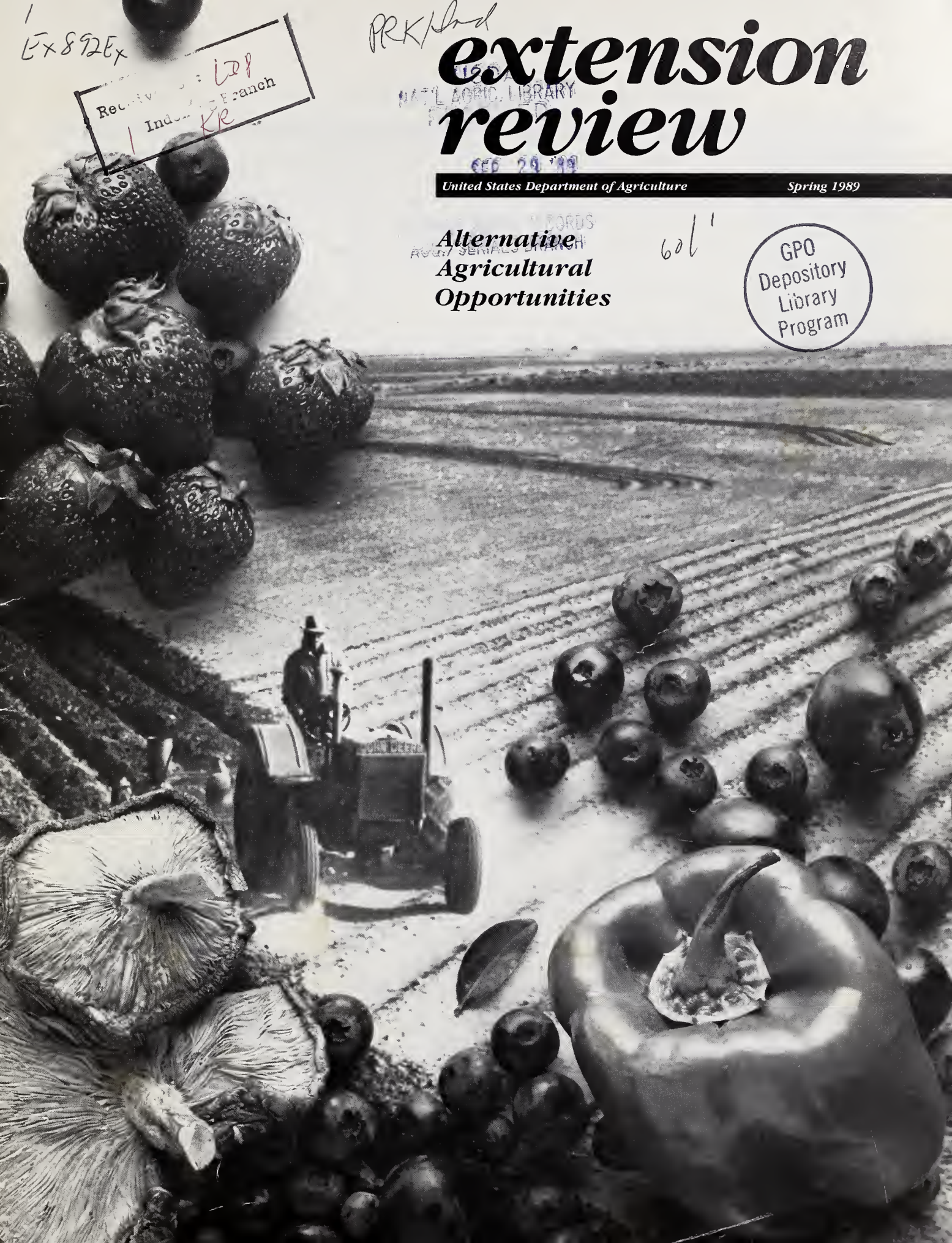
extension review

United States Department of Agriculture Spring 1989

Alternative Agricultural Opportunities



Dimensions Of Agricultural Diversity

Clayton Yeutter
Secretary of Agriculture,
United States
Department of
Agriculture

Rural diversification is essential— the survival of American rural communities depends on it. Massive annual outlays for farm price and income supports are no longer defensible to the American taxpayer. We should begin now to look for a better way to ensure the economic well-being of farmers and small town businesses.

Farmers want and deserve more flexibility in planning their business enterprises. The focus on agricultural diversification by the Cooperative Extension System through its National Initiative on Alternative Agricultural Opportunities can provide an excellent frame of reference to help develop ways for farmers to earn a living in the market rather than from the government.

Every farmer, processor, truck driver, retailer, and food-service employee who deals in agricultural and food products operates in a global market place though some do not realize it. To compete successfully, American agriculture must match or better its finest competitors, whomever or wherever they may be.

Components Of Competitiveness

There are three primary components of competitiveness— price, quality, and marketing skills. Because of our remarkable production efficiencies, we can be price competitive in most agricultural products if exchange rates are reasonably stable and if we do not have to compete against the treasuries of other nations. However, we need to work creatively on quality issues and on marketing skills. We must also diversify into new value-added products with global demand potential.

In this regard, Extension conducts educational programs for farmers, ranchers, processors, and distributors to develop systems which will bring quality products into new or penetrable markets. An important role Extension can play in this process is to help these clientele think entrepreneurship, diversification, value-added, new products, global markets, and sound investment.

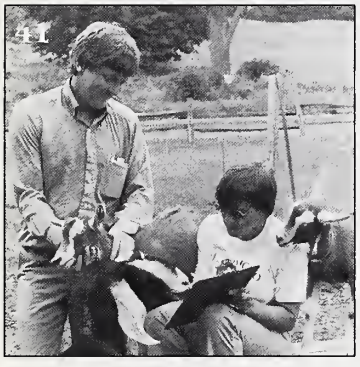
Mindset For Revitalization

This mindset is essential for farmers and rural businesses if we are to revitalize rural America. In addition, diversified systems that rely on renewable resources could address many of the environmental concerns confronting U.S. agriculture.

There will be many challenges to overcome in developing and commercializing alternative agricultural products. The U.S. Department of Agriculture is already working on some of them. Research is being conducted on several crop and livestock alternatives through individual and joint efforts of the Agricultural Research Service, the Cooperative State Research Service, the agricultural experiment stations, private organizations, and others.

This issue of *Extension Review* illustrates some of those efforts. The Cooperative Extension System is challenged to ensure that agriculture and rural America diversify to meet ever-changing demands and opportunities.

Vol. 60, No. 1
Spring 1989



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Variety For The Horn Of Plenty

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Our existing attitudes in American agriculture are bound by paradigms rooted in production agriculture. These paradigms rely on technologies which increase production or its efficiency. The new, desired attitudes will be entrepreneurial-based. They will address problemsolving through better management of information, superior cooperative efforts, and innovative individual actions.

In today's agriculture, enterprises and methodologies have become concentrated around a fairly small set of norms. This focus has increased the risk in economic, environmental, and social subsystems. Massive production and marketing of low-value products for food and fiber are the standard approach. A "producer mentality" reigns. Agricultural researchers, educators, regulators, and practitioners view farmers and ranchers as "growers." This attitude leads to stagnation of the entrepreneurial aspects of farming, and to excessive concentration of research and Extension resources on production systems. We use technology and information to increase yield. But we cannot simply grow our way to success in agriculture.

Risk Management

Diversification is an elementary and important risk management strategy. Diversity is recognized as a necessary condition for stability in biological, economic, and social systems. Sustaining our national and global agriculture systems may depend on increasing their diversity. People and institutions within and beyond agriculture will need to change their thinking for diversification to occur successfully.

