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Fall 1988

## Explorations, Vol. 5, No. 1

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# EXPLORATIONS

A JOURNAL OF RESEARCH AND PUBLIC SERVICE  
AT THE UNIVERSITY OF MAINE

*Cover: What Have We Done with Tomorrow? by Leslie C. Hyde, UMCES Extension Agent for Knox-Lincoln Counties.*

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## EXPLORATIONS

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# EXPLORATIONS

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# Editorial Reflections

This issue of EXPLORATIONS is dedicated to the University of Maine Cooperative Extension Service which is about to celebrate its 75th year of service to the people of Maine.

Maine's Extension Service is inextricably interwoven with the fabric of Maine life, and that trait makes it difficult to separate Extension from the people it serves. Many of us think of Extension as 4-H (which it is) and sound nutritional advice (which it provides) and innovative agricultural practices (which it also embraces).

The University's Cooperative Extension Service is all these things. It is also much more. Any time you investigate a problem, or take a close look at how a town, an age group, or interested citizens are dealing with a question, you usually find Extension involved.

In this issue, we have tried to provide an overview of Extension, and we have found it difficult to choose which areas of endeavor to include within our space limitations. We have discovered Extension dealing with overweight, cholesterol, and blood pressure problems, child care and parenting. We've found dedicated Extension personnel providing rapid and valid safety guidelines to address a recent Salmonella scare. We've found them working with teenagers via a television program so the young people may learn the skills to help themselves and their peers deal with the agonies of adolescence. Other Extension professionals, paraprofessionals, aides and volunteers are working with pregnant teenagers to help them adjust to impending parenthood, infant and child care and family life.

Stepfamilies often experience grave problems and dilemmas, and Extension is there with a program to help these people cope and build solid lives together; Extension goes out into the community with money management information and helps people unravel the frightening and sometimes overwhelming tangles of debt.

Maine people frequently wish to start their own businesses or improve the management of existing ones. Extension is there with its small business management assistance. From helping with marketing plans and developing a crafts enterprise to streamlining business procedures and even providing a structured series of workshops so people may discover if running their own business is what they are well suited for, Extension is involved.

They are also active in citizens' concerns with agriculture and the environment. Integrated pest management procedures available through Extension help farmers deal with cropland pests when necessary and save money when treatments are not necessary. Hot lines and newsletters, explanatory

workbooks and brochures, training sessions and advice all keep farmers informed so they may make sensible, cost effective decisions.

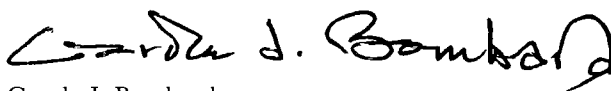
And the environment is enhanced as well. The thousands of tons of pesticides and fertilizer treatments which Extension-sponsored testing and information make unnecessary represent pollution which is prevented. The environment and the Maine people living in it are the beneficiaries of Extension work and training to manage and contain pesticide drift. Once the crops are raised and harvested, Extension is ready with plans and procedures to help Maine people market their produce in the most effective way.

Land trusts, nature sanctuaries, the development of new industries for the Maine fisheries industry, what small and medium landowners can do to encourage various wildlife species, how to start a baitfish business, developing leadership skills: the list of Extension work goes on and on.

Many of these programs are very new: they are innovative, state-of-the-art, and sometimes pioneering in their scope and vision. But the new programs are built on the solid foundation of Extension's rich history. We have brought you one story of a multi-generation Extension family which illustrates well some of this rich history.

The programs and projects included in Extension work in general, and in the articles here, are not initiated by Extension: they are not an agency's way of superimposing solutions on problems. Each project, program, workshop, conference and area of attention is one which Maine people have indicated they wish Extension to address. It is this grass roots basis which keeps Extension in touch with the people it serves and enables its personnel to act in a timely and relevant fashion.

Join us as we explore some of Extension's activities, activities which articulate the meaning of service.



Carole J. Bombard  
Editor

Thanks to the many UMCES authors, administrators, and staff who took time from their busy schedules to write articles, answer questions, and track down information. Special thanks to Sheila Randall in Orono and Susie Ackor in Rockland for their quiet efficient help. And to Conrad Griffin for arranging an afternoon on Portland Harbor so we might gather information for a story.

# UMCES: an overview

The University of Maine Cooperative Extension Service (UMCES) is an educational network connecting state level administrators, program leaders and area specialists with individual county Extension agents, who deliver to the citizens of their counties programs that address priority concerns as identified by county representatives. County Extension Associations are that local connection between UMCES and the people it serves. And Maine Extension's federal link is the U.S. Department of Agriculture, from which Maine programs receive partial funding.

Heading up Maine Extension is Dr. Judith I. Bailey. As Assistant Vice President for CES, Bailey articulates Extension's position on the problems that face Maine residents where CES can direct programming. One of the challenges of Extension, according to Bailey, is to define concerns in which *Extension has a base of expertise and resources* in order to effect positive change. Administering and managing the delivery of these in the form of programming is the Assistant Vice President's job. Bailey and her staff work with the Maine Agricultural Experimental Station, with deans, and other assistant vice presidents in joint programming opportunities. Managing the budget and taking charge of the acquisition of necessary funds are another large part of this position's responsibilities. Organizational planning and representing UMCES at the federal, state and local levels round out Bailey's varied duties as Assistant Vice President for CES.

An Extension framework contains the support of a land-grant institution, and in this case, UMCES is backed by the University of Maine. The University supports Extension's programs and research, while campus-based Extension faculty, specialists with expertise in specific areas, work together with Maine's 16 county Extension offices and the constituents they serve.

The Extension specialists are organizationally grouped into four divisions, each under the direction of a program leader.

- agriculture and business management;
- family living;
- 4-H;
- natural resources and community development.

Each contains a number of specialists in each specific area, while under natural resources and community development are specialists in a number of different areas, from forestry, wildlife, and marine concerns to community development, leadership and the environment. These positions are augmented by others at the state level, including the Program Leader for Staff and Organizational Development, who oversees staff and faculty in program evaluation and certain training procedures. The position also carries with it the supervisory

responsibility for the Computer Specialist, the Key Agent for Evaluation, and the Information and Publications Editor.

The Information and Publications Editor position is an example of a specific type whose job description is defined by Extension Professional or Associate nomenclature. These are very specialized positions, some temporary, others permanent, with a specific task that is well defined in the job description. Extension Associates/Professionals may work under the direction of either Extension faculty members or administrators, assisting in the conduct of Extension educational programs.

Paraprofessional positions within UMCES are Extension Aides. These positions are most commonly found in 4-H and Family Living programs, doing important work as 4-H aides, Family Resource Management aides, and as Extension aides under the Expanded Food and Nutrition Education Program (EFNEP).

Office support staff at the state level are under the direction of the Finance and Personnel Officer, who coordinates fiscal and certain other administrative functions for UMCES, within the University of Maine and federal systems. The Finance and Personnel Officer reports directly to the Assistant Vice President for CES.

County Extension agents are linked to the state office by the Field Operations Coordinator. With administrative authority for the delivery of Extension educational programs, the Field Operations Coordinator maintains the vital connection between Assistant Vice President Bailey and the county faculty. (County agents, like area specialists, are Extension faculty.)

Occupying center stage in UMCES are the citizens for whom Extension develops and initiates programming. It follows, then, that this stage is managed on a local, county-by-county basis by the resource network made up of county Extension agents. The Extension agents are the most familiar elements of UMCES, since they play an integral role in the gathering and disseminating of information pertinent to county populations. As Extension faculty, they are charged with the primary responsibility to deliver Extension programs that address the concerns of the people they serve, and they accomplish this task by becoming involved, in an observer capacity, with the county and groups within the county to which they're assigned.

To isolate those issues crucial to Maine residents, Extension agents utilize representative constituencies within each county. County Extension Associations are those constituencies. *Broadly representative of the geographic, social, ethnic, and economic aspects of the county* of which they're a part, according to Roger Leach, Program Leader for Natural Resources and Community Development, these County Extension Associations work

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*We are delighted to introduce the new Director of The University of Maine Cooperative Extension Service, Assistant Vice-President Judith Bailey. The problem with our so doing rests with the speed and efficiency with which she has taken the reins of her position: anything we might say she WILL DO is something she has ALREADY DONE by the time we have the words printed. We can tell you about the past: that she has worked in the public school system in several capacities; that she is committed to personnel management, affirmative action, long-range planning, and civil rights. She also applauds the University of Maine's commitment to equal rights for women. And like that unit which she leads, she is committed to serve Maine and Maine's people.*

## **Conversation with the Director: Assistant Vice-President Judith Bailey**

**Please tell us about your initial impression of the University of Maine and its Cooperative Extension Service.**

*My initial opinion of the University of Maine Cooperative Extension Service is positive; had it not been, I never would have taken the job. I think I've had a varied and fortunate career in the last 20 years. One of the things I have always enjoyed is having reasonable flexibility about choosing where I want to work and those with whom I want to work.*

**Have you, then, chosen the University of Maine?**

*Yes. When the position at the University of Maine became open, several colleagues mentioned it to me. As I began looking into the University of Maine and reading about the state, and especially when I came to Maine for interviews, I found a university and an extension service with the strength, stamina and leadership to respond to change, just as the Extension Service regionally and nationally has moved to address critical program needs through an issues-oriented approach.*

**What did you find that led you to this conclusion?**

*I saw characteristics pivotal to an active, effective Extension Service. Among them were strong support from the University leadership, both the Vice President for Research and Public Service and the President. There's also been appreciable potential demonstrated by the people I've talked with as well as an eagerness to work together to maximize that potential for the benefit of the residents of Maine. The enthusiasm which I encountered was one of the deciding factors in my coming here. There is a very qualified, experienced faculty and staff here ready to respond to and work with Maine citizens. Just as important, there is an active lay leadership in the Maine Extension Association and the County Executives Committees, as well as a crucial, grass-roots system of volunteers and a strong tie with the agricultural community. The entire organization resonates with growth and potential.*

**What are some of your initial goals and objectives?**

*My objectives are divided into short-term and long-term. The short-term goal is to familiarize myself with Maine. I mean that quite seriously, and I think it can be accomplished during the first six months of my tenure. I want and need to learn the many facets and tones of the State of Maine, the University of Maine, and the Cooperative Extension Service.*

*During the first three months, one of my priorities is to meet each Extension faculty and staff member and encourage substantial dialogue regarding their perceptions of Maine's Cooperative Extension Service. (Editor's note: Ms. Bailey was interviewed late in August. As we go to press, she has already met with all of the county faculty and state specialist units.)*

**How will you do this?**

*Traveling a great deal. I expect to visit with each county's faculty, to talk with them about their achievements, the needs of their counties, their communities, and their assessments of the Extension Service at this point in time. Simultaneously, I shall visit with department specialists in groups on the University of Maine campus. I need to know their evaluation of where we are and where we need to be going, about the strengths and weaknesses in their areas and the Extension Service as they see it. I also plan to have similar discussions with Extension professional and support staff, to ensure that I've crossed the organization at every juncture, as it were. I shall also be meeting with the implementation teams for our eight initiatives.*

**It sounds as if you are describing a fact-finding assessment process.**

*Exactly. Constantly during this process, I'll be meeting with the administrative staff to get feedback and to begin to mold an administrative team. At this point, I expect to take the organization into a planning mode, where, having familiarized myself with the State, the administrative faculty and*

staff can sit down with me and look at the hard, quantifiable, qualitative data to determine whether the Cooperative Extension Service is organized and programming in a way which is responsive to the needs of the people of Maine.

**What do you see as the function of administration?**

My view of administration is that it's here for one purpose: to support the program delivery system. It's the agents and the specialists who are our program people. They are the ones who are working on a day-to-day basis developing and delivering programs and working with and for our clientele. They are the Extension Service's front line, and the administrative team and I are here to provide leadership, guidance, overall direction, and to ensure there is sufficient budget so the front liners can do their jobs. Administration also serves to develop a vision and direction for the organization. We shall work as a whole to effect that vision and that direction.

**Do you anticipate making major organizational changes?**

If we are going to have organizational change, and when you go through a process like this you usually see some organizational change, I would like to have that in place at the beginning of the next fiscal year. (July '89) This year serves as a change process: there is a new leader, and not only do I need to get to know our people, they need to get to know me. By definition, communication is a two-way process.

**What sorts of change do you anticipate?**

We have already had a successful move into a four-year plan of work that is issues-oriented. We will be going into a new four-year plan of work cycle in 1992. But we must do our planning for that in '90 and '91. Therefore, as we enter the second year of our current plan of work, we probably need to make some programmatic assessments as to whether or not our current issues need refining and if they are the same issues we want to focus on in the next four-year plan. We must also evaluate how well the implementation teams are working, and we need to determine how we can strengthen viable activities. But these changes must not take place in a vacuum. They will evolve from a synergistic planning process carried out with the administration and faculty.

**Can you be more specific?**

No. Change for its own sake is a useless and sometimes deleterious activity. Changes we make will be based on evaluation of needs and identification of ways in which to make our programs even more effective and relevant. In generic terms, an organization's structure should facilitate and support its mission. In concrete terms, this means any changes made in our organizational structure must be tied to our mission, goals and programs.

**Change and the prospect of its implications and ramifications can lead to negative speculation and anxiety. How will you deal with that?**

One of my objectives during this time is to provide an environment where people are comfortable with change. Stress at work is something we all encounter: it's impossible to alleviate all of it. But I expect to have an open,

supportive atmosphere. I hope to lead the organization through some opportunities designed to establish a climate where there is an open door for discussion and where people are not afraid of trying something new, knowing the organization supports their efforts. It will be a significant achievement to attain this climate as we go through the change process.

**That's a big goal.**

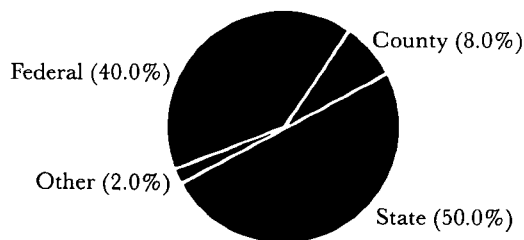
Yes it is. But I think we can meet our objectives. Of course, once the desired atmosphere is established, we are faced with the challenge of nurturing it and maintaining it. Challenges and meeting them effectively and well are the mainsprings of good administration.

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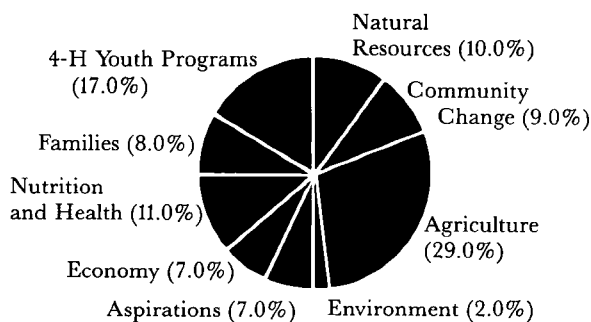
together with agents and other UMCES faculty to identify priority areas or major problems.

The final, quintessential segment of UMCES is an unpaid workforce whose numbers are increasing within each program. The volunteer contingent within Maine Extension is becoming increasingly more important, according to Assistant Vice President Bailey. She notes that UMCES will be using more of them as a way to extend our program delivery methods. Volunteers in Extension are used at every level, performing and conducting a varied array of activities. The 4-H program, with its heavy dependence on volunteers for the successful implementation of youth-directed programs, is just one example of the purpose and scope of volunteers in Maine Extension.

**FUNDING**



**PROGRAMMING**



# Reaching Out for Teen Awareness

by Theresa M. Ferrari

What is it like to be a teen today? Dickens' opening line from **A Tale of Two Cities**, *It was the best of times, it was the worst of times*, could have been written by a teenager.

Drugs, AIDS, peer pressure, communication with parents, and suicide are all parts of a teenagers' baggage. They also have hope, energy, enthusiasm, a need to feel good about themselves, and a desire to make a difference.

As an extension educator, I wondered what I could do that might make a difference. With so many challenges, how could I decide where to focus my energy?

For me, **Reaching Out for Teen Awareness** is a program that provides a vehicle to address many of the issues facing teens. Placing teens in the role of peer educators, this innovative program uses theatre skills as a teaching tool. What is **Reaching Out for Teen Awareness**? A teen member describes it best: *We're a group of teens who make up scenes about typical teen problems, act the scenes out without giving a conclusion, then discuss the scene and the options with the audience.*

Virtually any subject can be addressed with this method. It doesn't take teenagers long to brainstorm topics. In addition to those given above, the list includes self-esteem, helping friends, drinking, sexuality, teen pregnancy, relationships, communication, and coping with changes.

There are several teen theatre groups in Maine, but until **Reaching Out for Teen Awareness**, none was organized through 4-H. 4-H provides an excellent home for this type of program, with a 75-year history of youth education.

Without even addressing any of the above issues directly, 4-H is a primary prevention program, since it provides positive development activities for youth. Primary prevention efforts avoid the development of problems before they begin. But our 4-H members are not immune from the problems created by growing up in a complex society. 4-H can address these issues head-on by providing a forum for the discussion of relevant contemporary issues and the development of related skills.

With that introduction, let me tell you how the **Reaching Out for Teen Awareness** program came to be. During 1986-87, the Cumberland County Extension Office was involved in teenage pregnancy prevention. Theatre Exploration, a new 4-H group, was formed about the same time. In the summer the two projects converged. Their leader, Sharon Antoniuc, was also serving as a student intern for the teen pregnancy conference. The teens were interested in doing something with television. We decided to propose something real for

*Theresa M. Ferrari is an Extension Agent and Associate Extension Educator in Cumberland County, Portland, Maine. Her background is in home economics education.*

*We are the future generation. It's important we work together to make the world a better place to live in.*

them to work on: create a public service announcement relating to teenage pregnancy prevention. WGME-TV, Channel 13, agreed to the idea and the project was underway.

To get some assistance with the issues around teen pregnancy prevention, we sought the help of Louise Tate, a community educator for Southern Coastal Family Planning. Working mostly with school classes during the year, Louise was pleased with the opportunity to work with teens in a different setting.



Teens reaching out to teens is the theme of the ROTA 4-H program. Among the several vehicles used to stimulate discussion and disseminate information about helpful sources is the television program **One of a Kind**.

Using current music videos as a trigger, we had several meetings where the teens discussed the messages young people are exposed to. That helped us focus on what message we *did* want to convey. Teens were tired of don't messages and wanted to take a more positive approach to relationships. They also thought that good communication did not get enough emphasis. By the end of the summer we were ready to film a 30-second public service announcement with the theme: *Do the unexpected, Talk about it*. The spot aired on WGME in the fall of 1987. The project was also included in **4-H Today** a half hour program produced by the University of Maine and broadcast statewide.

Since this project was so successful, we decided to take the next step. Using Louise's training and experience in psycho-social drama, we developed a workshop to train teens to use the arts to portray issues that concerned them. We held a one-day workshop in November. After participating in group building and improvisation activities, these 25 teens became **Reaching Out for Teen Awareness**. Work continued through the next two months to develop and refine performance material. The initial scenes focused on drug use, peer pressure and sexuality. The goal for the new year was to do that first performance. The opportunity came at an eighth grade teen conference sponsored by the Cumberland County Child Abuse and Neglect Council. We did it! More performances for school and community groups followed.

*Being a member of ROTA is important to me because I have the opportunity both to help other teens and express myself. I have learned compassion and skills to aid other teens with problems.*

I knew when the group was performing that this was the right thing to do. I could *tell* by the reaction of the audience. I could *tell* by the enthusiasm and determination of the teens. But to be accountable, we needed more than that. So we asked audiences for feedback.

The feedback spurred us on. It indicated that we had made an impression. It helped us change material to stimulate more discussion. Audience response told us when we were on target and when we needed to adapt.

Other opportunities presented themselves. WPXT, an independent television station in Portland, produces a monthly show for teens called *One of A Kind*, hosted by rock musician Rick Pinette. With music, dancing and group discussion, the show features issues which affect teens' self-esteem. A guest appearance on the show opened up the way for increased teen involvement in programming. Jennifer Dennison, program director for the station, wanted teen input behind the scenes and as regulars in the studio audience. **Reaching Out for Teen Awareness** members were a natu-

ral for the job. Learning more about the group's activities, she offered the opportunity to perform a scene relating to the topic of the show. WPXT is available in southern Maine on cable and UHF channel 51 and is now part of cable service in eastern Maine, making the potential viewing audience more than 164,000 homes. The opportunity to educate through television was an exciting challenge. The key to this educational tool is the discussion that follows. Typically, a play has a beginning, middle and end. With interactive theatre, however, the action ends at a point of conflict or a point where a decision needs to be made. This provides the lead-in to questions for the audience to think about: *How did you feel? What would you do in this situation? What could the characters have done differently? Where could you go for help if you needed it?* It seems amazing, but a short three-minute presentation opens up a discussion that lasts for a half hour or more. That is the power of this method.

The peer education process really works. Observing the level of discussion that takes place, I know that any presentation I might make to the teens would not be nearly as effective, and I certainly could not do it in three minutes. The teens have told us why: *Teens will listen to other teens. They do not feel as though they are being lectured. They can relate to someone from their own age group.*

That's why the teens took the lead in developing the material, with some coaching and guidance. Many times, it's been tempting to step in. It takes much longer to work with teen input, but the value of the results is sterling: ownership and believability.

As the audiences grew, so did interest in the project. Many people were surprised that 4-H did this type of thing. None of the teens involved had been 4-H members prior to their ROTA experience. Here was the potential to recruit new people as program participants and involve additional audiences who viewed the performances.

The selection of volunteer leader Sharon Antoniuc as Maine's Salute to Excellence participant launched the project's expansion and grant-writing phase. Funds from RJR Nabisco, Pine Tree State 4-H Foundation, the University of Maine Cooperative Extension Service and ACTION will expand what started in Cumberland County to the rest of the state. This will allow us to conduct training programs in other counties, with the new groups performing in their local area.

Over the course of the year, the **Reaching Out for Teen Awareness** presented six performances for school and community groups, reaching more than 450 people. The final performance of the first year was part of the **One of A Kind** show on suicide which was broadcast in August.

As many times as I thought it wasn't worth the effort, something came along to change my mind. Why did I keep doing it? Again, the answer comes from the teens themselves, *ROTA is the best thing that has come into my life. I wouldn't give it up for the world. We are the future generation. It's important that we work together to make the world a better place to live in.*

# Profile of a Harbormaster

by Carole J. Bombard

He's on duty seven days a week and 52 weeks a year. Responsible for at least 1,000 moorings, 1,000 marina craft, and 1,000 transients, his clientele arrive in vessels ranging from kayaks to supertankers, with the occasional visit from George Bush and attendant Secret Service personnel. Powerboats, sailboats, a small lobster fleet, draggers, trawlers and cigarette boats (superfast, with ominous hulls) all represent different interests. In fact, they represent owners who disagree almost totally on what the ocean's for, how it should be used, and who should have top priority. In summer, he concentrates on keeping traffic slow and under control; winter sees him watching for boats breaking loose from their moorings and sinking or crashing into other boats. To add to the challenge, this professional is required to interact smoothly with federal, state and municipal governments.

Calm, organized, and incredibly observant, the man we've been describing is Al Trefrey, Harbormaster, Portland, Maine. Mr. Trefrey's range of responsibilities is one of the best examples of why the many harbormasters in the State of Maine needed a **Guide for Harbor Management**. Indeed, it was he who helped the University of Maine Cooperative Extension Service put into use one of the first such guides ever published.

The Portland Harbor for which Trefrey is responsible is rich in history, and Al Trefrey's life and memory are steeped in those facts. A Civil War fort, a quarantine hospital, Portland's own version of Ellis Island where Polish, Irish, Italian and Jewish newcomers to Maine stayed until processed, and after which they moved into specific ethnic neighborhoods in Portland. *For some reason*, according to Trefrey (shaking his head) *monied individuals moved into an area overlooking the mudflats*.

Peaks Island, boasting three to six thousand people in the summer and about 1500 in winter; Long Island; Little Diamond Island, and Great Diamond Island are all within Al Trefrey's area of concern. *Great Diamond*, he explained, *with old Fort McKinley, is being restored to the way it looked in 1948 when the Army was last active there. It will be full of condos*.

An old army coast artillery outpost which had two 16" guns and two 6" guns remains in Portland Harbor, and today Navy cruisers and fast frigates are repaired in the harbor. A sharp-eyed visitor on the water may notice Navy Seals suited up in scuba gear and traveling posthaste in black rubber rafts on their way out to sea where they will practice the mind and body numbing survival skills which make the successful ones part of the Navy's elite.

Trefrey remembers former days and former wars: the arrival of the battleship Missouri; the North Atlantic Fleet coming in to fuel up; hospitals for thousands of wounded soldiers and sailors; submarine nets and net tenders, criss-crossed

lights and other indicators of the heavily fortified harbor during World War II. He can also tell tales of spies on the back side of outer islands, and how their discovery was kept quiet so as not to alarm the public.

Today, the harbor echoes its rich past: it is the biggest, most complex, and most diversified harbor north of Boston. And its water looks as clean as Sebago Lake. Al Trefrey serves to unscramble the multitudes of demands made on Portland Harbor. He keeps separate interests separate and as well met as possible. He carries out the mandates handed him by the Board of Harbor Commissioners, the State of Maine, and the United States in a fair and even-handed manner.

The University of Maine Cooperative Extension Service and Al Trefrey enjoy a symbiotic relationship. With his incredibly experienced knowledge of being a harbormaster, he was critical in providing needed information and perspective to the Extension team putting together the **Guide for Harbor Management**. That Guide, published in 1982, was the first of its kind and a new revised guide has been printed in 1988.

When Extension began to sponsor educational meetings for harbormasters and other town officials in 1983, Al Trefrey was there. And from those meetings grew the movement to establish a **Harbormasters' Association**, a group which serves to educate, update, share problems and solutions, and to help keep local control in harbor decisions.

The use of harbor resources and the competition for them, especially between recreational and commercial interests, is the type of situation where Extension excels. Its emphasis on coordination, communication and consensus in decision-making has produced a healthier climate in Maine harbors, regardless of their size and complexity.



Part of Portland Harbor

# Minding Maine's Business

by Mary S. Bowie

Small Business Management Education in the Extension Service — is it a new undertaking? The answer to that question is both yes and no.

For 75 years, ever since its inception, the University of Maine Cooperative Extension Service has served the educational needs of agriculture by teaching producers to be better businessmen and farm families to manage their lives more economically and more productively. It has been only in the last few years, however, that Extension has turned its attention to the needs of nonfarm small business people.

In 1987, the University of Maine Cooperative Extension Service undertook a massive process to determine what the people of Maine felt were their most pressing needs. The overwhelming answer, coming from all counties in the State, was the need for help with economic development.

Four UMCES economists, based on the Orono campus and assigned to work on this project, began by compiling state and county data on Maine businesses. The study revealed the economic significance of small businesses in Maine, showing the largest proportion of small businesses of any New England state.

From this study grew the University of Maine Cooperative Extension Service's economic development mission: developing, organizing, and delivering business management educational programming to owners and potential owners of small-scale firms.

Educational programs of this magnitude do not come solely from the efforts of a few dedicated educators in Orono. The heart of the UMCES Small Business Management education program is with the people of Maine, out in the county offices where University of Maine faculty come in contact daily with small business owners, housewives, 4-H youngsters and agricultural producers.

