740,051 | 740,051 | 740,051 | 740,051 |
| | State | 887,949 | 887,949 | 887,949 | 887,949 | 887,949 |
| | Total | 1,628,000 | 1,628,000 | 1,628,000 | 1,628,000 | 1,628,000 |

National Goal Area 2: a safe and secure food and fiber system.

UVM Extension Curriculum/Program Team: Nutrition, Food Safety & Health

Despite Vermont's agricultural heritage, food safety, security, and hunger issues still persist for many Vermont children and adults. UVM Extension efforts will continue to focus on improving the accessibility of food that is nutritious, safe, culturally acceptable, and affordable to Vermonters living in both rural and urban areas. Food safety and security outreach will include strategies and programs aimed at both consumer and producer education. Extension specialists will continue to implement food safety programs targeted to food managers and handlers, as well as to home food producers and consumers.

In addition to providing food safety expertise to the Expanded Food and Nutrition Education Program (EFNEP), extension specialists will focus efforts on two specific programs: People Grow and Safe Food for the Hungry. Both of these programs are funded by USDA special grant dollars and include collaborations of local and state organizations and agencies that represent hunger and nutrition advocacy and service providers.

Children and adults across the State of Vermont face the challenging problem of lacking continuous access to nutritious, safe, acceptable, and affordable food. Food security is an issue in the remote rural areas of the state and in the populated urban areas, affecting people of diverse ages & backgrounds. In 1995, the national Food Research and Action Center estimated that 21,000 Vermont Children under the age of 12 are hungry, or at risk of hunger each year. Use of emergency food sites also demonstrates the significant food needs in our small state, with an average of 6,106 per month (including about 8000 children) receiving food from local food shelves in 1996. This was an increase of 4% over 1995, and double the 1990 figure. Additionally, nearly 220,000 meals were served in 1996 at two dozen community kitchens in Vermont.

In stark contrast to this lack of food security for so many Vermonters is an agricultural state that prides itself on production of a wide range of healthful and tasty products that are enjoyed by millions of people across the country. UVM Extension has been invested in addressing the food and nutrition needs of economically disadvantaged youth and adults with young children for almost 30 years through the Expanded Food and Nutrition Education Program (EFNEP). It is in a strong position to continue as well as expand on this work with an audience that could benefit so much from our resources.

Researchers from the Centers for Disease Control and the Food and Drug Administration estimate that from 6.5 to 33 million Americans become ill each year from microorganisms in their food. According to Vermont State Department of Health epidemiologist, Susan Schoenfeld, there were 323 cases of reported and confirmed of foodborne illness in 1998 in Vermont (21 cases of E. coli-0157. H7, 144 cases of Salmonella and 158 cases of Campylobacter).

Between 1993-1995, there were several outbreaks of foodborne illness reported. Two of the incidents involved restaurants, one a college, and the fourth was traced to a Vermont product purchased at a farmers market. Vermont does not currently require certification or licensing of food handlers, however there is a national trend towards

certification and implementation of food safety systems (such as HACCP - Hazard Analysis Critical Control Points). Food service establishments with high employee turnover and few opportunities for food safety and sanitation education may exacerbate the risk of foodborne illness. Specialty food producers and processors often start a business with limited knowledge of the skills or the regulatory requirements needed to insure a safe and wholesome food product. Since 1991, UVM Extension has developed and implemented food safety programs targeted to professional and volunteer food managers and handlers, specialty and home food producers and consumers. Many of these programs were the result of collaborative efforts with other land grant universities, agencies and organizations. Continuation and expansion of this effort will help to reduce the risk of foodborne illness in Vermont.

The UVM Extension Nutrition and Food Safety team envisions a strong interdisciplinary approach in the future. According to the Honorable Dan Glickman, U.S. Secretary of Agriculture, nutrition and agriculture will play an important role in creating healthy communities. It is our hope to develop a strong link with agriculture and community development. It is not possible to initiate changes in our food system and security or in health care without these linkages.

Currently Extension faculty and staff are involved in the "People Grow" project that uses an interdisciplinary approach to build a strong network of agriculture, food and anti-hunger organizations to create innovative linkages among local food producers, institutions and consumers. Low-income audiences are targeted to receive education in food production (gardening, small farming), food preparation, preservation, nutrition, and food safety. Future plans involve UVM faculty working with this audience to develop small food businesses.

The Northeast Fruit and Vegetable project, lead state-Cornell, relies on faculty who have expertise in agriculture, horticulture, and food safety as well as growers, truckers, wholesalers, retailers and consumers. The goal for this project is to reduce microbial contamination on fruit and vegetables produced in the Northeast.

Through field placements with Extension NFH Team members, UVM Nutritional Sciences Department practicum students will be involved in community nutrition, food safety and food security education experiences. NFSH team faculty and staff will also collaborate with key players at the Food Science Center and Sustainable Agriculture Center on efforts benefiting Vermonters.

UVM Extension Food Safety Priorities

The food safety mission of the Nutrition, Food Safety and Health Curriculum/Program team for FY 2000-2004 is "to increase awareness and responsible actions of policy makers and food handlers ("from the farm to table") to ensure food safety and security." To meet its food safety mission, the Nutrition, Food Safety and Health Curriculum/Program Team has established the following performance goal and objectives:

Goal: Every child and adult will have continuous access to a safe, affordable, adequate and acceptable food supply.

Objectives:

- Increase consumer and producer awareness, understanding and information on food accessibility and affordability
- Increase consumer and producer awareness, understanding and information regarding food safety and food borne risks and illnesses.

UVM Extension Food Safety Programs and Activities

| Programming Objective: Increase consumer and producer awareness, understanding and information on food accessibility and affordability | | | | | | |
|---|-------------|---|----------|--|--------------------|--|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Food Accessibility & Affordability | People Grow | Organizational collaboration with food, nutrition, and hunger organizations to address food security issues & programs in two Vermont communities | Short | * Limited Resource Families * Farmers * Nonprofit organizations * Communities | | UVM Center for Food Science Northeast Dairy Foods Research Center |

| Programming Output Measures: Increase consumer and producer awareness, understanding and information on food accessibility and affordability | | | | | | |
|---|--|---------|--------|--------|--------|--------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Food Accessibility & Affordability | # People Grow organizational collaborators | 5 | 5 | | | |
| | # People Grow target communities | 2 | 2 | | | |
| | # People Grow food preservation workshops | 6 | 6 | | | |
| | # Food preservation workshop participants | 50 | 50 | | | |

| Programming Impact Measures: Increase consumer and producer awareness, understanding and information on food accessibility and affordability | | | | | | |
|---|---|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Food Accessibility & Affordability | % decrease in emergency food site visits by People Grow program participants | 50 | 50 | | | |
| | # communities integrating food policy in community plans | | 2 | | | |
| | Total \$ value of money earned by limited resource individuals engaged in food-related entrepreneurial activities | 2,000 | 3,000 | | | |
| | % workshop participants demonstrating increased knowledge of safe food preservation and marketing | 75 | 75 | | | |

Programming Objective: Increase consumer and producer awareness, understanding and information regarding food safety and food borne risks and illnesses

| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
|--|--------------------------|---|----------|--|----------------------|----------------------------------|
| Food Safety, Food Borne Risks & Illnesses | Safe Food for the Hungry | Workshops on food safety and food handling practices to reduce food-borne risks and illnesses | Mid | *Consumers *Limited Resource Families | | UVM Dept. of Nutritional Science |
| | Food Handler Education | Series of workshops using a variety of curricula: *Looking for a Safe Harbor *Crop to Cupboard *New England Food Safety Project *HACCP *ServSafe | Mid | *Food handlers *Volunteers *Food producers *Food processors *Educators | NH, RI, CT MA, ME | UVM Dept. of Nutritional Science |
| | Consumer Education | Series of workshops using a variety of curricula: *Food Safety Express * Looking for a SAFE Harbor * Fight BAC * Food, Flies & Fungus * Crop to Cupboard; media campaigns; one-on-one consumer consultations; consumer food safety & preservation hotline | Long | * Consumers * Families | NH, RI, CT MA, ME | UVM Dept. of Nutritional Science |

| Programming Output Measures: Increase consumer and producer awareness, understanding and information regarding food safety and food borne risks and illnesses | | | | | | |
|--|---|---------|--------|--------|--------|--------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Safe Food for the Hungry | # Safe Food for the Hungry workshops | 12 | 12 | | | |
| | # Safe Food for the Hungry participants | 40 | 40 | | | |
| Food Handler Education | # food handler programs/events held | 16 | 20 | 24 | | |
| | # HACCP trainings held | 6 | 9 | 12 | | |
| | # Model HACCP trainings held | 1 | | | | |
| | # food handler program attendees | 160 | 200 | 240 | | |
| | # Model HACCP program attendees | 20 | | | | |
| | # food handler certification programs offered | 6 | 9 | 12 | | |
| | # HACCP certification programs offered | 6 | 9 | 12 | | |
| | # Trained trainers in food handler training | 20 | 20 | 20 | | |
| | # Volunteer trainers trained in food handling | 30 | 35 | 35 | | |
| | # Persons certified in safe food handling | 85 | 105 | 130 | | |
| Consumer Education | # Consumer food safety programs, workshops & events | 20 | 20 | 20 | 20 | 20 |
| | # Consumers attending food safety programs & events | 250 | 250 | 250 | 250 | 250 |
| | # Consumers assisted with food safety information | 250 | 250 | 250 | 250 | 250 |

| Programming Impact Measures: Increase consumer and producer awareness, understanding and information regarding food safety and food borne risks and illnesses | | | | | | |
|--|---|---|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Safe Food for the Hungry | Avg % increase in food safety knowledge of Safe Food for the Hungry participants | 15 | 15 | | | |
| | % Safe Food for the Hungry participants intending to adopt at least one new food safety practice | 75 | 75 | | | |
| | % Safe Food for the Hungry participants who actually adopt at least one new food safety practice | 50 | 50 | | | |
| Food Handler Education | % Avg increase in food safety knowledge of program participants | 15 | 15 | 15 | | |
| | % program participants intending to adopt at least one recommended safe food handling practice | 75 | 75 | 75 | | |
| | % program participants (surveyed) actually adopting at least one recommended safe food handling practice | 50 | 50 | 50 | | |
| | # food handler program participants intending to adopt at least one new behavior after food handling training | 120 | 150 | 180 | | |
| | # food handler program participants actually adopting at least one new behavior after food handling training | 60 | 75 | 80 | | |
| | # HAACP participants intending to adopt at least one new behavior change after training | 45 | 68 | 90 | | |
| | # HAACP participants actually adopting at least one new behavior change after training | 20 | 34 | 45 | | |
| | # Model HAACP participants intending to adopt at least one new behavior after training | 15 | | | | |
| | # Model HAACP participants actually adopting at least one new behavior after training | 8 | | | | |
| | Consumer Education | Avg % increase in food safety knowledge of food safety program participants | 15 | 15 | 15 | 15 |
| % Food safety program participants intending to adopt at least one new food safety practice | | 75 | 75 | 75 | 75 | 75 |

| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|--|---|--------|--------|--------|--------|--------|
| | % Food safety program participants who actually adopt at least one new food safety practice | 50 | 50 | 50 | 50 | 50 |

UVM Extension Food Safety Program Evaluation

UVM Extension food safety faculty and program staff will utilize a variety of program appropriate evaluation methods to assess the effectiveness and impact of their programming efforts. The use of pre- and post-workshop evaluations will continue to be used to assess changes in participant knowledge levels, as well as participant intention to implement recommendations presented. In other evaluation efforts, case studies will provide detailed information on how individuals, organizations and communities have utilized Extension training and technical assistance to ensure public access to food supplies that are safe, affordable, culturally acceptable, and sustainable.

Food Safety, Nutrition and Human Health Stakeholders

The UVM Extension's Nutrition Food Safety and Health team has worked with the UVM research faculty, advisory groups and consumers over the past seven years to develop its mission statement, objectives and evaluation strategies as they relate to national goals of food safety, nutrition and human health. The implementation of this plan relies on the dedication, expertise and resources of all collaborators.

Collaborators and stakeholders have included UVM faculty from the department of Nutrition and Food Science, the UVM Food Science Center, UVM Sustainable Agriculture Center, UVM Extension Nutrition, Food Safety and Health Curriculum Team Advisory Group The Vermont Food Safety Network, The Vermont Food Safety Network, the Vermont Food Bank, National Organic Farmers Association, Operation Frontline/SOS, the Vermont Nutrition, New England Culinary Institute, Education and Training Council, the Vermont Department of Health, the Vermont Department of Education, the Vermont Department of Agriculture, the Vermont Restaurant Assoc., Vermont Anti-Hunger Corp, Vermont Manufacturing Extension Center, AARP, Vermont Campaign to End Childhood Hunger, Serve New England, Vermont Department of Employment and Training, Head Start, Community Action Councils, the Farmer's Market Association, the Vermont Specialty Food Association, childcare providers, food service managers and food producers.

To keep collaborators and stakeholders engaged it requires that NFSH faculty initiate and sustain regular communications and involve them in programming and impact analysis. The Nutrition, Food Safety and Health Team have used both formal and informal approaches to engage our stakeholders. The formal approach includes group process, focus group interviews, retreats at the University, etc.

To create our mission statement and goals and objectives the following "group process" steps were taken with the NFSH advisory group over a period of five years.