One way to diversify is to diversify our products. We can generate products from traditional or new crop and/or livestock bases. The products may be food, feed, or fiber as we know them or they may be completely different product groups. As research, technology, and consumer demand lead to new utilities, new wants and needs will create new markets for new products.

Alternative products from agriculture may address severe environmenmental problems. Use of automobile fuels derived from crops is being considered as an air pollution control strategy. Biodegradable plastics manufactured partially from crop products are available, and are being investigated for broader applications. In some cases, ideas for products which have not been economically feasible in the past may be revisited as environmental or other concerns outweigh pure economics.

Many of these products will rely on renewable resource bases. The past five decades have seen overwhelming productivity gains in American agriculture. In the fairly near future, we will see similar gains in product development from our farm and forest resource bases. It will be tremendously exciting to be involved in developing and commercializing products that come from the living environment and not from nonrenewable mineral resources.

Commercialization

A second way to diversify is through commercialization of alternative crops, processes, and products. Often, the private sector finds the risk too high, costs too inhibiting, and the time frame too long to capitalize on an emerging opportunity. In such a case, the U.S. Department of Agriculture can work directly with industry to see that new crops are ready for farm level production, that processing or extraction technologies are ready, and that the industrial market has been identified and is ready to buy the raw or processed material.

To promote commercialization, we move systematically from research to development and from development to demonstration. This latter stage is highly important. Public and private sectors work together to conduct commercial runs in existing mills or factories. Successful runs at industry's plants, by industry's people, that meet industry's standards are paramount to market acceptability and business development.

Commercialization projects allow government and industry to work directly together, sharing resources and facilities for mutual benefit. The public benefits from technology adoption because public

research, discovered and nurtured over many years is commercially applied. Industry benefits from new products and markets, and from accelerated, commercial applications of technology through risk sharing with government.

Process

We can also diversify through process. We can diversify the processes through which we manage, market, and produce the stocks and goods of agriculture. Currently, there is interest in developing low-input agricultural production systems. To succeed, they will require changes, not only of production practices and technologies, but also of overall management and marketing strategies and skills.

The term "low-input" may be confusing. These systems actually involve a kind of "redistribution." Agricultural enterprises are systems; they incorporate labor, capital, management, information, chemicals, technologies, and other input factors into an operational scheme to achieve results. There is a relativity among all these factors. They balance one another, much in the way of a thermodynamic equation. If one input is reduced, others may increase.

When farmers understand how these equations work, they can balance them in a way that improves their individual competitive advantage or satisfies their own management goals. Their choices will diversify agricultural processes, and should improve the overall stability of the agricultural system.

Diversification may be easiest to understand at farm level. If a farmer chooses to spread his or her risk by diversifying the product/process mix within the enterprise, he or she is ensuring against catastrophic loss. Yet an operator may increase risk in an attempt to increase profits. Potential changes in farm programs would require many farmers to rethink their risk management and operational programs. Enabling farmers to make the right choices would require a major educational effort by the Cooperative Extension System.

Impacts

Communities are also affected by agricultural diversification. Alternative products which could be generated from agriculture may have varying degrees of value added to them throughout their route from field, forest, or feedlot to farmgate, processors, distributors, and consumers. Many rural communities could experience significant revitalization through processing or handling raw, intermediate, or finished products from alternative agricultural sources. Again, we see a major opportunity for Extension's educational programs in this area of rural revitalization.

Regionally and nationally, diversification of agriculture could add stability and security through managing of risk and increasing self-reliance.

Major Task

The Cooperative Extension System now, and especially in the future, has a major task, that of enabling farmers and ranchers to effectively diversify their operations. As the educational arm of USDA, Extension staff members at the national, state, and county level face a formidable challenge: through educational programs and facilitation to build the networks, catalyze the strategies, transfer the technologies, help identify and obtain the resources, and provide the multidirectional communication required for significant diversification to occur.

Jewels From The Gem State

Opposite. As an alternative enterprise, Lyca and Jim Elias, ranchers in Idaho's Hammett area, began to produce their Morning Star dried tomatoes for the gourmet food trade. Extension food scientist John Montoure of the University of Idaho is helping them assess equipment for the small commercial plant they envision. This page: Spence Ellsworth of Carey, Idaho, began to market Craters of the Moon mineral water when family members found that refrigerated water from the ranch's spring "tasted great." Both businesses exemplify how Idaho entrepreneurs—aided by Extension—are finding new ways to profit in agriculture.

Marlene Fritz
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From aquaculture to spearmint oil, from bottled water to specialty wools, from wildflowers to guest ranches, Idahoans are finding new ways to make money in agriculture.

In January 1988, about 300 persons gathered at an idea-sharing "Adapting in Idaho Agriculture" conference in Twin Falls. About 60 presentations and panels were included in the 3-day program.

University of Idaho Extension agents helped locate entrepreneur-speakers, and the Agricultural Communications Center there developed a successful information campaign. The conference provided a comprehensive look at how Idaho entrepreneurs are addressing the needs for agricultural diversification and how Extension can help them achieve success.

The meeting was sponsored by the offices of U.S. Representative Richard Stallings and Governor Cecil Andrus; the Agriculture Department of the College of Southern Idaho; the University of Idaho Cooperative Extension Service; the Idaho Departments of Agriculture and Commerce; and the Magic Valley Agricultural Institute.

Organic Grain A Natural

In Camas County, where most grain growers can't afford to apply herbicides or insecticides anyway, the decision to grow organic grain wasn't a tortuous one for Reuben Miller, a speaker at the conference.

"The conditions we had to meet were near enough to what we were already doing that we didn't have to make any drastic changes," says Miller, who manages the Camas Grain Company.

In 1980, Miller began negotiating with a San Francisco-based organic bakery. He evaluated what area growers were doing locally and what they could realistically expect to grow for the organic grain market. Starting with a few loads, Camas Grain's organic grain enterprise ballooned to about 100,000 bushels a year and now constitutes about 50 percent of the business—"the side of the business that we survive on," says Miller.

About 40 growers within a 100-mile radius supply the organic grain, agreeing not to apply herbicides, pesticides, or chemical seed treatments. They may use organic seed treatments and organic fertilizers. Although the yields they get aren't noticeably different from those produced by the methods these growers have traditionally used, the price difference is significant, varying from 20 to 80 cents more a bushel.

Miller says the most important tool in marketing an alternative agriculture commodity is "raising a quality product."

Bottling a "Liquid Asset"

The Ellsworth family of Carey, Idaho, had always relied on their ranch's hot springs for heating. In 1977, when their cold water well ran dry, they found that refrigerated water from the spring "tasted great." The result was a new family enterprise—bottling and marketing Craters of the Moon mineral water.

But Spence Ellsworth says that marketing a new product doesn't just mean having a good product and heading for the store. "Shelf space is hard to get," he says. "You have to create a demand by consumers to influence store managers."

What boosted their enterprise was word-of-mouth promotion by individual buyers and media attention from a half-dozen Idaho television stations and the wire services. "You can't buy that kind of advertising," comments Ellsworth. "The media will get behind an enterprise that appears to have an opportunity to create jobs."

Because competition is fierce, the economies of scale can be deadly for the small producer who buys everything in limited quantities. "For us, a label costs 6 cents, but the big companies get each one for a half cent," Ellsworth points out. "Our bottles cost us a lot more, and so does our freight."