If you are eager to be employed, but have not found work in several months, you may find yourself looking for education to help you do something else with your life. Several residents of Franklin County have turned to the Cooperative Extension Service to find help with transforming their ideas into small businesses.

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*Mary S. Bowie is a Computer Specialist for the University of Maine Cooperative Extension Service. A 1964 graduate of Colby College, she received her Masters degree from the University of Maine in 1984, and became part of UMCES later that year. She served on the Economic Development Issue Task Force, and is a member of the Business Management Implementation Team.*

This spring, Franklin County Extension agents Richard L. Barr and Olive C. Dubord conducted a workshop series on how to develop a small business and how to market ideas. To give a practical flavor to the workshops, *We tried to involve local business people*, said Barr, *to get them to share their experiences on what it is actually like to run a small business, what to watch out for, what the good things are.*

Two workshops, **How to Develop a Business Plan**, and **How to Use Financial Statements**, were presented with the help of Extension business management specialists from Orono. The other two workshops, one on legal and insurance issues and one on market analysis, advertising and business expansion, were presented by a panel of local businessmen. The mix of theoretical and practical advice seemed to work out very well, according to Barr.

*There was one person who opened a national franchise store and another who developed a business raising rabbits and selling rabbit equipment*, said Barr. In addition, at least one person put into practice new techniques for marketing and advertising.

*We had a person who was giving a demonstration of his products at one of our Computer Club meetings*, said Barr. *He had a nice brochure with him that listed his product line, services, and prices. He said he had gotten the idea for the brochure from the Extension Service marketing workshop.*

Rabbits are becoming an important project in Franklin County, with the help of Barr and a cooperative effort called the Maine Rabbit Development Project. Officially beginning in September of 1988, the project involves the University of Maine Cooperative Extension Service, the Maine Department of Agriculture, and the Maine State Rabbit Breeders Association, as well as the Agway Corporation, which has made their research facilities available.

Through research, the project hopes to determine how rabbit meat can become an important food product and possibly an important industry in Maine. Already Pinebrook Rabbitry in Sanford is busy buying and processing rabbit meat animals, many of which are raised in Franklin County, and some of which are returned to Franklin County in the form of sales to restaurants in the Sugarloaf ski resort area.

In addition to working with adults towards building better business skills, the Franklin County Extension office is helping county 4-H'ers learn about business firsthand. Every year, the county Extension office sponsors a Farmington 4-H Open Air Market, where youngsters fill tables on the main street of Farmington with things they have produced, offering them for sale.

This year, with the help of Extension Agent Raymond L. Corey, the youngsters had a chance to do a better job than ever before. A week before the fair, Corey held a workshop

for the 4-H kids to help them learn how to set prices for their wares, how to set up attractive displays, how to advertise their products, and even how to make change properly. Using local businesspeople as resources, they helped the youngsters learn the value of their products and how to sell them effectively. It may prove to be the most successful Open Air Market to date.

One of the fastest growing industries in the Mid-Coast area of Maine, according to Extension Agent Herbert C. Annis of the Knox-Lincoln County Extension office, is the ornamental horticulture and landscaping business.

Annis has been working with a group of small businesspeople from his counties who are calling themselves the Mid-coast Greenhouse Growers. In many cases, Annis says, their greenhouses are an outgrowth of an established market gardening operation. *The greenhouse was often a sideline*, says Annis, but in many cases *it has outpaced* the original business.

There seems to be a ready market, Annis says, for a good supply of fresh vegetables and healthy ornamental plants. The emphasis is on quality, *people are willing to spend money* for high quality, and Annis has been helping the growers learn to produce high quality plants.

The fledgling growers' organization has been meeting since February of this year, and educational programs have been given by Extension Horticulture Specialist Lois Berg Stack and others. In September, the group traveled to Orono to visit the University's greenhouses and soils laboratory and toured test gardens planted by Stack and retired Extension Specialist Lyle Littlefield. They also observed Extension's Pest Management facility.

Trips such as these, says Annis, help get the growers better acquainted with each other. They can then share similar problems, help each other find solutions, and work from a common foundation. After seeing the University's facilities, they should have a better understanding of why soil test and pest control are necessary, and how they are an essential part of quality produce.

In addition, Annis says, the growers are looking into the possibility of group buying to save themselves money. Each might very well be able to save \$4500 a year by buying potting mix cooperatively.

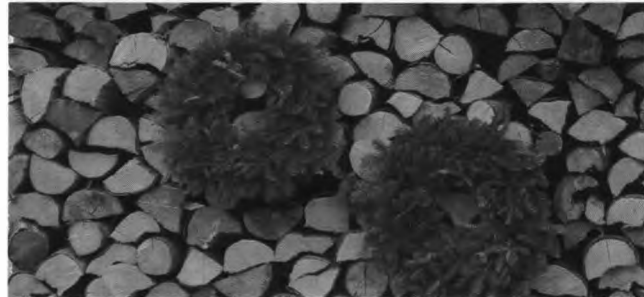
*It's the little things that we can help them with*, says Annis, *but the little things add up* both in money and in quality.

How do you teach wreath-making to a large number of people? How do you bring together wreath manufacturers who need skilled workers and Maine residents who want to learn that skill? How do you teach woodlot owners to produce high quality wreath-making brush for the years to come while helping them increase their income in the present? If you are the University of Maine Cooperative Extension Service, one way is to make an educational videotape on wreath-making.

In 1986, the wreath-making industry lacked an adequate work force of trained wreath-makers. An industry spokesman approached Extension Agent Walter A. Thompson of the Hancock County Extension office about the possibility of planning some training workshops which would be open to anyone interested in learning to make wreaths.

Thompson agreed, and in the fall of 1986 ran four workshops, one each in the Hancock County towns of Orland, Ellsworth, Otis and Town Hill. They had so many registrants, Thompson says, that they had to turn people away.

The following year, he sponsored two more workshops, emphasizing training for wreath-makers both in their homes and in a factory setting. In addition, participants were taught how to cut brush properly and how to grow brush to ensure a continuous supply of good quality tips.



The idea for a videotape grew out of these workshops. Several Extension agents and Forestry Specialist William D. Lilley began putting together ideas. Maine Forest Service, Maine Department of Conservation and Downeast Resource Conservation and Development were consulted and produced a fact sheet on Growing Better Balsam Fir Wreath Brush. Kathy Nitschke, Maine Service Forester for Cherryfield's Downeast RC&D in Washington County, put together a cost-sharing proposal for landowners who wished to improve their fir stands for brush production.

Finally, in September of 1987, Lilley and Thompson, with the assistance of the Extension Forestry Exchange Group, made a proposal to complete the instructional videotape. This proposal was approved, and funded by the University of Maine Cooperative Extension Service. The videotaping itself was handled by Gregory Bowler of the University of Maine's Instructional Systems Center.

The tape is nearing completion, and will be unveiled at a wreath-making workshop this fall. A manual will accompany the tape, and will emphasize gathering tips, making wreaths, and marketing the finished product.

The Christmas wreath-making industry has grown from 350,000 wreaths in 1955 to more than 15 million wreaths in 1986. Approximately two million of these are made in Maine, the majority made by hand during a six-week period from November 1 to December 15. Demand for quality wreaths can not yet be met, but with the help of the Extension Service perhaps a larger portion of the world's Christmas wreaths will be made with Maine quality by Maine craftspeople.

Durwood Gray, Washington County Extension agent, and John Cox, Jr., Volunteer Coordinator of the Washington County 4-H Learn to Earn project, have been involved with 200 children and adults in a 4-H family project making alder baskets.

Gray said that more than 45,000 baskets were constructed over an 18-month period. A local wreath dealer paid more than \$33,000 for the finished baskets at a wholesale price and is interested in buying 60,000 to 90,000 more next year if they are available.

Last spring, a local 4-H Memorial Day sales effort also yielded \$3,000 to the basket producers at a full retail price. The project staff members, working with Francis Montville, University of Maine Cooperative Extension Service Business Management Specialist, are learning how to determine the appropriate unit price for their several varieties of baskets.

The family members involved in the project vary in age from eight to 86 years old. Extension agent Gray is assisting the members to learn about a cooperative approach to marketing as the establishment of a marketing cooperative is under consideration.



The best Extension project is one that can be started, be successful, and then be turned over to its participants to continue. This approach is clearly demonstrated in the work of Richard R. Verville, Extension Agent in Kennebec County, with several small antique businesses in his area.

*I noticed on my drives to work that there were eight of these businesses within a couple of miles of each other, Dick said. It occurred to me that they might do better if they could get together.*

So in the spring of 1986 he spent a day talking to the several shop owners, and arranged a place where they could meet and talk about common interests. *At first they were a bit skeptical about cooperating, Dick said, because they felt they were competing with each other.* But after the shop owners got together, they discovered they had different kinds of shops, varying hours, and several common problems.

One of the problems they discussed is one faced by all owners of small or home-based businesses: occasionally a personal problem or emergency comes up which requires closing the shop. How to prevent potential customers from going away disappointed or angry if no one is there?

These shop owners decided that cooperating rather than competing could help with this problem as well as generating more business. They decided to publish an advertising brochure which would advertise all their business locations, their hours, their specialties, and give customers someone else to turn to if one of them had to be closed for a time.

By summer, the eight neighbors had published an advertising flyer. **Eight Antique Shops Within Six Miles of Augusta** it proclaims, together with a map on how to find the shops and a paragraph describing the specialties of each. Each proprietor took responsibility for distributing several hundred brochures, and one volunteered to take a supply to the Tourist Information Center in Kittery.

None of the shop owners had ever advertised before, and they found that this new approach increased their sales considerably without costing any one of them very much. While no dollar figures are available, each is convinced that the brochure had helped.

*It's helped get a lot more people to all of our shops in the past three years, said Robert Mitchell, owner of The Red Sleigh Shop.*

The best evidence of this is that now, in the third summer after their initial Extension Service meeting, the proprietors have taken over the management of their small association all on their own. They have updated and republished their brochure, and are talking about other cooperative advertising ventures. *This is the classic Extension model, says Verville. We always hope to be able to start something, help it through its beginning stages, and then let it go.*

Not all of Extension's Small Business Management activities are in traditional business education directions. For example, Jane S. Harvey, State Coordinator for Child Care, has been working on a proposal to bring education in business principles to day-care providers throughout the state.

*Day-care providers can't go to traditional training sessions during the day, says Harvey. We needed to find innovative ways of reaching them.*

The result was **Family Day Care—A Home Based Business**, a learn-by-mail series that will be available through University of Maine Cooperative Extension Service offices. A cooperative effort with the University of Southern Maine and Maine State Child Care Resource and Development Centers, the series emphasizes that home day care is not just babysitting; it is a real business with business demands, needs and considerations.

This learn-by-mail series will not require examinations or tests, but will be educational and informative. The first issue will be titled *Is This For You?* and will explore some questions that must be asked by people thinking about expanding babysitting activities into a business.

For example, says Harvey, many day-care providers do not consider ahead of time how they will handle issues such as sharing toys among a large number of children, or how to take care of meals for the youngsters. Other matters such as record keeping and bookkeeping are necessary and must be dealt with. *Being good with children is not enough, says Harvey.*

In addition to the learn-by-mail series, there will be Saturday programs to help day-care providers meet one another and form support networks. Panel discussions at these meet-



ings will deal with issues such as licensing regulations that change too frequently to be included in the written material. There will also be opportunities for participants to discuss problems and find solutions to common difficulties.

*This is a brand-new area for Extension,* says Harvey, who is obviously excited about the possibilities. *There is so much that can be done!*

Another example of Extension education in this area, which has involved not only Harvey, but Sheila R. Urban, Extension Human Development Specialist, and Extension Agents C. Joyce Kleffner of Hancock County and Virginia W. Vineyard of Washington County, is a two-county conference this fall. Entitled **Spotlight — Child Care, Your Profession**, it deals with many of the same issues addressed in the mail series.

The conference was planned by groups from both Washington and Hancock Counties, and involves speakers and participants from both locales. Personnel hope this kind of conference can be repeated in many locations throughout the state in the coming year.

The Small Business Management office of UMCES, located in Winslow Hall on the Orono campus, is directly engaged in research to assist Maine enterprises in better marketing for their products. Duane A. Smith, Business Management Specialist for Marketing, has been working closely with the University of Maine Experiment Station and industry representatives to conduct studies of comparative marketing techniques and priorities.

According to Smith, *We have successfully developed, tested and completed research which evaluates new potato varieties by analyzing consumer reactions rather than by primarily analyzing production aspects of the industry.*

This research, which will soon be available from county Extension offices in a publication entitled **Consumer Satisfaction With Maine Potatoes in Home Use**, found that the most commonly grown variety of Maine potato had significantly less consumer appeal than another, similar variety. By recommending that growers plant and market the more appealing variety, Smith said, he is confident that *There is strong evidence we can increase our share of the market.*

Another area of interest to these researchers from the Extension Service and Experiment Station is the selling and serving of Maine products in restaurants and institutions, commonly known as the food service industry. A follow-up survey to a seminar presented in October, 1986, indicated that participants had significantly increased sales to the food service industry after learning more about the industry and possible marketing channels. One respondent in particular *Found*

*it interesting that quality and product consistency are considered to be more important than price to food service industry buyers, and felt that business people need More information on broker networks, how to market outside of the Maine area, and how to get to the final consumer outside of Maine.* To address these needs, a second food service marketing seminar was presented in October, 1988, at the Bangor Hilton.

Forest M. French, Extension Business Management Specialist, and Ronald E. Beard, Hancock County Extension Agent, have been consulting with representatives of H.O.M.E., Inc., a craft production and marketing cooperative in Orland, on techniques for assessing their organization and improving its management.

H.O.M.E., Homeworkers Organized for More Employment, is a multifaceted organization involved with economic reconstruction and social rehabilitation through its many programs. Sister Lucy Poulin, its president, and other members of the board of directors, were interested in pursuing a management audit in hopes of making H.O.M.E. more efficient and responsive to the needs of its members.

After consulting with French, the board of directors of H.O.M.E. voted to pursue self-study as an appropriate method of determining their needs. They organized a representative committee, including in that group Sister Lucy, Rae Asbury, Alice Black, Glenn Larson and Ellen Moore. Ron Beard and Forest French worked together to teach the committee appropriate steps for auditing H.O.M.E.'s mission and purpose, organization and management, financial health, roles of the departments and staff, and roles of the members of the board. They also met periodically with the committee as it conducted the audits.

In February 1988, the organizational audit committee reported conclusions and recommendations on the first phase of their management audit to the H.O.M.E. Board of Directors.

Dennis Tewhey of Old Town, interested in entering the business of grinding optical lenses for Bangor area optometrists, contacted Extension business management specialists Forest French and Francis E. Montville for assistance in preparing a business plan.

Montville and French taught Mr. Tewhey how to research the necessary information and write a comprehensive business plan. Mr. Tewhey then spent two weeks preparing a draft plan, and brought it to the specialists for review. After receiving information about financing alternatives for the necessary equipment, Mr. Tewhey approached local banks for a loan.

Mr. Tewhey's loan application was successful based upon what the banker called an *excellent prepared business plan.*

Business management education in the University of Maine Cooperative Extension Service has taken many forms over the years. In 1982, Penobscot County Extension Agent Gleason Gray began working with the Bangor/Brewer Farmers' Market to help them with marketing and promotion of their products.

*I became involved with them just before the 1982 marketing season, said Gray, and it was obvious that their most pressing need was for promotional activities to draw attention to the market.*

Accordingly, Gray instituted training for the group in promotional activities and advertising, and worked with the group's Steering Committee to help them write bylaws, undertake a marketing study, and design a market letterhead for group identification. He also assisted them in working with the city council to obtain a better location for the market.

In the winter of 1985-86, Gray assisted the group in undertaking a major rule change eliminating purchase and resale of produce at the market, thereby allowing a guarantee of all locally-grown produce and eliminating quality problems.



**Paul Little of Bradford displays his produce at the Bangor-Brewer Farmers' market.**

Currently, Gray says, *The market has now reached a point where occasional advice and encouragement is needed from CES but in general it is a self-sufficient operation. It has grown to include several large vegetable growers who report daily sales exceeding \$500 per vendor. The total annual gross for the market appears to be well in excess of \$100,000.*

In another project, combining efforts with colleague Herb Zeichick, Gray assisted the Penobscot Indian Nation in developing ways to effectively clean and market fiddleheads.

A 1984 letter from Nicholas Dow, tribal planner, outlines the project: *Each spring many Penobscot Tribal members supplement their incomes harvesting fiddlehead greens from reservation Islands located in the Penobscot River, it reads. The letter goes on, experience has shown that there is a wider market for these greens if they are cleaned and shipped in boxes . . . . Could the Extension Service assist us in developing a mechanical process for cleaning fiddlehead greens this harvesting season?*

Gray worked on the cleaning project, while Zeichick concentrated on marketing aspects. Consulting with food management researchers on the Orono campus, Gray found



**Extension Agent Gleason Gray and two members of the Penobscot Indian Nation run a trial batch of fiddleheads through the cleaning machine.**

a cleaning machine that had been developed to clean other food products but which would be perfect for cleaning the delicate fiddleheads. Zeichick, in the meantime, traveled to central markets located in Massachusetts and determined that attractive, uniform packages brought the highest prices.

Members of the Indian Nation adopted the new cleaning methods and designed new packaging. As a result, in 1984 alone, the Nation sold 1,050 lbs. of fiddleheads to out-of-state buyers at 60 cents per pound more than the local price.

University of Maine Cooperative Extension Service programs in business management education have not all been recent or new. Extension has a 75-year history of helping agribusiness, of helping individual farmers become more profitable, and of helping farm families manage more economically.

In addition, some Extension programs have historically been involved in business education, although they have not always specifically called it business education.

Take, for example, the Rent-A-Kid project. This project began in the early 1970s in the Penobscot County Extension office.

Rent-A-Kid began as an educational work experience program for youngsters between 13 and 17 years old. Its main purpose was to find jobs for youngsters in this age group, keeping them off the streets and giving them an opportunity

to earn money. Wages were determined by agreement between the Kid and his or her employer, but the program gave youngsters a general idea of wages to expect for the kind and amount of work involved.

The Rent-A-Kid program provided work for 146 Kids in its first year. By the end of the summer of 1975 there were a total of 350 Kids signed up to work, with 96 full-time jobs and 155 part-time jobs filled.

In addition to matching potential employers and Kids, the program gave the youngsters some rudimentary education in handling money, in matching their interests and skills to jobs, and in the requirements of the jobs themselves.

According to Extension Agent Herbert W. Zeichick, *We found out that most kids were very conscientious about their jobs. A few weren't and they were found out and weren't referred any more.*

After a few years, according to Zeichick, the program was passed on to other community groups. *A prime goal of the Rent-A-Kid project, he says, was to show it could be done and then have others run with the concept while C.E.S. went on to find and demonstrate other innovative ways to help young people grow.*

Accordingly, the program moved from Extension to other community organizations, and eventually spread to Dover-Foxcroft, Lincoln, and then to towns throughout the state. It was a prime example of cooperation between Extension, private businesses such as Northern National Bank, and community organizations such as the Jaycees and the Jewish Community Center. It was also a prime example of educating youngsters in some aspects of business management.

Small Business Management Education is not a new undertaking for Extension Agent Dorothea J. Cloutier of Somerset County. She has recently completed a year's assignment as Key Agent for Homebased Business which gave her statewide responsibilities.

One of her activities during that assignment was to design a way in which potential entrepreneurs or small business owners could use a computer to help them decide whether they had the aptitude for entrepreneurship.

*We used existing pencil-and-paper quizzes as the basis of the computer program, said Cloutier. With the help of Extension Computer Specialist Mary S. Bowie, Cloutier and Extension Program Leader Rae Clark-McGrath took these quizzes and put them into a form so that the questions appear on the computer screen, the answers are tabulated immediately, and the person taking the quiz has a printed analysis to take home.*

There are four computer quizzes in the series, says Cloutier, and they all test for the same kinds of qualities in different ways. After taking a run through the program, a person has a pretty good idea of whether he or she has the kinds of preferences usually associated with success in small business.

In addition to the computer quizzes, Cloutier has available a workbook, including self-tests and checklists of things

for people to consider when starting a home-based business, and she has offered a series of seminars helping people analyze themselves and their business ideas as well as giving them help with the more usual aspects of business education. Many of the seminars have been directed at women who are business owners.

Not all successes are measured by numbers of businesses started, says Cloutier. *Sometimes people need to find out if they can cope with insurance, record keeping, and red tape before they move ahead with their ideas. Sometimes finding out they are not suited for small business before they have invested their money, energy, and effort, she says, is at least as important as helping them once they have begun as businesspeople.*

After Mr. and Mrs. Walter Heathcote of Nobleboro, Maine, decided to restore an orchard on their farm, they sought the advice of Knox-Lincoln County Extension Agent Herbert C. Annis. Mr. Heathcote is employed off the farm, but Mrs. Debbie Heathcote established a home-based business making apple butter.

Their product was accepted well and the Heathcotes decided to expand their processing facilities. Annis brought in Extension Agricultural Engineer Dr. Neal Hallee from Orono to assist them with technical design and equipment layout for processing their apples. In turn, Dr. Hallee brought Forest French and Francis Montville to the Heathcotes.

French and Montville assisted Mrs. Heathcote in developing business and marketing plans. Her apple butter product is being marketed at the L.L. Bean store in Freeport. The Heathcotes are continuing with the expansion of their business.

A total of 163 Maine business people attended a series of small business management educational programs provided by the University of Maine Cooperative Extension Service in March of 1988. These programs were conducted at four locations throughout the state: Portland, Augusta, Farmington and Bangor.

The Elements of a Business Plan was the topic of the first three-hour presentation, given once at each location. The second presentation in the series was devoted to record keeping and financial statements.

Featured speakers at these programs were Dr. F. Richard King, Chairman of the Department of Business Management, University College, Bangor; Mr. Bill Coombs of Bill Coombs and Associates, Cumberland; and Ms. Valerie McDougal, Director of Finance of Eastern Maine Development District, Bangor. Other presenters included Extension agents Herbert Zeichick, Penobscot County; Rick Barr, Franklin County; Jack Donovan, Cumberland County; and Richard Verville, Kennebec County; as well as University of

Maine Cooperative Extension Service Business Management Specialists Forest French and Francis Montville.

Attendees were particularly enthusiastic about the business plan program. One participant responded, *King was very good—a real opportunity to think about ways to use all the work put into a business plan.* Another commented the program was *not a minute too soon, as I want to streamline (my) business.* Suggestions for further programs included *more emphasis on ag market topics such as landscaping, forestry, flower and vegetable marketing, and a continued variety of speakers.*

The program on record keeping also generated a variety of responses. When asked for further suggestions, one participant wanted *More on taxes—everyone's headache!* while another decided after listening to the program that it would be a good idea to *get a CPA to do my books.*

Lou Bassano and Durwood Gray, Washington County Extension agents, have been providing Extension education programs to area shellfish industry people for some time. Some of their activities:

- \* Formation of the Maine Shellfish Dealers Association.
- \* With Ben Baxter, Marine Program Assistant, Brian Beal of UM Machias, and Sam Chapman of UMaine's Darling Center, organizing an effort to seed soft-shell clams into tidal clam flats.
- \* With the assistance of UM Agricultural Engineering faculty member Dr. John Riley, and James F. Philp, Extension Forestry Specialist for Marketing and Utilization, organizing efforts to develop marketing of underutilized marine species such as sea urchins and sea cucumbers. Such activities include improving the engineering and design of processing equipment and packaging.
- \* With the assistance of Extension Business Management Specialists Francis Montville, Forest French, and Duane Smith, providing consultation to shellfish processors on business management. These consultations have included business planning, record keeping and accounting, and market studies.

If you are a photographer, you probably started your business because you like to take pictures and are good at it. If, as your business becomes successful, you find you have less time available to take photographs because you are spending more time on business details, what do you do?

One thing you might do is turn to your county Extension Agent for help. This is how Brian Higgins of NP Photography in Brewer learned to streamline his business and increase both his satisfaction and his profits.

Higgins came to Penobscot County Extension Agent Herbert H. Zeichick for help with time management. Zeichick

publishes a business management education newsletter entitled **The Bottom Line**, hosts an ongoing series of small business seminars, and occasionally works with clients individually on business problems.

*We began with values definition and role clarification,* says Zeichick. *Brian concluded that he is a photographer, not a lab person or a janitor.* It came out of their discussions that Higgins felt the best use of his time was in taking pictures, and he decided it was time to reallocate job assignments and responsibilities in his business.

Higgins's first step was to hire an accountant to take care of the necessary bookkeeping details, Zeichick says. He then decided to send out most of his color lab work, and hired a part-time person to handle some of the in-house black and white lab work during critical time periods.

In addition, Higgins looked carefully at two marginal businesses he had been involved in. The first, doing custom lab work, he decided to eliminate entirely. The second, doing passport photos, not a particularly creative undertaking, he reduced by raising his prices. He is now earning the same amount of money on this enterprise, he says, but having to do less work.

The final measure Higgins decided on, says Zeichick, was to raise his prices overall on his creative black and white photography. The result was more money for his work, and he has noticed no loss of volume. He is earning more than ever before, Higgins says, and enjoying his business again. He feels he is free to learn more creative ways of taking photographs, and devote his time to doing what he likes best.



**Brian Higgins of N.P. Photo Studios, Brewer, sets up a portrait of a young client.**

AFDC mothers—small business people? Not according to stereotype. But the Extension Service has a way of seeing beyond stereotypes. Cumberland County Extension Agent Jack Donovan has been working with a Portland organization called W.I.N.G.S., Women In Nurturing Group Support, that helps AFDC mothers build an atmosphere where they can increase their self-esteem, gain self-confidence, and turn their talents into small businesses.

*W.I.N.G.S. is working with women to, first of all, help them overcome internal barriers, says W.I.N.G.S. coordinator Jerry Brown. They are afraid of success, they are afraid of failure, they are afraid of rejection. When they try something, she says, their benefits are immediately taken away, which sets them up for saying I'm not going to try.*

W.I.N.G.S. provides an atmosphere where the women can talk about their fears, set personal goals, and realize those goals one step at a time, says Brown. They gain confidence by sharing their ideas and testing them out within the group, where trying something new is safe.

In this way, W.I.N.G.S. has helped several alumnae to get off welfare roles and start their own small business enterprises. One has opened an exercise center, several have opened crafts businesses. All of them return to the W.I.N.G.S. center to help others as they were helped.

Where does Extension fit into this picture? *In education, training, resources and ideas, said Brown. Extension Agent Theresa Ferrari has contributed education on nutrition and self-esteem training. After Ferrari gave a workshop on self-esteem, she says, the women came away feeling so good about themselves — they really picked up on it!*

Donovan has contributed small business management and marketing education to the effort. The women have learned to design business cards, to find products that will sell, to reinvest their profits. It is a multiprogram approach, says Donovan, that cuts across traditional Extension program lines. In one way, however, it is very traditional. It is an example of what Extension does best: helping people help themselves.

This has been a smorgasbord of Small Business Management education efforts in action, as seen by UMCES Extension Agents and Specialists: University faculty members, reaching ordinary people every day, assisting them with problems, helping them to help themselves. Using innovative methods and techniques proven in the research laboratories at Orono, they make those techniques available to the people who can put them to use. This is a picture of the University of Maine Cooperative Extension Service, where the University reaches out to the people of Maine and extends itself into their lives.