1. In 1995, an advisory group representative of our consumers and collaborators was formed by a nomination and invitation process.
2. The group attended an initial planning meeting on April 3, 1995. Members were mailed a resource packet that included a survey asking for input as to

what their special interests were as it related to Nutrition, food safety and health and what issues did they see on the forefront. Using the results of the survey as a starting point, a nominal group process was used to determine what the program focus for NFSH would be. Three priority areas were selected as our target for programming: Food Safety, Food Security and Practical Education Nutrition and Food Preparation information.

3. Three sub committees made up of faculty and advisory members were formed to develop specific program objectives, action plans and evaluation strategies.
4. In 1996 the advisory group and NFSH met again to review the results of the sub-committees work and to finalize mission statement, goals and objectives for the 1996-99 POW.
5. In 1996, 97 and 1998 the team members met with their advisory sub-groups once a year for a program review and impact analysis. Recommendations were recorded and put forth for the following years planning.
6. In the fall of 1998 each member of the advisory group was contacted to see if they were still interested in remaining an advisee. Only four of the original twelve chose to do so, therefore, an additional six members were recruited.
7. In February 1999, the re-vitalized advisory group met with faculty and staff to review accomplishments for the program period of 1996-99 and to take part in a group process to formulate goals and objectives for 2000-4. The decision was made to keep on course, maintaining our mission statement, goals and objectives. The current plan will be evaluated on an annual basis as to impact. Changes will be made accordingly.

In regard to food safety issues UVM Extension food safety specialists assigned to the NFSH team have worked with another formal advisory group, the Vermont Food Safety Network. The network has a membership of over sixty people representing educators, food producers, regulators, and others who are interested in promoting food safety in Vermont.

The Vermont Food Safety Network has, through group process, prioritized food safety issues for the state. Top priorities included: education and training, the need for certification standards, regulation, statewide strategies for the food industry and leadership in food safety for all groups and parties. In response to the recommendations, Governor Howard Dean, Agriculture Commissioner Graves and Health Commissioner Carney agreed to appoint a task force to address food safety in Vermont. Two additional concrete VFSN accomplishments in 1998-9 have been:

1. The development of a VFSN listserv (vtfoodsafety@list.uvm.edu)
2. The development and implementation of a survey to determine the food safety education and training needs and resources available in the state.

Informal contact with stakeholders take place daily as team members work with members of their communities to plan and implement their programs. Last year this was demonstrated by the numerous "TEAM" nutrition events that took place around the state.

It is UVM Extension's goal to continue to address issues specific to Vermont enhancing the quality and impact of our program efforts by engaging in collaborations with land grant institutions across the nation, with the research and teaching faculty at

UVM and with other Vermont agencies and institutions.

UVM Agricultural Experiment Station Food Safety Research

University of Vermont Agricultural Experiment Station research will continue its focus on understanding the mechanisms that cause food borne illnesses and developing protocols to increase the accuracy and speed of disease detection in food production, preparation, and storage. Expanding their research in the development of edible whey-based films, scientists will explore the commercialization of these films for use in the food processing industry for packaging, quality control, and safety. The use of whey-based edible coatings will help improve the safety and quality of processed meat products with benefits to both consumers and the industry. Consumers will be better protected from potential health hazards caused by tainted foods, and the meat processing industry will be less at risk from the economic consequences of product safety recalls and plant closures.

Work is continuing on improved strategies for detection of *Listeria monocytogenes* through focus on sublethal injury. Improved testing methods developed at the university of Vermont are currently being evaluated for inclusion by USDA as part of the FSIS surveillance of meat and meat products. These same procedures are being applied to large dairy plants and small ruminant farms to improve assessment of *Listeria* contamination. Similar studies with a focus on sublethal injury are being applied to detection of E. coli 0157:M7 in apples. Novel strategies such as ozone decontamination are being investigated for use with fresh produce at the retail level to improve microbiological safety of products destined for farmers markets.

Mastitis is a very costly disease to the dairy industry. In addition, consumers have raised concerns regarding the introduction of antibiotics into the food stream via their use for treating dairy animals with mastitis. Ongoing research funded in part by the Vermont Agricultural Experiment Station is studying ways to make dairy cows more naturally resistant to mastitis thereby reducing the need for costly antibiotic treatment.

Outbreaks of disease and contamination of processed foods have resulted in human illness and death in addition to costly food recalls and processing plant shut downs. UVM researchers are developing innovative ways to help protect processed foods from accidental pathogen exposure in processing facilities and commercial retail establishments. Ongoing edible film research is uncovering new ways to utilize whey, a byproduct of the dairy processing industry.

The table below describes the food safety research that has been approved and/or funded through the Vermont Agricultural Experiment Station's competitive Hatch process. In the area of Food Safety, current Hatch funded research focuses on two areas-- enhancing mastitis resistance in dairy animals and the development of edible films to enhance food safety in the food processing industry.

| Vermont Agricultural Experiment Station Competitively Approved/Funded Research in Food Safety | | | |
|---|------------------------|--|--------------------|
| Research Title | Current Award Duration | Target Audience or Commodity | Extension Linkages |
| Mastitis Resistance to Enhance Dairy Food Safety | Long | * Dairy producers * Animal health professionals | |

| | | | |
|---|-------|---|--|
| Properties of composite edible films made from whey protein concentrates and anhydrous milk fat fractions | Short | * Dairy producers * Dairy processors * Food processing industry | |
|---|-------|---|--|

Food Safety Resource Allocation

Human Resources (Food Safety)

| Goal 2: Food Safety | FY2000 | FY2001 | Y2002 | FY2003 | FY2004 |
|-------------------------------------|--------|--------|-------|--------|--------|
| Extension: Professional Days | 1.31 | 1.31 | 1.31 | 1.31 | 1.31 |
| Extension: Paraprofessional Days | .15 | .15 | .15 | .15 | .15 |
| Research: Professional Days | 1.6 | 1.6 | 1.6 | 1.6 | 1.6 |
| Research: Paraprofessional Days | 2.0 | 2.0 | 2.0 | 2.0 | 2.0 |

Fiscal Resources (Food Safety)

| Goal 2: Food Safety | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|----------------------|---------|---------|---------|---------|---------|---------|
| Extension Dollars | Federal | 41,690 | 41,690 | 41,690 | 41,690 | 41,690 |
| | State | 41,690 | 41,690 | 41,690 | 41,690 | 41,690 |
| | Total | 83,380 | 83,380 | 83,380 | 83,380 | 83,380 |
| Research Dollars | Federal | 183,848 | 183,848 | 183,848 | 183,848 | 183,848 |
| | State | 107,984 | 107,984 | 107,984 | 107,984 | 107,984 |
| | Total | 291,832 | 291,832 | 291,832 | 291,832 | 291,832 |

National Goal Area 3: a healthy, well-nourished population.

UVM Extension Curriculum/Program Team: Nutrition, Food Safety & Health

Health care is critically important to all Vermonters. Health care costs in the nation and in Vermont are escalating due to the aging population and the advances in medical technology. Lack of sufficient access to affordable health care means fewer opportunities for prevention. Vermonters are confronted with isolation and gaps in rural delivery systems and a lack of professional expertise. In the 21st century UVM Extension Nutrition, Food Safety and Health Team will focus on prevention and empowering people to practice healthy life styles. It is our expectation that our consumers will adopt healthy lifestyles by reducing high-risk behaviors and taking responsibility for health decisions.

Four of the leading causes of death in Vermont, cardiovascular disease, cancer, stroke, and diabetes are largely preventable with lifestyle changes. Consuming a diet low in fat and high in fruits, vegetables, and whole grains, participating in regular physical activity, and achieving and maintaining a healthy body weight are all behaviors that would modify Vermonters' risk for developing chronic disease. Unfortunately, initiating and sustaining behavior change is difficult and requires changing attitudes and acquiring new skills and knowledge. UVM Extension is in a unique position to help Vermonters achieve these changes. Through practical education, linking diet and physical activity changes to reduced risk of disease, Extension can help Vermonters lead healthier, more productive lives.

UVM Extension Nutrition priorities

Through practical education, linking diet and physical activity changes to reduced risks of disease, Extension nutrition specialists will continue to help Vermonters lead healthier, more productive lives. Of particular focus for the next five program years will be Vermont children, youth, and families with limited resources. With special funding from a federal Food Stamp grant, specialists will use the "Making it Fit" curriculum to help low-income Vermonters improve their food planning practices and nutrition knowledge. Two quarterly publications will be produced targeted at limited resource households and Vermont's senior citizens. Ongoing collaborative outreach activities will link extension nutrition specialists with partners from the Vermont Health Department and other agencies and organizations that provide emergency food and nutrition services.

The nutrition mission of the Nutrition, Food Safety and Health Curriculum/Program team for FY 2000-2004 is "to advance the nutritional health of each Vermonter" and "to encourage Vermonters to adopt nutrition practices that decrease the need for medical intervention." To meet its nutrition mission, the Nutrition, Food Safety and Health team has established the following performance goal and objectives:

Goal: Vermonters will adopt nutrition and related lifestyle practices that promote health.

Objectives:

- Educate Vermont adults and youth to use the U.S. Dietary Guidelines and the Food Guide Pyramid to choose a healthful diet.
- Educate Vermonters to adopt dietary practices recommended for specific life cycle stages.

UVM Extension Nutrition Programs and Activities

| Programming Objective: Educate Vermont adults and youth to use the U.S. Dietary Guidelines and the Food Guide Pyramid to choose a healthful diet. | | | | | | |
|--|--------------------------------|---|----------|--|--------------------|--|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Dietary Guidelines & Healthy Diets | Making It Fit | A 12 workshop series curriculum to help limited resource families improve their food planning practices and nutrition knowledge | Mid | * Limited resource adults * Food stamp recipients * Elders | | |
| | Food, Fun & Reading | Combines literacy skills and nutrition education geared toward preschoolers | Mid | * Children up through Grade 2 | | |
| | Team Nutrition | National nutrition curriculum designed to build community awareness about health and nutrition issues | Long | * Local leaders * Educators * School children * Adults * Hospitals * Food service workers * Childcare workers * Community action agencies * and others | All 50 states | |
| Dietary Practices for Life Cycle Changes | EFNEP Outreach Worker Training | Faculty training to support EFNEP program staff addressing nutrition and food safety issues | Long | * EFNEP Staff * EFNEP participants | | |
| | Corn & Berry | Quarterly newsletter | Long | Families with children Limited resources | | % recipients finding information useful % recipients implementing a recommended dietary or food safety practice |
| | Words to the Wise | Quarterly newsletter | Long | Homebound seniors, limited resources | | % recipients finding information useful % recipients implementing a recommended dietary or food safety practice |

| Programming Output Measures: Educate Vermont adults and youth to use the U.S. Dietary Guidelines and the Food Guide Pyramid to choose a healthful diet. | | | | | | |
|--|---|---------|--------|--------|--------|--------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Dietary Guidelines & Healthy Diets | # Making It Fit workshops | 12 | 12 | 12 | 12 | 12 |
| | # Making It Fit participants | 75 | 75 | 75 | 75 | 75 |
| | # Food, Fun & Reading workshops | 10 | 10 | 10 | 10 | 10 |
| | # Food, Fun & Reading participants | 100 | 100 | 100 | 100 | 100 |
| | # Food, Fun & Reading volunteer trainer sessions | 12 | 12 | 12 | 12 | 12 |
| | # Food, Fun & Reading volunteers trained | 40 | 40 | 40 | 40 | 40 |
| Dietary Practices for Life Cycle Changes | # EFNEP staff trainings | 11 | 11 | 11 | 11 | 11 |
| | # EFNEP staff trained | 11 | 11 | 11 | 11 | 11 |
| | # EFNEP adult participants reached by trained staff | 375 | 400 | 400 | 400 | 400 |
| | # EFNEP adult participants reached by trained staff | 500 | 500 | 500 | 500 | 500 |
| | # Corn and Berry newsletters | 4 | 4 | 4 | 4 | 4 |
| | # Corn and Berry newsletter recipients | 3700 | 3700 | 3700 | 3700 | 3700 |
| | # Words to the Wise newsletters | 4 | 4 | 4 | 4 | 4 |
| | # Words to the Wise newsletter recipients | 400 | 400 | 400 | 400 | 400 |

| Programming Impact Measures: Educate Vermont adults and youth to use the U.S. Dietary Guidelines and the Food Guide Pyramid to choose a healthful diet. | | | | | | |
|--|---|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Dietary Guidelines & Healthy Diets | % Making It Fit participants who intend to adopt at least one recommended Dietary Guideline | 50 | 50 | 50 | 50 | 50 |
| | % Making It Fit participants who actually adopt at least one recommended Dietary Guideline within six months | 50 | 50 | 50 | 50 | 50 |
| | % Making It Fit participants indicating increased self-efficacy (confidence) in their ability to plan healthy meals | 50 | 50 | 50 | 50 | 50 |
| | % Making It Fit participants indicating increased knowledge of recommended daily servings from the five major food groups | 70 | 70 | 70 | 70 | 70 |
| | % Food, Fun & Reading participants indicating increased knowledge of foods within each of the five major food groups | 70 | 70 | 70 | 70 | 70 |
| Dietary Practices for Life Cycle Changes | % EFNEP staff utilizing training | 100 | 100 | 100 | 100 | 100 |
| | % overall improvement in EFNEP program participant dietary intake | 5 | 5 | 5 | 5 | 5 |
| | % EFNEP program participants improving food intake in at least one food group | 90 | 90 | 90 | 90 | 90 |
| | % EFNEP program participants who more often plan meals in advance | 60 | 60 | 60 | 60 | 60 |
| | % EFNEP program participants who less often run out of food before the end of the month | 30 | 30 | 30 | 30 | 30 |
| | % EFNEP program participants who more often compare prices before buying food | 30 | 30 | 30 | 30 | 30 |
| | % EFNEP program participants giving birth who initiate breast feeding | 75 | 75 | 75 | 75 | 75 |
| | % EFNEP adult program participants who improve in at least one nutrition practice | 90 | 90 | 90 | 90 | 90 |
| | % EFNEP program participants who improve in at least one food safety practice | 60 | 60 | 60 | 60 | 60 |

| Programming Impact Measures: Educate Vermont adults and youth to use the U.S. Dietary Guidelines and the Food Guide Pyramid to choose a healthful diet (Continued). | | | | | | |
|--|--|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Dietary Practices for Life Cycle Changes (continued) | % EFNEP youth participants who increase their knowledge on the essentials of human nutrition | 75 | 75 | 75 | 75 | 75 |
| | % EFNEP recipients finding information useful | 80 | 80 | 80 | 80 | 80 |
| | % EFNEP recipients implementing a recommended dietary or food safety practice | 50 | 50 | 50 | 50 | 50 |
| | % EFNEP recipients finding information useful | 80 | 80 | 80 | 80 | 80 |
| | % EFNEP recipients implementing a recommended dietary or food safety practice | 50 | 50 | 50 | 50 | 50 |