He said the one cardinal sin of starting a new product enterprise is not being able to meet the demand. When cash flow is tight, inventories are necessarily small—and ordering supplies can take months. "If the demand takes off really fast, you may not be able to keep up," he says, "so proceed with caution."

Idaho: Famous Tomatoes?

Ranchers Jim and Lyca Elias produce dried tomatoes, packed in fresh herbs, fresh garlic, and olive oil—free of additives and preservatives. The Elias's "Morning Star" tomatoes sell for $10 to $16 a jar in the gourmet trade—not a low price, but substantially lower than their competition.

Children of first-rate ethnic cooks—Italian and Lebanese—the Eliases call themselves "food people." They noticed that gourmet magazines were featuring an increasing number of recipes calling for dried tomatoes—which add more flavor and less juice than fresh tomatoes. Friends who tasted their homemade product encouraged the Eliases to go commercial with it.

After locating growers of Roma tomatoes in New Mexico and California and a bulk dehydrating facility in California, the Eliases began seasoning and packaging their dried tomatoes in a house not far from theirs. University of Idaho Food Scientist Jorg Augustin conducted initial food safety tests before the Eliases sent the tomatoes to the Food and Drug Administration for approval.

To promote their product, the couple held weekend tastings in Sun Valley and Boise stores and sent samples to food critics and gourmet magazines. A mention in the February 1988 issue of *Food And Wine* magazine caused orders to explode. "I'm glad it didn't make the November issue," says Lyca Elias. "We couldn't have met the demand at Christmastime."

Now the Eliases are investigating the possibility of building a small commercial plant and developing several new products. Food Scientist John Montoure of Extension at the University of Idaho is helping them to assess the types of equipment they may need and to identify possible sources, and is advising them on product safety measures.

So far, the Eliases have done most of their own labor. Their three daughters—ages 7 to 12—help where they can. Lyca Elias says entrepreneurs should be aware of how a new business can affect home life. "It has to be a team effort," she says, "and you have to be ready to work real hard at first. But it can be done!"

Direct From Farm To Table

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Extension Agriculture/
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and
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Extension Communications Agent,
Baltimore City, Maryland

Many Maryland farmers face a frightening dilemma: Should they learn to grow and market new crops using innovative techniques or should they build a new life off the farm?

Urban areas loom and encroach. New neighbors fear pesticides and don't like the smell of pigs. City dwellers face their own fears. They wonder how to feed their families well and keep them healthy with limited resources.

Could these two very different and sometimes conflicting groups be brought together for the benefit of all?

Pilot Project

In June 1988, David and Mary Rogers, a cooperating farm family from Caroline County on Maryland's Eastern Shore, began their weekly trucking of fresh grown vegetables and flowers to "town." Town in this instance was the Cherry Hill public housing development in Baltimore City. The "Tailgate Market" site was sponsored by the local public housing department management office and the neighborhood tenant council.

This farmers' market was the result of months of effort by Baltimore City Extension agents, who acted as liaison between the farmer, sponsor, and consumer and provided public relations.

The development of a framework for a special marketing project for the state initiative "Enhancing The Profitability of Maryland Agriculture" began in the fall of 1987. At the University of Maryland, a Cooperative Extension Service (CES) faculty committee sought to initiate a workable pilot program to help farmers tap unreached markets for Maryland produce. They wished to improve the nutritional status of low-income families by making fresh, high-quality produce readily available and increase the positive interaction between Maryland's urban and rural residents.

Baltimore City Extension brainstormed with a local citizen advisory committee. Extension specialists selected the Cherry Hill Housing Development for the pilot project because initial community resource contacts had been made there. Also, there was only one food market in the community and few other sources of fresh produce.

Site Chosen

Deborah Courtney and Yvonne Smith, social service counselors for the housing project, were the main contacts in Cherry Hill. They agreed to serve as sponsors for the project in the community and liaison to the housing project manager and the tenant council.

The site was chosen across the street from the management office, which also housed the local senior citizen center. This site provided ready access to the sponsors as well as a core group of customers from the center.

At this point, Robert Rouse, agriculture agent in Caroline County, suggested the Rogers family as cooperating farmers. The Rogers, from Wyndell's Venture Farm in Harmony, Maryland, sold fresh flowers and vegetables at farmers' markets in the Washington, D.C., area. They were also willing to try new ideas.

Opposite. David and Mary Rogers, farmers from Maryland's Eastern Shore, display their fresh produce at a public housing development in Baltimore City. This marketing project was initiated by Baltimore City Extension agents to help farmers tap unreached markets for Maryland produce and improve the nutritional status of low-income families. This page. A Baltimore backyard gardener,(left), checks out the Eastern Shore melons offered for sale by farmer David Rogers.

The Rogers had some apprehension about coming into Baltimore, an area unfamiliar to them. The local sponsors in Cherry Hill gave the Rogers an opportunity to get to know people in the community, who they could go to for help if problems arose.

City Extension agents met with Courtney and the tenant council president. The president agreed to support the tailgate market. The Rogers arranged to donate 4 percent of sales to the council, as they did at another market they used.

Cherry Hill is a low-income public housing development in which many people receive food stamps. It was important, therefore, that the farmer be able to accept them. The Maryland Department of Agriculture provided the Rogers with the necessary information about this matter and sent a representative on the opening day to review procedures with them.

Market Promoted Locally

To reach people within the development, Extension localized the market promotion. For opening day, Extension staff designed a flyer that was distributed to each household in the neighborhood. It was also distributed to local churches, schools, the community center, and the shopping center. After opening day, the flyer was blown up to poster size to be displayed in these areas throughout the summer.

Results

The Cherry Hill Tailgate Farmers' Market did business on Mondays from June 6 through August 8. Sales were slow at first, but they picked up as summer crops came in. It was an educational experience for everyone involved—the farmer, the sponsor, the consumer, and the Extension specialist.

"We liked getting good, fresh food to the people so they could enjoy it," said Mary Rogers.

"We needed fresh food," commented regular customer Gwendolyn Johnson. "This way we didn't have to travel to get it . . ."

"I learned how they farmed, how crops got out," said Social Service Counselor Yvonne Smith. "Customers who bought said they were pleased."

Potential

The pilot project illustrates the potential of neighborhood tailgate markets. With what we learned, we hope to expand the program to include more neighborhoods and farmers. The last 2 weeks of the market, the Rogers started at one site in the neighborhood, then moved to another to reach more people in the community and increase sales.

Some new markets may actually become neighborhood routes, each stop having a sponsor. But there are difficulties. "Breaking down the truck and setting up and moving from place to place isn't easy," says Mary Rogers. "We need young people to jump in and out of the truck, but people don't always want to buy from a young person." For this reason, youth and older persons are needed to work on the project.

Extension could use these markets for nutrition and horticulture education, offering demonstrations and recipes, while increasing the market's appeal. Tips on selling at farmers' markets could be offered to farmers. Flyers might include information on available produce and dates. More mass media promotion might also be helpful.

Agricultural profitability is now, more than ever, a two-way street involving both producers and consumers. Getting together can offer urban families good taste, good nutrition, and a hearty welcome for farmers. ▲

How Entrepreneurs REAP Profit

Judy Green
Extension Support Specialist,
Coordinator of Farming Alternatives Project,
and
Wayne Knoblauch
Associate Professor and
Farm Business Management Specialist,
Department of Agricultural Economics,
Cornell University, Ithaca, New York

Innovation, diversification, and adapting to change are not new ideas in agriculture; over time, most farms have undergone many transitions in production, marketing, and management strategy. But today there is renewed interest in farming alternatives—nontraditional crops and livestock, new marketing strategies, innovative production systems, and a variety of farm-based small business options.