4-H cross-country skiing lessons

# Family Resource Management: Learning to ease the burden

by Olive Dubord and Doris Cushman

Low paying jobs, seasonal work, unemployment and strikes, coupled with increased housing and health costs, create financial problems for many households in Franklin County, as is true across the state and the nation. Increased knowledge of sound financial management and improved decision-making abilities can help families become better consumers and plan sensibly for short- and long-range goals.

The Franklin County Extension Executive Committee, along with other social agencies in Franklin County, have identified financial management as a high priority need.

Olive Dubord, Extension Agent for the University of Maine Cooperative Extension Service and supervisor of the Family Resource Management program, recognizes the need for the program along with the difficult task of reaching financially stressed families. Mrs. Dubord and Extension Aide, Doris Cushman, conduct the program. Other agencies have provided a network for referrals of families to the program. Brochures, radio spots and newspaper articles, are utilized to publicize the availability of the program.

What does the program mean? The program helps families understand their present economic situation, sort through their options and make a commitment to work on the problems. It is a slow process, and many times the aide is confronted with problems such as keeping a roof over a family's head, putting food on the table and minimizing problems with creditors. Understanding that most of these families have little or no flexibility in their budgets and recognizing the need to help families overcome guilt, humiliation and sometimes anger are all parts of the process of making changes. Assisting families to develop a workable financial plan for themselves utilizing their limited resources is usually accomplished.

The extension aide works individually with approximately 75 families a year. The first few visits are critical with two key areas addressed: confidentiality is crucial as most families are secretive and sensitive about their finances, and the aide must be trusted if families are to disclose their problems. The aide must also work in a nonjudgmental manner; the decisions made must come from the family.

The average age of most clients is the mid-twenties. Sixty percent are parents with young children, 30 percent are parents with teenage children, seven percent are childless, and three percent have adult children living at home.

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*Olive C. Dubord is a University of Maine Cooperative Extension Service Agent in Franklin County.*

*Doris Cushman is a University of Maine Extension Aide in Franklin County.*

Networking with other agencies is imperative because many of Mrs. Cushman's clients need to avail themselves of other assistance programs. Forty percent of our families are working full-time with no assistance in these families; 30 percent receive A.F.D.C., are unemployed, and are single parents receiving food stamps and fuel assistance; 20 percent are single parents, working part-time, needing some assistance, and 10 percent are elderly. The average take-home pay is \$200 or less a week.

**The following cases can be shared to give a feeling of the types of families served and their complex financial burdens.**

## Old, disabled, and cold

Mrs. Z. is one of our Senior Citizens whom I called on for the first time in mid-winter. She was sitting in a tiny apartment which she was trying to heat with two quartz heaters. She was wrapped up in an afghan trying to keep warm. [I nearly froze on that first visit myself]. Living on a very low income, her apartment was heated by electricity, and her electrical utilities bill was drastically high. She also had an electric waterheater. With this combination, much of her Social Security check was spent trying to keep up with the extra expense of coping in mid-winter. This placed a great burden on her finances, since very little money could be budgeted for food or medication. She was able to obtain \$25 per month in food stamps and some fuel assistance which had been nearly depleted when the coldest weather was upon us. It was quite clear that her apartment was not winterized and she spoke quite bitterly that she [at her age], had to live in such a cold place, as she had several disabilities.

When her Social Security check arrived, rent, utilities, telephone, medicine and food were paid for, in that order. What was left, went for other commitments. It was quite apparent that her food choices were very limited. I offered suggestions, such as joining other Seniors at the local meal site for her mid-day meal. Her attitude, due in part to unhappy experiences in her earlier years, seemed, to me, to play a role in her attitude of the world in general as she told me she wasn't interested in *that kind of socializing*.

As I looked around her very neat home, I noticed beautiful craft items. Her pillows were beautifully made. Her cross-stitch articles were also lovely. I decided that this lady was very artistic and mentioned that. I asked her if she had ever thought of placing articles in craft shops. Her answer was negative, saying, *I probably couldn't sell any*. When I was preparing to leave, wondering how I could be of help, I asked if I

could call her back in a few days with budget aid suggestions, etc. I felt she might not want me anyway, since it was very obvious by her remarks that she thought she was beyond help. She surprised me by saying, *Yes, I wish you would, even though I doubt if you can help me.*

When I called on her two weeks later, there was a noticeable difference in her attitude. Her landlady had purchased a pillow, and, special-ordered two more! She also had an appointment to meet with a woman who sells Maine Crafts on consignment. I mentioned a new shop in Farmington.

Now she was ready to discuss ways in which we might be able to budget her new source of revenue. She spoke to her landlord about how cold her apartment was and how much it was costing her to keep warm. The landlord lowered her rent \$7. To some of us this might not seem like much, but to this lady it meant \$7 to help with medicine, food, etc.

After several months of working with this woman [meeting with her once a month], she filled out an impressive evaluation sheet on her progress. Some of her comments are as follows: *My phone bill is cut in half. I now receive \$56 in food stamps. Aide showed me how to utilize food stamps to go further. The Extension program is excellent. I'm feeling relief from my bills, no more charging. Aide helped me in encouraging me to sell my crafts, which I have placed in various craft shops in the County, and they are selling! Working on crafts takes my mind off my disabilities as well as producing a better outlook on life, and a reason for living. I feel so much better about myself. I hope others will take advantage of this wonderful service!*

Mrs. Z. kept very busy last summer making Indian motif pillows. Her outlook on life is certainly much brighter than it was on that cold winter day when I first called on her.

### **We think we can**

**I recently called on a family with whom I started working two and one half years ago. We met in their new six-room home.**

When I started working with this family of four, they were living in a tiny apartment in a low income housing development. This was a second marriage for Jim. When he came into this marriage, he brought with him past-due child support payments, and many debts brought on in part by a former alcohol problem, lack of a stable work pattern, etc.

Jane is at least ten years younger than her husband. Overwhelmed with worry, she heard of our program and contacted our office, asking for any budget assistance we could offer.

Our first meeting involved getting acquainted and listing all debts and income; setting goals toward repayment stages and preparing a record keeping notebook. Since debts far exceeded income, I knew they would not be resolved overnight.

One of the first suggestions was to ask if Jane might not be able to find a part-time job, since more income was needed if a budget was to work. They were also urged to contact each creditor at once! On my second visit, I met with the couple. Jane told me she would soon be starting to work four nights a week when Jim was at home with their children. Jim

had found extra work two nights per week. They saved one evening a week for family night.

Every penny went into the success of that budget, and with each meeting, the pride of both "Jim and Jane" in their accomplishments was a delight to see. After several months, Jane asked me if I would accompany her [for support] to see about the possibility of securing an FHA loan, a very special long-range goal. This was to be the start of help toward the dream that a new home might be in their future.

It took another one and one-half years for that loan to be approved. But in the meantime, debts were being paid off, a down payment towards the new home was being saved and old junk furniture was being refinished. They were able to save more than \$1000.

Early in 1988 they finally moved into their new home. The children love having their own rooms, an ample play yard, a garden and privacy. Both parents are still working at their extra jobs. They are among our successful graduates. Both are secure hard-working people.

### **Bootstraps are for pulling**

In late January of 1988, Don, a young single parent, read about our Family Resource workshops. At the last minute he decided to attend to see what help we could offer him. He attended all five workshops and when the final one was held, asked if I would work with him on a one-to-one basis.

Through broken marriages and children, his debts seemed to him, unsurmountable. His concerns were genuine, and he admitted he was depressed and discouraged, saying *My debts are all jumbled up in my head.* Carrying a load of many debts, the largest ones came from back child support, IRS, past due hospital and doctors' bills.

Step one was to list all debts. That in itself seemed to spell some relief, at least in his mind. From our first session, I sensed his appreciation that somewhere in our Cooperative Extension Service was a program that was available and might well be an answer to his situation.

It takes patience and discipline to follow our program guidelines successfully. At first, there is very little left over for fun or outings. Don has shown these past several months how determined he is. His occupation is farm work and he often works 50 to 60 hours weekly. Back child support payments are gradually being paid. Hospital debts are lowering; many small debts are now paid in full. He very proudly shares his accomplishments.

Paying on past and present IRS and State income taxes is also a part of our budget plan which he is doing through payroll deductions. At the start of our setting up Don's budget, he shared that he might have to move from his small rent into a small camper for the summer. I strongly encouraged him to keep his rent as he needs a place to live the year round, and especially when his children come to visit him. This he has done and at present his rent is caught up; utilities are caught up also; and he recently went on the electrical company budget plan.

If and when he has had setbacks, and he has had a few, he immediately has called his creditors. Usually adjustments to pay a smaller amount are made.

I feel confident with the new year ahead, Don will enter into it a much happier person. He has come a long way since that cold January evening when he appeared at the Extension Office.

Self-esteem, confidence in himself, and his ability to stick to his commitments have helped bring out a very responsible person, who, of course, was always there.

Along with working with individual families, Mrs. Dubord has encouraged group work. During the past year a series of eight workshops was conducted.

Mrs. Cushman enjoys working with groups and recalls her first effort at this as a result of working with a couple a few years ago. I suggested that I would gladly work with a group if one could be brought together. When I called one client to set up an appointment, she told me she had four friends who were interested.

I prepared an agenda and planned a four-hour meeting including a lunch break. Five adults and seven children were present at 10 a.m. when our meeting started on a cold winter's day. Material dealing with the budget process was passed out and explained with time to discuss various problems dealing with budgeting. This group of young people, all in their early twenties, had great difficulty dealing with their husbands' low-paying jobs and young children to care for, which made it difficult for them to work at jobs. They felt a sense of guilt that they couldn't contribute more themselves in the way of income.

Lunch break was enjoyed as the young mothers had each brought something to contribute. Thrifty recipe ideas during lunch were shared and this also became a time to discuss *Spending Your Food Dollars Wisely* with everyone contributing ideas and taking notes. Finally a film strip, *Marriage and Money* was shown, which enhanced what we discussed earlier. When we adjourned at 2 p.m., it had been a full day but a learning experience for all of us.

Later another call was received from an area Literacy Volunteer who asked if we could present several Family Resource Workshops for some people with whom she was working. I met with this group for six one-hour, once-a-week sessions. Eight women, some with children, were involved. Each week a planned program similar to my first group was presented to a very enthusiastic group.

In the fall of 1987 we presented three workshops at our Extension Office. They proved to be so successful we decided to present five in the winter of 1988. The workshops focused on *The Philosophy of Budgeting* and included *Understanding the Budget Process*; *The Needs of Setting Goals*, *Minding Your Money When You Shop*, *The High Cost of Utilities*. A guest speaker from Central Maine Power spoke on *Why Is My Bill What It Is?* Filmstrips were presented, and the most popular was *Marriage and Mon-*

*ey*. These were only a few subjects presented.

As satisfied as we feel about the many families that have made many significant changes, there have been some along the way that have not been as successful. The willingness to make changes and to follow through with commitments are the two primary areas found difficult to change.

An evaluation of families is ongoing. Participants must continue to adopt management practice changes and show improvement in their management to continue in the program. Beyond the basic balancing budget topics, families receive information on bartering, consumer buying, dealing with creditors, attitudes, and priorities in dealing with money.

Many of the changes made by the families on limited resources have a significant influence on their ability to deal with other family situations. Self-esteem and a feeling of control grow from the program and strengthen many families.



**Earth Connections Blind Trail**



# Breaking Free and Taking Control: Helen Sawyer's Story

by Doris Manley

Helen Sawyer felt trapped by feelings of bitterness, frustration and lack of control over most everything in her life. Fortunately, there was someone who understood where she was and what she was going through. Helen Mohn, a nutrition aide with the Expanded Food and Nutrition Education Program (EFNEP), had been there before. A former AFDC mother herself, and a single parent raising six children, she knew all too well the difficulties and hardships of raising children with limited resources.

Helen Sawyer thought she was doing the best she could with what she had. She initially resented Helen Mohn's attempt to help her out. Helen Mohn knew that this woman had potential. She was smart and learned very quickly and soon began to share her enthusiasm for learning with other neighbors. The following narrative gives a personal account of Helen Sawyer's experience.

About 12 years ago, I was introduced to a Cooperative Extension EFNEP Nutrition Aide who was working with a group of 21 low-income families in a Portland housing project. The importance of this first encounter with Helen's group was immeasurable in my life.

I was new to the world of single-parenting, AFDC, and to the neighborhood which was located miles from stores. I was struggling to manage a very small budget with limited access to shopping and with no knowledge of shopping techniques. One of the first things Helen shared with me was low-cost recipes which seemed to make a pound of hamburger extend to three meals instead of one. I asked Helen for some one-on-one help with meal planning, stretching my food dollar, and the nutritional value of processed foods such as cereals and canned goods. At one point I was very frustrated when I tried to bake my own wheat bread and it didn't rise properly. Again, Helen came to my rescue with some tips on the type of flour to use and kneading techniques. I saved a lot of money on bakery goods when I learned how to do my own baking.

The group meetings gave me a chance to meet my neighbors as well as to talk about my insecurities and frustrations. Once I could talk about my problems, I was ready to start acting on them, in very small steps at first. Eventually this

allowed me to ask for help. In fact, Helen's group and her personal instructions in nutrition became a catalyst for things to come. In a sense, learning to control a food budget translated into self-confidence and the ability to take control of other aspects of my life.

For both son Tommy and me, an exciting family project was our first garden, my ghetto garden, a four-foot square garden dug out of clay in our backyard. From weeds, we managed to transform our plot into a successful garden of three tomato plants, string beans, cucumbers, and eventually pumpkins by the third season. Tommy learned how to care for things through gardening. This positive experience led to my opening my home to adult and children groups for gardening, canning and freezing, and nutrition education. A lasting reminder of our efforts can be seen in the number of family gardens in Riverton these days.

*Helen Mohn is truly dedicated to working with low income families and helping them believe in themselves. When I've worked with Helen judging gardens in her housing projects, it's amazing to see the respect and warmth that's reciprocated by adults and children on whom she has had an impact. She triggers smiles and enthusiasm in a world of problems and despair.*

— Doris Manley

Eventually my new self-confidence, along with Helen's encouragement, led me to exploring career opportunities. I very nervously made the first step in going to college: the day I filled out the admission papers. Halfway through the paperwork, I realized the significance of my action. I was taking control of my future as well as my son's. I was crying and shaking before I finished and was very unsure of my ability to succeed. My choices were limited: I could either stay in a life of depression, poverty, and hopelessness or I could give myself a chance to take control.

Five years of college and many term papers later, I graduated with high honors and the knowledge that I was worth the risk. Now I am employed as an Occupancy Coordinator at Coastal Management Company in Portland. I provide quality, subsidized apartments for low-income families and elderly people. In my work I often meet people who are struggling to survive and to make their lives better. One of their first needs is to find affordable housing. I can offer them apartments, but I can also offer them hope. I think EFNEP

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*Doris A. Manley is an Extension Agent and EFNEP supervisor in Cumberland County's Extension Office, located in Portland. She holds a Bachelor of Science and a Masters degree in Food and Nutrition. She is also a Registered Dietitian and an active member of the American Dietetic Association. Her commitment to preventative nutrition and heart health has been of special emphasis in her community education efforts.*

# Partnership in Conservation: The Josephine Newman Sanctuary

by Nancy Coverstone

The Josephine Newman Sanctuary is located on Georgetown Island in Sagadahoc County. The 119-acre Sanctuary is bounded by water on two sides and is representative of the ecology of the mid-coast region. It has several habitats including a coastline, spruce-fir forest, rocky ridges, a meadow, a cattail marsh and an alder swamp. All of its edges, the meeting places between habitats such as forest and meadow, land and water, offer food and shelter for a large variety of animals. There are two and one-half miles of trails for hiking, snowshoeing or cross-country skiing.

When one first comes to the Sanctuary and walks into the meadow which is the first and most obvious sign of human use, one wonders who lived in this magical place, and who gave this gift to you and me. Josephine Oliver Newman willed the land to the Maine Audubon Society in 1968. She had spent most of her life on the land which is now the Sanctuary. Her presence in the Sanctuary is most keenly felt near the foundation where her house once stood.

In 1985, as owner and manager of the Sanctuary, the Maine Audubon Society invited the University of Maine Cooperative Extension Service to work with them on a project with the Bath area schools. The Maine Audubon Society, using a grant from a local foundation, developed and printed a guide for the Josephine Newman Sanctuary and built a self-guiding trail. *The Josephine Newman Sanctuary Guide* is the quintessential sanctuary guide, a model for similar works in the future.

The next step for the project was to conduct a series of workshops at the Sanctuary to train teachers and volunteers to create outdoor educational experiences for students.

The project evolved under the guidance of a committee of local teachers, school administrators and volunteer teachers. Two Extension Agents and an Extension Forestry Specialist joined the committee in 1985, as the guide and trail were being completed. A section of the guide is keyed to the self-guiding trail, which was the heart of three all-day workshops in the Spring of 1986 and 1987. Of these, two were held on school in-service days and one was on a Saturday, a schedule which did not work well for teachers. Afternoon workshops seemed to accommodate them better.

Workshop leaders, which included people from the Department of Marine Resources, The Maine Audubon Society, the University of Maine Cooperative Extension Service, and local naturalists, took small groups of participants along the self-

guiding trail, stopping at particular stations to illustrate lessons and demonstrate various related learning activities. These early sessions focused on curriculum for grades kindergarten through six, which later were expanded to include grades seven and eight. Most of the 100 teachers were from Bath, Woolwich, Topsham, Bowdoin and Brunswick schools. Although the planning committee represented Bath area schools, teachers from two other administrative districts were invited to the workshops.

Once the grant to Audubon was completed, Extension offered to take on the responsibility for continuing the workshops, planning them with a small committee of teachers from the three school districts, and a volunteer. Five afternoon workshops were held in the Fall of 1987 and Spring of 1988, each two hours at the end of the school day. Rather than focusing on the self-guiding trail, we concentrated on specific topics such as pond ecology, insects, salt marsh ecology and the intertidal zone, soils and geology, and plants. At the end of the sessions, the guide was distributed, along with resource material appropriate to the subjects of the workshops.

This partnership between the Maine Audubon Society and the University of Maine Cooperative Extension Service was a natural marriage of interests: environment and education. Maine Audubon has talented technical staff and owns the Sanctuary. Cooperative Extension creates nontraditional educational experiences for practical needs. Such cooperative ventures yield quality environmental and public policy education programs most desperately needed in the state.

Further, the involvement of the many resource people sharing their professional and organizational points of view is desirable in all programs. It allows the public to understand different, often opposing, perspectives. They can then make their own informed choices.

Sometimes the interpersonal dynamics of a program must be enough to enliven the experience. Place, while not unimportant, needs only be comfortable and appropriate to the requirements of the group. The programs at the Josephine Newman Sanctuary had a very different feeling. *The place was the teacher. Our resource people were guides.*

*Sanctuary* comes from a Middle English word. It means consecrated place, a place for worship, a place of refuge and protection. The Josephine Newman Sanctuary creates that sense of awe, of reverence in those who go there. *We often think that humankind changes nature: a parking lot, a road, cultivated fields, gravel pits. We rarely realize how the land changes us, in the way we see the world and where we see ourselves fitting into it.*

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*Nancy Coverstone is an Extension Agent for the University of Maine Cooperative Extension Service in Androscoggin and Sagadahoc Counties.*

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*PATCH, a Planned Approach to Community Health, is a modest project with a remarkably simple, yet sterling goal: to help the communities on Mount Desert Island take action to improve the health of their residents. The program's goal is to help its participants enjoy a prolonged, active, productive life; reduce premature deaths, and reduce illness. In this particular case, the University of Maine Cooperative Extension Service, working with other agencies and groups, addressed a challenge. Rather than be intimidated by the enormity of the threat—in this case, death due to preventable causes—the Extension Service grabbed it by the throat, shook it, and with its typical low-key tenacity, began to cudgel it into submission. PATCH is making quantifiable progress toward its goals; Extension and the citizens it serves are winning.*

## **The Mount Desert Island Health Promotion Project**

by Ron Beard

In the summer of 1985, tentative inquiries into what might be done in the area of community health promotion were made by the College of the Atlantic, Mount Desert Island Hospital, and the University of Maine Cooperative Extension Service. Momentum gathered as a College of the Atlantic student pursued health related statistics for Mount Desert Island residents, and the Maine Bureau of Health looked for a pilot site in Maine to employ a community health planning process called PATCH, Planned Approach to Community Health, which has been designed by the United States Centers for Disease Control.

By January of 1986, a coalition of these local, state, and national organizations had formed, and community volunteers were recruited to conduct a statistically valid behavioral risk factor survey by telephone. Nearly 700 Mount Desert Island residents, about 10 percent of the adult population selected at random, were questioned about risk factors such as seatbelt use, obesity, smoking, regular exercise, and alcohol consumption.

When the data was analyzed by the Centers for Disease Control, Mount Desert Island became the first area in Maine with an in-depth profile of the primary risk factors in the leading causes of death and chronic disease of residents: heart disease, cancer, lung disease and accidents.

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From island wide meetings to discuss health promotions emerged an active steering committee which has guided the project to the present. Using the PATCH model, representatives from the Centers for Disease Control and the Maine Bureau of Health, working through a local faculty member of the University of Maine Cooperative Extension Service, provided in-depth training to members of the steering committee. The committee reviewed results of the risk factor survey, updated statistics on causes of death and chronic disease, conducted a public opinion survey, and wrote community objectives for specific health promotion activities.

The Steering Committee chose three priority areas in which to begin work: heart disease, cancer, and accidents. These are especially relevant because they are linked to two prominent risk factors: smoking and exercise.

### **Community Objectives Selected**

In spring, 1987, two task forces were organized. The first was to look at ways to increase the percentage of Mount Desert Island residents who do not smoke from 80 to 85 percent by 1990. Targeting prevention and cessation programs for adults and school-aged residents, the task force received early support from local groups and the American Lung Association of Maine.

The second task force selected the question of regular exercise and set a community objective to increase the percentage of Mount Desert Island residents who exercise at least three times per week for 20 minutes from the current level of 41 percent to 60 percent by 1990. The initial aim was to devise a health screening program which could evaluate present fitness and recommend individual or organized exercise programs and activities.

## Coordinator

The Steering Committee and Task Forces in mid-1987 recognized the need for a local project coordinator, a part-time position to help manage the various activities, coordinate the volunteer efforts, and collaborate with other interested community organizations. With modest financial support from the Centers for Disease Control, and in-kind contributions from the University of Maine Cooperative Extension Service and Mount Desert Island Hospital, the steering committee successfully conducted the appropriate actions and hired a three-quarter time coordinator.

## New Funding

Shortly after the installation of a coordinator, the Centers for Disease Control awarded the State of Maine a three-year contract to conduct community programs in chronic disease prevention. The solid track record laid down by the steering committee and well-established community support for health promotion on Mount Desert Island resulted in a cooperative agreement and funding of \$17-20,000 in each of the following three years to focus on cholesterol screening and educational efforts to improve nutrition.

**Health promotion is about the future: by changing community attitudes and individual behavior, it is possible to reduce premature death and chronic disease. We think that the Mount Desert Island Health Promotion Project stands as a strong partner in targeting community, state and national resources toward the problems we identify locally. Working together, we can make a difference in the health of Mount Desert Island residents.**

## Looking Ahead

With a three-quarter time coordinator, a projected budget of \$20-25,000 per year, an active steering committee, working task forces, and continued support from a host of community organizations, the Mount Desert Island Health Promotion project, PATCH, has gathered significant momentum in two and a half years. The work to date is an example of how common cause can be tapped for community-wide assessment of needs and creation of a collaborative action-oriented program.

Mount Desert Island Hospital currently provides office space for the PATCH coordinator and has purchased equipment for use in community health screening. It has applied to the Maine Health Care Finance Commission for partial funding of the coordinator's salary.

The two initial task forces are moving ahead with activities to help local residents prevent and reduce smoking and to increase regular exercise. A third task force has been organized to address the topic of nutrition and cholesterol.

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has gotten back what it gave to me. My son Tommy is healthy, happy, and a normal teenager, I'm glad to say, who looks forward to a future of positive and unlimited choices.

Helen's story continues to unfold her confidence, courage and leadership. She has volunteered to become a member of the Cumberland County Executive Board, an advisory group that provides input and guidance into Extension issues programming in the county. Having her perspective and experience will be a valuable insight into educational programs for low-income families.

As the EFNEP program celebrates nationally its 20th Anniversary, there are many success stories and changed lives.

An EFNEP 20th Anniversary Recognition Program took place on October 3, 1988, at the US Department of Agriculture patio in Washington, D.C. The ceremony recognized the accomplishments of the program by symbolic representation of families and youth participants. The staff positions that have contributed to the success of the program also were recognized.

An *Outstanding Life Experiences Narrative* contest was held nationwide to gather information on outstanding experiences with EFNEP clients and aides.

Helen Sawyer's narrative was chosen as one out of five nationally, and EFNEP aide Helen Mohn took part in the recognition ceremony in Washington. We are proud of the work that Helen Mohn has done as an EFNEP aide and equally proud of Helen Sawyer's ongoing success and triumphs in a brighter and challenging world.

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At the Sanctuary, searching for signs of human habitation we see a horse chestnut, an apple tree, a stone foundation, stone walls. We learn that our lives and our influence are brief and weak compared to the endurance of the natural environment.

The cattail marsh, the glacial erratic, the meadow, the forests, the salt marsh speak to us with a wordless eloquence, telling us that all nature is a Sanctuary. We will treat it so.



A component of the 1988 4-H Quadrathon

# Dynamics of Weed Control in Agriculture

by Leigh Morrow

Given the stunning advances in technology surrounding us, minimizing the detrimental effects of weed populations in crops should be a simple matter. Right?

## WRONG.

The problem of undesirable plants competing with crops for light, moisture, and nutrients remains as serious as the day humans first scratched the soil with a stick and began cultivation. Due to changing agricultural practices and the migration of plant species, weeds will continue as a major problem for farmers well into the future. The following chronology of recent developments in northern Maine agriculture illustrates what is involved in the dynamics of weed control.

Late in the 1970s, few farmers or agricultural field workers in the area noted the new, but sparse, populations of a fine-leaved plant which produces a typical daisy flower. During those early years, the weed disguised its establishment in northern Maine by its resemblance to two other long-time inhabitants: pineapple-weed, *Matricaria matricarioides* (Less. Porter) which is all but indistinguishable from the new weed in the seeding stage, and oxeye daisy, *Chrysanthemum leucanthemum* (L.), which flowers with a very similar daisy. Pineapple-weed is easily restricted to roadsides, and oxeye daisy is commonly found on uncultivated wasteland. Farmers mistakenly identifying the new weed as pineapple-weed or oxeye daisy in their fields were not alerted to the seriousness of the infestation for several reasons.

Early in the 1980s, several farmers, field workers and University of Maine personnel came to the realization that false chamomile, *Matricaria maritima* (L.), is encroaching on our region. Initially, false chamomile is most vigorous in spring oat fields, and Dr. R. Terry Jones of the University of Maine's Cooperative Extension Service recommends early application of a combination of two specific grain herbicides.