UVM Extension Nutrition Program Evaluation

UVM Extension nutrition and health faculty and program staff will utilize a variety of program appropriate evaluation methods to assess the effectiveness and impact of their programming efforts. The use of pre- and post-workshop evaluations will continue to be used to assess changes in participant knowledge levels, as well as participant intention to implement recommendations presented. EFNEP in other evaluation efforts, case studies will provide detailed information on how individuals have utilized Extension training and technical assistance to increase their nutrition knowledge and ability to adopt healthy lifestyle practices.

UVM Agricultural Experiment Station Nutrition Research

According to a 1995 National Center for Health Statistics study, it is estimated that one-fourth of all U.S. children are overweight or obese. Additional research suggests that obesity is on the rise for low-income pre-school children (Centers for Disease Control and Prevention Pediatric Nutrition Surveillance System). University of Vermont researchers will continue their efforts to study causes and possible intervention and prevention strategies for obesity in children and adults. Research efforts include: analyzing the impact of milk and dietary fat intake in school lunch programs; sources for calcium in school lunches; causes and prevention of childhood obesity; and the effectiveness of videoconferencing in changing health behaviors effecting obesity in adults.

Because Vermont is a dairy state, the impact of milk and milk products on human health, diet, and nutrition is of particular interest. Health and nutrition-related research at the University of Vermont will continue to address the impact of nutrition and exercise on disease prevention and weight maintenance. Ongoing research foci include: diabetes prevention through diet and exercise; prevention of sudden cardiac death through dietary modulation; and the use of Internet technology to disseminate nutrition knowledge throughout rural Vermont. Obese Vermont men and women are participating in a unique study to help researchers evaluate the effectiveness of the Internet in facilitating the maintenance of weight loss. After six-months of weekly on campus treatment, study participants will be assigned to an Internet group, an ongoing face-to-face group, and a

control group. If shown to be effective, the Internet will provide another cost-effective means to provide accessible, affordable weight control care to Vermonters.

The table below describes the nutrition and human health research that has been approved and/or funded through the Vermont Agricultural Experiment Station's competitive Hatch process. Successful Hatch proposals may be awarded funding for up to three years.

| Vermont Agricultural Experiment Station Competitively Approved/Funded Research Nutrition and Human Health | | | |
|--|------------------------|---|--|
| Research Title | Current Award Duration | Target Audience or Commodity | Extension Linkages |
| Predictors of milk consumption in US school-aged children | Short | * Children * Schools * Policy makers * Dairy producers * Nutritionists | UVM nutrition faculty, Expanded Nutrition Education Program staff |
| Effectiveness of internet support on the long-term management of obesity | Mid | * Overweight adults * Health care providers * Nutritionists * Educators | UVM nutrition faculty, Expanded Nutrition Education Program staff |
| Dietary Carnitine Supplementation in the prevention of cardiac arrhythmias | Mid | * Health care providers * Nutritionists | |
| Behavioral and Body Image Therapy in Weight Management Using Registered Dietitians | Short | * Overweight adults * Health care providers * Nutritionists * Dieticians * Educators | UVM nutrition faculty, Expanded Nutrition Education Program staff |
| Solubility and Distribution of trace elements in milk-based infant formula | Mid | * Health care providers * Nutritionists * Dairy processing industry * Parents of infants | |

UVM Extension and Agricultural Experiment Station Resource Allocation

Human Resources

| Goal 3: Nutrition | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|-------------------------------------|--------|--------|--------|--------|--------|
| Extension: Professional FTEs | 3.46 | 3.46 | 3.46 | 3.46 | 3.46 |
| Extension: Paraprofessional FTEs | | | | | |
| Research: Professional Days | 1.7 | 1.7 | 1.7 | 1.7 | 1.7 |
| Research: Paraprofessional Days | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |

Fiscal Resources

| Goal 3: Nutrition | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|--------------------------|---------|---------|---------|---------|---------|---------|
| Extension Dollars | Federal | 98,799 | 98,799 | 98,799 | 98,799 | 98,799 |
| | State | 98,799 | 98,799 | 98,799 | 98,799 | 98,799 |
| | Total | 197,598 | 197,598 | 197,598 | 197,598 | 197,598 |
| Research Dollars | Federal | 168,481 | 168,481 | 168,481 | 168,481 | 168,481 |
| | State | 113,445 | 113,445 | 113,445 | 113,445 | 113,445 |
| | Total | 281,926 | 281,926 | 281,926 | 281,926 | 281,926 |

National Goal Area 4: an agricultural system that protects natural resources and the environment

UVM Extension Curriculum/Program Team: Natural Resources and Environmental Management (NREM)

Within the past 25 years, Vermont has grown in population by 25%, more than doubled its economic activity, and doubled the number of miles driven on its highways. Partly resulting from these changes, there are some areas of the State that have been undeniably altered: less farmland (replaced by some commercial and residential development) and an increase in forestland.

With 80% of Vermont covered by forests, Vermont ranks third in the nation in terms of percent of forestland) Eighty-three percent of this land is privately owned-- mostly by individuals—who have various (and changing) objectives in using and managing the land. With the aging of the population and development pressures in some parts of the State, transfer of land ownership and continued stewardship of the natural resource base is an increasingly important issue among the 80000+ private forest landowners in Vermont. This resource base provides not only wildlife habitat, air and water protection, and recreation (or quality-of-life) for Vermont residents and visitors alike, but also supports a large and growing wood products industry—constituting almost one-fifth of Vermont's total manufacturing labor force.

During the past ten years, harvesting of forest products has increased 23%-- reflecting a growing societal demand for wood products. Logging and primary wood processing constitute the primary outlet for wood products from private forest land, but there is a need to reap the additional income from value-added manufacturing of wood products. The growing and changing global economy requires that Vermont wood-based businesses remain competitive, if they are to maintain the expected income standards in the region. Economic needs, of course, must be addressed in concert with the demand for other, less tangible products from Vermont's land base, such as recreation, aesthetics, ecosystem management and protection of water resources.

Approximately one out of every five miles of Vermont streams and rivers suffer from substandard water quality. Non-point source activities (such as land development, construction, agriculture and forest harvesting) account for 90% of water pollution in Vermont. It is estimated that more than 60% of Vermonters rely on groundwater sources for their drinking water; such sources are threatened by hazardous waste sites, active and abandoned landfill areas, improperly-designed underground storage tanks for petroleum products, application of road salt to Vermont roads, waste oil disposal and improperly applied chemicals to control plant problems associated with insects and disease.

In collaboration with new (and existing) partners, UVM Extension will provide expertise and leadership to initiate multi-disciplinary, research-based programs which will help people to solve problems and to ensure the economic sustainability and ecological integrity of Vermont's valuable natural resources.

Sources: Natural Resources and the Environment—a Vermont Profile (UVM Extension, 2C-897-UCP, August 1997); Environment 1998—An Assessment of the Quality of Vermont's Environment (Vermont Agency of Natural Resources, 1998); preliminary Forest Inventory Assessment report (U.S. Forest Service, USDA, 1999); Shaping the Future—a Strategic Plan for Natural Resources and Environmental Management Education (U.S.D.A. Extension Service, 1994).

UVM Extension NREM Team priorities

The scenic quality of Vermont's environment is characterized by small densely populated communities surrounded by working agricultural landscapes and diverse forest lands. In addition to providing quality habitat for Vermont's wildlife, much of these woodlands support recreation, tourism, and wood products industries that contribute significantly to the state's economy. However, traditional agricultural activity can negatively impact the environment that sustains it creating conflicts between agriculturalists and natural resource conservationists.

University of Vermont Extension activities will continue to focus on education and outreach activities that assist landowners in developing cost-effective, viable methods for reducing the impact of agricultural activities on the natural environment. Through education and outreach, specialists will continue to work with farmers and foresters to implement best management practices that minimize environmental risk and promote economic efficiencies.

Extension objectives and program components will continue in the following areas:

- sustainable natural resources education and management--forest resource management through estate planning and development of diversified forest products;
- forest-based economic development through value-added production and marketing opportunities;
- farm and forest wetlands management; and
- implementation of the Middle School Drinking Water Week curriculum.

Extension also will continue efforts in public policy education as it relates to The Northern Forest, and conflict management education through the Vermont Conservation Partnership.

The mission of the NREM Curriculum/Program Team is " to sustain and enhance the quality of Vermont's natural resources through citizens understanding the effects of local decisions on local and global ecological and economic systems." From FY2000 to FY2004, team efforts will focus on the following objectives:

- To encouraging ecosystem-based approaches to land use, which will allow sustainable production and efficient use of goods and services from renewable resources and conservation of non-renewable resources (Ecosystem Management).
- To provide education about issues regarding water quality and encouraging practices that minimize adverse impacts on water resources, including important wetlands (Water Quality).
- To prepare Vermont citizens to understand and take responsibility for public policies relating to natural resources and the environment (Public Policy Education).

- To improve the skills of Vermonters in identifying and managing conflict, so as to improve natural resources/environmental management decision making (Conflict Management).

UVM Extension NREM Programs and Activities

| Programming Objective: Ecosystem Management | | | | | | |
|--|--|--|-----------------|--|--------------------------------|---|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Ecosystem Management | Estate Planning | Workshops & consultations on land disposition | Long | *Woodland owners nearing retirement | | UVM Dept. of Community Development & Applied Economics |
| | Value-added Wood Products | Workshops, one-on-one consultations and electronic listserv to help identify new markets for wood products | Mid | <ul style="list-style-type: none"> • Wood products businesses * Industry organizations | VA, WV, WI, ME, NY MN, NC, PA | UVM Dept. of Community Development & Applied Economics, UVM School of Natural Resources |
| | Stumpage Data Reporting | Collect, analyze & report data quarterly in "Northern Woodlands" magazine | Long | *Woodland owners *Woodland managers | | UVM School of Natural Resources |
| | Legal Aspects of Owning & Managing Woodlands | Workshops, consultations, & media efforts on the legal aspects of ecosystem management | Long | *Woodland owners *Woodland managers | | |
| | Logger Education to Advance Professionalism | 60 hours of training to loggers | Long | *Professional loggers | | UVM School of Natural Resources |
| | 4-H Volunteer Leadership Training | Promoting 4-H & adult volunteerism in natural resources projects | Long | *Adult volunteers * Youth | CT, MA, NR, NJ, MD, PA, OH, NY | |
| | Aquaculture & Water Quality Education | Workshops, consultations & media campaigns to provide relevant information on protecting the quality of home, community, & aquaculture water systems | Long | <ul style="list-style-type: none"> • Town health officers • Wastewater system managers • Homeowners • Educators • Students *Farmers | MA | |
| | Farming Practices to Enhance Water Quality | Workshops, consultations and media campaigns to provide relevant water quality protection information to Vermont farmers. | Long | *Farmers | | |
| | Vermont Forests | Fact Sheet detailing the status of Vermont's forest resource | Short | * Policy makers * Industry interest groups * General public | | UVM School of Natural Resources |

| Programming Objective: Ecosystem Management (Continued) | | | | | | |
|--|--|--|-----------------|---|---------------------------|---------------------------------|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Ecosystem Management (Continued) | COVERTS program | Training volunteer woodland owners to assist community members in adopting holistic forest management practices | Long | * Volunteers * Woodland owners *Communities | | UVM School of Natural Resources |
| | Sustainable Environment Project | Collaboration with Vermont Law School & Vermont Natural Resources Conservation Council with programs to provide relevant information to Vermont's policy makers and citizens | Long | * Policy makers * General Public | | |
| | Sustainable Processing & Use of Wood Resources | Information & educational resources to processors and consumers re: environmentally sound use of wood resources. | Long | * Wood processors * Consumers | NH, ME, PA, WV, NC | |