Extension agents in many New York counties have been besieged with inquiries about farming alternatives. New York offers good opportunities for agricultural diversification and innovation, and farming entrepreneurs are recognizing and capitalizing on them.

They are raising nontraditional farm products such as fallow deer, salmon and trout, fresh-picked culinary herbs, seedless table grapes, turf, flowers, and ornamentals. They are developing innovative marketing strategies, including sophisticated on-farm retail operations and national mail-order businesses, and they are developing organic methods, hydroponics, and other production innovations. They are also adding value to raw products by producing juices; wines; yogurts; specialty cheeses from cow, sheep, and goat milk; maple syrup confections; pesto, sauces, and other gourmet processed foods; and handcrafted floral, herbal, woolen, fur, and hide items.

Entrepreneurs are providing services and recreation with farm tours, on-farm restaurants, bed and breakfast inns, petting zoos, cross-country skiing, and campgrounds. Some of these entrepreneurs represent the vanguard of emerging agricultural industries that will provide opportunities for many other farmers in the future. But they face many challenges. Like other small business startups, a new farm-based venture requires resources, careful management, and hard work, and may involve considerable financial risk. And when the enterprise is an unusual one, the lack of information, technical advice, and marketing support often places the innovator in the multiple roles of researcher, Extension specialist, and marketing agent for other producers.

Farming Alternatives Project

In 1986, Cornell started the Farming Alternatives Project under a grant from the New York State Department of Agriculture and Markets. Working through the Cooperative Extension network, the project helps families identify and evaluate new enterprise options and marketing strategies. Rather than simply dispensing information on specific alternatives, it emphasizes the decisionmaking process and helps people develop the management and marketing skills necessary for successful diversification.

As one of the first activities of the project, a series of four highly successful 1-day workshops was conducted for farm and rural families. The workshops featured examples of successful farming entrepreneurs and provided training in basic business planning, management, and marketing to more than 300 participants.

A videotape and a handbook for prospective farming innovators was developed for the project. *Farming Alternatives: A Guide To* Eval*uating The Feasibility Of New Farm-Based Enterprises* takes the reader through a step-by-step process, using a case-study and workbook format to evaluate personal and family considerations, available resources, alternative enterprise options, market potential, production feasibility, and cash flow.

Exciting Collaborations

The materials and programs have led to some exciting collaborative efforts between Extension and other educational and technical assistance agencies. Agents have found support from community colleges, small business development centers, resource conservation and development councils, State University of New York (SUNY) colleges, private industry councils, and the New York State Department of Education.

Farming alternatives programming also has provided a way for innovative farmers, farmers looking for new ideas, and would-be farmers to share experiences, learn from each other, and provide mutual support. In western New York, Extension Agent Joan Petzen helped organize a group called REAP—Rural Enterprise Association of Proprietors—after many of the participants in her farming alternatives program wanted an ongoing forum.

Opposite: Mel and Phyllis Nass of Venture Vineyards, in Lodi, New York, display their new farm products—concord table grapes and grape juice. This page: Peggy Knapp-Clarke (left), who runs a small dairy farm in Tioga County with the help of her brother Jason Knapp and his wife Ellen, maximizes profits from her small herd by marketing high butterfat milk to a yogurt manufacturer at a premium price. Jason, whose farm adjoins Peggy's dairy, is experimenting with such new enterprises as a pick-your-own blueberries operation.

Beth Feldman of Lively Run Goat Dairy, Interlaken, New York, feeds some of her milkers. She markets several varieties of goat's milk cheese locally and in New York City. Nontraditional farm products such as specialty cheeses are attracting increasing interest from farmers.

REAP members meet monthly to discuss production, management, marketing, and policy issues that affect their enterprises.

Research Dispels Myths

Two surveys conducted by the Farming Alternatives Project have helped to dispel a number of myths. The first is that only small, part-time farms are involved. Actually, among the 167 New York farms surveyed (each of which has developed some sort of alternative enterprise), median farm size is about 100 acres. And 30 percent are full-time or nearly full-time farms.

A second myth is that only new or inexperienced farmers are getting into alternatives. But more than a third of these farming entrepreneurs grew up on a commercial farm. Operators reported a median of 11 years of active farming experience.

One of the most significant myths dispelled by the research is that farmers going bankrupt with a more traditional enterprise can save the farm by getting into a new enterprise. Of the innovative farms surveyed, only about 10 percent were experiencing major financial difficulties when they started their new enterprise. In contrast, almost 75 percent had no significant financial stress.

A final myth is that alternative enterprises are not profitable. Actually, 60 percent of the enterprises surveyed were reported to be profitable in 1986, with 20 percent producing a "significant profit." However, economic viability is a real concern—almost 30 percent of the enterprises lost money.

An Adaptable Approach

Farming entrepreneurs in every state are working hard to create new opportunities for themselves and for other farmers. Meeting the information and technical assistance needs of such a diverse group presents many challenges for the Extension agent.

The business management approach and the materials developed by the Farming Alternatives Project in New York can be used in any region. They offer Extension agents the opportunity to take a leadership role, working with other community resource groups to help turn "farming alternatives" into viable new industries for the rural economy.

Herbs And Spices— Arizona Alternatives

Fred Harper
Maricopa County Extension Agent,
Cooperative Extension Service,
University of Arizona

Growers of vegetable and agronomic crops in central Arizona are looking for alternative crops that have good income potential and are marketable.

Two circumstances have led to the need for change. First, a new state law limiting future groundwater use is spurring a shift to crops that require less water for production. Second, many small landowners find vegetables an unsatisfactory crop because it is so difficult to plug into the conventional wholesale domestic marketing system. Competition from local food chains makes direct marketing difficult.

Crop Potentials
Investigation has shown that a range of alternative crops broadly classed as herbs and spices offers good potential for these growers. Market demand for these crops is expected to increase. Many that grow well in Arizona's climate are imported.

Some crops in this group can be produced by small growers. It is the marketing of the crops that presents the greatest challenge—growers will need a marketing organization and a central processing facility. The county's Extension-sponsored Industry Development Corporation (made up of growers and economic development people) has plans to help fill these needs.

Because the herb and spice category encompasses a wide range of crops, it also has a diversity of market outlets. Many of these crops can be marketed locally at retail and as value-added types of products, giving them high-income potential.

Technological research is needed on some herb and spice crops to develop production techniques that will make them competitive with imports. The needs include sources of propagation material, mechanical harvesting methods, and more efficient processing after harvest.

Workshop For Growers
A 2-day workshop helped stimulate awareness and interest in these potential crops and their market possibilities. Several months before the workshop, a demonstration planting of herbs and spices was established; a tour of the planting helped participants become familiar with many of the plants discussed.

The demonstration plot was also useful in developing cropping information, such as seasonality of production and culture, and it provided samples to be used for evaluating harvested-product quality.

One of the foremost national experts on marketing these types of crops came to Maricopa County to conduct the workshop. Each person who registered received a copy of the speaker's book, *Herbs As A Potential Cash Crop*, which they were to read before coming to the workshop.

Thanks to the interest generated by the workshop, a state growers' association was formed. Primarily educational in purpose, the association meets monthly. One of its activities is to develop marketing for growers.

Support From Industry Committees
The county's Vegetable Industry Development Corporation is providing Extension with support for obtaining research grants to help solve some of the problems associated with establishing herb and spice enterprises. The development corporation also plans to help put together a marketing organization and has helped develop a 5-year marketing plan.