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*Leigh Morrow is a native of Van Buren, Maine, where his father still maintains the idled farmland that was established by Morrow's grandfather. Married to hometown girl, Patricia Violette, and with two children, he has sentimental and emotional interests in Northern Maine. After graduating with a University of Maine degree in Biology, he worked for the Maine sugar beet industry during its year-long effort at revitalization. An M.S. degree was earned in Plant and Soil Sciences during nine years of employment with the Maine Agricultural Experiment Station. Under the tutelage of Professor Hugh Murphy, Morrow acquired the agronomy background necessary for his current, challenging career with the University of Maine Cooperative Extension Service.*

To date this is still the treatment of choice in grain fields, but it is only 60 percent effective. Losses of grain yield are severe. Although cultivation in potato culture destroys some false chamomile plants, farmers are frustrated that the weed has been escaping herbicide treatments. The literature indicates that one plant can produce 180,000 viable seeds which are a tremendous source of new plants in the following crop, which is usually grain.



Seedlings of false chamomile, October 1, 1986.

In 1983, I conducted the first field trials on false chamomile control in potato and grain plantings. Results indicated that an experimental grain herbicide is very effective against the target weed, but that Dr. Jones' recommendation remains the best available. The experimental herbicide would never be released for use on grain plantings in the Eastern United States. The potato trial indicated that three herbicides, glyphosate, paraquat, and dinoseb, have some effect on false chamomile. Dinoseb has since been banned (1986) from use, and several other herbicides which gained in farmer popularity throughout the 1970s do not control false chamomile well. The expanding range of false chamomile may be due to the shift in herbicide use which has intensified since the ban of dinoseb.

The winter phase of false chamomile's annual life cycle was observed in 1983. While the weed is a prolific seed producer, a second reason for its tenacity is the fall germination of most of its seeds. This allows false chamomile to develop a considerable root system early after snow melt.

Many growers and field workers have assumed that false chamomile is a perennial because of its ability to regrow following tillage passes. But this is not the case. False chamomile is not a perennial and its regrowth is not from underground portions of the plant. This understanding is critical to using effective controls because tillage is usually less effective

tive for control of perennial weeds than annual weeds. False chamomile's regrowth ability is strictly due to its early establishment of a substantial root system and its fine-leaf structure which is difficult to desiccate. What appears to be regeneration following tillage is actually the continued growth of original plants which have not been buried by cultivated soil.

By 1985, the recommended Cooperative Extension Service control measures for false chamomile included moldboard plowing or successive tillage passes prior to planting, registered potato herbicides found effective in the 1983 field trials, and handpulling where populations are light but the subsequent weed seed production would leave serious problems for future crops.



**False chamomile in bloom, Summer, 1987, Washburn, Maine.**

Many farmers are reluctant to practice any of these recommendations. Those committed to crop production through minimum tillage do not desire to return to moldboard plowing or repeated spring cultivations. In most cases, before a farmer is convinced to switch to an alternative herbicide, he or she usually experiences two or three seasons of weed escapes using a herbicide found reliable in the past.

In 1986 and 1987, the Cooperative Extension Service and the Maine Agricultural Experiment Station conducted additional field trials which supported the currently recommended control measures. In addition, another experimental herbicide was found very effective on false chamomile in grain crops. A handful of farmers who utilize minimum tillage follow the Extension recommendations with some success, while timely conventional tillage by other farmers eliminates as many as 75 false chamomile seedlings per square foot.

The astronomical density of some false chamomile concentrations suggests that the weed seed may be spread through grain equipment or with grain seed. This is supported by the apparent lack of false chamomile several miles away in New Brunswick, Canada, and the fact that Maine's oat grain and

oat seed are not shipped across the border. Farmers are wise to use clean seed when planting oat crops.

Currently in 1988, as several farmers have been following Extension Service recommendations, their neighbors have been noticing the success in combating this weed problem. The University of Maine has served as a major player in unraveling the peculiarities of false chamomile as well as uncovering the ways in which it has been exploiting northern Maine agricultural practices.

From a population thought to be nonexistent in the mid-1970s, false chamomile has expanded its range across approximately 25 percent of cultivated land in northern and central Aroostook County. Now the species is encroaching on southern Aroostook County.

The situation has evolved through identification of the problem; observation; research, and education by the Extension Service and the Experiment Station, to gradual acceptance of University of Maine recommendations by the relevant farming community.

The University of Maine's Extension Service has provided farmers with chemical, mechanical and preventative control measures. The process continues.

Weed control in agriculture can not be treated as a static problem, and this case study reflects what occurs wherever crops are cultivated. The dynamics involve migration of plant species, changes in agricultural practices, herbicide use patterns, new regulations, crop diversification, loss of material of choice, environmental concerns and others. Examples proliferate.



**University of Maine Cooperative Extension Service false chamomile control field trial, Washburn, Maine.**

The dynamics of weed control are forwarding new challenges to agriculture, and the University of Maine Cooperative Extension Service is a pivotal factor in meeting those challenges.

# From Generation to Generation: An Extension Homemaker Family

by Nadine B. Reimer

The science of nutrition is forever changing. Beginning when Extension Homemaker Groups were formed in counties around the state, Extension faculty members have been sharing the latest, sound, nutrition information available to those interested groups and other individuals outside the University of Maine's classroom walls.

One enthusiastic student of this kind of learning was Florence "Flossie" Macphail Peck. She was born on Prince Edward Island in 1908, and at the age of 28 she became a resident of the mid-coast town of Nobleboro. Over the years she became the mother of five children.

In 1937 she joined the Extension Homemaker Group in her community, and life for her and her family was never the same again.

Five generations of her family have been touched by the nutrition education she received from the Extension home economists who taught in Knox and Lincoln Counties. The



**Florence "Flossie" M. Peck, mother, homemaker, and Extension volunteer. After receiving the Outstanding Homemaker Award from University of Maine President Arthur A. Hauck in May of 1955, Mrs. Peck said that she actually felt like she had gotten her degree from the University of Maine because she had learned so much through Extension. (Florence Peck in her 50s; birthdate July 26, 1908. The exact date of this picture is unknown.)**

*Nadine Reimer began her career as a University of Maine Cooperative Extension Service faculty member in 1978. As a Home Economics graduate, she works with issues that involve families in the coastal counties of Knox and Lincoln. She earned her B.S. degree from a small Mennonite school, Bethel College, in North Newton, Kansas, and her M.S. degree from Kansas State University. I have tremendous respect for family history, she said, and feel it makes us who we are.*

extended Peck family has flourished through Flossie's participation in Extension for more than 40 years. Her daughters, granddaughters, and great-granddaughters continue to depend on the Cooperative Extension System in the counties where they are living, both in and out of Maine.

In a recent interview with Flossie's oldest living daughter, Willa Vinal, we gained insight into how we, as Extension faculty, have been an influence on these five generations from Flossie's mother, Florrie Macphail, who lived with her and her family, to her four great grandchildren, the youngest of the five generations.

As a child, Willa remembers attending Extension meetings with her mother at the local Grange Hall. The meetings lasted all day. The highlight for Willa, as a youngster, was the noon meal. The menus were planned by the homemakers in the group according to the best nutritional knowledge of that time. All the necessary food items were brought to the meeting where they were prepared according to the most nutritious, latest and safest Extension method. The cooking in the Grange Hall was done on wood stoves, and all morning long wonderful odors wafted through the hall. The tables were beautifully and properly set, and finally, the meal was served.

A typical menu for that occasion:

New England Boiled Dinner  
(To include: corned beef,  
carrots, potatoes, onions  
cabbage and beets)  
Biscuits, Homemade Butter and Jam  
Milk and Coffee  
Apple Pie and Cheddar Cheese

After each of these monthly meetings, the menu and a report of the outcome was sent to the Home Demonstration Agent. Everyone hoped to hear excellent comments from her. Every effort was made toward variety and balance. The menu plan included something hot and something cold, something crunchy and something smooth, and lots of color. A meal of poached white fish, mashed potatoes, creamed cauliflower, milk and vanilla pudding would never have been served. Meals were a bit simpler then with seven food groups, which later changed to only four food groups. Now they seem much more complicated with all the discoveries about fats, sugar and salt.

Wholesome, balanced meals were served three times a day in the Peck household. *Mama wouldn't let us out the door in the morning until we had a balanced breakfast which almost always included hot cereal, Willa remembered, and even though it wasn't my favorite, I had to eat it.*

Because Flossie was concerned about her children, they always carried lunches that were the envy of their school chums. There was plenty of homemade bread with protein filling like cold roast beef and a bit of fruit and vegetable, either dark green, yellow, or orange in color because they were the best for her children.

Willia never remembers a time when the knowledge her mother gained from Extension didn't affect how the family ate, gardened, preserved the harvest, or even butchered. She recalled an instance at butchering time when her mother wanted to prepare tripe. She got in touch with the Extension Service because she knew they would have the information she needed. Willa confesses that she still enjoys this dish when it is prepared properly.



**Willa Peck Vinal (high school graduation picture taken in 1948) represents the third generation of this family to hold Extension education in high esteem. Today Mrs. Vinal still depends on the University of Maine Cooperative Extension Service for the latest, proven, scientific information about nutrition and food processing.**

In April of 1955, Mrs. Peck was honored for her many accomplishments as a homemaker and for home economics leadership in her community, county and state. Arthur A. Hauck, then President of the University of Maine, conferred the honors. Her citation included the following:

*Your skills and talents are many and are overshadowed only by love and devotion to your family. As a homemaker you have given your children a lasting and unforgettable experience in all that is best in Maine and American homelife. Your unusual sense of complete understanding has been the keynote by which you and your husband have so successfully molded your family into a happy, harmonious group. Not only have you provided the best possible nutritional, clothing and health needs for your family, but also you have contributed a splendid spirit through wholesome recreation. The University of Maine is honored to recognize you as an outstanding Homemaker.*

Flossie launched her children knowing that they were well informed about the great benefits of Extension education. One of her daughters, a mother of three daughters herself, is a clothes designer and seamstress in Rhode Island. Both sons are in the construction business, and their wives and families have come to appreciate the Cooperative Extension Service.

Willa, her oldest daughter, is the mother of eight children and has been a member of the Nobleboro Extension

Homemaker's Group for more than 25 years. Even when she was first married and living in Rhode Island, her mother kept her in touch with Extension.

When Willa was first married, her new husband, who wasn't familiar with Extension's balanced meals, asked her if she had ever made anything besides a balanced meal - like hotdogs? Her answer was no.

*You can imagine, she said, that with eight children, keeping balanced meals on the table required a very big garden and lots of home canning, always done according to the latest, safest guidelines we got from Extension. I was putting up 100 plus quarts of green beans using a pressure canner. The freezer was always full of meat and bread so we canned all the fruits and vegetables and put some in the root cellar, taking care never to store carrots and apples or potatoes and onions next to each other.*

When asked if she made any changes in the kinds of foods she served her family as opposed to what her mother had served, her response was, *Most definitely! I'm using lots of whole grains; we're eating more complex carbohydrates, cutting back on salt and sugar and trying very hard to follow the U.S. Dietary Guidelines on fat consumption. This means eating much less of the foods high in saturated fats. We used to eat lots of red meat. Now we eat it no more than two,*



**Pictured on the left is Florence "Florrie" Macphail, age 76, and beside her, her daughter, Florence "Flossie" M. Peck, age 40. The photo was taken in 1948. In the Macphail-Peck family, daughter Flossie influenced her mother to prepare meals according to what she was learning in Extension. They shared the same kitchen until Florrie's death in 1955 at the age of 93.**



maybe three times a week. We haven't given up pork, but we eat a lot less of it, and I always trim the fat off. We drink 1½ % milk instead of whole milk, too.

The eight Vinal children, Catherine, Jean, Peggy, Larry, Carolyn, Johnny, Christopher and Heather, have also been influenced by their mother's insistence on balanced, nutritious meals. Although Willa is quite certain they've all tasted junk food, she is very proud of the fact that her four grandchildren, with more to come, are sharing in this family's tradition of *eating healthy*.

When daughter Carolyn was in Colorado without the benefit of mom nearby, she accessed the Extension System there, knowing that they would have the information she needed to process an abundance of grapes into jelly. Everyone got grape jelly that Christmas with the assurance that it had been processed according to the latest guidelines available from Extension.

Over the years she has also had a nutritional impact on her in-laws. When we began counting family members who have benefited from Extension nutrition education, Willa thought they should be included. These family members, who include brothers, sister, children, in-laws, grandchildren, nieces and nephews, total 59.

With no more children at home for whom to cook nutritious meals, Willa's mother, Flossie Peck, took her knowledge

and enthusiasm for well-balanced meals with her when she went to work in 1958 for Miles Memorial Hospital in their kitchen. For her talents and expertise she received an hourly wage of 90 cents. However, her capable leadership in food buying, menu designing, and in being head cook met with approval and soon brought forth the tidy sum of \$2 an hour! For twelve years everyone who ate at this hospital - patients, doctors, nurses, staff and visitors - all experienced the nutritious, epicurean delights of the now indispensable Mrs. Peck. When she could no longer work due to ill health, her work was so highly appreciated that she was not allowed to resign, but was given an extended leave of absence.

In more recent years, until the time of her death in 1982, she continued to be a staunch supporter of Cooperative Extension because what she learned from her participation changed, for the better, the lives of those she loved most. None of her grandchildren or her great-grandchildren has ever been sent to school on an empty stomach!

Willa Vinal shares her mother's philosophy of Extension nutrition education. In her words, *Everything changes, but if it's from Extension, it's more than hearsay; it's tested, proven, and scientifically backed-up. If you don't pay attention and care, you lose out on part of life. Extension education has opened up my mind to a more healthful way of life. I have self-confidence, and I feel good.*

From the Saturday, May 10, 1952, issue of the Rockland Courier Gazette:

Mrs. Peck's first interest is her own home in a snug farmhouse on US 1 in Nobleboro. Local and state offices come to her through her Extension work but the affairs and well-being of her family are paramount with her. There are four generations of her family under one roof. She is shown at the left in the four generation group. With her is her mother, Mrs. Florrie Macphail, 87, who is holding her great granddaughter, Catherine, daughter of her granddaughter, Mrs. Lester Vinal, right.



Please note: Baby Catherine graduated from the University of Maine in 1978 with a degree in Animal and Veterinary Science.

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by Jim Killacky and Deb Burwell

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The Institute for Community Leadership and Development (ICLAD) is a clearinghouse and coordinating force for leadership education in Maine. Its roots are deeply and richly embedded in three major developments all concerned with the well-being of the people of the state of Maine. These developments are the founding and implementation of the land-grant University of Maine and later its Cooperative Extension Service; the New England Regional Leadership program (NERL), which since 1981-82 has been providing training for a number of emerging leaders in Maine, and a Cooperative Extension needs assessment, conducted to develop its current four-year plan of work, which identified community leadership as a pressing need for people in Maine. The Institute for Community Leadership and Development plays a major role in responding to this need.

ICLAD embraces leadership as an empowering process. Such a view was not central as recently as two decades ago, but views of leadership are evolving. *Collaboration, cooperation and inclusion* are among the current foci of attention as each of us grapples with increasingly complex issues. Both the popular and academic literature are replete with examples. In a recent in-depth feature, *Who Runs Maine*, the **Maine Times** persuasively argued that control of the state is no longer vested in a few male power holders but is much more widely dispersed.

Alexander Astin, a giant in the field of higher education, noted recently that while competition has been central in American education a shift to cooperation is essential. Collaborative learning's most important feature is that *It facilitates the development of teamwork skills and encourages the individual student to view each classmate as a potential helper rather than a competitor* (Astin, 1987, p. 17). Russell Mawby, Chair of the Kellogg Foundation's Board of Directors, wrote in the last annual report

*Whereas the role of the Foundation was once limited to the relatively passive one of helping to nurture the good ideas of others, now we must often play the more interactive part of catalyst to spark cooperation among diverse organizations and professions.*

(Mawby, 1987, p. 2)

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*Jim Killacky is a Community Development Specialist for the University of Maine Cooperative Extension Service.*

*Deb Burwell is Executive Director of the Institute for Community Leadership and Development (ICLAD) with the University of Maine Cooperative Extension Service.*

John Gardner writes

*Team leadership enhances the possibility that different styles of leadership can be brought to bear simultaneously. No one knows enough to perform all the functions in our most demanding leadership posts today. The best leader is one who insures that the appropriate talent and skills are built into the team.*

(Gardner, 1986, p. 16)

The Institute for Community Leadership and Development (ICLAD) views team leadership with its concepts of collaboration, cooperation, and inclusion as central in its leadership education role in Maine. In addition to providing coordination for and between the varying CES leadership activities, ICLAD plans to work with community groups, organizations, Extension faculty and staff in providing and facilitating leadership education.

Some of the key elements and characteristics in our leadership activities are the following:

**Effective Listening Skills:** How many times do you go to a meeting and feel that you have not been heard or that what you have to say is not worth saying because you won't be listened to? If the answer is *frequently*, then you are not alone. One of the key ingredients for effective leadership is the ability to listen attentively, and yet this is a trait that is often assumed to be in place when, in actual fact, training is very much needed.

**Establishing Operating Procedures** is a vital part of any leadership activity. These are procedures that can be agreed upon by the group or staff and include items such as how agendas are established, norms by which the meeting will be run, and how long the meeting will last. For people moving into leadership roles such skills are essential, and even for those who have been in these roles for some time, refreshers are useful.

**Appreciating and Understanding Differences:** The leadership model espoused in this presentation is one that calls for collaboration and cooperation among a range of groups, individuals and organizations. It is, therefore, vital that we engage in processes that will genuinely allow us not only to understand and appreciate differences, but to create a climate which will allow each of us to express honestly our differences and get beyond them so that collaboration and cooperation can occur. This calls for establishment of trust among participants and will lead to the giving and accepting of honest feedback.

**Understanding Community Power and Structures:** If the leadership activity is in the realm of the neighborhood, the community, or even beyond in the state, region or nation, an understanding of community power, the structure of community organizations, how public policy is made and implemented, is a key ingredient in the portfolio of an effective community leader.

**Group Leadership and Process Skills:** Leadership and group work are inseparable. In addition to the characteristics already noted, many of which occur in group settings, a group leader who is skilled in cutting off, drawing out, shifting or keeping the focus, will have mastered many of the essential ingredients of effective group leadership.

These are some of the major characteristics of leadership which will be addressed by ICLAD as we move forward in meeting the leadership needs of the people of Maine. The ICLAD Board of Directors has made a serious commitment not only to provide the most effective leadership training possible, but to model this leadership in its own day-to-day operations as we shall see in the case study of the board that follows.

## The ICLAD Board and its work

Working with a concept paper and a commitment from UMaine's Cooperative Extension Service, the ICLAD Planning Committee set out with the task of developing an organization to deliver leadership education to Maine. They chose the structure of a 13-member board staffed by an Executive Director. While their work built the foundation for a collaborative team, the individual board members defined the extent to which ICLAD embraced the team approach.

The ICLAD Planning Committee deliberately planned the composition of the board and recruited people from each of the following areas:

- Professionals and consultants in leadership skills
- Youth
- Private sector
- Public sector
- Fund-raising
- Existing Extension client groups
- Alumni of leadership training programs.

People were invited to fill out an application to apply for the board. Applications were reviewed and references checked. Criteria for selection were based on geographic distribution, diversity, interest and skills, experience with boards, and an interest in leadership.

The search successfully yielded a multi-talented and diverse board with members including the president of a consulting and training firm, a grassroots organizer and health professional, presidents of two major Extension volunteer organizations, the retired manager of public affairs for a ma-

yor paper company, and an academic dean. Board members brought experience and varied views on leadership. Diversity was built into the board.

## Learning to work together:

### *The balance between process and task*

The selection of 13 talented people for the ICLAD Board did not ensure that they could work well together. When board members came together for the first meeting in February 1988, they had the luxury and burden of defining their method of working together.

To define a common purpose and vision, the group began its task by reviewing and discussing six statements of purpose from the initial ICLAD concept paper. To define how the purpose statements would be carried out, the board established the following *ad hoc* committees:

- Board Development
- Public Relations and Communications
- Funding
- Program/Operations
- Data Gathering

Each group identified tasks and worked on them between board meetings. Thus, they were able to present the full board with the committee work. This method increased board efficiency and enabled people to become familiar with each other by working in small groups.

By October 1988, following five board meetings and a board retreat, the *ad hoc* committees had made major headway. The Board Development Committee provided the board with three major documents detailing the way the board will work together: ICLAD Operating Norms, Board Meeting Procedures and Board Meeting Norms. The Public Relations and Communications Committee designed and had a brochure printed to advertise the Institute for Community Leadership and Development. The Funding Committee provided the board with a list of potential funding sources and developed a successful preproposal to the W. K. Kellogg Foundation to work with 24 small communities providing leadership training over a five year period. The Program and Operations Committee provided agendas and an interim chair for each meeting. The Data Gathering Committee compiled clearinghouse data on leadership activities in Maine and an initial list of university and community leadership resource people.

The process of reaching this stage of development has involved the active integration of the five key elements and characteristics of leadership activities: effective listening skills, establishing operating procedures, appreciating and understanding differences, understanding community power and structures, and group leadership and process skills. At the same time that board members are practicing effective listening, they are establishing operating procedures and norms

and developing leadership programs. Task and process are linked.

In addition to board meetings, another central place that board development took place was at a two day board retreat. To become better acquainted and to build mutual trust, members explored their similarities and differences and participated in a leadership walk which allowed people to experience leading and following. People came from the retreat with a strong sense of becoming a group.

## ICLAD PROJECTS

ICLAD is coordinating a number of leadership efforts within the UMaine Cooperative Extension Service and beginning to develop leadership training for the broad community. One goal is to connect people who have completed leadership training to form community and state networks. ICLAD programs are discrete yet interconnected.

### *NEW ENGLAND REGIONAL LEADERSHIP (NERL)*

By fall, 1988, 268 New Englanders will have graduated from a program which prepares them to be active community decision-makers. Now in its sixth year of operation, the New England Regional Leadership program is a joint effort of the six Land-Grant Universities, their Cooperative Extension Systems, and the W. K. Kellogg Foundation. Maine has been an active participant since the beginning of the program.

NERL provides people with tangible leadership skills such as learning to run effective meetings, an understanding of how decisions are made, communication skills, an understanding of group dynamics, dealing with conflict, and increased analytical skills for evaluating issues. Additionally, people gain confidence, self-knowledge and a broader perspective on public issues.

In the most recent class which ended in September 1988, 18 Maine citizens studied community issues such as water quality, growth management and teenage pregnancy from varying perspectives as a means of increasing their leadership skills.

### *FAMILY COMMUNITY LEADERSHIP PROGRAM (FCL)*

Rapid social changes in Maine present communities with a variety of challenges. Often the challenges specifically affect women, youth, minorities, and elders, yet these groups are the least likely to be represented in the public policy making process.

The Family Community Leadership Program is designed to increase the leadership capabilities and involvement of women and others who are not traditionally represented in the public policy decision-making process. Focus is on issues that affect the quality of family life such as housing, health services, other human support services, allocation of community resources, and educational opportunities. Leadership skills will be taught using a team philosophy with professionals

and volunteers participating as partners in the design and delivery of the program.

### *COMPETENCY-BASED VOLUNTEER TRAINING*

Competency-Based Volunteer Training is a program to help volunteer leaders develop the basic skills they need to perform their assigned roles with the 4-H program proficiently.

Leader education will be competency-based, and volunteers will be required to demonstrate an acceptable level of skill mastery. Volunteers who successfully perform agreed-upon learning outcomes may have the opportunity to apply for university credit or other forms of continuing education units.

### *VOLUNTEERS FOR THE FUTURE*

In each of the 16 counties of Maine, the University of Maine Cooperative Extension Service depends on volunteer leaders to identify issues, set priorities and determine how Extension at the county and state levels will respond. Volunteers serve on county executive committees in each of the 16 counties. To strengthen these committees and aid them in being proactive in setting county agendas, ICLAD is developing a workshop series on leadership for them and for the county Extension staff.

## On Leadership

Jane Kelley, Extension Agent, Piscataquis County Cooperative Extension Service, New England Regional Leadership graduate.

*I look at leadership as the process of taking a group from point A to point B and serving as a task-oriented person. Leadership means determining whether a goal involves solving a community issue, or just sitting down and dealing with a problem from a leadership perspective. In the latter case, a leader focuses the group's attention on finding out what needs to be done, bringing the needed information together, and moving from there.*

Jim Killacky, Community Development Specialist, University of Maine Cooperative Extension Service.

*In the school I went to growing up in Ireland, rugby was the major sport and my major love. To my great joy once, I was elected captain of the under 11's (age group) team. I came home full of importance about this and after explaining it to my mother, she asked, "How many people are there on a rugby team?" "Fifteen," I replied with great bravado and confidence. "Well," she said, "Do you know how to play in each of those positions and what is expected of them?" With some increasing sense of hesitancy, I gingerly said, "Well, em, yea, I think so." "Well," she said, "if you are going to be a good captain it is very important that you know all the positions and what the people in them should be doing. This way you can know what areas need support, what needs to be changed or added, and in the process help make your team be the best it can be." Now some 30 years later this story is still very central to my view of leadership, and its telling is always part of my presentations on the subject.*

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# Exploding the Cinderella Syndrome: Strengthening Stepfamilies

by Wendy L. Pollock

Many people wonder how the stepfamily got its name. The term is rooted in the Anglo-Saxon word steopchild, meaning bereaved or orphaned child. Cinderella is an example of such a child and many stories like hers have helped give stepfamilies a negative image.

In years past, most stepfamilies were formed after the death of a parent. Today, most stepfamilies form after a divorce followed by single parent living. Currently, about 50 percent of our nation's marriages end in divorce; 80 percent of these divorces are followed by a remarriage, resulting in 30 million stepparents. Approximately one out of every three children is now living in a stepfamily situation.

Occasionally people try to come up with a new label for the stepfamily resulting in such terms as blended, recoupled, binuclear, reconstituted, and prefabricated. However, new labels can be viewed as new masks which cover up a very important fact: the stepfamily is a different kind of family, facing different challenges.

*“Before this workshop, my husband didn't even believe that we were a stepfamily. He insisted we were a nuclear family which should behave like one. Now, as a result of this workshop, he sees that we are a stepfamily, and we can begin to deal with our stepfamily concerns. That makes a dramatic difference.”*

A stepfamily is a household with an adult couple and at least one child from a previous relationship. Stepfamilies experience special obstacles and opportunities, strengths and stresses which are unique to their family forms. Changing the name of the family matters little; learning how the stepfamily works is what makes the difference.

To address the needs of stepfamilies in Oxford County, I conducted two Strengthening Stepfamily workshops last year, under the auspices of the University of Maine Cooperative Extension Service. Through discussions, activities, and readings, participants learned new skills for developing solid relationships within the stepfamily.

A major focus of the workshops is helping participants explore the ways in which stepfamilies are different from traditional, nuclear families. When many couples remarry they think to themselves, *We've been through this before — this time we'll do it right.* This type of thinking adds to the unrealistic expect-

tations people already have as they begin stepfamily living. One of the greatest myths surrounding the stepfamily is that it should function as a nuclear family. It can't. It won't.

A stepfamily is not worse than, better than, or a substitute for other family forms in which people live: it is simply different.