| Programming Output Measures: Ecosystem Management | | | | | | |
|--|--|----------------|---------------|---------------|---------------|---------------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Estate Planning | # Courses presented | 3 | 3 | 3 | 3 | 3 |
| | # Course participants (families) | 45 | 45 | 45 | 45 | 45 |
| Value-added Wood Products (Dan) | # Workshops, group discussions, meetings | 2 | 2 | 2 | 2 | 2 |
| | # Workshops, group discussions, meeting participants | 35 | 35 | 35 | 35 | 35 |
| | # telephone, on-site consultations | 30 | 30 | 30 | 30 | 30 |
| | # fact sheets, publications, displays | 3 | 3 | 3 | 3 | 3 |
| | # participants in electronic listserv discussion groups | 30 | 50 | 75 | 80 | 80 |
| | # Participants in wood products industry conference | 100 | 150 | 150 | 150 | 150 |
| COVERTS | # workshops to train landowner volunteers | 2 | 2 | 2 | 2 | 2 |
| | # landowners trained | 16-20 | 16-20 | 16-20 | 16-20 | 16-20 |
| | # landowners reached by trained volunteers | 100 | 100 | 100 | 100 | 100 |
| Stumpage Data Reporting | # stumpage data reports | 4 | 4 | 4 | 4 | 4 |
| | # stumpage data reports recipients | 4000 | 4000 | 4000 | 4000 | 4000 |
| Legal Aspects of Owning & Managing Woodlands (THOM) | # workshops presented | 4 | 4 | 4 | 4 | 4 |
| | # workshop attendees | 120 | 120 | 120 | 120 | 120 |
| | # books sold | 300 | 300 | 300 | 300 | 300 |
| Logger Education to Advance Professionalism | # workshops presented | 4-5 | 4-5 | 4-5 | 4-5 | 4-5 |
| | # loggers trained | 45 | 60 | 60 | 60 | 60 |
| 4-H Volunteer Leadership Training | # workshops presented | 5 | 5 | 5 | 5 | 5 |
| | # cooperators trained | 450 | 450 | 450 | 450 | 450 |
| | # 4-H volunteers/potential leaders complete leadership training program | 60 | 75 | 100 | 100 | 100 |
| | # youth reached by trained 4-H leaders | 960 | 1200 | 1600 | 1600 | 1600 |
| | # people completing 4-H educational programs on sustaining and protecting ecosystem integrity and biodiversity | 100 | 150 | 175 | 175 | 175 |
| | # people completing 4-H educational programs on conserving, sustaining and/or protecting soil resources | 50 | 50 | 100 | 100 | 100 |
| Aquaculture & Water Quality Education | # newsletters produced | 2 | 2 | 2 | 2 | 2 |
| | # workshops presented | 2 | 1 | 1 | 1 | 1 |
| | # video distributed | 2 | 2 | 2 | 2 | 2 |
| | # fact sheets produced | 1 | 1 | 1 | 1 | 1 |
| | # homeowners reached with information | 50 | 50 | 50 | 50 | 50 |
| | # farmers reached | 20 | 20 | 20 | 20 | 20 |
| Farming Practices to Enhance Water Quality | # radio programs produced | 2 | 2 | 2 | 2 | 2 |
| | # television programs presented | 1 | 1 | 1 | 1 | 1 |
| Vermont Forests Fact Sheet | # fact sheets produced | 1 | | | | |
| Sustainable Environment Project | # people participating in sustainable projects | 100 | 150 | 200 | 250 | 300 |
| | # meetings with the Vermont Natural Resources Conservation Council | 6 | 6 | 6 | 6 | 6 |
| | # meetings with Vermont Law school | 4 | 4 | 4 | 4 | 4 |
| | # law students involved in projects | 6-8 | 6-8 | 6-8 | 6-8 | 6-8 |

| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|--|-------------------------|--------|--------|--------|--------|--------|
| Sustainable Processing & Use of Wood Resources Project | # workshops presented | 2 | 2 | 2 | 2 | 2 |
| | # workshop participants | 100 | 100 | 100 | 100 | 100 |
| | # Fact sheets prepared | 3 | 3 | 3 | 3 | 3 |
| | # Listserve hits | 2000 | 2000 | 2000 | 2000 | 2000 |

| Programming Impact Measures: Ecosystem Management | | | | | | |
|--|---|----------------|---------------|---------------|---------------|---------------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Estate Planning | % participating families completing an estate plan within 1 year of training | 80 | 80 | 80 | 80 | 80 |
| | # acres affected by estate planning | 2000 | 2000 | 2000 | 2000 | 2000 |
| | Median Avg \$\$ saved due to estate planning | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 |
| Value-added Wood Products | Overall \$ increase in wood products industry sales | 250,000 | 250,000 | 250,000 | 250,000 | 250,000 |
| | Overall \$ reduction in wood products industry operating costs | 150,000 | 150,000 | 150,000 | 150,000 | 150,000 |
| | # wood products businesses reporting economic improvement | 50 | 50 | 50 | 50 | 50 |
| | # new wood products industry jobs created | 50 | 50 | 50 | 50 | 50 |
| | % listserv participants reporting reduction in information/education barriers | 75 | 75 | 75 | 75 | 75 |
| | # program participants adopting skill or behavioral changes | 75 | 75 | 75 | 75 | 75 |
| | # program participants adopting new marketing approaches | 75 | 75 | 75 | 75 | 75 |
| | # program participants adopting/improving skills in forest products management or wood utilization | 25 | 25 | 25 | | |
| | % participating businesses updating marketing practices to be more profitable | 55 | 55 | | | |
| | % program participants reporting economic improvement via new export markets, increased sales revenue | 10 | 20 | | | |
| | % woods products conference participants reporting improvement in marketing or manufacturing techniques | 50 | 50 | 40 | 40 | 40 |
| COVERTS | % landowners reached by COVERTS trained volunteers implement at least one recommended practice | 60 | 60 | 60 | 60 | 60 |
| | # Woodland acres improved as a results of COVERTS | 1,100 | 1,100 | 1,100 | 1,100 | 1,100 |
| Stumpage Data Reporting | # people using stumpage data for business decision making | 500 | 500 | 500 | 500 | 500 |
| Legal Aspects of Owning & Managing Woodlands | # people using at least one concept presented | 60 | 60 | 60 | 60 | 60 |
| | Avg \$ value savings by utilizing recommended concepts | 300 | 300 | 300 | 300 | 300 |
| Logger Education to Advance Professionalism | % loggers trained intending to use concepts presented | 75 | 75 | 75 | 75 | 75 |
| | Total # acres of forestland managed by trained loggers | 180,000 | 180,000 | 180,000 | 180,000 | 180,000 |
| 4-H Volunteer Leadership Training | # people trained intending to adopt one or more recommended practice on sustaining/protecting ecosystem diversity | 75 | 100 | 150 | 150 | 150 |
| | # people trained who actually adopt one or more recommended practice on sustaining/protecting ecosystem diversity | 35 | 50 | 75 | 75 | 75 |
| Aquaculture & Water Quality Education | # participating farmers adopting at least one recommended practice | 2 | 2 | 2 | 2 | 2 |
| | # participating farmers reporting economic improvements | 2 | 1 | 1 | 1 | 1 |
| | # pond-acres with improved water quality | 5 | 5 | 5 | 5 | 5 |
| Farming Practices to Enhance Water Quality | # participating farmers adopting proper management practices | 10 | 15 | 20 | 20 | 20 |
| | Avg \$ value increase in farm profits | 500 | 500 | 500 | 500 | 500 |
| | # participating farmers demonstrating changed behaviors | 10 | 15 | 20 | 20 | 20 |

| | | | | | | |
|--|--|--------|--------|--------|--------|--------|
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| | # acres of farmland with improved management practices | 2000 | 3000 | 3000 | 3000 | 3000 |

| Programming Impact Measures: Ecosystem Management (Continued) | | | | | | |
|--|--|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Vermont Forests | # persons demonstrating increased knowledge of Vermont forests | 500 | 500 | 200 | 150 | 75 |
| Sustainable Environment Project | # sustainable projects completed | 10 | 10 | 10 | 10 | 10 |
| Sustainable Processing & Use of Wood Resources Project | % participants adopting at least one recommended processing practice | 40 | 40 | 40 | 40 | 40 |

| Programming Objective: Water Quality | | | | | | |
|---|--------------------------------|--|----------|--|--------------------|---|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Water Quality | Comprehensive Public Education | Programs to familiarize target audiences with water quality education, analysis, treatment and management; mass media campaigns; individual consultations; & school curricula. | Mid | *Communities *Teachers/ Schools *Students/Youth *Homeowners *Water System Managers *Town Health Officers | | UVM School of Natural Resources UVM College of Education |

| Programming Output Measures: Water Quality | | | | | | |
|---|---|---------|--------|--------|--------|--------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Water Quality | # teachers and students reached through programming and information | 80 | 100 | 150 | 150 | 150 |
| | # homeowners reached through programming and information | 120 | 130 | 130 | 130 | 130 |
| | # town health officers trained | 35 | 35 | 35 | 35 | 35 |
| | # water system managers reached through programming and information | 10 | 10 | 10 | 10 | 10 |
| | # communities requesting local employee training | 5 | 5 | 5 | 5 | 5 |
| | # schools reached through programming and information | 4 | 8 | 12 | 12 | 12 |
| | # people completing educational programs on sustaining water and/or protecting the quality of surface and ground water supplies | 150 | 150 | 150 | 150 | 150 |
| | # press releases prepared | 2 | 2 | 2 | 2 | 2 |
| | # television shows produced | 1 | 1 | 1 | 1 | 1 |
| | # radio programs produced | 4 | 4 | 4 | 4 | 4 |

| Programming Impact Measures: Water Quality | | | | | | |
|---|---|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Water Quality | # homeowners with wells and on-site septic systems who utilize training | 120 | 130 | 130 | 130 | 130 |
| | # schools utilizing new water quality curriculum | 4 | 8 | 12 | 12 | 12 |
| | # town health officials adopting new skills resulting in fewer contaminated public and private water supplies | 4 | 5 | 5 | 5 | 5 |
| | # town health officials adopting new skills resulting in fewer failed septic systems | 10 | 10 | 10 | 10 | 10 |
| | # teachers and students indicating at least one recommended behavioral change due to training | 15 | 20 | 20 | 20 | 20 |
| | # town officials and town employees indicating at least one behavioral change due to training | 5 | 5 | 5 | 5 | 5 |
| | # homeowners making at least one behavioral change due to training | 35 | 40 | 40 | 40 | 40 |
| | # of local officials and individuals trained in water supply protection who adopt at least one new practice or policy | 40 | 45 | 45 | 45 | 45 |

| Programming Objective: Public Policy Education | | | | | | |
|---|----------|---|----------|-----------------|--------------------|----------------------|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Public Policy | | At this time, there are no public policy education efforts proposed by the Natural Resources and Environmental Management team. However, team members have articulated that public policy education is critical to the long-term quality of Vermont's natural environment and agricultural industry. Team members will continue to work to develop appropriate programming in this area and as specific activities are developed, revisions to this team's plan of work will be submitted for review. | | | | |

| Programming Output Measures: Public Policy | | | | | | |
|---|------------------------------|---------|--------|--------|--------|--------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Public Policy | Not applicable at this time. | | | | | |

| Programming Impact Measures: Public Policy | | | | | | |
|---|------------------------------|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Public Policy | Not applicable at this time. | | | | | |

| Programming Objective: Conflict Management | | | | | | |
|---|--------------------------|---|----------|--|--------------------|----------------------|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Conflict Management | Conflict Management Team | Provide training and participate in a multi-organization group to provide information on appropriate conflict management strategies | Long | *Vermont Conservation Partnership *Landowners *Resource Managers *Public and private resource organizations | KY | |

| Programming Output Measures: Conflict Management | | | | | | |
|---|---|---------|--------|--------|--------|--------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Conflict Management | # Conflict Management Team members trained | 18 | 18 | 18 | 18 | 18 |
| | # Conflict Management Team trainings | 2 | 2 | 2 | 2 | 2 |
| | # Organizations, agencies, citizens requesting and receiving conflict management training | 100 | 150 | 150 | 150 | 150 |
| | # Individuals reached by trained/counseled organizations, agencies, citizens | 200 | 300 | 300 | 300 | 300 |

| Programming Impact Measures: Conflict Management | | | | | | |
|---|--|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Conflict Management | # Conflict Management Team members, CMT clients reporting increased capacity to resolve conflicts | 70 | 100 | 100 | 100 | 100 |
| | # CMT clients reporting improved decision making ability | 70 | 100 | 100 | 100 | 100 |
| | # individuals reached by CMT trained clients reporting increased capacity to resolve conflicts | 100 | 150 | 150 | 150 | 150 |
| | # individuals reached by CMT trained clients reporting improved decision making ability | 100 | 150 | 150 | 150 | 150 |
| | # individuals trained or reached by CMT trained clients indicating at least one behavioral change as a result of training/consultation | 100 | 200 | 250 | 250 | 250 |

UVM Extension NREM Program Evaluation

NREM faculty and program staff will utilize a variety of program appropriate evaluation methods to assess the effectiveness and impact of their programming efforts. Methods may include, but not be limited to, mailed surveys, case studies, participant observation, and other systematic approaches yielding qualitative and quantitative data. The use of pre- and post-workshop evaluations will continue to be used to assess changes in participant knowledge levels, as well as participant intention to implement recommendations presented. In other evaluation efforts, case studies will provide detailed information on how communities have utilized Extension training and technical assistance to enhance Vermont's natural resources and environment--the quality of which is essential to the state's agriculture and tourism industry and citizen quality of life.