A College of Agriculture interdisciplinary committee at the University of Arizonia was established to obtain additional support for the project. It involves both research and Extension personnel at the state and local levels. Members of the research component of this committee will be involved in research on making the crops marketable. The work will be supported by the grants obtained by the development corporation.

Developing Markets
Two members of the new herb association already have established local market outlets for several growers' products, including fresh herbs, processed foods such as jams and jellies, and items such as wreaths and potpourri.

The marketing specialist who led the workshop is conducting marketability tests on several locally grown products; other products are being shipped to marketing firms for recommendations about evaluation and preparation for shipment.

New Ways In The Old West

Allen Bjergo
Extension Alternative Agriculture Specialist,
Montana State University,
Missoula

"If you want to raise alternative crops, you must really think like a business person," says Joe Higgins as he reviews his computer spreadsheets. Higgins raises German statice, an astringent herb intended for culinary and medicinal purposes, in western Montana's Bitterroot Mountains. He earned a 40-percent net profit on 1/4 million dollars' worth of dried flower sales in 1987, but, he concedes, "It took 10 years to get there."

Higgins believes that too many farmers do not review costs and returns well enough to know exactly what they earn from conventional crops. "If a farmer can't tell you precisely what his profit is on barley, how can he decide if some exotic crop is worth the effort?" he asks.

Like many other growers of agricultural alternatives, Joe and Judy Higgins pioneered their own markets, with visits to trade shows all over the Nation and personal contact with hundreds of buyers, jobbers, and store operators. They point out that the lack of information from conventional sources is a barrier.

Evolving Agriculture

Western Montana and neighboring Idaho once supported a wide variety of crops. In spite of high altitude and short seasons, food and feed crops appeared soon after the first miners sought gold, silver, and copper in the mountains. As the "booms" faded and agriculture underwent changes, fruit, vegetable, and seed crops gave way to hay and grain.

"It's easier to grow something that you can dump at the stockyards or the elevator," one county Extension agent says, "and agricultural programs and subsidies are a major part of decisionmaking about enterprises."

In recent years, small but determined groups of farmers have reintroduced some of the crops which once fed miners and loggers. They also

have introduced some new ones, such as Higgins' herb statice, and open-pollinated garden seeds suitable for high-altitude plantings. Even more exotic is the harvesting of pollen, royal jelly, and propolis from bees for human use. Other entrepreneurs are raising llamas, elk, buffalo, and exotic fowl.

Entrepreneur Characteristics

Barbara Russmore of Alternative Energy Resources in Helena has analyzed nearly 200 survey instruments returned by farmers who are raising alternative crops, or who are in transition to less traditional enterprises. She notes that most of the people seriously working on agricultural alternatives are long-time farmers. "The majority of our sample has been in farming 20 years or more," Russmore says, "and about three-quarters of them depend entirely on the sales from their farms for income."

Developing Enterprises

Many people who have explored alternative enterprises report that they have incurred large telephone bills, including many calls to overseas locations, and that they have carried on voluminous correspondence with widely scattered scientists in order to educate themselves.

Few alternative enterprises receive any government support, and most have had to develop their own markets, since the products do not fit the usual market outlets. "I could not enter the traditional dairy market," states Alice Brosten, "so my family and I decided to market our milk as cheese." For the past 5 years, she has sold Brosten's Farm Cheese in unpasteurized forms to a select market that she had to start and expand on her own. It meant high long-distance telephone bills and driving thousands of miles to visit hundreds of store managers.

Hugh Spencer is typical of those who create their own markets. He reserves space at trade fairs and sportsmen's shows all over the United States to display and sell his artificial fishing flys made from specially developed bantam chickens.

Mail order is also an important part of agricultural diversification. Suzanna McDougal of Hamilton dries herbs in old pheasant incubators she salvaged from a state fish and game farm, packages them, and mails her products all over the Nation. Diana Downs, another herb grower, mails live plants to thousands of customers.

Alternative agricultural enterprises may involve a wide variety of different, but balancing, operations. At the N-Bar Ranch in central Montana, sheep, cattle, forage crops, and grain are raised according to organic principles and sold to specialized markets. The ranch also produces vegetables, grass, and legume seed. In addition, the owner leases part of the ranch for hunting and provides personally guided hunts for trophy whitetail deer.

Opposite: Karen Schneeberger fills catalog orders for her new alternative crop at her ranch near Victor, Montana—high-altitude garden seeds. This page: Karen surveys her stand of open pollinated popcorn.

Necessary Precautions

These Montana operators agree on some precautions for others who may be considering an alternative agricultural enterprise:

- Find a market, however small, and begin developing it;
- Start out carefully to fill that market, and expand as errors are overcome;
- Know "the numbers" exactly, in order to have accurate data for future decisionmaking; and
- Be ready to try new ideas as the competition increases.

All of the successful Montana producers have been persistent in their quality control efforts, relentless in pursuing markets, and diligent in keeping and analyzing records. Their personal commitment has helped them stay afloat.

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Farming Hybrid Striped Bass

Dave Bova, a fisheries technician at North Carolina State University, Raleigh, exhibits a pond-raised product of aquaculture—the hybrid striped bass. Extension specialists believe that this hybrid, a cross between a striped bass and a white bass, has potential as an alternative "crop" for many farmers in the state.

Dave Caldwell
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Raleigh

When Lee Brothers harvests his newest crop, he doesn't climb into a combine or hook up a baler; instead, he pulls on waders and grabs a seine.

Brothers' "crop" is growing in ponds built on his Beaufort County farm on the North Carolina coast. Like a number of other farmers, Brothers is trying aquaculture—fish farming—as an alternative to conventional crops such as soybeans and corn.

Fish farming is not a novel idea. Catfish farming has become a thriving industry in Arkansas, Mississippi, and Louisiana; other types of aquaculture have long been practiced in other parts of the world. What sets Brothers' effort apart is the kind of fish he is raising—a hybrid produced by crossing striped bass with white bass. The result is what Brothers and others usually call a hybrid striped bass.

A New Approach

A significant amount of research has focused on the hybrid striped bass in recent years, but Brothers may be the only farmer in the Nation raising the fish commercially in ponds. A California farmer has been raising hybrids for several years, but he uses a system that involves tanks and raceways, Brothers says.

Among the scientists who see commercial potential in the hybrid striped bass is Ronald G. Hodson, an Extension aquaculture specialist at North Carolina State University. "The potential has caught the attention of most of us," says Hodson. "I think hybrid striped bass can be to North Carolina what the channel catfish is to Mississippi."

A Ready Market

The hybrid striped bass has particular commercial potential because a ready market seems to exist for the fish. The striped bass in the wild is considered a particularly tasty fish. But for reasons scientists do not fully understand, the number of fish in the wild has declined dramatically in recent years.

As a result, striped bass fishing has been either banned or severely restricted all along the East Coast, and the commercial catch of this desirable fish has dropped to near zero. The hybrid, which looks much like—and is said to taste much like—the wild fish, may have the potential to occupy the market niche once held by it.

The hybrid fish is easier to raise in captivity than the striped bass. But that doesn't mean that hybrids are easy to raise, nor is it clear that hybrids will realize their apparent commercial potential.

A Learning Experience

"It's been a real learning experience," says Brothers of his aquaculture operation. Like many farmers, Brothers farms the land—800 acres of soybeans, corn, and wheat—previously farmed by his father, who is now retired. And like many farmers, Brothers found conventional farming a tough way to make a living in the early 1980's.