*“We are out of the Crazy Time or crisis stage and moving into Stability. This course is what has made the difference. I used to think my wife was crazy for letting all these things bother her. I told her it was her problem and that she needed help. I have learned through this course that these are normal stepfamily problems. Now I'm ready and willing to work out our problems. I failed at one marriage; I don't want to lose what I've got now.”*

One fact that makes stepfamilies different is that they are born of loss. As two people enter marriage for the first time, they are not experiencing the major losses such as death or divorce that members of a stepfamily have known. These losses, and the degree to which they have been dealt with, will greatly affect the characteristics of the stepfamily.

Another important difference between stepfamilies and nuclear families is the frequent existence of a nonresidential parent. Although physically absent from the home, the psychological presence of nonresidential parents is felt by all.

A mistake that often accompanies this is the unrealistic expectation of instant love and the stepparent's wish to replace this nonresidential parent in the children's lives. Parents, too, often struggle with the former spouse. The extent to which they have been able to achieve an emotional divorce, as well as a legal one, will have a powerful impact on the newly formed stepfamily.

Regardless of the custodial arrangements, children in stepfamilies are very likely to move back and forth between two homes. This is difficult for all the adults and children involved, whether it is a weekly transition, or just for one month a year.

Children in the nonresidential parent's home often struggle with feeling more like intruders than family members. In spite of the difficulties with these transitions, living in two homes can also enrich children's lives and broaden their horizons as they experience different lifestyles and family systems.

*Wendy Legg Pollock is an Extension Agent with the University of Maine Cooperative Extension Office in Oxford County.*

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# Integrated Pest Management: Bringing it all together

by Glen Koehler and James Dill

Near the end of World War II synthetic chemical pesticides which were very effective at killing insects and other pests became widely available and affordable. Because of their low cost it became standard agricultural practice to use pesticides on a regular calendar schedule, or at the first sight of a pest organism, without any assessment of whether treatments were needed. Knowledge of the undesirable effects of pesticides and of ways to reduce pesticide use was inadequate.

Over time, problems with the dependence on chemical pest control became apparent. Pesticide resistant pest strains, pest outbreaks caused by elimination of natural controls, detrimental effects on the environment from pesticide use, and awareness of the health hazards to applicators and consumers, have all become serious concerns.

The use of pesticides has contributed to the great increases in agricultural yields experienced in the past 40 years, but in today's farm economy, producers are hard pressed to maintain the high yields while simultaneously minimizing input costs to maintain profitability. At the same time however, the farmer's management options are being restricted by rising costs for pesticides and the machinery and labor needed to apply them. Regulatory restrictions and other social and political pressures are increasing the incentive for reduction in pesticide use.

Integrated Pest Management (IPM) programs provide a rational decision-making process to meet the challenge of maintaining high yields with a reduction in pesticide use. The specific procedures and criteria used in an IPM program are dictated by the commodity being protected, but for all commodities the general components of IPM are the same: monitoring, record-keeping, treatment thresholds, least disruptive treatments, evaluation, and revision as needed.

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## What is IPM?

Integrated Pest Management (IPM) is a way of making informed decisions in dealing with pest problems and making pesticide applications. Rather than relying on a predetermined schedule of pesticide treatments, IPM provides a framework for determining if there is a pest problem, when and where treatments or other actions are needed, and what responses will provide the best results. The objective is not to eradicate pests but to keep pest numbers below a defined population level at which the pests cause unacceptable economic, medical, or aesthetic damage.

IPM is also a systems approach where decisions are made based on information, and with consideration given to the effects of any particular decision on other factors in the system. By using an organized decision-making process, IPM identifies optimal responses to pest problems that are economical, effective, and environmentally sound. IPM is an approach to problem-solving rather than a set of specific practices and is applicable to any situation where decisions are made about pest problems. This article will discuss the application of IPM to agricultural crops, but it is important to note that IPM can and has been successfully used in situations as diverse as urban households, poultry houses, ornamental landscaping and forestry.

## Components of IPM

Information gathering is the first step in designing an IPM program, and it continues to be the foundation of decision-making when the program is operational. The first step is to identify the causes of pest damage.

Monitoring procedures are then developed to quantitatively record the pest population levels. By comparing pest population levels to resulting pest damage, and tabulating the cost and effectiveness of different control measures, an economic action threshold is established. This threshold is then used with continued monitoring to determine when the pest population has reached the level where the expected damage is enough to make treatment actions economically worthwhile.

In addition to integrating information, IPM treatment strategies (general approaches such as pest suppression, exclusion, tolerance) and tactics (specific methods of carrying out strategies, such as pest habitat destruction, biological controls, and chemical suppression) are integrated with each other to produce optimum results. An effort is made to reduce dependence on pesticides by examining the possibilities for nonchemical solutions to pest problems using biological, physical, mechanical, horticultural and educational methods. Pesticides are used only when necessary and in such a way

as to minimize negative effects.

Treatment actions are chosen not only by their effect on the target pest, but by their effects on other potential or actual pests, natural pest controls, other cropping practices, the surrounding ecosystem, and human health.

In addition to short-term interventions, control efforts include planning to prevent or reduce pest problems later in the season or in subsequent years. While this may call for major changes in the cropping system, the most cost-effective way of dealing with many pest problems is to prevent them from occurring by structuring the crop habitat so that conditions are unsuitable for pest survival. Crop rotations, resistant crop varieties, crop sanitation, or enhancement of the habitat for the pests' natural enemies, are ways in which a cropping system can be made less susceptible to pest damage.

## Applications of IPM in Maine

### Potatoes

The U.S. Department of Agriculture began the first pilot IPM demonstration projects in 1971 for cotton and tobacco insect control. In the mid-1970s the University of Maine Cooperative Extension Service (UMCES) established a Potato IPM project in Aroostook County.

Insects and diseases are very costly to potato producers. Growers spend more than 3.2 million dollars a year on fungicide to prevent late blight disease outbreaks. Late blight losses have historically averaged from 2 to 5 percent of the total crop, costing growers 2 to 6 million dollars per year. The Colorado potato beetle is a major insect pest which could reduce the potato harvest to nothing if left uncontrolled.



Scouting potatoes

Virus diseases are another major threat to potato production, causing yield reductions of 5 to 60 percent. Each insecticide treatment to control aphids, which are the major vectors of the viruses, costs the Maine potato industry \$465,000. But the cost of not suppressing an aphid population outbreak would be several million dollars. The seed potato market is an important, but stringent, outlet for Maine potatoes. Each

one percent of infected seed crop represents about \$150,000 in lost income.

Pest control accounts for 17 percent of potato production costs. With a 2.3 percent average profit margin, it is clear that the viability of the Maine potato industry depends upon effective and efficient pest management practices.

The Maine potato IPM program has been funded at roughly \$35,000 per year with the Federal government and UMCES each providing about \$18,000 per year. Recognizing the importance of IPM to the potato industry, the Maine Potato Board contributed \$10,000 in 1987 and \$13,000 in 1988.

IPM scouts attend a preseason training school and then make weekly farm visits checking potato plants and insect traps to monitor insect and disease levels. Hygrothermographs (temperature and humidity recorders) collect weather data which are used to make computer predictions of late blight fungus disease outbreaks. The scouts report pest occurrence and forecasts, crop development, nonchemical pest control recommendations, and information on optimum timing and choice of pesticides to growers. A telephone message hot line, newsletters, newspapers and local television stations are also used to disseminate information.

In 1987 growers following IPM recommendations eliminated three fungicide applications, a 30 percent decrease from the conventional spray schedule representing 4½ pounds less fungicide used per acre. Conservatively estimating 50 percent industrywide accordance with IPM advisory messages, the IPM program resulted in 193,500 fewer pounds of fungicide used at a savings of \$648,000 for purchase costs alone, not accounting for savings in application costs. In that same year, an outbreak of late blight fungus was detected, saving that farmer \$20,000, and saving the industry from potential losses of several million dollars.

In 1984, IPM forecasts called for the most severe late blight conditions in recent history. Due to the early warning system, the disease was controlled and potential losses in the millions of dollars were prevented.

The IPM program recommended earlier than normal aphid controls in 1987 because of the abundance and extremely early arrival of winged aphids. The estimated net revenue from the prevention of aphid borne virus diseases was at least 2 million dollars. Aphid populations were low in 1985, and IPM monitoring resulted in the elimination of at least one insecticide spray, representing an industrywide savings of \$465,000 and a reduction of at least 8,400 gallons of insecticide applied. In 1981, 3 to 4 insecticide treatments (with an industry cost reduction potential of 1.8 to 2.3 million dollars for the purchase of 25,000 to 33,000 gallons of insecticide) were saved by having IPM recommendations available instead of reliance on a prescheduled spray program.

The European corn borer is a caterpillar which feeds in and can kill potato vines. Monitoring traps found no infestations in 1987, and as a result, \$30,000 of insecticides (500 to

1,000 gallons depending on product formulations) which would have been used as insurance sprays were saved.

There have been other benefits arising from the potato IPM program. IPM educational materials including a series of eight color photo fact sheets on potato pests and their control have been developed and distributed to growers throughout the state. Progress has been made in identifying potato varieties resistant to white mold disease and in developing a white mold forecasting system.

A 1985 survey of growers found that the potato IPM program was considered to be useful (88 percent of respondents), that it had caused them to examine or change their pest management practices (76 percent of respondents), and that it contributed to profitability (61 percent of respondents). The average estimated savings in pesticide purchases was \$5 to \$40 per acre. A number of growers wrote that aside from the estimated dollar value in decreased pesticide costs, the Potato IPM program was a very good tool for better overall crop management.

#### *Blueberries*

Public concern about the use of insecticides on wild blueberry fields to control the blueberry maggot fly gave impetus to the development of a Blueberry IPM program by UMCES in 1980 and 1981.

During the first years, approximately 2,000 acres of the 25,000 acres of bearing fields were monitored for blueberry maggot infestations by checking yellow sticky traps which attract the flies. This initial program resulted in elimination of one or both of the standard insecticide applications in 50 percent of the monitored fields for a savings of \$10,500 in materials and application costs.

The information gathered in 1980 and 1981 was used to develop an IPM fact sheet entitled *Monitoring for the Blueberry Maggot*. The fact sheet provided growers with color photos to aid in identification of the fly, its general life history, and relevant information for trapping and making a treatment decision based on the trap catch. Several meetings were held to



**Blueberry Maggot trap**

teach the growers how to monitor their fields. A fact sheet on the identification of other blueberry pests was produced in 1987.

From 1982 through 1985 the scouted acreage grew from 7,000 to 12,000 acres. About two thirds of this acreage was handled by a private scouting firm, with the rest being done by some of the major processors and growers.

A 70 percent reduction in insecticide applications to the monitored acreage was achieved by the IPM program each year. In 1983, these reductions represented cost savings of approximately \$67,200 and 1,400 fewer gallons of insecticide used on the 8,000 acres monitored. After program costs were subtracted there was a net savings of \$19,200.

#### *Sweet Corn*

The Maine Sweet Corn IPM program was established in 1983 and was based in part on work done and funded by the Maine Department of Agriculture, Food and Rural Resources, in 1981 and 1982.

Federal funding has varied over the years but typically has provided about 75 percent of an average yearly program budget of \$26,000. UMCES contributions of \$4,200 to \$7,500 per year have provided the remaining portion of the yearly support funds. The demand for sweet corn IPM is beyond what budgeting constraints allow UMCES to provide.

There are three major corn insect pests in Maine: European corn borer, corn earworm, and fall armyworm. All three are night flying moths in the adult stage. Left uncontrolled, pest damage losses would approach 100 percent. Prior to the availability of an IPM program, Maine corn growers based pesticide use decisions on a combination of weather, crop development and apparent feeding damage. Detection of feeding damage was incidental to other activities. On a conventional spray schedule, spraying frequency ranges from once a week early in the season to once every 3 to 7 days in late summer.

Two of the major insect pests do not overwinter in Maine and migrate in from southern states each summer. Variation in the date of moth immigration of as much as a month or more between years has meant that in some previous years growers have made numerous unnecessary early season insecticide applications, while in other years they initiated their control programs too late to prevent serious economic damage to the crop. Blacklight traps and species specific pheromone (sexual attractant chemical) traps provide data as to when and where pest infestations are occurring. A field scout visits each participating farm once a week early in the season, and then every 4 to 5 days as pest pressure increases. Data collected from traps and field inspections is summarized and made available to all Maine sweet corn growers on a toll-free hot line.

In 1986 a nine page booklet, *Monitoring for Sweet Corn Pests*, was produced and distributed to growers throughout the state. The booklet uses text, diagrams, and color photographs to



present pest biology, damage, identification, and monitoring techniques.

A videotape on sweet corn pest management was in production in 1987 and 1988. After editing is completed, copies will be made available for growers to view on home VCR players.

Spray reductions and increases in marketable yield for the farms participating in the sweet corn IPM program varied from year to year. In 1984, early season European corn borer control was found to be unnecessary on 8 of 12 scouted farms. These farmers saved from one to five sprays (2 to 10 pints of insecticide per acre) at a cost savings of \$8.25 to \$41.25 per acre in pesticide purchase costs, not counting application cost savings.

If all the 1,500 acres of commercial sweet corn fields in Maine had been scouted and the same proportion of fields had experienced these savings, the potential industrywide savings would have been \$8,000 to \$40,000 in pesticide purchase costs alone.



**Corn Earworm**

That same year however, fall armyworm and corn earworm moths were detected a month earlier than normal and were unusually abundant. This led to IPM recommendations for an additional 4 to 8 spray treatments compared to a normal year.

The consensus among the IPM growers on the end-of-the-year survey was that without the IPM program, their marketable yields would have been reduced by 50 to 75 percent. A 50 percent yield reduction on the IPM acreage alone would have meant an economic loss of more than \$175,000. The economic benefit by prevention of yield losses to the other 80 percent of Maine's sweet corn industry is not known. The toll-free sweet corn pest hotline, the vegetable growers newsletter, and other channels which disseminated the pest observations made by the IPM program allowed the rest of the industry to benefit from more accurate pest information.

In 1985, most of the participating growers were able to reduce the number of insecticide applications they used because of IPM program recommendations. Growers' estimated cost reductions ranged from \$12 to \$200 per acre. Three growers

reported lower harvest labor costs because increased confidence in a clean, worm-free product allowed faster harvesting with less need to examine the ears for damage.

In 1986, sweet corn IPM growers estimated their savings at an average of \$24 per acre. All of the IPM growers were able to reduce the number of insecticide applications because of generally low pest pressure relative to previous years.

Eight of the nine IPM growers in 1987 reported that the program had saved them money from reduced spraying and increased marketable yield. Growers estimated that the mean savings were \$76 per acre. Extrapolated to the rest of Maine's sweet corn acreage, this translates into the potential of \$100,000 savings in 1987.

Over the first five years of the sweet corn IPM program, growers have consistently and almost unanimously rated the program beneficial, with the field damage reports and recommendations for timing of insecticide sprays as the most beneficial aspects.

### *Broccoli*

Large scale commercial production of broccoli began in Aroostook County in 1982. In 1983 UMCES began a broccoli IPM program, using the supervisory and scouting staff of the potato IPM program. The \$15,000 a year budget for broccoli IPM is provided by roughly equal contributions from the state and federal governments.

Most Maine broccoli is shipped to Boston and sold for fresh market use. Broccoli is a high value crop with strict quality standards.

There are two species of caterpillars which infest broccoli heads in northern Maine. There is also a bacterial disease called headrot which has become a serious problem in recent years. The premium price commanded for Maine broccoli due to its reputation for quality was lowered for the 1986 crop because of a few shipments containing headrot damage. Headrot disease frequently causes crop losses exceeding 40 percent, and 100 percent losses have occurred on some Maine farms. The cabbage maggot is another pest capable of causing extensive crop loss. Cabbage maggots feed in the roots and are difficult to detect until wilting of the aboveground parts of the plant becomes obvious.

Since 1982, 50 to 80 percent of the commercial broccoli acreage in Maine has been enrolled in the IPM program. Scouts make weekly visits to examine plants and to check insect traps.

By using IPM recommendations, such as in 1987 when field monitoring revealed unusually low populations of the two major caterpillar pests, growers have been able to reduce insecticide use by two treatments per year. This saved \$15,000 per year in pesticide costs, reduced expenditures for spray applications, and reduced the amount of insecticide introduced into the environment by more than a ton.

Monitoring of fungal diseases was begun in 1987, and resulted in 12,000 fewer pounds of fungicide being used last year.

In addition to spray reductions, the broccoli IPM program has prevented serious pest losses by advising farmers on proper planting site selection and rotation schemes to minimize clubroot disease. Different trapping methods for cabbage maggot flies have been evaluated in an effort to add monitoring for this pest to the IPM program.

### *Apples*

Maine's commercial orchardists annually produce 2 million bushels of apples valued at 14 to 17 million dollars. Most of the Maine crop is sold as wholesale fresh fruit. To produce high quality, competitively priced apples in an environmentally aware community requires discriminating use of pesticide. UMCES began its apple IPM program in 1982 with federal and state Extension funds, and with financial support from the Maine State Pomological Society.

Participating growers designate a 2 to 10 acre block to be monitored by the IPM scout. A demonstration IPM block is maintained at the Highmoor Farm Research Station. Educational materials have been developed. These include color photo fact sheets, a comprehensive apple orchard scouting manual, and a videotape on apple pest management available for home loan.

A preseason meeting is held each year to review pest problems of the previous year and to prepare for the upcoming season. The goals, strategies and techniques of IPM are presented. During the growing season, the IPM scout visits each orchard once a week. Current information on insect and disease conditions gathered from monitoring the IPM orchards is made available to the rest of the industry through regularly updated recorded apple pest hot line messages and newsletters.

Apple scab is a fungus disease which disfigures apples and weakens the trees. Without control measures, 100 percent of the apples can be rendered unsaleable. Preventative fungicide applications on a weekly or even more frequent basis during the spring and summer have been used to prevent apple scab outbreaks in the past. Better understanding of when the risk of infection is present has allowed a fine-tuning of control measures. To make full use of this ability to predict apple scab infection periods, the IPM program uses temperature and leaf wetness recorders to monitor conditions in each orchard. Also the maturity of the spores which spread the disease is monitored and reported on the recorded phone message to aid growers in determining when treatments are necessary. Visual and pheromone (sex attractant) traps are used to monitor insect pest populations.

Treatment recommendations are formulated independently for each IPM orchard based on the results of the weekly scouting visit. By meeting with the scout regularly, actively participating in field monitoring, and seeing examples of pests and pest damage first-hand, the growers gain a better understanding of the management problems which confront them. The scout also works with growers to prevent and solve prob-



**Apple Maggot**

lems related to spray coverage and dosage calculations.

End-of-year fruit quality grading and tabulations of spray records are done to measure the results and costs of pest control treatments by IPM growers, and also for a sample of growers not in the IPM program. Fruit quality has not differed between the two groups, but IPM growers have reported treatment cost savings ranging from \$18 to \$313 per acre in the end-of-year grower survey. Since 1982, insecticide and miticide, (chemical mite control), costs for IPM growers have remained stable at \$90 per acre. Non-IPM grower costs have fallen 36 percent, from \$140 to \$90 per acre. It seems that growers who are not in the IPM program, but who have access to the IPM publications, workshops, and recorded phone messages have also benefitted from the IPM program. These savings result in part from reducing the number of prebloom insecticide applications and relying on biological controls for control of green apple aphids. The largest savings have come through delaying apple maggot treatments until the flies are detected in the orchard. Each spray not used saves \$10 and 3.75 pounds of insecticide per acre.

Fungicide costs have shown a similar, though less striking, pattern of convergence between non-IPM and IPM grower expenditures. IPM recommendations call for fewer fungicide applications in dry weather and during the summer months. Overall, participating apple growers report that using IPM saves 2 to 4 pesticide applications per year.

### *Other Commodities*

Looking to future applications, UMCES personnel are conducting research to develop monitoring techniques which could be used to establish a small fruit (strawberry and raspberry) IPM program. Greenhouses, nurseries, poultry houses, and ornamental landscapes are other areas where pesticides are used regularly. IPM programs are in use in other states for these commodities. There is great potential for reduced pesticide use and increased profitability by applying IPM to these commodities in Maine.

# Addressing the Issues

by Patricia M. Pierson

## AT ISSUE

*Child Care:*

*The majority of families in Waldo County were parenting at an early age, many as teens. Some girls were mothers before they had an opportunity to babysit and had no idea how to care for a child. Some young parents lacked good parent role models. Children were being yelled at, and children were being spanked by parents in the supermarket, on the street, and in their homes. Discipline was inconsistent: a child was allowed to do something one day and he or she would be soundly spanked on another day for the same behavior. Children were yelled at and threatened but there was no followthrough with reasonable punishment. In 1977 the Extension faculty in Waldo County decided to undertake an educational program which would teach parents some alternative ways to discipline their children without threatening, yelling, or spanking the children.*

Mickie Whitney was hired as a parenting program coordinator to work throughout Waldo County with small groups of interested people to improve parenting skills with children under twelve years of age. Initially, referrals came from various community agencies responsible for dealing with families. Mickie uses the **Systematic Training for Effective Parenting** (S.T.E.P.) as the basis of her program. This model offers common types of child misbehavior, alternative parent responses, and frequent child reactions to each type of parent response. This serves as a jumping-off point for discussing other issues and questions parents have about the behavior of their children.

The S.T.E.P. program is designed to last for nine weeks, however, the Extension program is modified to include other parenting concerns participants have, and the program generally lasts fifteen weeks. Currently, the Extension parenting program is so well-known that there is always a waiting list of those who wish to take part the next parenting series to take place in their area.

The program coordinator contacts people living within a small geographic area and has them locate a home where the meetings will take place, choose a meeting time, and invite a few more participants if there is adequate space. Each year the program reaches approximately 250 parents. Although the majority of enrollees are mothers, more and more fathers are joining the groups.

The program has grown from its early beginnings of working with parents of children under twelve years of age. Now

separate programs are offered for parents of teens, teen parents, and foster and step-parents.

This past year a new effort was piloted with students in the Islesboro High School. School administrators turned over two class periods per week for six weeks to the parenting program coordinator to conduct a series on *Becoming an Adult*. Students took part on a voluntary basis; they could choose to continue in their regular classes instead, and they had the option to drop out of the special program at any time.

Seventeen boys and girls joined the series where they had an opportunity to learn to be responsible for the consequences of their own behavior. They discussed careers, further education, dating and other peer relationships, sex, becoming parents, marriage, dealing with parents and other adults, substance use and abuse, and coping with their own feelings.

At first some students were very reticent but as time went by, all participated in the discussions. No student quit the series. The evaluations and end-of-the-series remarks were very positive. Most youths pointed out that they did not have a sensitive adult who created a *safe environment* in which they could frankly discuss issues of interest and concern to them. Many island youths did not have very broad horizons or much exposure to life outside their present environment. Most seemed to expect to do what their parents do for a living: dig clams, maintain the dump, or whatever. Some teens showed a significant improvement in their sense of self-worth and self-confidence after having someone talk to them openly about their needs and show interest in them as persons of merit, with the belief they could become responsible adults. The program will be repeated next year in Islesboro and possibly in another school system.

The Waldo County Parenting Enrichment Program and other Extension educational outreach efforts have identified another need that can be filled through a concentrated educational program. The Extension staff observed that many peo-

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ple, especially those with low education levels, often fail to recognize that a parent is a child's first teacher and that much of the shaping of that child is done in the first few years by the parent or other care provider. With proper training, a parent can offer good developmental guidance for infants and young children.

In October, 1988, a person was hired to work with Waldo County families who are in the third trimester of pregnancy with the first child; work will continue with the household until the child is 36 months old. The Extension program coordinator will begin working with expecting parents discussing prenatal nutritional needs, decision-making around breast- or bottlefeeding, furniture and equipment needs, the attention requirements of a baby, and how this may alter the lifestyle of the parents and their relationship with one another.

The helper will be making regular visits to each family, presenting new activities to try with the baby or child to enhance cognitive development, social skills, motor skills, and language development. Originally, work will be done with individual families in their homes, but eventually groups of parents and children will be brought together at a central site to learn what can be done to further a child's development.

#### AT ISSUE

##### *Health and Nutrition*

*The Cooperative Extension Service goes to the people with its educational programs. Interest in classes in general nutrition was high in Waldo County in 1984. Attempts to determine when and where the best arrangements could be made for conducting three-hour sessions weekly for eight weeks showed little consensus among the 52 registrants. Some wanted daytime programs, while others were only available evenings; some would drive to Belfast, but others would only go to Unity or Brooks or Winterport. To accommodate these people, six repetitions of the series would need to be established where the anticipated enrollment would be six to eleven persons per site. This was a real time management problem for the Extension Agent with few people to be taught per series.*

In an effort to bring the primary nutrition content to these 52 people, a correspondence series was written. A total of 349 people from all over Waldo County have taken part in the series during the past four years. These are far more contacts than an extension agent with varied responsibilities could have made in workshops and short courses.

Another major health and nutrition concern for Waldo County people was weight management. In 1986 a correspondence course was written on this topic. Two years have seen 152 enrollees in the program.

The correspondence course is becoming an important component of the educational programs in health and nutrition in Waldo County. It allows people to learn at their leisure and at their own pace. Periodic group sessions to bring participants together allow people to get any misunderstandings cleared up and to have their questions answered. The method offers many people enough information and often interests them in more advanced material or in new issues related to the subject.

Parents will be referred to pre-school testing services and other health care providers if the child appears to have any type of problem. When the child is between two and three years of age, parents will be made aware of the Parenting Enrichment Program where they can learn to improve the parent-child relationship through improved approaches to discipline and by raising their awareness of the emotional needs of a child.

By working with parents early in the life of a child, it is anticipated that Extension's *Parents Are Teachers, Too* program can encourage higher level interaction between parents and young children to give youngsters a better start in life. The children enrolled in this program will be compared with other children from similar families to determine the difference the program makes in children's cognitive, social, motor, and language skills.

The three phases of the Waldo County Life Enrichment Program, *Parenting Enrichment*, *Becoming An Adult*, and *Parents Are Teachers, Too*, are reaching a wide cross-section of the public. These efforts are providing youth and adults with coping skills that result in a better quality of life for themselves and their families.

#### AT ISSUE

##### *The Forest and the Trees*

In Waldo County, extension agents having some difficulty in getting the public to recognize the scope of Cooperative Extension Service programming. Segments of the population tended to be familiar with one aspect of the program such as 4-H, agriculture, or nutrition. Each of the agents was writing a newsletter to keep people abreast of new information on given subjects. In 1985 the four agents combined their newsletter mailing label lists and wrote a newsletter which would cover all program topics to help the readership understand the scope of Extension. This effort has brought many people, who had traditionally allied themselves with an agent or an issue area, to join programs made available by other Extension faculty. The 12-page letter is being sent into approximately 1000 homes in Waldo County.

# Anti-Bruise: What's It All About?

## Maine Potato Harvest Anti-Bruise Program

by Neal D. Hallee

Bumper stickers in bright orange, pink, and green with statements like **Temperature Low - Go Slow, Handle Carefully - Check for Bruises, Don't Drop Over 6 Inches, and Bruisers are Losers** herald the start of the Maine potato harvest season. What is all this fanfare about? Is this a political convention? These messages point out a serious problem that occurs during the potato harvest season. They serve as reminders to the harvester operators and workers to be on the alert. The problem that must be addressed is damage to the potatoes during the harvest operation. This damage, commonly called *bruising*, comes about from the increased use of mechanized equipment in harvesting operations. Improper use of that equipment can seriously aggravate the tuber bruising problem.