The NREM curriculum/program team has developed a five-year evaluation strategy that identifies when specific team priorities will be evaluated in a comprehensive manner. This evaluation schedule is shown below:

| Natural Resources & Environmental Management Curriculum/Program Team Evaluation Schedule (FY2000-FY2004) | | |
|---|--|-------------------------|
| Team Priority | Program | Fiscal Year |
| Ecosystem Management | Estate Planning | 2004 |
| | Value-added Wood Products | 2004 |
| | COVERTS | 2000 |
| | Stumpage Data Reporting | 2000 |
| | Legal Aspects of Owning & Managing Woodlands | 2004 |
| | Logger Education to Advance Professionalism | 2002 |
| | 4-H Volunteer Leadership Training | 2004 |
| | Aquaculture & Water Quality Education | 2000 |
| | Farming Practices to Enhance Water Quality | 2000 |
| | Vermont Forests | 2000 |
| | Sustainable Environment Project | 2000 |
| | Sustainable Processing & Use of Wood Resources Project | 2004 |
| | Water Quality | Water Quality Education |
| Conflict Management | Conflict Management Team | 2000, 2003 |

Natural Resources and Environmental Management Stakeholders

UVM Extension faculty and staff in natural resources and environmental management regularly consult with stakeholders to ensure that programming is appropriate and relevant to current Vermont resources issues. General program input is solicited from the NREM curriculum/program team Advisory group, the Water Resources and RREA Advisory Committees, and the Vermont Natural Resources Conservation Council. The State of Vermont Department of Forests, Parks and Recreation, as well as the Water Quality Division are also important linkages in developing and implementing collaborative programming. Information regarding NREM programming needs is also received from the UVM Extension State Advisory Council and Regional Advisory Councils. Specific program input (and volunteer involvement) is sought from numerous project advisory groups or steering committees which have been established to guide program planning, implementation and evaluation within the NREM curriculum. Finally, individual program participants, including resource managers, community leaders, homeowners, and educators are all important sources of information and feedback on programming needs, quality of programming delivery, and programming impact.

UVM Agricultural Experiment Station NREM Research

Research related to natural resource quality and environmental management will continue its focus on the impact of agriculture on the environment. UVM researchers are continuing to study mechanisms for treating water pollution and for controlling the movement of phosphorus and nitrogen from agricultural land to Vermont's surface waters. Additional research will analyze the impact of human use on forestland ecology. For example, one recently funded study will evaluate the effects of roads on the flora and fauna of a large forested ecosystem.

Researchers at the University of Vermont have been developing integrated pest management (IPM) strategies to reduce the need for chemical interventions in the green house environment. Researchers have identified several strains of insect-killing fungi that are compatible with several biorational insecticides, insecticidal soaps, and other insect growth regulators. In addition researchers are evaluating the effectiveness of several fungi application strategies. Results in this area will help growers reduce their reliance on chemical interventions, thereby reducing costs and worker contact with potentially toxic insecticides in the greenhouse environment.

The table below describes the natural resources and environmental management research that has been approved and/or funded through the Vermont Agricultural Experiment Station's competitive Hatch process. Successful Hatch proposals may be awarded funding for up to three years.

| Vermont Agricultural Experiment Station Competitively Approved/Funded Research in Natural Resources & Environmental Management | | | |
|---|-------------------------------|--|--|
| Research Title | Current Award Duration | Target Audience or Commodity | Extension Linkages |
| Impacts of roads on the sustainability of Northern Forest lands | Short | *Policy makers *Nonprofit organizations * Environmental organizations | * Logger Education to Advance Professionalism * Extension forestry/wood products specialists |
| Soil factors influencing phosphorus availability to plants and concentration in runoff | Short | * Dairy producers * Environmental managers * Policy makers | * Extension dairy specialists * Extension crop management specialists * UVM Center for Sustainable Agriculture |
| Water Quality Restoration of Dairy Products Wastewater by Attached Algae | Short | * Dairy producers * Environmental managers * Policy makers | |
| Factors affecting efficacy of mycopathogens in greenhouse pest management | Mid | * Greenhouse ornamental growers * Fruit & vegetable growers | * Master Gardener Program * UVM Center for Sustainable Agriculture |
| Management of tarnished plant bug with entomopathogenic Fungi | Mid | * Greenhouse ornamental growers * Fruit & vegetable growers | * Master Gardener Program * UVM Center for Sustainable Agriculture |
| Assessing Nitrogen Transformation & Export in two contrasting forested watersheds | Short | * Policy makers * Environmental managers * Agricultural producers * Woodland managers | * Logger Education to Advance Professionalism * Extension forestry/wood products specialists |

UVM Extension and Agricultural Experiment Station Resource Allocation

Human Resources (Natural Resources and Environmental Quality)

| Goal 4: Natural Resources | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|-------------------------------------|--------|--------|--------|--------|--------|
| Extension: Professional FTEs | 5.4 | 5.4 | 5.4 | 5.4 | 5.4 |
| Extension: Paraprofessional FTEs | | | | | |
| Research: Professional Days | 1.78 | 1.78 | 1.78 | 1.78 | 1.78 |
| Research: Paraprofessional Days | 1.125 | 1.125 | 1.125 | 1.125 | 1.125 |

Fiscal Resources

| Goal 4: Natural Resources | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|----------------------------------|---------|---------|---------|---------|---------|---------|
| Extension Dollars | Federal | 154,194 | 154,194 | 154,194 | 154,194 | 154,194 |
| | State | 154,194 | 154,194 | 154,194 | 154,194 | 154,194 |
| | Total | 308,388 | 308,388 | 308,388 | 308,388 | 308,388 |
| Research Dollars | Federal | 194,049 | 194,049 | 194,049 | 194,049 | 194,049 |
| | State | 128,696 | 128,696 | 128,696 | 128,696 | 128,696 |
| | Total | 322,745 | 322,745 | 322,745 | 322,745 | 322,745 |

National Goal Area 5: Enhanced economic opportunity and quality of life for Americans.

UVM Extension Curriculum/Program Team: Family and Community Resources & Economic Development (FCRED)

Studies indicate a number of problems ranging from declining levels of voter participation and public apathy toward elections to decreasing interest in volunteer activities and community groups. They also document the younger generation's apparent disinterest in public affairs and lack of knowledge about our political system. Robert Putnam has quantified this civic disengagement, documenting a 25-30 year decline in membership in civic-oriented organizations. Change is inevitable. For many Rural Vermont communities, the type of change during the last 15 to 20 years was not favorable. While jobs based on land and natural resources declined, the cost of living in rural areas increased. Rural communities that have survived and prospered have some things in common. In these towns, local efforts are fueled by a positive attitude and guided by a shared vision for the future. They promote open discussion of community needs, opportunities, and ideas in a non-judgmental atmosphere that leads to inclusive decision-making.

The Vermont State Strengthening federally funded project entitled, "Expanding the Caring Community," focuses on eleven target communities. Five of these are new to this project and six target communities continue to receive support after going off federal funding as the Vermont Youth at Risk project entitled, "Enhancing Community Awareness." UVM Extension works with community leaders to establish a shared vision for the future of Children, Youth and Families. Through open discussion of the current reality against this vision, opportunities and ideas are shared in a non-judgmental atmosphere leading to inclusive decision-making. Community Steering Committees provide leadership for assessment, program initiation/expansion and evaluation working with Extension staff. Targeted youth and families receive concentrated programming in life skills to enhance their success as active productive community participants.

Vermont 4-H focuses on building the capacity of youth to actively engage in their communities in areas relating to agriculture, volunteerism, leadership, natural resources, and nutrition. The learning of life skills helps youth create and take advantage of opportunities and solve problems in a diverse and changing society. 4-H trains adult leaders, (in roles of program committee members, short-term program volunteers, camp and county foundation trustees) to facilitate learning experiences that contribute to positive youth development. These volunteers directly or indirectly affect the learning experiences of more than 2000 Vermont youth.

Strong families contribute to positive individual development and quality communities. Education, highlighting communication skills and decision-making tools, empowers individuals and families to apply practices that result in increased capacity and enhanced well-being. Family and community related research can provide a strong knowledge base for educating parents, consumers, children and youth, policy-makers, agencies and organizations.

New and innovative tools for assisting communities and entrepreneurs with marketing strategies are emerging from the academic activities of faculty and students. Providing testing sites in Vermont communities for this research is an effective learning opportunity for students, teachers and community members. Vermonters, including businesspeople, state agency personnel and others have found that collaborations can be the key to success in building new export markets. Education through workshops, newsletters and consultations provides the opportunity to expand sales and to create cooperative ventures.

The Family & Community Resources & Economic Development Curriculum will be designed to empower people and communities, through research-based information and education, to address the economic and social challenges facing our youth, families, and communities. The three goals include civic capacity, family life education, and community and economic development.

Extension Family and Community Resources and Economic Development (FCRED) Team priorities

Mission: "To increase the capacity of communities, families, and individuals to improve their own quality of life and enhance their own economic development."

Extension Family and Community Resources and Economic Development Programs

Increasing the capacity of communities, families and individuals to improve their own quality of life and building the capacity to pursue economic development continue to be the guiding goals of UVM Extension's Family and Community Resources and Economic Development team. Extension specialists' efforts will continue to support the following programmatic thrusts: civic capacity building; parent education; life skills development; responding to welfare reform; financial management; and entrepreneurship.

As a small, rural state, Vermont relies heavily on citizen volunteers to serve on boards and commissions in communities where few resources are available. Through statewide workshops, conferences and seminars, Extension community specialists will continue to reach more than 3,000 of Vermont's 10,000 town officials annually with the latest relevant information essential in conducting municipal duties. UVM Extension is seeking funds to continue and expand its activities to connect rural community town offices to the Internet. More than 80 Vermont communities are receiving ongoing technical assistance to communicate and share resources using the worldwide web.

Increasing civic disengagement, a national trend characterized by lower voter participation and declining volunteerism, is particularly troubling for rural communities that are dependent on large numbers of volunteers. UVM Extension will continue to collaborate with state agencies and other organizations to develop and implement leadership training activities geared to support local community involvement.

Extension programs related to building the capacity of families will continue to focus on programs for both parents and youth. As families undergo change either through divorce, economic misfortune, or just the nature of children growing older, parents need access to additional educational resources. Specific programs will focus on

active parenting, helping children cope with divorce or separation, and financial information for changing economic situations.

4-H will continue to be one of the most active and visible Extension programs for youth. It is estimated that Vermont 4-H activities will reach 8,000 youth and 800 adult volunteers annually in Vermont. With the addition of six new educator positions and a commitment to expanding local programming, it is anticipated that 4-H activities will increase. UVM Extension also will continue to offer training for many of the adult volunteers that support 4-H efforts including club, community service and camping activities.

In its response to welfare reform issues, UVM Extension will expand and support programs that facilitate entry or re-entry into the job market for Vermont adults. In particular, as the number of welfare recipients continues to decline, Extension anticipates an increasing need for life skills/employability education and workplace mentor programs. Other economic-based programs will address increasing individual financial management skills and entrepreneurial opportunities.

Civic Capacity - Build the civic capacity of local officials, citizens, community volunteers and youth by providing strategies & tools to effectively engage people in public work through a variety of programs.

Family Life Education - Improve the family environment by offering education programs to parents, teachers, train-the-trainer volunteers and community leaders to help families deal with communication issues, child rearing concepts, financial management, and time management.

Community and Economic Development - Create healthy communities by improving the ability of individuals, families and community leaders to make and implement effective social, environmental, and economic decisions.