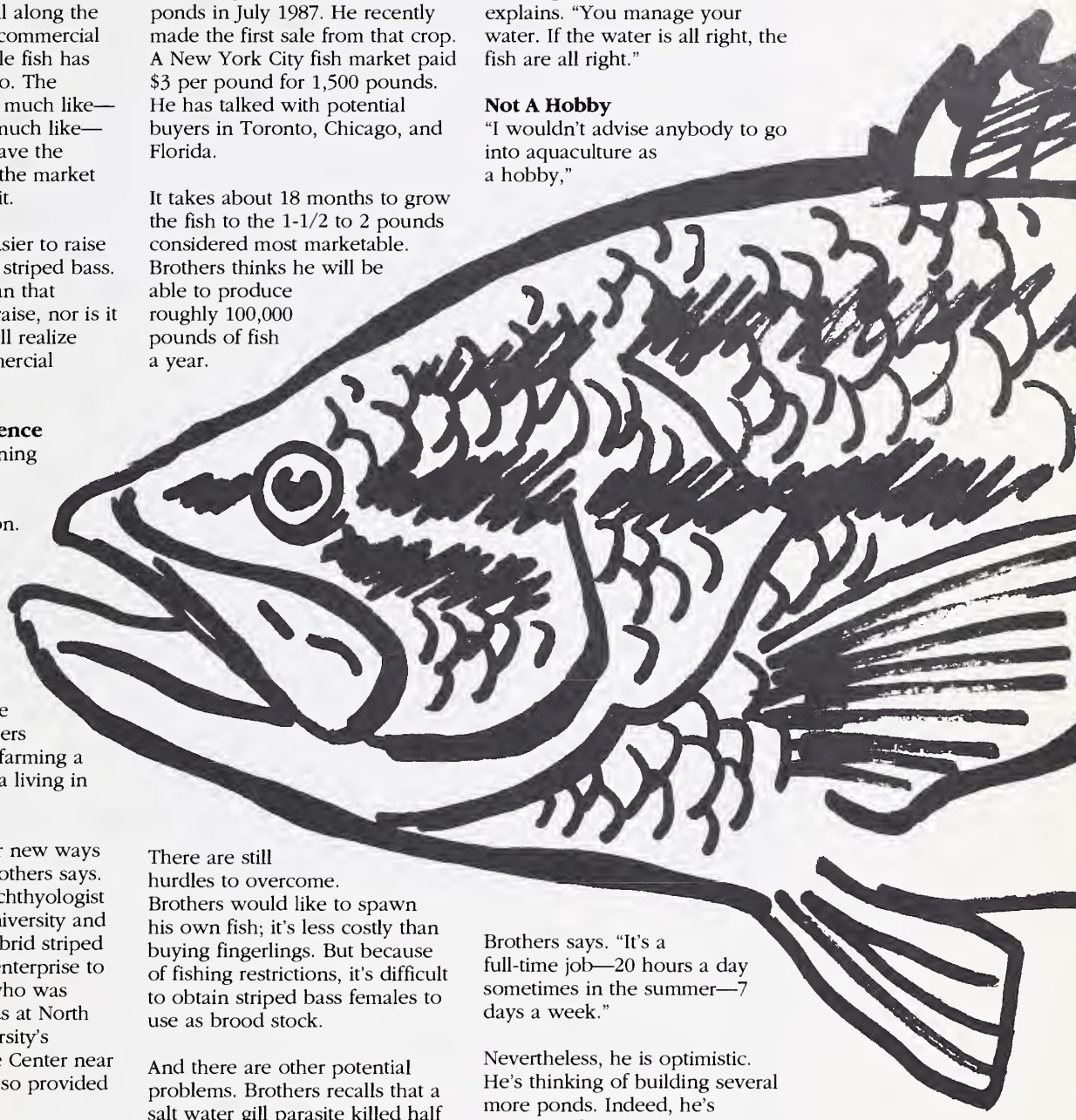
"I started looking for new ways to make money," Brothers says. A friend who is an ichthyologist at Arkansas Tech University and had worked with hybrid striped bass suggested the enterprise to Brothers. Hodson, who was working with hybrids at North Carolina State University's Pamlico Aquaculture Center near the Brothers farm, also provided expertise.

For more than 2 years, Brothers sought aquaculture advice. He visited catfish farmers in Arkansas to see how their operations worked. He thought about raising crawfish, but finally decided on hybrid striped bass. He built levees for three 6-1/2-acre ponds and three 3-1/2-acre ponds.

The First Sale

Brothers put the first fish in his ponds in July 1987. He recently made the first sale from that crop. A New York City fish market paid $3 per pound for 1,500 pounds. He has talked with potential buyers in Toronto, Chicago, and Florida.

It takes about 18 months to grow the fish to the 1-1/2 to 2 pounds considered most marketable. Brothers thinks he will be able to produce roughly 100,000 pounds of fish a year.



There are still hurdles to overcome. Brothers would like to spawn his own fish; it's less costly than buying fingerlings. But because of fishing restrictions, it's difficult to obtain striped bass females to use as brood stock.

And there are other potential problems. Brothers recalls that a salt water gill parasite killed half the fish in one of his ponds before he was able to get it under control. Water quality is critical, according to Brothers.

"You put your fish in the pond and forget about them," he explains. "You manage your water. If the water is all right, the fish are all right."

Not A Hobby

"I wouldn't advise anybody to go into aquaculture as a hobby," Brothers says. "It's a full-time job—20 hours a day sometimes in the summer—7 days a week."

Nevertheless, he is optimistic. He's thinking of building several more ponds. Indeed, he's thinking of giving up conventional crops and concentrating solely on raising hybrid striped bass.

Beef Tour Hits The Road

The 1988 Beef Marketing Tour, with rancher participants from Nevada, Arizona, California, and Utah, had increased rancher awareness of alternative marketing opportunities as one of its objectives. Here, tour participants visit a Safeway prefab boxed beef plant in Vernon, California.

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and
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The 1988 Beef Marketing Tour hit the road in late March with an ambitious itinerary. The schedule included one of the world's most advanced turkey growing operations, a gigantic feedlot with a yen for the Japanese market, a historic ranch with a decidedly modern approach to ranching, and a beef packing plant that processes more beef in a day than most people eat in a lifetime.

The scheduled stops were supplemented by discussion groups, sponsored dinners, and on-bus educational videos, which all added up to 4 days of intensive learning. Tour participants, who were from ranches in Nevada, Arizona, California, and Utah, came with great expectations.

Dale Garcia, an Arizona rancher, was hoping to learn more about how to improve his herd. A chance to gain new ideas on marketing was Californian Jerry Blair's reason for going along for the ride. Nevadan Courtney Dahl needed to learn new marketing options—particularly for cull cows. He was also looking forward to meeting other local beef producers who might be interested in entering into cooperative arrangements.

Tour Objectives

The beef marketing tour had three fundamental objectives: To increase rancher awareness of alternative marketing opportunities; to showcase successful marketing programs being used by producers of beef and other meat; and to make ranchers more aware of the changing world of beef marketing.

"The ranchers needed an opportunity to see first-hand how some facilities have grown from family-run operations to full-fledged corporations," says Jim Sullins, a California Extension livestock advisor who helped organize the tour. "They also needed to see new management and marketing techniques in application."

On The Road

The visit to the Louis Farms turkey ranch in Tipton, California, was an eye-opening experience. The beef producers were surprised to realize how controlled and restricted the turkey business has become. "The beef industry could end up the same way if we do not pull together and promote and market our product," one cattleman comments. " We've got to pull our heads out of the sand."