Tuber bruising costs potato growers millions of dollars annually because it significantly reduces raw product quality for processing, tablestock or seed. Recognizing the problem, the frozen processing industry has provided financial incentives to growers to adopt production, harvest and handling practices that reduce tuber bruising. The chip processing industry is also building awareness of the problem that could lead to financial incentives to reduce bruising. The tablestock and seed industries do not have the same direct linkage between producer and raw product user, and thus cannot establish marketwide incentives for bruise-free potatoes. However, bruised potatoes are of great concern for these markets, too. Bruised potatoes that end up in fresh pack containers present a poor image to the consumer who usually must cut off the bruised area before cooking. Bruises on seed potatoes give decay a place to start.

### Types of Bruises

*Skinning* occurs during harvesting and handling when tubers are not completely mature. A suberized (corky) layer usually forms on the skinned area. Because it often is darker colored than the normal skin, it detracts from the general appearance. Using a vine killer at least 10 to 14 days before harvest helps reduce skinning.

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*Shatter Bruise* appears as a crack or split in the tuber surface and penetrates into the flesh. It can serve as an entry site for decay organisms. Hydrated or turgid potatoes (those harvested from a wet soil) are susceptible to shatter bruise. Low temperatures (below 50 °F) during harvest and handling cause tubers to shatter bruise easily. Potatoes with high specific gravity also seem to be more susceptible to this type of injury.

*Cuts and Scrapes* generally result when potatoes strike or are forced against sharp cutting objects, such as the blade of a windrower or harvester.

*Blackspot* appears as a dark, semispherical spot in the tuber flesh beneath the skin from 24 to 48 hours after impact on a hard surface. Blackspot is a physiological disorder resulting from a series of biochemical reactions leading to the production of a black pigment (melanin) in the bruised flesh. Generally, no evidence of blackspot is visible on the tuber surface - the injury cannot be detected until the potato is peeled. The injury occurs most frequently on the stem end but can occur anywhere on the tuber. Potato varieties differ in their susceptibility to blackspot. Any variety is more susceptible to blackspot where soil moisture at harvest is low and tubers are dehydrated. Also, when potatoes are to be handled, the pulp temperature should not be lower than 45 °F. Experiments have shown that inadequate potassium in the soil increases tuber susceptibility to blackspot.

### Methods of Bruise Detection

Techniques are available to the grower and the industry to detect bruising that occurs in harvesting. A simple test using a catechol solution can detect skinning, cuts and shatter bruises. Blackspot cannot be detected using catechol solution; detecting it requires peeling the potato.

#### *Catechol Test*

Catechol is a polyphenol compound that reacts with certain enzymes naturally present in the tuber to color the bruised areas purplish to dark red. The tuber sample is immersed in the catechol solution for 2 to 5 minutes. The sample is then removed from the solution and spread out on a clean dry surface for 10 minutes to allow the bruised areas to develop the red color. After 10 minutes, the tubers are examined for red to purplish areas that indicate bruises. A vegetable peeler can be used to remove successive layers of the flesh to determine the severity of the bruise. Samples can be taken from several locations to find out where damage is occurring in the harvest/handling operation.

#### *Blackspot detection*

In detecting blackspot damage, a sample of 10 tubers in the 7 to 10 ounce range is selected and stored at room tem-

perature for at least 24 hours to allow time for discoloration to develop. After this storage period, the tubers are carefully peeled without going too deeply into the flesh and examined. A blackspot bruise usually does not penetrate very deeply into the flesh. The damage appears as a bluish gray to black discoloration of the flesh 1/16 to 1/2 inch below the surface. The severity of blackspot is measured by counting the number of tubers showing blackspot and the number of bruised spots on each tuber.

An alternative method of blackspot detection has been developed at the University of Idaho. This method involves using tetrazolium chloride instead of the 24 hour storage period. With this test, the tubers are lightly and carefully peeled to remove only enough skin to expose the white flesh. The peeled tubers are immersed in the tetrazolium solution until bruised areas are visible, usually 45 minutes to 1 hour. The bruised areas will appear as light pink spots on the tubers.

### Scope Of Problem

The Maine Potato Industry Long-Range Plan 1987-1992 defines the scope of the bruise problem:

*While Maine enjoys many comparative advantages over competing potato regions, Maine's rocky soils and short growing season create a disadvantage if care is not taken to harvest the crop properly. For these reasons, vine killing, harvesting, and post-harvest handling of potatoes are the most critical processes in the production of high quality potatoes. Current agricultural practices require that potato tops be killed by either chemical or mechanical means. If these methods of top killing are not done properly, potatoes will be immature at harvest and will be highly susceptible to damage during the harvesting and post-harvest handling operations.*

*All of the best production practices, potato storages, packing facilities, marketing plans and strategies can not offset the physical damage that can be done at harvest time. Probably the most important goal put forth by the harvesting subcommittee in the 1982-1986 long-range plan was to lower the amount of serious bruise from 4 percent to 2 percent. Unfortunately, the anti-bruise campaign was all but eliminated for 1984 and 1985. In 1986 approximately 117 tests performed by three inspectors showed an average of 9.4 percent serious bruise. The high level of serious bruise in 1986 resulted in the loss of more than 12 million dollars in potential revenue to Maine's potato producers, the loss of more than \$100,000 in potential tax revenue to the Maine Potato Board, and a serious decline in the quality of the crop to be shipped to all market segments. In recognizing the primary and secondary goals of the 1987 Long-Range Planning Committee, the harvesting subcommittee has identified the following goals and action steps which it feels are essential to meet the established goals of other subcommittees and the overall goals of the 1987 Long-Range Plan.*

#### Goals of the Harvesting Sub-Committee

- Promote cultural practices which will improve potato maturity prior to harvest.
- Reduce bruising caused at time of harvest and placement into storage.

#### Action Steps:

1. Expand the anti-bruise campaign and establish a permanent provider for this service along with yearly collection of data relative to percent slight and percent seriously bruised potatoes.
2. Improve the availability of information regarding harvester bed speed adjustments, harvester maintenance, and harvester modifications.
3. Develop formal recommendations and identify proper mixing and application methods for remaining vine killing compounds. Continue communication and educational efforts relative to proper vine killing procedures.
4. Research and evaluate new harvesting and handling in storage methods, equipment, and techniques.

The responsibility for implementation of these action steps is shared among the Maine Potato Board, the Maine Agricultural Experiment Station and the Cooperative Extension Service.

The results of harvest bruise checks over the last two years (Table 1) indicate the problem persists. The average of 184 tests for serious bruise damage in 1987 was 8.75 percent, not much lower than the 1986 results.

TABLE 1.

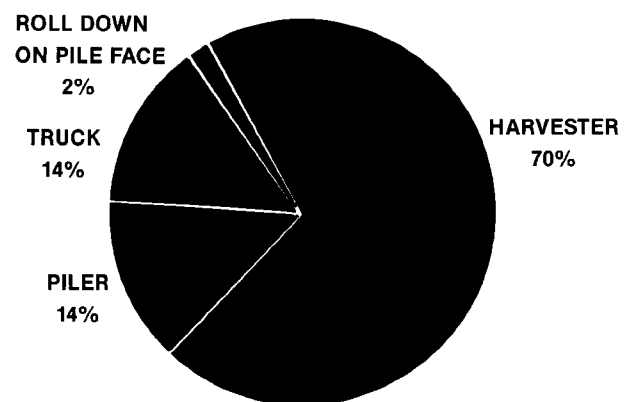
HARVEST BRUISE CHECK RESULTS

	1986	1987
No Damage	45.5%	56.0%
Skinning	37.0%	27.5%
Slight Bruise	8.05%	7.75%
Serious Bruise	9.45%	8.75%
Number of Harvester Checks	117	184

An investigation into the sources of mechanical injury (bruise damage) to potatoes during harvest operations indicates that the harvester is the major culprit (Figure 1).

FIGURE 1.

CONTRIBUTING SOURCES OF MECHANICAL INJURY TO POTATOES.



## Harvester Design

Since the largest amount of harvest bruise damage occurs on the harvester, it became the focus of attention for design modifications to reduce damage. A video produced by the University of Idaho suggested many modifications to existing harvesters that would be effective in reducing bruise damage. However, no information was available quantifying the reduction in bruise damage compared to the cost of modifications. One harvester manufacturer has researched many of the suggested modifications and incorporated them into the design and production of new harvesters. The company has indicated that a significant reduction in bruise damage resulted from these design changes but would not release actual results due to competition with other manufacturers.

Our concern centered around what could be done to harvesters currently in use that would be cost-effective in reducing harvester bruise damage. A grant application was submitted to the Maine Department of Agriculture Food & Rural Resources under their Tech Transfer Program to provide funding for a harvester modification project. Funding was secured for a two year time period and the harvester currently in use at the Aroostook Research Farm was selected for modifications (Figure 2).



**Figure 2:** Commercial potato harvester currently in use at the Aroostook Research Farm in Presque Isle, Maine.

The modification process started with the digging spade and the primary bed of the harvester. All current commercial harvesters have a split bed design with hook chain links and a divider in the center of the bed. This design works well when harvesters pick up only two rows of potatoes. In many commercial operations today windrowers are used to place an additional two or more rows of potatoes in between the two rows the harvester picks up. This presents potatoes to the digging spade and primary at a point where the bed is not designed to handle any material. The modifications made to this portion of the harvester consisted of replacing the digging spade and split hook-chain bed with a full width spade

and belted chain bed (Figure 3). This will allow material to be handled at any point on the bed without significant bruise damage.



**Figure 3:** Modified digging spade and primary bed on Aroostook Farm potato harvester.

The next modification area on this harvester involved the secondary bed and the drop from the secondary to the rear cross. On most commercial harvesters this drop is the longest, ranging from 12 to 15 inches. By using belted chain for the secondary bed and moving the location of the drive roller for this bed, the drop onto the rear cross can be reduced to less than six inches, as shown in the back portion of Figure 4. The rear cross bed has also been changed to belted chain and has been extended out over the side elevator bed (Figure 4, front portion).



**Figure 4:** Modified secondary and rear cross beds on Aroostook Farm potato harvester.

The remaining beds on the harvester (side elevator and boom conveyer) have also been changed to belted chain beds. All the belted chain beds have rubber cushioned or rubber covered rods as a bruise reduction feature (Figure 5).

The final modification area involves the loading boom used to fill bulk trucks with potatoes during harvest. Currently the

harvester operator manually controls the boom height above the pile in the truck. An automatic boom control device will be installed on the Aroostook Farm harvester to determine the effectiveness of this device in constantly controlling the height of the boom above the potato pile in the truck.



**Figure 5: Rear view of modified Aroostook Farm potato harvester.**

These modifications have been made over a two year period. Bruise checks conducted last fall during harvest were very promising in terms of bruise reduction with only half of the modifications completed. The average serious bruise damage was 1.9 percent while the average slight bruise damage was 5.3 percent. Comparing these results with the averages for 1987 listed in Table 1 indicates a significant reduction in serious bruise damage.

Further tests during the 1988 harvest season are being conducted to determine overall bruise damage reduction and the economics involved in making these modifications.

### Harvester Operation

The operation of a mechanical harvester is as critical as the design in relation to bruise damage. A properly adjusted and operated harvester will result in minimal bruise damage to potatoes during harvest.

One concept of harvester adjustment currently being promoted and based on research from the state of Washington involves the synchronizing of bed speeds. By adjusting the individual bed speeds in relation to ground speed and yield to operate at full capacity, bruise reduction can be achieved. The results of research trials conducted in Washington (Table 2) indicate the drastic reduction in bruise damage achieved by adjusting the bed speeds on the harvester.

A fact sheet containing background information and an adjustment procedure to follow for adjusting bed speeds has been developed and is currently available. Several meetings are held each year to demonstrate to potato growers how to

determine what speed adjustments are necessary and how to make the adjustments on harvesters.

Table 2.

#### Effect of Harvester Bed Speed Adjustment

Grower	Total Bruise Before Adj.	Damage (%) After Adj.
1	61	36
2	42	21
3	34	23

The ratios developed for use in adjusting harvesters are given in Table 3.

Table 3.

#### Harvester Chain/Forward Speed Ratios for Heavy Soils Yield (cwt/acre)

	100	200	300	400	500	600	700
Primary	1.2	1.2	1.2	1.2	1.2	1.2	1.2
Secondary	.7	.7	.7	.7	.7	.7	.7
Deviner	.7	.7	.7	.7	.7	.7	.7
Rear Cross	.2	.3	.4	.5	.5	.6	.7
Side Elevator	.2	.3	.4	.5	.5	.6	.7
Boom	.2	.2	.3	.4	.4	.5	.6

### Harvest Bruise Checks

As a result of the Maine Potato Industry Long-Range Plan action steps listed earlier for harvesting, the Maine Potato Board has funded a bruise checking program for the harvest season on a continuing basis. These funds are used to hire personnel during the harvest season to help growers reduce bruise damage on harvesters by conducting sample bruise checks, assisting growers to identify problem areas on harvesters, and suggesting corrective action to eliminate problem areas. Extension personnel provide the training for the bruise checking personnel. This program serves three purposes: it provides a service to the individual grower to assist with bruise problems; it creates an awareness throughout the industry that harvest bruising is a serious problem and must be addressed; it provides a means of evaluating the continuing efforts towards bruise reduction during harvest through data collection.

### National Anti-Bruise Activity

The anti-bruise concerns are alive and vocal not only in Maine. These concerns have spread nationwide with the formation several years ago of a National Anti-Bruise Committee. Extension and industry personnel from various potato growing states form the membership base for the committee. Maine is represented on this committee by two Extension personnel active in potato areas, Edwin S. Plissey, Potato Specialist, and Dr. Neal D. Hallee, Agricultural Engineer. The

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# H.O.P.E. Addresses Teenage Pregnancy

by Jane M. Kelly

Adolescence is a time of asking questions such as *Who am I? What do I want?* The search for an identity can lead to challenges to parental and societal values, self-centered attitudes, as well as constantly shifting emotions and moods. Although not quite an adult, the teenager is also no longer a child. Sometimes, the adolescent may seem mature and responsible and moments later, is fussing like a child. Pregnancy, for many girls, is beyond their ability to cope.

Reports predict that in the near future, one out of every seven females will give birth before the age of 18. In Maine, the Governor's Task Force on the Prevention of Adolescent Pregnancy and Parenting 1986 report noted facts and figures highlighting the impact of what it described as a serious problem. More than 3,000 Maine teenage girls, (or one in every 14,) become pregnant each year. The state had the sixth highest rate of birth to unwed teenagers in the nation. Piscataquis County has the second highest birth rate in the state.

As a homemaker concerned about helping pregnant teens, Mary Dorchester, formerly of Dover-Foxcroft, silently posed the questions *How can I help these teens? What can I do to make a difference?*

After pondering these questions Mrs. Dorchester addressed them openly to others in her community. Starting the Spring of 1986, bi-weekly meetings were held to address the issues. At last, Citizens Concerned about Teen Parenting was formed. The group identified three goals:

- defining the needs of pregnant teens

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*Darlene Ederly serves as a Parent Aide as well as a member of the HOPE Advisory Board. She has been involved with HOPE since 1985 and has been a parent aide to three teen mothers.*

*Sally Kraus is an Extension Aide and coordinator of the HOPE program. She earned a B.S. degree in Social Welfare from West Virginia Wesleyan College, West Virginia.*

*Wendy Pullen has been involved with HOPE since 1985, and she has been a school nurse in School Administrative District #4. Most recently, she has served as director of an inschool project, Adolescent Pregnancy and Prevention. She serves on the HOPE board and is a key resource and link with girls who are in school.*

- learning how to address these needs
- determining what resources were currently available in Piscataquis County.

Interested members of this task force numbered more than 50: teachers, nurses, pastors, health professionals, educators, counselors and interested parents. One such educator is Wendy Pullen. *I became involved with HOPE because of my interest in teens and pregnant teens and the realization that they often have many, many needs and often fall through the cracks,* says Pullen. She continues, *I also had the desire to improve their educational opportunities.* Mrs. Pullen, a school nurse, has been a key link with the girls. She saw many of them on a daily basis.

*"When I walked through the door at my first HOPE meeting, I was kind of nervous but excited to be with other people like me and who understood how I'm feeling and what I'm going through."*

The work of these concerned citizens continued for eight months. The list of tasks included identifying what's needed and who's out there, writing a history and journal of activities of HOPE to date, identifying the list of volunteers and their roles, writing a job description for the Parent Aide, developing a recruitment and training plan for the Aides, exploring the liability and legal aspects of such a program, developing a public relations strategy to include a brochure, radio interviews and Public Informational meetings, and then developing the HOPE curriculum. The target start-up date was October of 1986. And we made it!

## A Letter From A Teen Mom

To Whom It May Concern:

One week before my 16th birthday I found out I was three months pregnant. Since I wasn't living with my parents and my boyfriend was not around, I was alone.

My school counselor told me about a program for pregnant teens called HOPE. I met some very special people there with similar problems as mine.

Five months ago I graduated from HOPE. That was when my daughter, Heather Marie, was born. One of my friends from HOPE had her baby two hours before I had mine, so we were in the same room.

Since Heather was born my life has changed dramatically. Sometimes I feel like I'm going out of my mind because of the new responsibilities. I'm glad I have my friends at HOPE to count on. If HOPE was not around, the teens would be the ones who would loose.

## H.O.P.E.: a successful Program for Pregnant Teens

Because many teen parents are not emotionally or intellectually prepared for the demands of parenthood, the Concerned Citizens Task Force concluded H.O.P.E. (Healthy Opportunities for Parents Expecting) could be one method of helping these teens.

The HOPE program has two primary goals. First, to develop and enhance the knowledge, skills and attitudes about prenatal care, nutrition, self-esteem, communication, and parenting for adolescent parents. Secondly, to initiate a volunteer support base to provide supplementary education and services for these parents. An improvement in the teens' overall wellness, as well as an increase in self-sufficiency through emphasis on life skills enabling the adolescent parent to function effectively in the home and community, are long-term outcomes of the HOPE program.

### The HOPE Program works to help participants:

- Increase their knowledge of the physical and emotional changes during pre- and post-delivery stages.
- Develop communication skills (listening, talking, sharing and responding) for building a positive relationship with family members.
- Produce a personal and family budget plan which represents an effective use of all resources.
- Demonstrate the use of a decision-making process when making family decisions (money management, child care and education).
- Identify skills required of a parent/caregiver and develop a personal strategy to acquire these skills.
- Identify the signs of stress and implement personal strategies for coping with family stress.
- Identify services provided by community agencies which contribute to health maintenance of the family.

Parent Aides strive at increasing awareness of challenges facing the adolescent parent; developing communication skills which will enable them to be good listeners, and learning about community resources and developing a resource file of available educational materials and family services.

Sally Kraus, Extension Aide and coordinator of the HOPE program since April, 1987, uses a community-based approach in offering an educational and support program to expectant teens. Mrs. Kraus organizes a weekly HOPE meeting, and she uses key community resource people to address areas such as nutrition, fetal development, AFDC and the law. Another important component of the HOPE meeting is the support group time. This rap session allows girls to talk openly and share feelings about their pregnancy with other teens. The reassurance from peers and the friendships that are developed can be lifelong benefits.

Mrs. Kraus has worked with more than 20 girls and reports one of the biggest problems is helping these teens become better parents. Many girls seem very assured and confident before their child is born. However, feelings change shortly after the birth. *I don't think many know how to ask for help*, says Kraus. *The program is open to any pregnant teen, with emphasis on youth under the age of 18. While the program is open to fathers, and relatively few have participated in HOPE, two couples have completed HOPE. A hope I have for the future is getting fathers involved more*, says Kraus.

*"The HOPE program has taught me how to cope with being a teen mother."*

Recruitment continues to be made primarily through referral. The University of Maine Cooperation Extension Service is familiar with many of the professionals in the community who work with youth and/or families; Extension Agent Jane Kelly and Extension Aide Sally Kraus stay actively in touch with groups such as school personnel, public health nurses, physicians, education directors at hospitals, and clergy, to maintain a program referral network. Extension also informs constituents of the HOPE program via its network of volunteers, newsletters and media contacts. Experience has shown that once a nucleus of satisfied teens participates in a program, word-of-mouth becomes the most effective recruitment tool.

### Elements of a Successful Program: Volunteer Parent Aides

In addition to weekly educational meetings, the volunteer Parent Aide network provides a listening ear, role model and a special friend to the teen.

A Parent Aide is a trained volunteer who cares a great deal about family life. She is aware of the challenges of adolescence and parenthood and understands how important it can be for a teen to have a special friend. She is not a therapist, but she can help teens better understand the changes that are occurring. She is a good listener who serves as a role model for healthy parenting and a provider of emotional support for teens. She obtains pertinent information and resources and attends training sessions to share experiences and gain information. She retains confidentiality as well as consults with coordinators in matters where professional assistance is needed.

*"When I needed to cry, my Parent Aide was there to help me."*

The Parent Aide has contact with the teen at least once a week. She is responsible for setting procedures and guidelines for visits and phone calling. There are no fees for participation in this program. We know that teen parenting is a difficult job and our main purpose is to provide educational and emotional support to teen parents. It is the philosophy of

H.O.P.E. to provide a caring and nonjudgemental support network.

Volunteer Parent Aides are carefully matched with a teen to ensure that the needs of both parties are met as effectively as possible. The Aide works with teens on a one-to-one basis or as a couple. An initial meeting with the teen(s) enables the Parent Aide to establish rapport and to begin the needs assessment process. Initially, this may involve more than a weekly meeting. In addition to the work of the Parent Aide, some teens may have their needs met through the assistance of Extension nutrition aides and other community agencies.

*"If it weren't for HOPE, my pregnancy would have gone unsupported."*

As the Parent Aide and her teen develop their relationship, attendance at the HOPE group meetings is strongly encouraged. This method allows the teens to share experiences and to exchange ideas. It also provides a network of friends once the parent graduates from the program. While most of the direct services are provided at the HOPE meetings, teens are also contacted by the Parent Aide at least once during the week.

Some teens may need training in fundamental homemaking skills such as basic cooking, money management, or homemaking. Volunteers provide this information and support.

*"HOPE has helped me not to feel ashamed of being pregnant."*

The teen parent(s), Parent Aide and Extension Aide assess the participant's parenting skills; when the parent and staff agree their goals have been met, the parent graduates from the HOPE program. The average length of participation in the HOPE program is seven months. The teen mother is encouraged to continue her involvement with HOPE II. This program focuses on the development of parenting skills.

*"HOPE has taught me ways to be a good mother."*

One very devoted HOPE Parent Aide is Darlene Edgerly. Mrs. Edgerly was one of the concerned citizens who responded to the question *How can I help these teens?* She explained that the reasons she became involved with HOPE were *because the education about their pregnancies could not be fully met by their doctors. And because I care.* She has been a Parent Aide to three girls. Two years ago, Mrs. Edgerly was pregnant and said that as a Parent Aide, she really enjoyed the experience of sharing some ways of making the girls' lives a little easier. *I believe the successful key to the HOPE program is that it is a very relaxed, learning and listening environment for the girls. It is also rewarding to know*

*that the girls do not have to be there, no one is forcing them to participate. They are there because they choose to be there.*

Another special Parent Aide is Betty Brown of Dover-Foxcroft. Ms. Brown has had two HOPE girls. She shared her highlights of the HOPE program in the following:

*Each new girl was a highlight in herself for each one was so different. For me, meeting my girl for the first time was especially memorable as was the relationship that developed between us. She was open enough to share a lot of her feelings, problems and experiences with me (including phone conversations immediately before and after her baby was born). Watching and being a part of her and the other HOPE girls' experiences and progress gave me many new insights and perspectives that were very enlightening. My time with HOPE has convinced me more than ever how much human beings of all ages need to learn from each other.*

It is not the intent of the HOPE program to prevent pregnancy but to provide a healthy start of this teen parent and child. As HOPE enters the third cycle of its three years, 24 pregnant teens and 39 teen parents have participated in the program. The volunteer Parent Aides have made more than 3,118 contacts with these teens, teen fathers and grandparents. The need for child care provisions for the teens to enable them to participate more actively has become an increasing concern.

HOPE is the only program of its kind in Piscataquis County, in fact in the tri-county area. Frequent calls from the Bangor and Skowhegan areas indicate the interest and need to expand the HOPE program to these areas.

*"I want to thank HOPE and the other girls who helped (my daughter) Laurie and me through a very hard time. I don't think I could have done it alone. I hope this program can keep on going. It is a lot of help to teen mothers and their families. Thanks again for everything."*



4-H at the Union Fair

# Saving Money and Environment

by Vaughn Holyoke

Extension agents sometimes get caught in the middle of conflicts between farmers and environmentalists. For example, farmers are always looking for new pesticides to keep ahead of the ever-changing array of bugs, weeds, and diseases. On the other hand, environmentalists who see farmers as a major source of environmental problems, believe that the ever-increasing pest pressure is encouraged by monoculture cropping systems and the indiscriminate use of pesticides. Extension agents can sometimes serve as mediators by encouraging cropping systems that minimize pest pressures and suggesting pesticides that are least likely to create environmental problems.

Occasionally an opportunity arises whereby UMaine's Extension Service can initiate a program that will reduce the threat of environmental contamination and increase farm profitability at the same time. In 1988 a new nitrogen soil test program for field corn fit into this dual purpose category. Actually, Maine farmers have been using a soil testing system to determine plant food needs for 40 years, but a nitrogen test has not been part of this system. Because nitrogen has long been the most expensive plant food nutrient to buy, researchers have spent years unsuccessfully searching for a test that is reasonably accurate, quick, and inexpensive. In more recent years the presence of nitrates in groundwater caused, in part, by over-fertilization of cropland, has increased the pressure to find a way to predict the nitrogen needs of crops more accurately.

Early in 1988 Crops Specialist Vaughn Holyoke of the Cooperative Extension Service, in conjunction with Bruce Hoskins and Dr. Susan Erich of the Maine Agricultural Experiment Station, decided that a nitrogen soil testing program developed at the University of Vermont was suitable for Maine's conditions. Although this system could only be used on field corn, it had the potential to alter the nitrogen use pattern on 35,000 acres of Maine cropland.

Unlike traditional soil testing programs where samples are usually taken in the fall for use the following year, the samples for the Vermont nitrogen system must be taken when corn is 8 to 12 inches tall. The idea is to have farmers incorporate any manure they might use prior to planting corn. During the corn planting operation the farmer would apply about 20 pounds of nitrogen through the planter. Whether or not manure is used, the 20 pounds of starter fertilizer is

enough to get plants to a height of two feet. By testing the soil when corn is 8 to 12 inches tall, it is possible to predict how much (if any) additional nitrogen must be added to grow the crop to maturity. If additional nitrogen is needed, it should be applied by the time the corn is 24 inches high.

The key to this new program was getting farmers to take the samples at the proper time and then getting those samples delivered, analyzed, and reported back to the grower within seven days. When corn reaches 8 to 12 inches tall in late June or early July, it sometimes needs only 6 to 8 days to grow another 12 to 18 inches. Thus, there may be only about seven days between the sampling stage and the maximum height for any additional nitrogen to be applied.