UVM Extension FCRED Programs and Activities

| Programming Objective: Civic Capacity Building | | | | | | |
|---|---|---|-----------------|---|---------------------------|---|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Community Planning and Development | Take Charge ReCharge | Four 12-hour community needs assessments | Long | *Communities *Citizens *Volunteers *Local leaders | NH ME | UVM Dept. of Community Development & Applied Economics UVM Dept. of Plant & Soil Science UVM Center for Rural Studies |
| Leadership Education | Stewardship of the Urban Landscape | 35-hour leadership & stewardship program | Mid | *Communities *Citizens *Volunteers *Local leaders | | |
| | 4-H Leadership Training | 12-hour leadership training plus 4-hour modules delivered in each of 4 regions | Mid | *Adult volunteers *Camp counselors | | |
| | Building Collaborations | *Training based on materials from the National Network for Collaboration (Children, Youth & Families) | Mid | *Adults *Volunteers | OH FL | UVM Center for Rural Studies |
| | H2O Quality Survival Series | Train teachers in innovative ways to teach water quality education to enhance student learning | Mid | *Youth *Adult Educators *Volunteers | | |
| | Life Skills Education | Model curriculum developed and piloted to 10 adults and 200 children | Mid | *Adult volunteers *Children | | |
| | Community Involvement Project | Workshop & ongoing consultations to help communities upgrade tree stewardship services | Mid | *Communities *Citizens *Volunteers *Local leaders | NH | |
| | 4-H Camp Board Development & Counselor Training | Workshop for 20 camp directors and board members & 60 camp counselors | Mid | *Adult volunteers *Camp directors *Camp board members *Camp Counselors | | |
| | Volunteer Leadership Field Work | Workshop and follow up consultations for 50 adults to practice leadership skills in 4-H Clubs | Mid | *Adult volunteers | | |

| | | | | | | |
|--|-------------------------|--|------|---|--|------------------------------|
| | Town Government Program | Municipal Officers Management Seminars | Long | *Local Officials *Citizen Volunteers | | UVM Center for Rural Studies |
| | | Town Officers Educational Seminars | Long | *Local Officials *Citizen Volunteers | | UVM Center for Rural Studies |

| Programming Objective: Civic Capacity Building (Continued) | | | | | | |
|---|-------------------------|---|-----------------|---|---------------------------|-----------------------------|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Leadership Education (Continued) | Town Government Program | Board of Civil Authority Training | Long | *Local Officials *Citizen Volunteers | | |
| | | VT Institute for Government Fact Sheet Series | Short | *Local Officials *Citizen Volunteers | | |

| Programming Output Measures: Civic Capacity | | | | | | |
|--|---|----------------|---------------|---------------|---------------|---------------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Community Planning and Development | # Take Charge communities | 2 | 2 | 2 | 2 | 2 |
| | # Take Charge participants | 50-75 | 50-75 | 50-75 | 50-75 | 50-75 |
| | # People Involved in Take Charge projects | 10 | 10 | 10 | 10 | 10 |
| | # ReCharge communities | 2 | 2 | 2 | 2 | 2 |
| | # ReCharge participants | 50-75 | 50-75 | 50-75 | 50-75 | 50-75 |
| Leadership Education | # People Involved in ReCharge projects | 10 | 10 | 10 | 10 | 10 |
| | # Stewardship of Our Urban Landscape (SOUL) Workshops | 1 | 1 | 1 | 1 | |
| | # SOUL Participants | 25 | 25 | 25 | 25 | |
| | # 4-H leadership training programs | 12 | 12 | 12 | 12 | 12 |
| | # \$-H Leaders trained | 120 | 120 | 120 | 120 | 120 |
| | # 4-H Teen Congress participants | 100 | 100 | 100 | 100 | 100 |
| | # New England 4-H Teen Congress participants | 10 | 10 | 10 | 10 | 10 |
| | # Citizen Washington Focus participants | 25 | 25 | 25 | 25 | 25 |
| | # Youth participants in 4-H State Day | 600 | 600 | 600 | 600 | 600 |
| | # Day at the Capitol participants | 60 | 60 | 60 | 60 | 60 |
| | # Host families participating in 4-H Japan exchange program | 15 | 15 | 15 | 15 | 15 |
| | # Trained 4-H Foundation board members | 16 | 16 | 16 | 16 | 16 |
| | # Presentations on Building Collaborations | 2 | 2 | 2 | 2 | 2 |
| | # Building Collaborations participants | 50 | 50 | 50 | 50 | 50 |
| | # Leadership for Water Quality Survival workshops | 2 | 2 | | | |
| | # Water Quality Survival workshops participants | 10 | 10 | | | |
| | # Youth reached by Water Quality Survival trained volunteers | 200 | 200 | | | |
| | # 4-H Life Skills Education Trainings | 4 | 4 | 4 | 4 | 4 |
| | # Trained 4-H Life Skills Educators | 40 | 45 | 50 | 55 | 60 |
| | # Youth reached by 4-H leaders trained in Life Skills Education | 300 | 450 | 500 | 550 | 600 |
| | # Community Involvement Project Workshops | 2 | 2 | 2 | 2 | 2 |
| | # Community Involvement Project consultations with communities | 8 | 8 | 8 | 8 | 8 |
| | # 4-H Camp Board and Counselor trainings | 4 | 4 | 4 | 4 | 4 |
| | # 4-H Board members trained | 20 | 20 | 20 | 20 | 20 |
| | # 4-H Camp counselors trained | 60 | 60 | 60 | 60 | 60 |
| | # Camp youth reached by trained volunteers | 1900 | 1900 | 1900 | 1900 | 1900 |
| | # 4-H Board/Camp counselor newsletters | 2 | 2 | 2 | 2 | 2 |
| | # Circulation of 4-H Board/Camp counselor newsletters | 80 | 80 | 80 | 80 | 80 |
| | # 4-H Leadership Field Work Orientation & ongoing consultations | 1 | 1 | 1 | 1 | 1 |
| # 4-H Field Work participants oriented | 50 | 50 | 50 | 50 | 50 | |
| # Youth reached by Field Work trained 4-H leaders | 250 | 250 | 250 | 250 | 250 | |
| # New 4-H clubs/projects started | 10 | 10 | 12 | 12 | 15 | |
| # 4-H Activities/events planned by volunteers | 20 | 30 | 30 | 40 | 40 | |
| # New 4-H leaders oriented/trained | 30 | 30 | 30 | 40 | 40 | |
| # Municipal Officer Management Seminars (MOMS) | 4 | 4 | 4 | 4 | 4 | |
| # MOMS attendees | 800 | 800 | 800 | 800 | 800 | |
| # Town Officer Educational Conferences (TOEC) | 5 | 5 | 5 | 5 | 5 | |
| # Board of Civil Authority Trainings (BCA) | 1 | 1 | 1 | 1 | 1 | |
| # BCA attendees | 60 | 60 | 60 | 60 | 60 | |

| Programming Impact Measures: Civic Capacity Building | | | | | | |
|---|--|----------------|---------------|---------------|---------------|---------------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Community Planning and Development | # Take Charge Community Projects | 2 | 2 | 2 | 2 | 2 |
| | \$ Value of Take Charge Volunteer Time | 9600 | 9600 | 9600 | 9600 | 9600 |
| | \$ Value Take Charge Project Funds Raised | 3000 | 3000 | 3000 | 3000 | 3000 |
| | # ReCharge Community Projects | 2 | 2 | 2 | 2 | 2 |
| | \$ Value of ReCharge Volunteer Time | 9600 | 9600 | 9600 | 9600 | 9600 |
| Leadership Training | \$ Value ReCharge Project Funds Raised | 3000 | 3000 | 3000 | 3000 | 3000 |
| | # SOUL Community Projects initiated | 5-7 | 5-7 | 5-7 | 5-7 | 5-7 |
| | # SOUL project trees planted | 12 | 12 | 12 | 12 | 12 |
| | % 4-H trained leaders retained at least 3 years | 20 | 20 | 20 | 20 | 20 |
| | \$ Value of 4-H leader volunteer time | 57600 | 57600 | 57600 | 57600 | 57600 |
| | \$ Value of Teen Congress volunteer time | 32000 | 32000 | 32000 | 32000 | 32000 |
| | \$ Value of 4-H New England Teen Congress volunteer time | 3200 | 3200 | 3200 | 3200 | 3200 |
| | % Citizen Washington Focus participants completing community leadership/citizenship projects | 20 | 20 | 20 | 20 | 20 |
| | % 4-H State Day participants reporting positive public speaking experience | 50 | 50 | 50 | 50 | 50 |
| | % Day at the Capitol participants adopting citizenship practice at local level | 20 | 20 | 20 | 20 | 20 |
| | % 4-H Japan exchange host families reporting greater appreciation of cultural diversity | 60 | 60 | 60 | 60 | 60 |
| | \$ Value of 4-H Japan host family participation | 216,000 | 216,000 | 216,000 | 216,000 | 216,000 |
| | \$ Value of 4-H Foundation Board member participation | 7,200 | 7,200 | 7,200 | 7,200 | 7,200 |
| | \$ Value of funds raised by 4-H Foundation Board members | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 |
| | % Building Collaborations participants intend to use collaboration framework | 80 | 80 | 80 | 80 | 80 |
| | \$ Value of 4-H Camp Scholarships/Donations | 20,000 | 25,000 | 30,000 | 30,000 | 30,000 |
| | % Water Quality Survival skills participants intend to use training | 80 | 80 | | | |
| | # 4-H leaders using life skills education | 30 | 34 | 38 | 41 | 45 |
| | % of 4-H leaders adopting at least one recommended life skills behavior change | 75 | 75 | 75 | 75 | 75 |
| | % 4-H Life Skills Educator trainees initiate programs | | | | | |
| \$ raised by volunteers to support 4-H | 6000 | 6500 | 7000 | 7500 | 8000 | |
| \$ value of volunteer time | | | | | | |
| % 4-H youth in which life skills development is observed | 50 | 50 | 50 | 50 | 50 | |
| # 4-H projects to enhance the environment | 4 | 4 | 4 | 4 | 4 | |
| # Community Involvement Project Tree Stewardship Project initiated | 8 | 8 | 8 | 8 | 8 | |
| # Community Involvement Project communities demonstrating improved capacity to deal with tree issues/projects | 10 | 10 | 10 | 10 | 10 | |
| % MOMS participants intend to use training | 50 | 50 | 50 | 50 | 50 | |
| % TOEC participants intend to use training | 50 | 50 | 50 | 50 | 50 | |
| % BCA participants intend to use training | 50 | 50 | 50 | 50 | 50 | |

| Programming Objective: Family Life Education | | | | | | |
|--|--|--|-----------------|--|---------------------------|---|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Parent Education | Children Cope with Separation & Divorce (COPE) | 4-hour court mandated training for divorcing parents | Long | Volunteer trainers Divorcing parents | | UVM School of Education |
| | Active Parenting | Training volunteer instructors to teach 12-hour program on parenting, positive discipline | Short | Volunteer trainers Parents Teens Children | KS | |
| | Marriage & Couple Education | Training volunteer instructors to teach 4-hour relationship education program | Mid | Volunteer trainers Adults Couples | WY, TX, KS, MN | |
| | Bowen Family Systems Research | 5 workshops on improving family dynamics, communications skills | Short | Adults Parents Teens | | Vermont Center for Family Studies Georgetown Family Center |
| State Strengthening Project/ Expanding the Caring Community | After school programs for youth & adult volunteers. Linking Extension professionals with diverse, underserved audiences. | Youth program teaching life skills & community volunteerism | Short | Adult volunteers Youth Communities Agencies & Organizations | IA, ID, NC | UVM Center for Rural Studies |
| Financial & Time Management Education | High School Financial Planning | Train HS educators to teach financial planning | Long | Educators Students | All 50 states | |
| | VT Money 2000 Plus | Money management training | Mid | Adults | NY, NJ, SC, UT, MI, WI | |
| | Babysitting Safety Program | Youth safety training, financial management program | Mid | Youth | | |
| | Brattleboro Mentoring Program | Training volunteer mentors to coach adults in transition to employment | Mid | Adult volunteers Adults | KS | |
| | Getting Ready to Work | Training program to assist limited resource adults transitioning from welfare to the workforce | Short | Adult volunteers Adults | | |
| | Life Skills Education | Workshops on how to teach life skills education to youth | Long | Adult volunteers Educators Youth | | |

| Programming Output Measures: Family Life Education | | | | | | |
|---|---|----------------|---------------|---------------|---------------|---------------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Parent Education | # COPE trainings | 2 | 2 | 2 | 2 | 2 |
| | # COPE trained volunteers | 24 | 24 | 24 | 24 | 24 |
| | # COPE seminars | 211 | 211 | 211 | 211 | 211 |
| | # COPE program participants | 2400 | 2400 | 2400 | 2400 | 2400 |
| | # Marriage/Couples workshops | 1 | | | | |
| | # Marriage/Couples participants | 20 | | | | |
| | # Marriage/Couples volunteers | 10 | | | | |
| | # Active Parenting workshop series | 2 | | | | |
| | # Active Parenting trained volunteers | 6 | | | | |
| | # Active Parenting program participants | 48 | | | | |
| | # Bowen Family Systems workshops | 5 | | | | |
| | # Bowen Family Systems program participants | 20 | | | | |
| | # Bowen Family Systems research families | 100 | | | | |
| State Strengthening Project/Expanding the Caring Community | # Communities involved | 11 | 11 | | | |
| | # Extension faculty/staff working with children, youth and families at risk | 25 | 25 | | | |
| | # Youth reached through after-school programs | 750 | 750 | | | |
| | # Adult & teen volunteers | 280 | 280 | | | |
| Financial & Time Management Education | # Babysitting Safety, Financial Management Workshops | 5 | 5 | 5 | 5 | 5 |
| | # Babysitting Safety... adult volunteers trained | 5-10 | 5-10 | 5-10 | 5-10 | 5-10 |
| | # Babysitting Safety... youth participants | 100 | 10 | 100 | 100 | 100 |
| | # Getting Ready to Work trainer workshops | 1 | | | | |
| | # Getting Ready to Work trained volunteers | 10 | | | | |
| | # Getting Ready to Work program participants | 10 | | | | |
| | # High School Financial Planning trained educators | 45 | 45 | 45 | 45 | 45 |
| | # High School Financial Planning youth reached by trained educators | 1500 | 1500 | 1500 | 1500 | 1500 |
| | # VT Money 2000 (M2K) Plus program participants | 61 | 61 | 61 | | |