The second day began with a visit to the Harris Ranch feedlot. Located in California's San Joaquin Valley, this 600-acre facility has a 100,000-cattle capacity. The feedlot is so sophisticated that nearly everything but the cow is computerized. Here, the key to success is diversification.

Recognizing that a good beef business involves more than feeding cows, the Harris operation uses some creative ways to make a profit. One of them involves raising cattle in a uniquely fattening way for a unique market—the Japanese. They, unlike cholesterol-conscious Americans, prefer heavily marbled, fat beef. Harris ships these special cows live to Japan via aircraft. "The Japanese are paying premium prices for the type of product they desire," explains the feedlot manager.

Further Insights

The Western Stockman Market in Famosa, California, was the next stop. The auction manager, who shared his thoughts about the future of auctions, was particularly enthusiastic about video auctions: "They will provide a means to expose cattle to buyers without the problems of shipping cattle to auction yards."

On the third day, the group visited the Tejon Ranch. This legendary ranch is one of the West's most diversified operations—from grapes, firewood, longhorn cattle, and mining to a roadside restaurant. The manager explained how the ranch has capitalized on its resources to maximize profits through diversified marketing programs. Many tour participants felt that this stop provided the greatest insight into alternative marketing ideas for beef producers.

The Safeway prefab boxed beef plant in Vernon, California, was the last stop. At this operation, which processes about 700 carcasses a day, the cattlemen gained an understanding of the relationship between consumers and the production side of the beef industry.

Evaluating The Impact

At the conclusion of the tour, a discussion about beef promotion, packing plant consolidation, and high-tech processing brought together a wide variety of thoughts about alternative marketing strategies.

Arly Berman, a California cattleman, was particularly interested in vertical integration. "From raising the cows and calves to selling the packaged beef ... that was fascinating and enlightening," he says.

"One of the things I learned is how much the beef industry's advertising campaign has to do with selling beef. We need to keep it up," Nevada Rancher Ken Lee emphasizes.

Participants' informal critiques of the tour indicated satisfaction with the experience. Utah Rancher Daryl Blake, for example, came away with strong impressions of the Harris and Tejon operations. "We learned that there's a lot more to market on our ranches than just the cattle," he says. "I think they gave us good ideas—there are resources there that we aren't tapping."

Key Concepts

In summary, ranchers learned four key concepts from the tour:

- The importance of expanding market horizons to be involved from conception to consumer in the total marketing picture of beef;
- The importance of advertising and product promotion;
- Opportunities in marketing of nontraditional products such as firewood, recreational use of rangeland, and wildlife resources; and
- Awareness of alternative marketing options such as video, foreign export, and the use of futures to capitalize on beef markets.

The general consensus of the participants was that the marketing knowledge gained will help them improve the competitiveness and profitability of their beef ranches. All the ranchers received an individualized computer analysis of their existing operations as a followup to the tour.

Financial assistance for the tour was provided by the participating universities, ranchers, and industry support companies. Members of the Mojave Desert Range Project (an interstate committee to address education needs in the Mojave Desert area) coordinated the event between states.

A VHS video on the 1988 Beef Marketing Tour includes tour highlights and comments from the participants.

For more information, contact:
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For Texas... It's The Berries

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Kent and Juanita Wiggins, Smith County Texas, say they backed into their Christmas tree and berry production. They are representative of a large number of people in agriculture who are seeking ways to remain in farming by selecting alternative enterprises.

In Texas, citizen committees identified diversification as one of the critical agricultural issues to be emphasized in future Extension programming. They believe that the selection of alternative enterprises is essential to the well-being of this dynamic industry, particularly for the smaller farmers.

Long-Time Diversifiers
The Wiggins have been expanding and diversifying their farming since the late seventies. Kent is a full-time fireman for the Tyler Fire Department.

When son Mickey needed a project for his vocational ag class, the family planted their first Christmas tree seedlings. From this successful choose-and-cut operation, they expanded into blueberry production in 1984 and added blackberries and raspberries in 1985. Today, they have nearly 7 acres in berries and are phasing out the Christmas tree production.

Plant propagation is becoming a larger part of the total operation. For this reason, the Wiggins have added a small greenhouse. One son has purchased adjoining land and is adding peach production. They are considering pecans and strawberries for future plantings.

A Viable Alternative
Christmas tree production continues to be a viable alternative for some producers. "From a beginning of about 170 acres of Christmas trees in 1976, this industry has grown to 3,575 acres," reports James Chandler, forester for the Texas Agricultural Extension Service. "Under the guidance of the Extension Service, the Texas Christmas Tree Growers Association was organized and now has 454 members statewide."

About 600,000 Christmas trees worth over $9.5 million were marketed by 193 farms in 73 Texas counties during the 1988 Christmas season.

"Increased acreage nationwide has created a very competitive market," Chandler states. "However, those growers with good-quality trees and marketing knowledge can be successful. Our Extension educational programs are aimed at increasing both production expertise and marketing know-how."

Berries And More Berries
Another area of diversification has been in berries, primarily blueberries, blackberries, and raspberries. Research by Texas Agricultural Experiment Station horticulturists at Overton showed that blueberries could be grown in the acid sandy east Texas soils. Currently, more than 150 producers in the area have over 1,000 acres of blueberries. Operations range from less than 1 acre to 65 acres.

"The major problem facing producers is harvesting," says Marty Baker, Extension horticulturist at Overton. "The fields are too small to justify machine harvesting, yet hand labor is expensive and difficult to obtain."

According to Don Cawthon, first president of the newly formed Texas Blueberry Marketing Association, in 1988 approximately 175,000 pounds of blueberries were marketed to 11 produce brokers and supermarket chains through the 45-member association. In 1989, Cawthon says he expects 20 new members and a potential sale of 500,000 pounds of blueberries through the Association.

Specialty Crops Compete
Specialty crops such as Asian vegetables are receiving much attention in the state.

Research and demonstration plantings have been made at Overton, Prairie View A&M University, Stephenville, and College Station. Other plantings are scheduled for El Paso and Lubbock.

Beyond Berries
Other areas of diversification being studied, but not yet fully developed, include wildlife management and marketing, leasing of private lakes for fishing rights, crawfish production, and exotic animals. Salt water shrimp and redfish are being produced inland. In the goat and sheep producing area of the state, hand-spinners are converting wool and mohair into yarn and garments. The first harvest of commercially grown English walnuts has just been completed in southwestern Texas, and apple production is increasing.

Planning And Commitment
Greg Clary, Extension economist, says that before producers begin to diversify, they need to consider several factors. Many alternative enterprises are labor intensive and require a completely different financial situation. "The key to successful diversification is planning," Clary states. "This includes budgeting, cash-flow projections, estimates of labor requirements, and market research. Following planning, producers must make a commitment to follow through to reach realistic goals."

"Selecting alternative enterprises is a slow, methodical procedure," Clary points out. "If producers really expect to succeed, they must determine how the anticipated enterprise fits into the total picture of the current farm business."

Big Oysters From Little Chambers Grow

June Gibson
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A new system that uses lowly shrimp-pond water effluent for producing highly prized, highly priced oysters promises to be a powerful stimulant not only for Hawaii's aquaculture industries, but also for its overall economy.

Hawaii's economic standbys, the sugar and pineapple industries, have been subject to foreign competition and a host of problems that potentially threaten the Island's agricultural economy. The need for diversification has become increasingly evident, and aquaculture seems to be a natural.