Thanks to the efforts of extension agents Dick Brzozowski and Rick Kersbergen and dairy specialist Glenn Wildes the program proceeded smoothly and on time. All three agents were active in encouraging farmers to participate in this new program. They then devised a twice-a-week pickup system for the two weeks of late June and early July. The delivery system ensured proper handling of samples and guarded against samples getting delayed or lost in transit.

For a first-time program, it was a great success. Two hundred ninety fields were sampled, and all results were back to farmers within a week. The exciting part is that out of the 290 fields, only 15 needed additional nitrogen to produce a full crop of corn. When one considers that traditionally, corn growers apply at least 75 to 90 pounds of nitrogen per acre in addition to a manure application, the potential change brought about by this program is impressive. For the farmer, 90 pounds of nitrogen at 30 cents a pound could represent a savings of \$27 per acre or about 10 percent of the cost of producing an acre of corn. For society in general, if 90 pounds of unneeded nitrogen stays in the storage shed, that nitrogen is much less likely to find its way into our groundwater supplies. In addition, nitrogen fertilizer is made from fossil fuel, and saving 90 pounds of nitrogen is like saving 18 gallons of oil. Thus the nitrogen testing program makes a lot of sense both economically and environmentally.

For Wildes, Brzozowski, and Kersbergen the job is only half done. These extension agents realize that farmers don't adopt new technology immediately and not all of the growers in this program followed the no nitrogen recommendations on every field. As harvest continues, the agents are checking yields to see whether or not the growers are satisfied with the program and whether or not they might expand it to include more fields in 1989. Since some of the fields tested in 1988 had excessive nitrate levels, the agents will also be working with some growers on programs that might reduce nitrates.

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*Vaughn H. Holyoke has worked with the University of Maine Cooperative Extension Service for 30 years and currently serves as the Extension Environmental Specialist and chairs the implementation team on environment. He is a member and current chair of the Maine Board of Pesticides Control.*

# Reservoir Tillage in Nonirrigated Potato Production

by Leigh Morrow

Mike Findlen's seed potato farm near Fort Fairfield, Maine, is the site of an adopted tillage practice which is truly innovative. Each July since 1985, Mike has waffled his potato fields with an ungainly farm implement which conjures up visions of a paddle-wheeled vessel traveling an expansive green river. Each wheel, with six radiating arms and six-inch paddles attached, follows the tractor between potato rows and punches ten-to twelve-inch holes into the soil. These basins trap rainfall and, since the paddles usually penetrate the hard plow pan layer, allow quicker infiltration into the subsoil.

I first observed Mike's tillage practice in 1986 and found it very intriguing. Although he is one of two farmers in Maine who utilizes reservoir tillage, this technique is practiced extensively in northwest potato production where efficient use of sprinkler irrigation water is critically important. Early in this decade, farmers in the northwest discovered that they could virtually eliminate irrigation water runoff through the use of reservoir tillage. University researchers have also noted yield increases due to the practice in that region.

In 1986, Mike left appropriate check rows, rows without basins, for comparison. We observed erosion of silt in check rows, while the reservoir tilled rows were not eroded. Maximum slope on much of Mike's farm is four to five percent. In addition, several tensiometers were placed within rows to determine the influence of reservoir tillage on the moisture status in the root zone. These measurements in 1986 and 1987 indicated that reservoir tillage causes quicker saturation of the root zone and subsequently faster drying following rain.

Encouraged by the effect of this tillage practice on soil erosion, the University of Maine Cooperative Extension Service acquired a technology transfer grant in 1987 from the Maine Department of Agriculture, Food and Rural Resources, to conduct further evaluations. The objectives of the proj-

ect were to quantify any effects on erosion, potato yield response, and change in root zone moisture conditions. As already noted, reservoir tillage did influence root zone moisture. Generally potato hills tended to be drier where basins were created between the rows.



Creating rain-capturing basins on the Mike Findlen farm, Fort Fairfield, Maine.

Although Mr. Findlen feared he might have reduced potato yield where he used reservoir tillage in the record dry year of 1987, analysis of the yield samples indicated that this was not the case. Effect on soil erosion persists in being more difficult to quantify. During the last three years, water runoff and gulying between potato rows has been observed in check rows and less to none has occurred in the reservoir tilled rows. The first attempt to measure the erosion rate with sediment traps failed in 1987. While runoff occurred at an evaluation site located at Aroostook Farm in Presque Isle, Maine, no runoff developed at the Findlen farm where the sediment traps had been constructed.

Continued support by the Maine Department of Agriculture, Food and Rural Resources, is allowing a final season of evaluations in 1988. Within days of this writing (August-September, 1988) sedimentation has been collected from check rows on the Findlen farm, while reservoir tillage has again demonstrated its ability to reduce or eliminate erosion during minor rain events. At this writing, yield samples are still to be taken. A favorable yield response may be too much

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*Leigh Morrow is a native of Van Buren, Maine, where his father still maintains the idled farmland that was established by Morrow's grandfather. Married to hometown girl, Patricia Violette, and with two children, he has sentimental and emotional interests in Northern Maine. After graduating with a University of Maine degree in Biology, he worked for the Maine sugar beet industry during its year-long effort at revitalization. An M.S. degree was earned in Plant and Soil Sciences during nine years of employment with the Maine Agricultural Experiment Station. Under the tutelage of Professor Hugh Murphy, Morrow acquired the agronomy background necessary for his current, challenging career with the University of Maine Cooperative Extension Service.*

# Managing Pesticide Drift

by James D. Dwyer, Leigh S. Morrow and James F. Dill

The term *drift* as it applies to pesticide application is defined as the movement of airborne liquid or solid material from the target area at the time of application.

Pesticide drift is not caused by a single factor. Drift is a complex issue and involves several factors such as particle size, air movement, temperature gradient, humidity, type of terrain, crops being treated, and nontarget elements (trees, structures, roads, bodies of water), as well as pesticide formulations, carrier, and release height.<sup>1</sup>

When pesticides are sprayed, there is almost always some measurable drift or airborne movement of the pesticide. Some loss of the material being applied is unavoidable.<sup>1</sup> Drift loss is probably the most undesirable aspect of pesticide application because of the problems it may cause. These problems include

- the loss of the pesticide from drift;
- crop damage;
- destruction of beneficial insects;
- movement into human and domestic animal habitats;
- movement into and damage to wildlife environments.

In some states, lawsuits have resulted from off-target disposition of pesticides onto sensitive crops where crop yields

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were seriously reduced or plants damaged or completely killed. Humans and domestic animals have been made ill directly by drifting pesticides or indirectly by eating food or feed contaminated by off-target chemicals. Beneficial insects may be destroyed and soil may become contaminated causing damage to crops that follow. Fish and wildlife may be killed or reproduction reduced by pesticide drift onto standing or running waters and onto natural vegetation. There also may be effects of drift which can result in human reactions such as allergies, bronchial irritations, and psychosomatic illnesses.

Off-target disposition of pesticides from their intended target has in recent years become a growing concern to the people of Maine. This concern has arisen from many citizen groups, agricultural and environmental, and concern for the rights of property owners. As a result, the University of Maine Cooperative Extension Service has been working with pesticide applicators on methods of managing pesticide drift to minimize the impact of pesticide usage on the environment.

One of the primary elements in managing pesticide drift is the proper calibration of spraying equipment. In 1985, Extension staff undertook a major educational project and offered 15 sprayer calibration clinics throughout the major potato-producing region of the state. These clinics were practical hands-on learning experiences with applicators learning calibration on their own equipment. Follow-up clinics have been held each year since on a request basis.

In 1985, the Maine Legislature enacted legislation that requires limiting off-target pesticide drift to the greatest extent possible with current technology. The regulations formulated as a result of the legislation became effective January 1, 1988. Within these regulations, pesticide applicators are required to reduce drift to the maximum extent possible and also to keep specific records of each powered pesticide application.

The pesticide applicators of the state faced new stringent regulations and the Maine Board of Pesticide Control contacted the UMaine Cooperative Extension Service for assistance in addressing the educational needs of the state's pesticide applicators. With a grant from the Board of Pesticide Control, the Cooperative Extension Service developed a *Drift Management Manual* and a *Pesticide Application Logbook* to help 3,000 licensed pesticide applicators in the State of Maine cope with the new regulations.

Unable to locate an existing logbook suitable for the Maine situation, Extension staff developed a logbook specifically for Maine applicators. This logbook underwent many revisions

and changes as it went through 11 different commodity advisory committees prior to being finalized.

The *Drift Management Manual* contains a great deal of information to assist readers in applying pesticides safely with a minimal amount of drift and environmental impact. A statewide series of programs was presented in the spring of 1988 to explain the Drift Control Regulations recently enacted and to teach pesticide applicators how to minimize drift and ensure safety. Eight programs were held with more than 1,000 people in attendance.

As technology changes, pesticide application techniques will also continue to change. In just the last few years, even prior to regulation, changes have occurred. Many potato growers in the state have adopted the use of the *Raindrop nozzle* as a method of reducing drift. This drift-reducing nozzle replaces the standard hollow-cone nozzle and produces far fewer particles likely to drift during chemical application. A grant from the Maine Potato Board in 1986 to the Cooperative Extension Service allowed staff to evaluate the effective-

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ness of this drift-reducing nozzle in potato pest management. The positive results of this testing provided much of the scientific basis needed for potato growers to adopt this technology.

to hope for, but the evaluations are expected to be helpful in other ways.

In 1985 and 1986, Mike Findlen was receiving assistance from the county Agricultural Stabilization and Conservation Service office for performing what was then considered a deep tillage practice. This assistance has since been discontinued, and reservoir tillage is not listed as an appropriate conservation practice. Without government incentives or yield increases to pay for implementing reservoir tillage, it is doubtful that farmers will adopt the practice.

Through the efforts of the UMaine Cooperative Extension Service, in cooperation with the Maine Department of Agriculture, Food and Rural Resources, and Mike Findlen, United States Department of Agriculture assistance may once again become available for what may be a significant tillage practice for conserving our natural resources.



The effect of reservoir tillage is obvious from the visible ponding in the basins, left, versus the flowing water in the check rows, right, at Aroostook Farm, Presque Isle, Maine.

ness of this drift-reducing nozzle in potato pest management. The positive results of this testing provided much of the scientific basis needed for potato growers to adopt this technology.

The Cooperative Extension Service and the Maine Agricultural Experiment Station have been the recipients of a grant from the Maine Department of Agriculture which has allowed Aroostook Farm (of the Experiment Station system) to obtain a low-volume, controlled-droplet application sprayer for evaluation. This new type of sprayer, which substantially reduces drift, is being widely adopted by producers replacing standard boom sprayers, which have been used for many years. As technology continues to improve pesticide application and pest management practices, the University of Maine Cooperative Extension Service plans to continue addressing the educational needs of the people of Maine.

#### Literature Cited

*Reducing Pesticide Application Drift-Losses*, 1983, Cooperative Extension Service University of Arizona.



4-H camp: leadership through cooperation

# The St. George River Project — what have we done with tomorrow?

The Georges River Land Trust, with assistance from the University of Maine Cooperative Extension Service and other agencies and organizations, conducted an inventory last summer of the natural, cultural and historical resources of the St. George River and its surrounding watershed. Its purpose was to identify places which make the area unique in hopes of working with landowners and local officials to prevent the destruction of these places. Included were fishing spots, scenic vistas, wildlife habitat, historic sites, unique plants, water access points, farmland and areas of outstanding beauty. Tam-mis Coffin, Rosemary Shea and Beth Sauerhaft composed the team which canoed the entire length of the river, from its headwaters in Liberty and Montville to its meeting with the Atlantic Ocean at Cushing and St. George. They collected

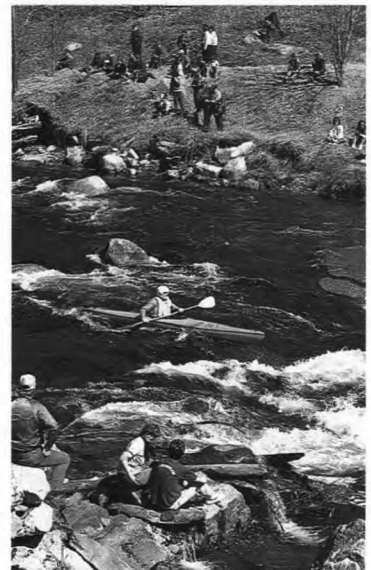
information which was catalogued and, where appropriate, mapped.

UMCES typically brings agencies and individuals together to achieve common goals. In this case, UMCES worked with The Georges River Land Trust, the Maine Bureau of Parks and Recreation, the Maine Critical Areas Program, the Atlantic Center for the Environment, the National Park Service, and Maine Coast Heritage Trust, among others. The summer inventory was supported with a grant from the Evelyn H. Murphy Fund.

Join us in enjoying some photographs of the area which the groups are working sensibly to preserve for future generations: it is part of the answer to our cover's title question.







# Putting Research to Work

by Stephen Belyea

## Applied Research Evaluation:

*Wind-washing* of fiberglass insulation within wall cavities can significantly reduce its thermal efficiency in windy conditions. Potato storages are particularly susceptible to this effect because of the necessary venting between outside sheathing and insulation to remove stray water vapor from the wall cavity. An air barrier applied to the exterior storage may reduce or eliminate the wind-washing effect while allowing removal of water vapor from wall cavities.

Uniform product quality is a major concern for Maine's processing potato growers. Of particular concern is uniform frying color, especially for growers of chipping potatoes. Uniform and acceptable fry color is determined by many inter-related factors, with one major factor being constantly controlled temperature of the potatoes in storage. Exterior storage walls present quality problems to growers because of lower temperatures and temperature fluctuations of potatoes resting against or near exterior walls. Resulting fry color of these potatoes may render them unacceptable to the buyer or they may have to be sold at a reduced price. The use of an air barrier may prove useful in reducing or eliminating temperature variability along outside storage walls.

Should it prove effective, an air barrier could be easily incorporated into the design of new woodframe potato storages and could be retrofitted in older storages which undergo exterior sheathing replacement.

Dr. James Hunter, Associate Professor of Agricultural Engineering, Maine Agricultural Experiment Station, and Stephen Belyea, Project Engineer - Potato Storage, Cooperative Extension Service, are testing the effectiveness of Tyvek® as an air barrier on exterior potato storage walls. During the last five years, the use of Tyvek® as an air barrier has been widely incorporated into new domestic residence designs to replace conventional asphalt-impregnated sheathing paper. The properties that make Tyvek® a good exterior wrap for residences (air barrier, water barrier, vapor-permeable) make it a good choice for use as an air barrier for potato storage. Previous materials have been unsuitable for use as air barriers on potato storage mainly because of poor water vapor permeability.

The two test storages have Tyvek® applied in sections of the exterior wall. Evaluation of Tyvek® performance will con-

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*Stephen H. Belyea is a Project Engineer specializing in potato storage for the University of Maine Cooperative Extension Service. He earned his B.S. degree in Agricultural Mechanization from that institution, and his research efforts are directed at evaluating new construction materials or methods and storage management techniques. His position is funded by a grant from the Maine Department of Agriculture, Food and Rural Resources.*

sist of measuring interior surface temperatures of treated areas versus untreated areas, comparing interior surface and exterior ambient temperatures, and evaluating thermal performance of the wall. Thermocouples are located at appropriate interior locations with temperatures read directly by a digital thermometer. Participants in this project are the first to incorporate the air barrier concept into potato storages in Maine.

## Applied Research:

High levels of carbon dioxide, CO<sub>2</sub>, have been shown to cause various quality-related problems in potatoes, particularly those destined for french fries or chips. Elevated CO<sub>2</sub> levels are associated with excessive reduction of sugar build-up and unacceptably dark fry color of processing potatoes. High CO<sub>2</sub> levels have also made certain lots of fresh potatoes unmarketable due to development of blackheart within the tubers. The potential for excessive CO<sub>2</sub> levels is greatest just after harvest when tubers are warm, are undergoing curing, and respiration rates are at their peak.

In response to the problem, I have initiated a project to determine what levels of CO<sub>2</sub> growers can expect in their storages during different storage periods and to suggest management schemes to minimize the build-up of CO<sub>2</sub> and avert potential quality problems. Evaluations will be done by individual storage, with specific results given to storage owners. Trends on CO<sub>2</sub> behavior in storages will be reported with recommendations and results.

## Introduction of New Technology:

The Cooperative Extension Service, in cooperation with the Maine Department of Agriculture, Food and Rural Resources, and the Potato Marketing Improvement Fund, conducted a Potato Storage Tour in December 1987. The purpose of the tour was to introduce interested Maine potato producers to the latest in potato storage design and controlled atmosphere ventilation.

The tour hosted some 50 potato producers and industry personnel through five separate storage facilities in northern and central Aroostook County. Several types of new structures and recently renovated buildings equipped with the latest insulation and ventilation technology were shown in detail to tour participants. Storage owners and managers were on hand to answer questions and discuss the construction and innovations used in their respective storages.

Storage tours have been part of Extension educational efforts for Maine potato producers since 1977. First-hand observation of promising new technologies has proven to be a successful, educational technique.

# The Best Maine Blue: Fresh Pack Blueberries

by Tom DeGomez

Maine's wild blueberry industry has been known for its high quality frozen and canned fruit for more than a century. Maine's blueberries are famous for their superior qualities for muffins, pancakes, and pies. Demand for this gourmet product has nearly always outstripped supply. However, the Maine blueberry industry fell on tough times several years ago when the production of wild blueberries in Maine and Atlantic Canada (the other world leader in wild blueberry production) nearly doubled. The high yields of wild blueberries were coupled with increased production of cultivated blueberries, and the strong U.S. dollar cut European sales in half. Wild blueberry producers in Maine and Canada rallied their forces to increase promotion and marketing efforts.

Marketing efforts have been concentrated in the areas of domestic and overseas promotion of the product to institutional users. Bakeries, dairies, and fast-food outlets are using more frozen blueberries than ever before due to this effort. However, many small growers have wanted to market their own crop in an attempt to increase their profits.

Some of the options that small growers have are to market in the following ways:

- Cooperative marketing: pooling their berries to command a higher price from the freezer market.
- On-farm processing: production of jellies, jams, chutney, juice drinks, etc.
- Fresh market: roadside stands, farmers' markets, restaurants, and wholesale to supermarkets.

Fresh marketing of Maine's blueberry crop dates back to the days when ferry boats sailed *Down East* transporting all types of Maine products to the Boston market. The boats would pick up the berries in the evening and sail *up west* through the night and arrive in Boston in the morning. Fresh marketing was popular until the advent of the freezer. The individually quick frozen (IQF) blueberry became a highly sought after product. IQF blueberries were a far superior product to the canned product. The market for IQF berries has been so strong that many farmers lost the incentive to pack and market fresh fruit.

In the early 1980s when production levels outstripped de-

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mand for the wild blueberry, prices fell sharply. Many growers were upset with cash receipts that did not meet expenses. Many turned to alternatives such as the fresh market. Roadside and supermarket sales have increased in recent years. However, the sale of fresh wild blueberries can be very risky if proper production techniques are not followed.

Sales of fresh blueberries throughout the United States have been as high as 65 million pounds annually, with 99 percent coming from cultivated high-bush, blueberry packers. The American public has a love for the fresh berry, and it is natural that they could learn to appreciate the wild blueberry in its fresh form. Those who started in the fresh market found out quickly that the demand for high quality fresh wild blueberries was far greater than the supply.

The University of Maine Cooperative Extension Service began working with producers in 1985 to help them pack the highest quality fruit possible and to tap the market for their product. The Agricultural Cooperative Service, a US Department of Agriculture organization, became involved in 1986 to assist a fresh-pack cooperative with their business management plan, bookkeeping, and general cooperative basics.

The UMCES Blueberry Specialist developed an Extension Program to help this fledgling industry overcome the problems of marketing a new product. The program included activities to help growers produce the product, market the product, and to encourage additional producers to market fresh.

*Field harvest demonstrations:* Showing growers how to harvest wild blueberries for the fresh market.

The demonstrations are carried out in fields where blueberries are harvested (raked) for the fresh market. Growers are invited to the fields to witness experts harvesting. A discussion period allows for a free exchange of ideas. The experts, University employees or growers and packers themselves, and the participants are able to share their knowledge and experience with each other. At these demonstrations growers are taught that to maintain the high quality of the fruit it must be harvested much more gently than for the freezer market. It is also pointed out that treatment of the fruit after harvest is also important.

To reduce bruising of the fruit requires reducing its handling. This is accomplished by raking the berries into small containers rather than into five gallon buckets. When blueberries are raked into five gallon buckets, the berries in the lower half of the bucket are squashed and the quality is reduced. By using small containers where the berries are only three to four inches deep, bruising is reduced. Demonstra-

tions show that cleaning leaves and sticks from the raked fruit is best done in the packing shed with specialized equipment. Field cleaning does not handle the fruit as gently.

#### *Packing Shed demonstrations*

Packing shed demonstrations are conducted immediately following the field demonstrations concerning harvesting. The berries raked in the field by the participants are brought into the packing shed where they are processed. The participants can then see how the berries are actually packed, readied for shipment.

#### *Marketing Meetings*

The Maine Agricultural Trades show each January has been the site of the first three blueberry marketing meetings. The University of Maine Cooperative Extension Service in conjunction with the Maine Department of Agriculture has sponsored the day-long event. Each year speakers have been brought in to present their ideas on marketing. Topics have not been limited to blueberries. Often a speaker will talk about another commodity but will parallel it and blueberries. Speakers have discussed such topics as *Marketing "Rabbiteye" Blueberries* (Max Austin, University of Georgia); *Cranberry Marketing and Product Development* (John Ropes, Ocean Spray); *Fresh Blueberries in Supermarkets* (Gary Argiropolis, Hannaford Bros.); *Small Farm Processing and Marketing* (Spruce Mountain Blueberry Chutney); *Postharvest Physiology of Small Fruits and how to Maintain Quality for the Fresh Market* (Tom DeGomez, UMCES), *Frozen vs. Fresh Market* (Tom Rush, Cherryfield Foods), and many others.

The marketing meetings give blueberry producers and processors an opportunity to meet together and discuss new marketing ideas. It is helpful and productive to get producers together in an atmosphere where they are able to exchange ideas and help each other solve problems. UMCES has become the catalyst to allow these types of educational opportunities.

#### *State of Maine Marketing Order*

Marketing orders enable a commodity group to specify that their product meet or exceed quality standards in order to be marketed under a State of Maine label. The label states the grade that the product meets and that it has been inspected to insure that the product is indeed of that quality. The marketing order for wild blueberries has set a quality standard for an inspected grade A product, and if the product does not meet that standard, it cannot be marketed as a fresh product. The order has insured the industry that all of the fruit going into the market is of high quality. If poor quality fruit reached the market it would have a detrimental effect on demand and subsequently on price.

In conjunction with the Maine Department of Agriculture,

the University of Maine assisted the fresh packers in Maine in passing the market order. The educational programs that were carried out prior to hearings and voting on the order helped to solidify the industry on the need for a strong market order. Meetings, newsletters, and demonstrations explaining the benefits of high quality fresh blueberries were urged in this effort.

The Maine Department of Agriculture opted to promote the fact that the fresh wild blueberries being shipped from Maine were of superior quality due to the marketing order. During August of 1987, officials of the Agriculture Department held a blueberry day in Boston featuring Maine blueberries and Governor McKernan as the leading spokesperson for the commodity. The day included a giveaway of fresh blueberries on the mall at city hall, a reception for the major produce buyers and a luncheon with newspaper columnists.

#### *Cooperative Management*

The fresh pack industry as we know it today started in 1983. Several small packers worked on packaging high quality blueberries for the supermarket trade. They quickly found out that to be viable in the market they needed to be much larger. The original three firms got out of the fresh pack market for a variety of reasons, but the void was filled by two new independents and a small cooperative of about eight members.

Programs carried out by UMCES have encouraged the formation of a cooperative marketing effort for fresh blueberries. This handful of growers united to form the Maine Fresh Pack Cooperative and began selling the product under the label of *Downeast Wild Blueberries*. They have struggled as most new cooperatives do but have managed to increase in size every year they have been in the business. The United States Department of Agriculture's Agricultural Cooperative Service came into the picture to assist the new cooperative with the business management side of the cooperative. With the help of a dedicated specialist, Dick Seymour, they have planned for the future and grown beyond expectations. They are currently working on increasing membership to try and meet market demands.

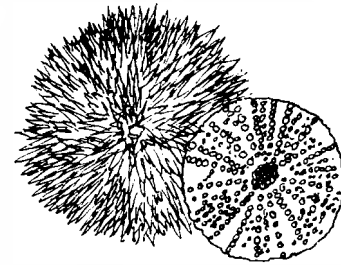
In March of 1988, UMCES joined forces with the Agricultural Cooperative Service and put on a Cooperative Management Workshop. The fresh pack cooperative sent five of its members for the intense two-day session on cooperative basics, financial management, cooperative law, and marketing. This training, along with Dick Seymour's help, has set them on their way to a fruitful tenure in the fresh blueberry business.

Future activities will include educational programs aimed at increasing production through recruitment of additional packers, improved packing facilities and improved business management.

# Maine's Green Sea Urchin

by Benjamin A. Baxter

*It's an unattractive little organism. It's scarcely recognized as edible by most people in Maine. This ugly spiny little critter is an annoyance to lobstering and seaweed harvesting interests. Why then, were an estimated five to six million pounds of live sea urchins trucked and flown from the Maine coast to the marketplaces of Japan last winter? More importantly, why has demand increased to exceed 20 million pounds for the 1988 - '89 winter?*



In the Far East, the egg sacs of Maine urchins are a prized gourmet food. The best of the bright yellow egg sacs are displayed on rice and seaweed as a delicacy to rival caviar. They bring a U.S price equivalent of more than five dollars per urchin when displayed as processed roe in the sushi market in Tokyo.

The Maine coast fisherman is paid 20 to 30 cents per pound for live, whole urchins brought to the shellfish shop. That price is stimulating enough to support the involvement of many would-be scallop draggers and divers. The urchin harvest season also falls in the off-season for most lobstermen. Seafood shops which usually endure shortages in shellfish supplies and lay off most of their workers in winter may be gearing up to pack and process sea urchins. Four shops in the towns of Jonesport, Harrington, and Steuben were actively involved in extracting roe last winter.

John Carey, a clam harvester from Steuben, said, *We lost 30 jobs in this town's clam shops over the last two years because of the shortage of clams on the flats. Those same 30 jobs and more have been replaced by sea urchin processing.*

Operations are expanding this year as new shops open in Portland, Eastport and elsewhere. The green sea urchin already has a major economic impact on the Maine Coast.

## Biological Background

The green sea urchin (*Strongylocentrotus drobachensis*) at first glance is an immobile, passive bundle of mildly annoying green spines. But viewed over a period of a few minutes or hours in its shallow water habitat, it shows itself to be an aggressive grazer and scavenger.

The urchin's complex mouth is arranged in a muscular ring of five pointed and razor edged teeth known as *Aristotle's Lantern*. This strong mouth and the protective spines impregnated with an irritating toxin give the urchin a great versatility of diet and safe underwater habitats.