| Programming Impact Measures: Family Life Education | | | | | | |
|---|---|----------------|---------------|---------------|---------------|---------------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Parent Education | % COPE trained Volunteers facilitating program | 100 | 100 | 100 | 100 | 100 |
| | % COPE program participants intend to use information presented | 80 | 80 | 80 | 80 | 80 |
| | % Marriage/Couples program participants intend to use information presented | 80 | | | | |
| | % Active Parenting trained volunteers facilitate program | 90 | | | | |
| | % Active Parenting participants intend to use materials presented | 80 | | | | |
| | % Bowen Family Systems participants that will change one or more parenting behavior | 60 | | | | |
| | % Bowen Family Systems participants that will report improved family dynamics | 50 | | | | |
| State Strengthening Project/Expanding the Caring Community | \$ Value volunteer time | 70,000 | 70,000 | | | |
| | \$ Value community matching funds | 45,000 | 45,000 | | | |
| | % students demonstrating improved academic performance | 50 | 50 | | | |
| | % students demonstrating increased self-esteem | 50 | 50 | | | |
| | % students exhibiting at least one positive behavioral change | 50 | 50 | | | |
| | % Extension faculty engaging diverse, underserved audiences at least monthly | 75 | 75 | | | |
| | # Babysitting Safety youth participants intend to use information presented | 80 | 80 | 80 | 80 | 80 |
| Financial & Time Management Education | % (Avg) Increase in youth safety understanding | 50 | 50 | 50 | 50 | 50 |
| | % Getting Ready to Work trained volunteers implement program | 100 | | | | |
| | % Getting Ready to Work participants intend to use information presented | 80 | | | | |
| | % (Avg) Reduction in unplanned expenses of Getting Ready to Work participants | 10 | | | | |
| | % (Avg) Reported improvement in financial control of Getting Ready to Work participants | 50 | | | | |
| | % (Avg) Reported improvement in time use control of Getting Ready to Work participants | 50 | | | | |
| | \$ Value of total net savings of M2K participants | 8,330 | 8,330 | 8,330 | | |
| | \$ Value of total net debt reduction of M2K participants | 19,200 | 19,200 | 19,200 | | |

| Programming Objective: Community & Economic Development | | | | | | |
|--|------------------------------------|--|-----------------|---|---------------------------|---|
| Program | Activity | Description | Duration | Target Audience | Cooperating States | Research Connections |
| Workforce & Business Decision Making Education | Community Business Matching | Assist communities in systematically identifying potential new local businesses | Short | Local leaders Citizens Small businesses | RI | |
| | International Trade Education | Marketing/Export counseling for Vermont businesses interested in international trade | Short | Small businesses | | UVM Depts. of Community Development & Applied Economics, Plant & Soil Science, Animal Science |
| | Workforce Preparedness Starter Kit | Develop youth entrepreneurship curriculum & starter kit for youth 11-13 | Short | Youth Educators | All New England states | UVM Dept. of Community Development & Applied Economics |
| | 4-H Gardening Program | Train adult volunteers to offer gardening programs to 4-H club members | Long | Youth Adult volunteers | | |
| | Women's Agricultural Network | Workshops, training, one-on-one counseling to individuals interested in starting or expanding an agricultural-related business | Short | Adults Women | All New England states | UVM Depts. Of Community Development & Applied Economics, Plant & Soil Science UVM Center for Rural Studies |
| | Life Skills Education | Workshops & presentations on how to teach workforce & business life skills to youth | Short | Educators Youth | | |

| Programming Output Measures: Community & Economic Development | | | | | | |
|--|---|----------------|---------------|---------------|---------------|---------------|
| Program | Output Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Workforce & Business Decision Making Education | # Town/Project managers trained in Community Business Matching | 50 | | | | |
| | # International Trade Education workshops | 6 | | | | |
| | # International Trade Education workshop participants | 230 | | | | |
| | # Electronic Exporting/Trade listservs developed and maintained | 2 | | | | |
| | # International newsletter exporting articles | 12 | | | | |
| | # Workforce Preparedness Starter Kits delivered to youth | 15 | | | | |
| | # 4-H Gardening program workshops | 2 | 2 | 2 | 2 | 2 |
| | # 4-H Gardening Program adult volunteers | 20 | 20 | 20 | 20 | 20 |
| | # 4-H Gardening Program youth participants | 120 | 120 | 120 | 120 | 120 |
| | # 4-H Gardening Program youth participants exhibiting at fairs | 20 | 20 | 20 | 20 | 20 |
| | # Women's Agricultural Network (WagN) workshops | 1 | | | | |
| | # WagN participants | 25 | | | | |
| | # Life Skills Education workshops | 4 | | | | |

| | | | | | | |
|--|--|--------|--------|--------|--------|--------|
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| | # Life Skills Education trained volunteers | 50 | | | | |
| | # Youth reached with Life Skills Education | 80 | | | | |

| Programming Impact Measures: Community & Economic Development | | | | | | |
|--|--|---------|--------|--------|--------|--------|
| Program | Impact Measures | Targets | | | | |
| | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
| Workforce & Business Decision Making Education | # New businesses started as a result of Community Business Matching | 10 | | | | |
| | % Community Business Matching participants use new tools to make decisions | 10 | | | | |
| | % Avg Increase in Export sales by International Trade Education participants | 10 | | | | |
| | % Workforce Preparedness Starter Kit recipients intending to utilize information | 80 | | | | |
| | % Workforce Preparedness Starter Kit recipients establishing an enterprise within one year | 20 | | | | |
| | % of 4-H Gardening Program participants demonstrating an increased understanding of home gardening | 80 | 80 | 80 | 80 | 80 |
| | % of 4-H Gardening Program participants demonstrating an increased understanding of water quality issues | 80 | 80 | 80 | 80 | 80 |
| | \$ Avg weekly Value of home gardening produce | 15 | 15 | 15 | 15 | 15 |
| | # Women's Agricultural Network participants starting/expanding a business | 10 | | | | |
| | % Life Skills Education trained volunteers intend to use training | 100 | | | | |
| | % Volunteers demonstrating increased knowledge of life skills education for youth | 75 | | | | |
| | % Youth reached by Life Skills Educators intend to use information learned | 75 | | | | |

UVM Extension FCRED program evaluation

FCRED faculty and program staff will utilize a variety of program appropriate evaluation methods to assess the effectiveness and impact of their programming efforts. The use of pre- and post-workshop evaluations will continue to be used to assess changes in participant knowledge levels, as well as participant intention to implement recommendations presented. In other evaluation efforts, case studies will provide detailed information on how communities have utilized Extension training and technical assistance to enhance the quality of life of families, community organization and infrastructure, as well as local economic enterprises.

Programs that are linked to national CSREES initiatives will continue to cooperate with national evaluation efforts. For example, Vermont 4-H is in the process of participating in the National 4-H impact assessment study. Results of this evaluation will help strengthen 4-H programming throughout the state. Vermont's State Strengthening/Expanding the Caring Community program will continue to assess its effectiveness and impact through the expertise provided by on-campus research collaborators. Results of this evaluation will help to guide programming development and implementation to effectively reach and empower Vermont's families and

communities with the resources and skills to achieve and maintain a quality of life that is safe, productive, healthy, and fulfilling.

The FCRED team has developed a five-year evaluation strategy that identifies when specific team priorities will be evaluated in a comprehensive manner. This evaluation schedule is shown below:

| FCRED Team Evaluation Schedule (FY2000-FY2004) | | |
|---|---|--------------------|
| Team Priority | Program | Fiscal Year |
| Civic Capacity | Community Planning & Development | 2004 |
| | Leadership Education | 2003 |
| | Town Government Program | 2002 |
| Family Life Education | Parent Education | 2001 |
| | State Strengthening/ Expanding the Caring Community | 2000 |
| | Financial and Time Management | 2001 |
| Community & Economic Development | Workforce & Business Decisionmaking Education | 2002 |

FCRED Stakeholders

The Family & Community Resources & Economic Development Curriculum Team works with a ten member Advisory Council. The Council members have varied backgrounds and bring a diverse perspective to discussions and decision-making. The Council meets twice a year and additionally receives appropriate information by mail and telephone. Each year they have provided advise related to programs and helped to set priorities for the team.

The process used to set priorities begins with the Advisors establishing and weighting criteria to evaluate Extension education programs. For the FY2000 to FY2004 program, seven Advisors participated in the process. They rated the criteria as follows:

| | |
|-------------------------------------|-------|
| Potential impact | .198 |
| Resource availability/accessibility | .170 |
| Diverse audiences | .166 |
| Program innovation | .166 |
| Customer demand | .162 |
| Collaboration potential | .138 |
| Total: | 1.000 |

The Advisors also rated each program objective based on its potential for meeting the criteria. Those results were then tallied using the weighted criteria. The overall weighted ratings follow:

| | |
|----------------------------------|-------|
| Family Life Education | 58.71 |
| Civic Capacity | 56.98 |
| Community & Economic Development | 54.26 |

Interestingly, the non-weighted ratings were similar:

| | |
|-----------------------|-------|
| Family Life Education | 50.14 |
| Civic Capacity | 48.57 |

Advisors provide support and feedback in a variety of ways. One member (a banker) was not only supportive of the Take Charge and ReCharge program when it was conducted in his community; but he also shared the results of that program opportunity at a statewide dissemination conference in April of 1998. Another member (a consultant) taught a class on grant writing for one of the leadership programs. Another member (a retired educator) is also on the Board of Directors for the Vermont Institute for Government, which provides expertise and financial resources to support aspects of the town government program. The team also has a representative from the Department of Education, who has been able to provide linkages with Vermont's relatively new "Framework of Standards and Learning Opportunities" and the 4-H Life Skills program. Each member brings resources in one form or another to the Family & Community Resources & Economic Development program.

UVM Agricultural Experiment Station FCRED Research

Research in community and family resources will continue to focus on creating economic development opportunities for rural communities. In addition to conducting a variety of business and product marketing studies, University of Vermont faculty are analyzing effective rural development strategies that optimize community-business matches. This particular research is significant in that its approach includes community involvement both in quantifying assets and goals for economic development, and in determining best short- and long-term strategies.

Quality of life research will continue to address factors influencing family and individual economics including the co-residence of elders with adult children. In cooperation with the Vermont Department of Aging and Disabilities, new research is being initiated in building quality community-based long-term care systems for disabled adults and elder citizens. Additional research is analyzing those factors affecting drug use among rural youth. Results of these studies will provide valuable insight in the development of specific programs and public policies that impact all aspects of communities.

Other noteworthy research includes multi-disciplinary collaborations connecting agricultural production and marketing with economic development expertise. Faculty are working together to assess federal dairy policy and price transmission in the New England and U.S. dairy markets. Other researchers are conducting an economic analysis of wholesale versus market diversified apple orchards in Vermont. Results of these and other research collaborations will provide useful information to producers and consumers alike, as the Vermont agricultural industry addresses the many challenges of an increasingly global world market place.

The table below describes the community and economic development research that has been approved and/or funded through the Vermont Agricultural Experiment Station's competitive Hatch process. Successful Hatch proposals may be approved and awarded funding for up to three years.

| Vermont Agricultural Experiment Station Competitively Approved/Funded Research in Community and Economic Development | | | |
|---|-------------------------------|--|---|
| Research Title | Current Award Duration | Target Audience or Commodity | Extension Linkages |
| Study on the contribution, linkages of agriculture, & tax policy impacts on the tourism industry in Vermont | Mid | * Policy makers * Local leaders * Tourism-based businesses | * Vermont tourism industry conference |
| Economic analysis of wholesale vs. market diversified apple farms in Vermont | Short | *Apple producers | * UVM Apple Team * Virtual Orchard website |
| Building quality community based long term care systems | Mid | * Policy makers * Local leaders * Long-term care providers | |
| Census 2000 in Vermont, an economic and demographic trend analysis | Short | * Policy makers * Communities * Local leaders * Citizens * Nonprofit organizations | * ExtensionTake Charge & ReCharge programs * Extension Local Government Programs |
| Impact of the Seal of Quality and Vermont Makes it Special Labels on Buyer Behavior | Short | * Policy makers * Dairy producers * Dairy processors | |
| Effective Rural Development Strategies that Optimize Community-Business Matches | Short | * Local leaders * Small business operators * Entrepreneurs * Policy makers | * Extension Community Business Match program * Extension community development specialists |
| Growing Rural Entrepreneurs: Nontraditional Trade and Rural Community Development | Short | | * Women in Agriculture Network * UVM Center for Sustainable Agriculture |
| Potential Opportunities of Producing & Marketing High Quality Milk | Short | * Policy makers * Dairy producers * Dairy processors | |

UVM Extension and Agricultural Experiment Station Resource Allocation

Human Resources

| Goal 5: Economic Opportunity | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|-------------------------------------|--------|--------|--------|--------|--------|
| Extension: Professional FTEs | 11.52 | 11.52 | 11.52 | 11.52 | 11.52 |
| Extension: Paraprofessional FTEs | 6.0 | 6.0 | 6.0 | 6.0 | 6.0 |
| Research: Professional FTEs | 2.28 | 2.28 | 2.28 | 2.28 | 2.28 |
| Research: Paraprofessional FTEs | 1.5 | 1.5 | 1.5 | 1.5 | 1.5 |

Fiscal Resources

| Goal 5: Economic Opportunity | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|-------------------------------------|---------|-----------|-----------|-----------|-----------|-----------|
| Extension Dollars | Federal | 500,275 | 500,275 | 500,275 | 500,275 | 500,275 |
| | State | 500,275 | 500,275 | 500,275 | 500,275 | 500,275 |
| | Total | 1,000,550 | 1,000,550 | 1,000,550 | 1,000,550 | 1,000,550 |
| Research Dollars | Federal | 113,571 | 113,571 | 113,571 | 113,571 | 113,571 |
| | State | 161,926 | 161,926 | 161,926 | 161,926 | 161,926 |
| | Total | 275,497 | 275,497 | 275,497 | 275,497 | 275,497 |

UVM Extension and Agricultural Experiment Station Total Allocated Resources

The following two tables summarize the fiscal and human resources marshalled by the University of Vermont Extension and Vermont Agricultural Experiment Station in addressing the five National Goal Areas as defined by the Agricultural Research, Education and Extension Act of 1998 (AREERA). Human resources are defined as full-time equivalents (FTEs) for faculty (professional) and technical staff (paraprofessional). Fiscal resources represent an accounting of those federal dollars (Smith/Lever (b), (c), and Hatch) and State of Vermont matching dollars as required by AREERA.

| Human Resources | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|-------------------------------------|--------|--------|--------|--------|--------|
| Extension: Professional FTEs | 43.35 | 43.35 | 43.35 | 43.35 | 43.35 |
| Extension: Paraprofessional FTEs | 8.40 | 8.40 | 8.40 | 8.40 | 8.40 |
| Research: Professional FTEs | 18.94 | 18.94 | 18.94 | 18.94 | 18.94 |
| Research: Paraprofessional FTEs | 16.76 | 16.76 | 16.76 | 16.76 | 16.76 |

| Fiscal Resources | | FY2000 | FY2001 | FY2002 | FY2003 | FY2004 |
|-------------------------|---------|-----------|-----------|-----------|-----------|-----------|
| Extension Dollars | Federal | 1,477,696 | 1,477,696 | 1,477,696 | 1,477,696 | 1,477,696 |
| | State | 1,477,696 | 1,477,696 | 1,477,696 | 1,477,696 | 1,477,696 |
| | Total | 2,955,392 | 2,955,392 | 2,955,392 | 2,955,392 | 2,955,392 |
| Research Dollars | Federal | 1,400,000 | 1,400,000 | 1,400,000 | 1,400,000 | 1,400,000 |
| | State | 1,400,000 | 1,400,000 | 1,400,000 | 1,400,000 | 1,400,000 |
| | Total | 2,800,000 | 2,800,000 | 2,800,000 | 2,800,000 | 2,800,000 |

Multi-State Activities

As part of the national land grant system, the University of Vermont Extension and Agricultural Experiment Station are involved in a variety of multi-state outreach and research activities that address the five national goal areas.

Agriculture. In the area of competitive agriculture, UVM researchers are continuing long-term collaborations with Cornell to develop and field test new apple cultivars that will eventually improve the hardiness and quality of Vermont's apple crop. UVM Extension, as a part of the UVM Apple Team, plays a significant role in connecting apple growers to ongoing research and up-to-date information resources. UVM-hosted Internet websites are becoming an increasingly effective method for distributing technical and marketing information to apple growers within Vermont and beyond the state's borders. Other multi-state collaborations include:

- Working with New Hampshire to plan, teach and evaluate agricultural business management courses.
- Organizing an annual dairy herd management conference with colleagues from Connecticut, New Hampshire and Maine.
- Participating in the New England Green Pastures program to recognize outstanding New England farmers (Rhode Island, Maine, Connecticut, New Hampshire, and Massachusetts).
- Developing and distributing vegetable management guides and small fruit pest management information as part of the New England Vegetable and Berry Extension Consortium (with Maine, Connecticut, New Hampshire, and Massachusetts).
- Conducting soybean field trials and developing information resources with experts from Maine.

Agricultural research faculty will continue to contribute their expertise in areas defined by active regional research projects including:

- Organizational and Structural Changes in the Dairy Industry (NE-177)
- Multi-Disciplinary Evaluation of New Apple Cultivars (NE-183)
- Conservation and Utilization of Genetic Resources (NE-009)
- Regulation of Nutrient Use in Food Producing Animals (NE-148)
- Mastitis Resistance to Enhance Dairy Food Safety (NE-112)

Food Safety. UVM researchers will continue to pursue the development and maintenance of multi-state collaborations in the area of food safety. The states of the Northeast Region share many attributes: small geographic size, declining manufacturing industries, growing service and tourism-related industries, and an agricultural heritage that is threatened or in decline. Of particular interest is the growing industry of specialty food processing which is establishing a significant niche in the value-added agricultural products market. The region's food industry is generally characterized by small and medium sized operations producing a variety of specialty foods. The tourism industry plays a major role in all of the state's economies and employs more than several thousand people, many in seasonal operations, and many in operations where food is processed and

shipped or served to customers. Dean Catherine W. Donnelly serves as administrative advisor to NEREAP-4, the northeast regional food safety project which integrates teaching, extension and research. The northeast deans have collaboratively funded this effort.

For the past several years, UVM Extension food safety specialists have collaborated with other New England states on a variety of initiatives funded by USDA. With limited personnel and financial resources, it is to each state's advantage to work toward cooperative programming that augments each of the partner's resources allowing them to make greater impact.

Listed below are some of Extension's collaborative New England food safety efforts. Base funding continues to sustain these programs as they are still being implemented by UVM Extension nutrition, food safety and health faculty and staff.

- SAFE I (Safety Awareness in the food Environment), University of New Hampshire (UNH) and University of Vermont (UVM). This project involved the development of a food safety and sanitation curriculum geared to food managers in the food service industry and the publication of the Risky Business Newsletter (this newsletter currently has a mailing list of 6000 food managers in NH/VT). The curriculum was just revised and reprinted and continues to be used extensively in NH and VT to train food service personnel.
- SAFE II This project involved UNH, University of Connecticut (UCONN), University of Rhode Island (URI) and UVM. It involved the development of a food safety and sanitation curriculum geared to the volunteer food service worker (i.e. the chicken pie supper people). In 1997 this curriculum was promoted in the a national publication entitled Food Protection and in 1998 was endorsed by the Conference for Food Protection (CFP), the Federal Drug Administration (FDA), Food Safety and Inspection Service (FSIS), USDA, CSREES as the training manual to be used nationally to train volunteer food service workers and managers of temporary food establishments.
- The New England Food Safety Project. This involved the food safety contacts from all the six New England States. The focus for this project was the specialty or small food producer. A HACCP based curriculum for small food producers and a newsletter, which was distributed to all specialty food producers in New England, was produced under the direction of the project coordinator housed at UVM. Five regional HACCP workshops for small and specialty food producers in New England were held. Additional workshops are anticipated in the future as needed with support from all partner institutions.
- A Food Safety Hotline for consumers, housed at URI but accessible to all New England residents, has been established and is supported through base dollars.
- UVM Extension food safety specialists with their URI counterparts have developed and piloted a curriculum for high schools that uses a community service learning methodology to teach food safety.
- UCONN, UVM, UNH and URI joined forces to develop HACCP workshops for Cider producers in New England. Future collaborative workshops are anticipated.

- In collaboration with UCONN Extension faculty, UVM food safety specialists have developed and field tested a food safety curriculum for 4H youth entitled "Food, Flies and Fungus." The curriculum is based on the experiential learning methodology.

In 1998 and 1999, UVM Extension faculty expanded their collaborative scope to include the land grant institutions in New York, New Jersey and Pennsylvania. The Cornell Fruit and Vegetable Project includes all the land grant colleges in the northeast including Vermont. The goal for this project is to reduce microbial contamination on fruit and vegetables produced in the Northeast. Contingent on funding, in 1999 these activities will be expanded to include food safety projects with Wisconsin, Alabama and West Virginia.

Natural Resources and Environmental Management. Multi-state activities in this area will continue to focus on the important linkages between productive agriculture and wood products industries and the protection and maintenance of environment quality. Current activities include:

- Working with Massachusetts and Virginia on a program addressing issues of harvesting, manufacturing and marketing of character marked wood furniture.
- Continued networking, development and sharing of educational program information with colleagues from Connecticut regarding farm-based tourism.
- Working with experts from Massachusetts and New Hampshire to provide courses, internships and grower meetings regarding vegetable and small fruit integrated pest management.
- Participation in a plant diagnostics clinic with New Hampshire, New York and Massachusetts in weed, insect and disease identification and recommendations for pest management strategies.

Family and Community Development. UVM Extension is continuing active participation in the Children, Youth and Families at Risk (CYFAR) initiative funded by CSREES/USDA. The CYFAR initiative has linked Extension and research faculty from virtually every state in the nation. Internet-based electronic networks of programming and technical information provide faculty with access to technical assistance and support in the development and assessment of community programs that address locally defined quality of life issues for children, youth and families. As active members of the National Network for Collaboration and the National Network for Family resiliency, UVM Extension faculty members provide training and support to other land grant institution colleagues.

Integrated Activities

An effective method of integrating research and Extension activities at the University of Vermont is through the split appointment of faculty. At present there are faculty with split appointments in the following departments:

- Animal Sciences
- Community Development & Applied Economics
- Plant & Soil Science
- Nutrition & Food Science

In addition to teaching and research, faculty members are assigned to Extension curriculum/program teams and play active roles in developing and implementing outreach programs.

In the area of agriculture, Vermont has developed an integrated orchard management approach in which horticultural and pest management aspects have been interwoven in extension and research activities. The UVM Vermont Apple Program emphasizes a team approach. The team includes a pomologist, an IPM specialist, qualified technical personnel, and graduate and undergraduate students. The program features one-on-one interactions with apple growers, orchard demonstrations, meetings, workshops, publications, active research in commercial orchards, and development of Internet web sites for education and information delivery. The UVM Apple Team provides the scientific and technical expertise necessary to help apple growers remain competitive in local, national and international markets while maintaining a sustainable agricultural system.

To encourage greater collaboration and integration between UVM research and Extension faculty, a pool of targeted funds is in the process of being developed to support a competitive grant proposal process. Both UVM Extension and the Vermont Agricultural Experiment Station will put \$150,000 in the Vermont Research and Extension Competitive Grants Program (VRECGP) for a fund total of \$300,000 over the five-year plan of work period. The timeline for development, implementation and assessment of this research initiative is as follows:

- FY2000 - Development of award guidelines, review and administrative procedures
- FY2001 - First round of 3-year awards
- FY2002 - Second round of 3-year awards
- FY2003 - Award monitoring and assessment of research program effectiveness
- FY2004 - Final assessment of research effectiveness and impact

Research proposals will be merit and peer reviewed by a panel consisting of up to three faculty with Agricultural Experiment Station appointments, three extension faculty, and three stakeholders including representation from the State Advisory Council. Eligible research proposals will be clearly linked to the five national goal areas and will address timely issues relevant to the citizens of Vermont. In addition, preference will be given to those proposals that are relevant to the activities conducted and or supported by at least one of UVM's centers of excellence which include: Northeast Dairy Foods Research Center; Food Science Center; Center for Sustainable Agriculture; Center for

Rural Studies; Proctor Maple Research Center; and the Vermont Water Resources and Lake Studies Center.

UVM Extension Merit Review

A comprehensive system of state, regional, and curriculum advisors has contributed greatly to the ongoing, informal review of University of Vermont Extension programming. In response to AREERA, a more formal merit review of outreach activities was conducted in May 1999. Two reviewers from each of UVM Extension's four curriculum/program teams' advisory groups were selected to systematically review all proposed curricula. Reviewers were asked to rate each curriculum plan according to the following criteria:

- Impact--the potential to have a measurable, positive impact on Vermonters.
- Resource availability/accessibility--the plan identifies the necessary resources (people, dollars, curricula) to implement programs successfully.
- Reaching diverse audiences--potential for programs to meet the needs of diverse, underserved audiences.
- Customer demand--programs are linked to clearly articulated customer needs.
- Collaboration--potential for collaboration between Extension and research, with other UVM Departments, or with other institutions.
- Innovation--programs are unique, not being done, or done well by others.

Members of the 1999 Review Team included:

- Liz Slayton, Vermont Senator Patrick Leahy's Office
- Sue Clark, Vermont Department of Education
- Phil Benedict, Vermont Department of Agriculture, Food & Markets
- Enid Wonnacott, Northeast Organic Farmers Association
- Ed Larson, Vermont Wood Products Industry
- Ann Street, Vermont Department of Education--Family & Consumer Sciences/Human Services Division
- Bill Jewell, Landscape Architect, Vermont Act 250 Coordinator
- Claire Ayer, Vermont Association of Conservation Districts

Results of the merit review process are shared with members of the UVM Extension program management team that includes the chairs of on campus and regional units and the curriculum/program teams.

Vermont Agricultural Experiment Station Peer Review

The Vermont Agricultural Experiment Station awards Hatch funding annually through a competitive, rigorous peer review process. Reviewers represent faculty from a variety of disciplines. Proposals are judged in the following areas:

- Problem Statement--Is the problem well justified? Will this project enhance the capacity of the VT-AES to attract new resources or to generate new knowledge?
- Importance of the research to Vermont.
- Scientific and Technical Feasibility--Are the objectives clear? Appropriateness of the methods to meet the proposed objectives? Are the investigators qualified to perform the proposed work?
- Overall assessment of scientific merit.
- Past record of accomplishment of P.I.(s) and/or potential for future success.
- Budget Justification.
- Potential for timely application or transfer of results.

This review process is for all Hatch research funds including regional research projects. Proposals may be approved with or without funding. Approved proposals are then sent to USDA/CSREES for final approval at the federal level. A copy of Hatch proposal review guidelines is appended to this report.

Since the implementation of this competitive review process in 1994-1995, the Vermont Agricultural Experiment Station has witnessed a marked increase in the quality research proposals. In addition, research faculty have improved greatly their ability to leverage other competitive research funds.