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*Benjamin A. Baxter is a Marine Program Professional for the University of Maine Cooperative Extension Service. He earned his MEd in Public Education and his B.S. degree in Wildlife Management from the University of Maine. Working to promote community wide involvement in appropriate cultured fisheries, Baxter is particularly interested in the potential of poorly fed sea urchins to bulk-up to market weight on diets of the right kelps. He is in the process of laying two miles of holding pens on the ocean floor to investigate that possibility.*

During the fall and winter feeding season urchins resemble an army of undersea lawnmowers, constant in their movement and search for food. In little more than 60 days, a wave of urchins may clear several acres of kelp (*Laminaria spp.*) or sea moss (*Chondrus crispus*).

Lobstermen testify frequently that their traps are filled to capacity in the fall with urchins which not only devour their bait but consume the plastic mesh bait bags and the internal netting of the traps. Urchins may even chew the vinyl covering off wire lobster traps. Some who have attempted to hold urchins in wooden lobster crates find gaping holes chewed in the half-inch wooden slats through which urchins make their escape.

Why then, if urchins move so readily to bait have we not developed a trap fishery for sea urchins? The answer lies in this animal's cycle of aggressive fall and winter feeding followed by a drop in activity as soon as the food has been stored in the fatty egg masses. The roe, so prized in the Orient as luxury food, is not only reproductive potential, but energy stored against hard times. The urchin will resorb the egg mass if food should become scarce.

By late December and into February when the urchin market is prime, the best-fed urchins no longer show much interest in bait. In short, *a hungry urchin is an unmarketable urchin.*

If traps won't work well, what is the potential for the use of conventional scallop drags as a harvest tool? Existing drag technology may be inappropriate to the harvest of fragile sea urchins. Japanese trading company representative, Nobu Ochi, explained that the heavy drags and chains tend to break spines away from the shell and allow salt water to erode the delicate membranes around the precious egg sacs.

These harvest issues did not take on major significance until the fall of 1987 when the demand for urchin *uni*, the Japanese word for the urchin caviar, followed the rapid rise in buy-

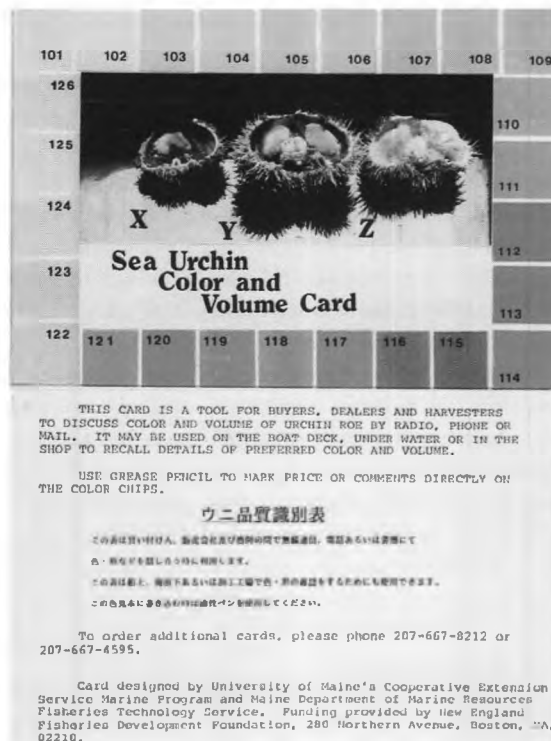
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Many groups, agencies, institutions, and individuals are working together to bring the Maine Sea Urchin project to maturity. Among them are Barbara Fish and Sid Look of the Maine Shellfish Dealers Association; Louis Bassano, Conrad Griffin, and Ben Baxter, UMCES; Robert Vadas, Botany, UM; Brian Beal, UMM; Phil Averill and Bruce Chamberlain, ME Department of Marine Resources, and many others. Funding has been supplied in part by UMCES and the UM Marine Advisory Program.

ing power of the Japanese Yen. The recognition of Maine uni came on the heels of shortages in Californian red sea urchins caused in large measure by overharvesting.

Coincidentally, Dr. Robert Vadas, a botanist at the University of Maine specializing in marine flora, joined with Bruce Chamberlain of the Maine Department of Marine Resources and Brian Beal, a shellfish biologist from the University of Maine at Machias, to plan and design urchin research. They met with University Cooperative Extension Service personnel to discuss needs of the research community and the fledgling urchin fishery. A former UMaine Wildlife graduate student, Kate Wynn, contributed significantly with a proposed design for a trap study.

Dr. Vadas had previously measured urchin roe development through one annual cycle in an attempt to isolate the periods of peak roe development. Variations in this cycle by season, location and habitat type were anticipated as vital concerns to the entire urchin industry. An expanded study was designed to look at urchin roe development at 10 sites from Casco Bay to Lubec during each month of the year.



A field team was formed of two divers, Ben Baxter of the Cooperative Extension Service's Marine Program and Bruce Chamberlain, a Fisheries and Technology Services agent with Maine's Department of Marine Resources. To monitor the ten selected sites in reasonable time the analysis crews were set up at both UMaine and the University System's Machias campus. Stephen Dudgeon, a graduate student of Dr. Vadas, handled the analysis of five sites to the west of the Penobscot River, while Brian Beal and his assistant, Craig Lithgow, from

Machias, managed the analysis of five sample sites between Stonington and Lubec.

The field teams began to come in contact with many interested fishermen and shellfish shop owners as they traveled among the coast sites. It became clear that the industry was demanding answers about urchin growth, roe yield, eating habits and harvesting options which did not yet exist in the literature. Industry standards and methods developed on the Japanese or California coasts did not readily translate to Maine's needs.

A series of cooperative conferences were set to take a hard look at public needs and future development of this rising fishery.

As of September, 1988, seven regional meetings have been held on the Maine coast to discuss the future of the green sea urchin harvest. Those gatherings, coordinated jointly by Extension and the Department of Marine Resources attracted more than 130 harvesters, dealers and processors who met in Portland, Waldoboro, Boothbay, Walpole, Northeast Harbor, Harrington and Jonesport to discuss marketing limitations, harvest technology, and processing techniques.

The most immediate concerns were clearly voiced in the initial three conferences:

- The demand for a bigger harvest in 1988/89 means divers and draggers will need special equipment and training.
- The quality of roe coming into Maine shops is not uniform enough to satisfy consistently the very particular Japanese market.
- Shops and dealers are having some trouble keeping up a steady supply during stretches of poor winter weather.

The emerging issues required work beyond the sampling program. Technological response to development of the new fishery demanded the widest range of skills and experience the University of Maine could offer. The Fisheries and Aquaculture Research Group, the marine branch of the Maine Agricultural Experiment Station, began to contribute brain power and labor to wrestle with the applied science of the harvest, cultivation and food processing questions.

While concepts for structuring the urchins' diet to improve roe color and quality were generated by University of Maine Scientists in Zoology and Animal and Veterinary Science, basic issues of harvesting and processing technology were addressed. John Riley, the FARG team leader, began work at the request of several shellfish dealers on speedier and less wasteful techniques for the extraction of roe from the urchin. Both rotary and horizontal cutting designs have emerged. At present, technology assistance grants are being sought to build and test these in prototype at the community freezer and processing plant in Vinylhaven.

Appropriate harvest technology for harvester-divers is also being developed. Divers who harvested during 1987 - '88 worked into bags or baskets on the bottom. As long as a div-

er never goes below 25 or 30 feet the only limit is the cold exposure and danger of hypothermia. Bottom time becomes an endurance test. The strongest shallow-water divers have taken up to a ton per day under ideal conditions.

Chamberlain and Baxter joined with John Riley and a graduate student, Rob Nielsen, to combine the theories of airlift technology commonly used in aquaculture and construct an appropriately priced underwater vacuum cleaner.

### Airlift Technology

Use of an *airlift* can reduce handling and improve use of bottom time. Water and urchins are lifted to a boat's gunwale by the rush of water created when compressed air is released in a water-filled chimney.

The airlift has several major advantages:

- A six-inch hose system can lift a bushel or more of urchins in a minute;
- The diver reduces handling of urchin spines and chafe of neoprene gloves on ledges;
- The lift system actually pulls the diver through water and reduces fatigue;
- Reduced handling and transfer improve final product quality.

Working with scavenged diesel engine parts and cast-off aircraft blowers, Riley, Nielsen, Chamberlain and Baxter have moved two styles of air blowing urchin lifters to the prototype stage. Numerous fishermen are presently jerry-rigging several variations of these systems to their boats.

Some early discussions focused on the value of diver-harvested vs. dragger-harvested urchins. Currently, draggers can provide greater volumes of urchins, but there are concerns by some dealers about damage in dragged samples. A partial solution for draggers may rest with lighter drags or modified crab scrapes.

The Department of Marine Resources - University of Maine connection bore fruit again when Bruce Chamberlain brought sketches of a Chesapeake Bay crab scrape to John Riley as a concept for the light urchin drags needed. UMaine's Agricultural Engineering shop manufactured a working model from these sketches. The modified crab scrape towed with light line behind the Department of Marine Resources' 40-foot patrol boat filled quickly with undamaged urchins. The materials for the drags are inexpensive, and the liners are made of polypropylene mesh common in shrimp nets.

An appreciable amount of the fishery's success hinges on the skill and the careful attention paid by harvesters to the quality of roe in each bed. Several dealers have recommended that harvesters, dragging or diving, break open at least ten urchins from each short tow or local diving ledge. The demands of the industry will change as the roe improves toward mid-winter. The choosiest shops, which offer the best price

to harvesters, want between six and nine of every ten urchins tested to be of excellent grade and volume.

Volume and color of roe can change over just a few feet of depth or from the center to the edge of a cluster of urchins. Any change in the food available to the urchins can also shift roe color. Poor standards of color and volume of roe in even a few hasty shipments can do substantial damage to the reputation of the Maine Sea Urchin.

There is one obvious peculiarity in the sea urchin business which separates it from other fisheries and agricultural products. Eighty percent or more of the target product is not visible to the harvester or to the dealers who handle live sea urchins on this side of the globe. Those in Maine who sell whole urchins are handicapped by great uncertainty of the product quality. The Japanese processor is usually the first to see the roe and make the assessment of worth. Maine harvesters and dealers are often forced to accept the assessment of the final buyer 8,000 miles away.

This issue became obvious in the middle of the 1987 - '88 winter season. Four to six million pounds of whole urchins were trucked from Maine to Boston and New York, then air freighted to Tokyo and Hokaido. The uncertainties surrounding blind sale of a high volume perishable product leads to stresses felt throughout the industry.

To ensure a steady supply of quality product, harvesters will need to test the roe content bed-by-bed to meet the exacting standards of the international market for urchin roe. They will need a clear understanding of volume and color requirements of each buyer, standards which may vary somewhat depending on the final market.

It required the better part of the 1987 - '88 harvest season for dealers and a few harvesters to become comfortable with the color and volume standards of their particular buyers. As volume demand increases, the need for harvester teaching tools may also increase.

In response to this issue Baxter and Chamberlain presented 75 industry representatives with an outline for a quality control program. The concept focuses on voluntary use of a simple 5" x 7" laminated color print depicting 26 common colors of urchin roe and three typical variations of roe volume within the shell. This rugged waterproof card is designed to be used alongside freshly cracked urchins on the boat deck, in the packing shops and even with the divers under water. The card includes Japanese translation of a brief set of instructions in hopes that Maine dealers will use the card to tighten market communication across barriers of distance and culture. A small grant from the New England Fisheries Development Foundation has allowed Baxter and Chamberlain to proceed with a first distribution of the card.

Maine's green sea urchins represent a 10 to 20 million dollar industry for Maine, and assisting the fledgling industry is a task at which the University of Maine's Cooperative Extension Service and the Department of Maine Resources excel.

# Interfaces and Cooperation: Wildlife and Fisheries Sampler

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by Catherine A. Elliott

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*The University of Maine Cooperative Extension Service responds to the needs of the citizens of Maine. A second trait of that group is its interfaces and cooperation with large numbers of independent organizations, agencies, and institutions. A Forester's Guide to Managing Wildlife Habitats in Maine, published Fall, 1988, by the UMCES and the Maine Chapter of The Wildlife Society, is an example of traditional interfaces.*

The Wildlife Society is an organization of professional wildlife biologists, and the Maine Chapter of that organization decided to write a handbook on the management of forest wildlife. Through experiences at a joint meeting with the New England Chapter of the Society of American Foresters and the Atlantic International Chapter of the American Fisheries Society, the need for practical, technical information for forest managers became apparent.

The University of Maine Cooperative Extension Service became involved through their wildlife and fisheries specialist, who served as compiler and editor and helped in publishing the handbook. The publication was reviewed by wildlife biologists and practicing foresters to ensure that the guide met the objective of providing biologically sound, practical management recommendations for incorporating wildlife habitat management into current forest management planning and practices.

The Maine Department of Inland Fisheries and Wildlife and the Maine Forest Service were involved in the guide review, and together with the Extension Service and The Wildlife Society, are scheduled to be involved in the dissemination of the material through workshops and other activities.

Authors were also drawn from the Maine Department of Inland Fisheries and Wildlife and the U.S. Department of Agriculture Forest Service, among others.

The Maine Chapter of The Wildlife Society will review and revise the guide periodically, and expand it to provide additional information as requested by its users. Forests and

their wildlife communities are dynamic systems, so people too must be dynamic, willing to make changes in what they do and the way they do it, to maintain and enhance the multitude of resources the forest represents.

## **From the Guide:**

Land managers—whether they are farmers, foresters, or wildlife biologists—are practicing ecologists. They require specific knowledge to achieve specific land management goals. More and more, land managers realize that their actions affect resources other than the one they are manipulating, and they are attempting to integrate those resource values into their working plans. Ultimately, the objectives of the landowner and the training of the land manager will determine the approach taken to multiple resource, multiple use management.

During the next decade forest resource managers will be presented with new challenges from within their professions, from the public, and from the forest itself. Advances in research continually add knowledge of how the forest and its wildlife function. Advances in technology add to the array of management tools available. The ecological implications of biomass harvesting is one example of challenges that will arise in the coming years.

Increases in human population, development and fragmentation of forest lands, and increased demand for access to all public resources on private lands will add new dimensions to forest resource management in Maine. Although the spruce budworm is gone for now, other natural managers such as gypsy moth and beech necrotia will continue to affect logical management plans.

**From Principles of Wildlife Management**, by Barry Burgason, Assistant Regional Biologist, Maine Department of Inland Fisheries and Wildlife:

The size and health of a wildlife population is largely determined by the resources available to it. These collective resources are referred to as the animal's habitat. The four basic components of habitat are food, cover, water, and space.

The need for food and water is well understood. Cover is

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needed for many purposes, such as resting, hiding, escape, and nesting, and it takes various forms for different species and users. Space, also called home range or territory, is the area occupied by an individual, a family group, or a social group, within which the needs for food, water, and cover can be met.

Although there may be considerable overlap in the habitat requirements of two or more similar species, each has its own unique requirements for food, cover, water, and space. Optimum habitat for one species may not be optimum for another. The habitat requirements of a single species often change with the seasons, and with the sex and age of the animal.

For example, good nesting cover for a female ruffed grouse may not provide sufficient food or cover for her brood, or be good winter cover for any grouse. To manage habitats, the land manager must have an understanding of year-round habitat requirements and other factors that influence wildlife populations.

The type and availability of habitat providing food, water, and cover for wildlife is important, but the land manager must also consider the interspersed or mixing of different habitat types and the juxtaposition or proximity of one habitat type to another.

Often, an opening in the forest that provides abundant food, such as browse, herbaceous plants, or berries, does not provide adequate shelter from predators or weather except along its periphery. Conversely, a stand providing good cover may not provide sufficient food to entice particular wildlife species to use it. Thus, only when an area provides the proper mixture of food, water, and cover, within the range of an animal's normal daily movements, will that species benefit.

Wildlife populations have an inherent rate of increase that is generally suppressed by factors such as disease, predation, hunting or habitat deficiencies. Ultimately, these limiting factors interact to define the carrying capacity, the maximum numbers of animals that can be sustained on an area of land, over a period of time.

Only by changing the effect of one or more limiting factor can the carrying capacity be changed. The role of the wildlife manager is to identify which of several limiting factors is exerting the greatest effect on the wildlife population. This may not always be as simple as it seems because many of these factors interact with one another. For example, predation may be limiting population size. However, for the manager, improving nesting and escape cover may be more cost-effective than a direct assault on the predator.

One approach to wildlife management is to manage for a single species by concentrating on areas with suitable habitat and improving suboptimal habitat. Some other wildlife species, not specifically managed for, may also benefit; others may decline.

A second approach is to manage for species diversity, that

is, the greatest number of wildlife species possible. To achieve a diversity of wildlife, it is necessary to manage for a diversity of habitat types. Consideration must be given to increasing the variety of vegetative communities available: plant species, stand ages, stand sizes, and locations relative to other habitat types.

The diversity of vegetation structure within an individual stand is also important. For example, the number of song-bird species found in a forest stand is directly related to the number of vertical layers of vegetation available.

Combining the single species and species diversity approaches can allow an efficient use of time and resources by concentration on single species where needed and economically justified, and applying the diversity concept to remaining habitats. The advantage of combining both approaches is that efforts are concentrated where benefits justify costs (i.e., single species management) while maintaining ecological integrity (i.e., species diversity management). Ultimately, the objectives of the landowner will determine the approach taken to integrating forest and wildlife management.

*From Forest Diversity and Landscape Management, by John W. Lanier, Forest Wildlife Biologist, USDA Forest Service, White Mountain National Forest:*

Most landscapes in Maine include some stream or river bottoms, side slopes, and hill or ridge tops. If left to natural succession, each of these landscapes can be expected to produce a particular type of vegetation and accompanying wildlife species. Little land, however, is left to natural processes because of increasing demands for forest products, outdoor recreation, and better fire suppression.

Land managers can choose to direct their efforts toward maintaining a diverse, productive landscape as well as producing desired outputs from the land. There are three important steps in undertaking this strategy:

- recognize the capabilities of the land being considered;
- decide what kinds of wildlife could be emphasized in any given situation based on the land capability assessment;
- define management options.

The assessment of land capability must come first, because the wildlife species that may occupy a given area are directly related to the type and amount of habitat that is available.

The vegetative capability of the lands under management is determined by the site's location within the state. Maine is in a transition zone from hardwood dominated forest to the south and west, to softwood dominated forest to the north and east. At any specific site, environmental factors, such as climate, topography, and soils, determine the species and productivity of the vegetation.

Knowledge of the potential or capability of a site for vegetation is important in determining forest management options. Harvest method, regeneration potential, site preparation, intensity of timber stand improvement activities, and

susceptibility to wind throw, insects, and disease are at least in part determined by land capability. The characteristics of the vegetation, in turn, determine potential use by wildlife, and the effects of different management strategies on the wildlife community.

Wildlife species tend to group themselves according to vegetative associations and size classes. Therefore, when the amount and type of existing habitat have been determined, possible wildlife occurrence can also be determined using relevant tables. From this information, decisions can be made as to which of these species will benefit or be adversely affected by proposed management prescriptions. Then, expected wildlife outputs can be evaluated by the manager or landowner and management direction set to satisfy objectives.

Where the objective is to maintain or enhance populations of specific species, management prescriptions will be designed to provide and improve the habitat needed by those species. There are two basic controlling factors that must be remembered when deciding what species to consider and determining viable management prescriptions. The first factor is the size of the area under consideration. A 10-acre parcel will not meet the home range requirements of a moose, nor is a 2,000-acre area necessary for a mouse.

The second factor is the relative tolerance of an individual for other individuals of the same species. This is known as territoriality, and territory size differs among species. If territories become too small, conflicts, especially between breeding males, and other evidence of overcrowding, will begin to appear. Breeding success and habitat quality will decline because of stress and over-utilization.

Where the objective of management is wildlife species diversity, prescriptions will be designed to provide diverse habitats. The size and shape of each type of habitat, both for-

ested and nonforested, its interspersed and juxtaposition with other habitats, and the structure of the vegetation within each habitat all contribute to habitat diversity. On small landholdings, the types of habitat surrounding the property being managed should also be considered when developing management prescriptions.

After the vegetative and wildlife potential of an area has been assessed and the objectives of management determined, options for managing the land can be identified. Managing for all wildlife species on every acre is simply not possible. Some combination of species diversity and single species management will generally be necessary.

Each forest management option will have an effect on wildlife populations regardless of whether that option is no management, site conversion to a single tree species, or any of the variations in between.

Most of the wildlife species in Maine use more than one vegetative type and can substitute one vegetative type for another if necessary. Consequently, if a land manager can identify the land capability and set management directions to provide, on a planned basis, vegetation that is suited to the site and would occur there naturally, management has progressed toward providing wildlife habitat needs.

The manager should set up a sustained yield program for each plant species under management; allow for a proportion of each type to remain in place beyond normal rotation age to provide for wildlife species that need older growth, and leave cavity trees, especially along stream corridors and pond and lake shores. By also providing or preserving special habitat features needed by those wildlife species of special interest, the land manager will probably come as close as possible to achieving a truly integrated wildlife and vegetation management scheme.

## Baitfish for Fun and Profit in Maine

*The impetus to do a handbook on this topic came from increasing numbers of phone calls and letters asking for information about baitfish rearing. Because it is illegal to import live bait into Maine, all live bait used in the state must be produced here, either in the wild or in aquacultural operations. Given this public law, the handbook is arranged to help people who are thinking about getting into the bait business as well as those who are already working with baitfish but need more information. It is typical of the Cooperative Extension Service's response to an expressed citizens' need.*

From the handbook:

The use of small live fish as bait is an integral part of angling in Maine, especially during the winter ice-fishing season. Some of these fish are captured by the people who intend to use them, but many more are purchased from people whose business it is to sell live bait.

Retailers may be in the bait business as a sideline to another enterprise, such as a grocery store or tackle shop, or they may depend on the sale of bait for a significant proportion

of their income. Whatever the degree of involvement, these people all, at times, have a need for information on how to work with fish.

The publication serves to assist anglers, bait fish culturists and dealers in the capture, rearing, holding, and selling of live bait. Most aspects of the live bait business are covered including legal and financial pitfalls, practical methods of catching fish, and health problems that may be encountered when dealing with large numbers of fish.

# Extension Responds to the Salmonella Scare

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by Nellie Hedstrom and Mahmoud El-Begearmi

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In response to consumer concerns regarding possible food poisoning as a result of bacterial contamination of Salmonella, an interdisciplinary group was assembled through the efforts of Mike Opitz, Extension Poultry Pathologist. The group included Al Bushway, Chairman of the Food Science Department; Nellie Hedstrom, Human Development Specialist, Nutrition & Health; Melvin Gershman, Professor of Animal and Veterinary Science, Microbiology; and Mahmoud El-Begearmi, Extension Poultry Specialist. The group quickly identified areas of concern, information needed, and the approach most appropriate to deal with the problem. It was decided that the best approach is to put together a package of available information on food safety in general.

The *Food Safety* book, as we called it, also contained specific information on Salmonella and precautions in handling poultry and other possible sources of contamination. The book is designed as a resource to be used by county Extension agents and others who may be called on for such information. The book was compiled and distributed to county offices a little more than a year ago. Relevant information has since been added and will continue to be added as the need arises.

At the local level concerned consumers call their local extension agents to get answers about food safety issues. The media's attention to Salmonella contamination of poultry and eggs provided impetus for many consumer questions. Homemakers often view Extension as a reliable source of research-based, accurate information for making their decisions around safety issues of food. County newsletters pro-

vide an outlet for such information. In a recent newsletter from Somerset County, the food handling measures recommended to prevent foodborne illnesses resulting from salmonella infection included the following:

- Wash your hands before handling food. Salmonella is potentially on persons, pets, meat, and eggshells.
- Wash surfaces on which food will be placed such as countertops, cutting boards, and utensils.
- Cook thoroughly. If meat or poultry contains Salmonella when purchased, it can be destroyed by thorough cooking. Avoid rare meats.
- Prevent recontamination. This can happen if cooked food is placed on an unwashed cutting board or plate which has been used with contaminated raw food or other sources of Salmonella bacteria.
- Refrigerate meat or eggs that are not going to be eaten immediately.
- Keep meat or egg dishes to be served hot at a temperature of 140°F until served.
- Heat leftover egg or meat dishes to a temperature of more than 140°F before serving.

Mishandling of food so that it becomes a health hazard when consumed may take place in the home, at the retail level, in food service establishments, or during food processing operations. The local offices of the University of Maine Cooperative Extension Service are continually on the front line helping maintain a safe, wholesome food supply.

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Since children existed before the stepfamily did, previous relationships and understandings between the parent and the child also exist. This is another important fact that makes stepfamilies different from nuclear families.

The relationship between biological parents and their children is a longstanding one. It is also likely that this bond has grown stronger the longer they have lived in a single parent family before the remarriage. With this strong biological, emotional and legal bond, it is only natural for the parent to take sides with his or her own children when conflicts arise in the stepfamily. The result is often feelings of rejection and unfair treatment for other members of the stepfamily.

*“For a long time, I couldn’t understand why my wife didn’t love my kids as she would her own. It hurt. I kept telling her that I knew I could take someone else’s kids in and love them just as much as mine. Now I know that isn’t true: I couldn’t. And I understand why my wife doesn’t. I now know it isn’t just an issue between her and my kids. I’m not as hurt and defensive as I used to be.”*

In stepfamilies, people come together with diverse histories of rituals and routines that were understood in their previous families. The merging of these different backgrounds is not without conflict and confusion as the stepfamily negotiates new traditions and routines. Typically, nuclear families do not face the difficult tasks of blending two separate families into one functioning unit.

*“My stepdaughter has begun talking about living with her mother. Before the workshop, I thought that that was absolutely out of the question, but I’ve learned that it’s a possibility to explore. For her to leave doesn’t mean I have failed as a stepmother.”*

Stepfamilies do not have the benefit of legal relationships as do nuclear families. These legal ties represent a strong commitment between adults and children that can not be denied.

There are many obstacles in stepfamilies’ quests for satisfaction and success. Many of these difficulties are caused by a lack of information. The Strengthening Stepfamily workshops provide valuable information and support which participants need and seek to help build strong stepfamily units.

*“For a long time I have wished someone would help those of us in stepfamilies. Thank you for recognizing our needs and offering this program.”*

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Luke Muzzy, Owner-Broker of Century 21/Goodwin Real Estate in Greenville, Maine, New England Regional Leadership graduate.

*Basically leadership is getting involved. The New England Regional Leadership program (NERL) allowed me to come back to my community and use my skills to get things done. A leader does not have to be chairman of the group: a leader gets the group process moving. Leadership is about gaining a type of respect. You recognize leaders because they get involved. They go to town meetings and speak; they go to Fourth of July celebrations and dip out ice cream. They are always there doing something for the community’s benefit.*

Bettina Blanchard, Utilization Specialist for Resource Conservation Services, Inc.

*Leadership can be learned. I believe that everyone has the capacity to be a leader; the second part of being a leader is having the skills and tools to do it. That is why I was involved in the New England Regional Leadership program and why I am a board member of the Institute for Community Leadership and Development. Leadership means that you can either sit back and watch things that you don’t like happen or you can act to do something about them. There can never be too many leaders. Leadership education is particularly critical to women.*

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purpose of this committee is to promote anti-bruise nationwide through production and distribution of educational materials. These materials consist of videos, bulletins, fact sheets, leaflets and bumper stickers. To this end the National Anti-Bruise Committee has been awarded a \$40,000 grant from the United States Department of Agriculture to produce these materials and promote anti-bruise concerns nationwide.

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