The first year of the 4-year oyster-production research project is being carried out at the Manoa Campus of the University of Hawaii's College of Tropical Agriculture and Human Resources (CTAHR). Hawaii's largest shrimp producer is cooperating with CTAHR's agricultural engineers in the experiment.

Overcoming Obstacles
Agricultural Engineer Jaw Kai Wang had to overcome three major difficulties to make the project work: lowering costs for oyster food, lowering labor costs, and keeping the potential delicacies clean.

"Oysters gobble up food to the tune of half their production costs, so that was one problem we had to look at carefully," he comments. Wang also knew that oysters are fond of algae and that they will clean themselves if conditions are right. That gave him an idea.

He made clean water available to sanitize the oysters, making them suitable for raw consumption. The water was then used to raise the shrimp; algae formed and in turn was used to feed the oysters. The process not only conserves water, but cuts production and labor costs, neatly zeroing in on the three obstacles to profitable oyster production.

Assisting Nature
The mechanics of the system Wang and his colleagues designed include a growth chamber to assist nature by further ensuring oyster cleanliness. Light in the brackish water of the chamber is controlled, and the area is flushed out periodically. The water is treated in a sedimentation tank before it is recirculated to the shrimp pond.

Perhaps the most exciting news to come from the CTAHR agricultural engineers is that Wang and his fellow scientists believe they will be able to bring a crop of Hawaiian oysters to market every 6 months.

"That's a full 2 years less than the time they need in the Chesapeake Bay and South Carolina, two major natural production areas, and it would give us a great competitive edge," Wang says.

Becoming Competitive
It is estimated that both the technology and a blueprint for the development of an oyster industry for Hawaii will be in place within 36 months. A critical task remaining is to develop oysters into a price-competitive industry, one that has the potential to equal or even surpass the present chief contributors to Hawaii's economy.

"We'd have an economic tiger by the tail," comments Wang. "The demand of U.S. markets alone for oysters exceeds $.5 billion annually. And we haven't talked about the shrimp possibilities." ▲

The Family Farm: Potential For Profit

Nancy M. Cann
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Looking beyond traditional crop and livestock enterprises, many Tennessee farm families are using their imaginations to generate profits from their lands and supplement their incomes with their skills.

The alternative enterprises they are undertaking include the production of nontraditional or exotic agricultural products, but they also involve manufactured products, products collected from native sources, and services provided by the farm families.

Agents and specialists with the University of Tennessee Agricultural Extension Service are helping farm families explore a wide variety of such ventures. The possibilities include, for example, producing fresh fruits and vegetables, and white or low-cholesterol meats. They include outdoor landscaping, nursery operations, and outdoor recreation (fee hunting and similar operations).

Without careful analysis, alternative enterprises can easily fail. Area farm management specialists working with the Extension's MANAGE program at the university help farm families to determine the feasibility of potential enterprises and to develop budgets.

Evaluating New Enterprises

Fee hunting is an example of an alternative farm enterprise that is being explored in Tennessee to satisfy a demand and to generate money from land that has not created much income.

"Three years ago we started talking with forest landowners about profitability from their woodlots," says George Hopper, forestry management specialist. "We wanted to organize farm units into cooperatives for forestry management and to encourage landowners to integrate wildlife into forest management for profitability."

In Wayne County, which has one of the largest deer populations in the state, forest landowners were complaining about hunters using their property without permission. With the help of County Extension Leader Ken Burress and Extension Assistant Neal Wilkins, the landowners formed a nonprofit corporation.

The 20-member Wayne County Forest Landowners Association, which started in January 1988, covers 15,000 acres. The

members advertised their association in several newspapers and developed a brochure. They posted custom-printed signs that prohibit hunting on association properties without written permission. Hunters pay fees to individual landowners for permits to hunt on their land. Wilkins and Hopper are measuring the association's success after its first hunting season and will use it as an example for other counties.

Switching Farm Enterprises

Unlike families who simply want to supplement their present farming operations, some are leaving one farming operation for another. Keith Kilpatrick moved from the family beef operation into the nursery business. He supplies nurseries with seedlings of Carolina and Eastern hemlocks, sourwoods, spike bush, azaleas, rhododendron, mountain laurel, and white pine—all native plants already known to grow well on his farm next to the Appalachian Mountains in southeast Tennessee.

With help from Polk County Extension Leader Don Ledford, Extension specialists, and the University of Tennessee-Tennessee Valley Authority Rapid Adjustment Program, Kilpatrick developed a farm plan and analyzed his entire operation. He increased the plants that were profitable and eliminated those that were not. Agricultural economists, entomologists, plant pathologists, plant and soil scientists, horticulturists, and agricultural engineers worked with Kilpatrick to develop his total nursery operation.

"The Extension Service at the university provided one source of help to Kilpatrick," says Ken Tilt, nursery production specialist. "He used other information resources and had the motivation, management skills, hard work, and dedication needed to develop a successful nursery business."

Opposite: Don Ledford (right), Extension Director, Polk County Extension Office, Tennessee, examines Keith Kilpatrick's new crop of mountain laurel. Ledford worked with Kilpatrick to develop a farm plan and analyze the plant operation. This page: J. E. Riley of Clifton, Tennessee, posts sign on his land to show that he's a member of the Wayne County Forest Landowners Association, a nonprofit corporation formed with Extension help. Fee hunting is an example of an alternative farm enterprise that encourages forest landowners to profit from their woodlots.

In return for Extension's help, Kilpatrick uses his knowledge to help other growers. At the university's nursery education programs, he shares the information he has gained. Specialists hold demonstrations on irrigation and insect, weed, and disease control on Kilpatrick's farm.

Supplementing Farm Income

Some farm families are looking for alternative enterprises merely to supplement their farm incomes. Extension helps them through rural small-business development and rural entrepreneurship programs.

A team of University of Tennesse and Tennessee State University Extension specialists is developing workshops and a workbook for evaluating business ideas—both agricultural and nonagricultural. Resource Development Specialists George Smith, University of Tennessee, and Joe Morris, Tennessee State University, are project leaders.

Smith is working with county Extension home economists to find outlets for products generated by alternative enterprises.

With Smith's help, Margaret Pile, Fentress County Extension home economist, organized the Mountaineer Craft Center in Jamestown. Started in June 1987, it was modeled after a cooperative started by Jeanne Webb, Extension home economist in Coffee County.

In its first year, the Mountaineer Craft Center sold more than $10,000 worth of crafts and returned more than $8,000 to the handcrafters, most of whom are farm families. TVA's Agricultural Institute provided $3,500 to the association for brochures, supplies, a gas furnace, and water lines.

A Continuing Effort

As consumer preferences continue to change, farm families will continue to explore alternative enterprises to satisfy the demand. Armed with programs such as these, the Agricultural Extension Service at the University of Tennessee is prepared to help them investigate the profit potential and assist them with management and marketing concepts. ▲

New York Maple Syrup—How Sweet It Is!

Opposite: Christopher Moquin, field assistant at Cornell University's Uihlein Extension Sugar Maple Research Station in Lake Placid, New York, monitors a maple syrup filter press. This page: Gabe Tucker, a graduate student at Cornell University in the Department of Natural Resources, checks the vacuum tubing of the sap collection system's main line for possible animal damage.

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New York's natural resources are an important asset with great potential to assist in developing a more robust rural economy. Maple syrup production is one of several natural resource related enterprises that are attractive to many farm and agribusiness managers.

New York has well over 1,200 maple syrup producers, ranging from hobbyists to large producers and reprocessors. Syrup production provides an opportunity to diversify onfarm income with reasonable demands on time, labor, and capital. As a result, it has become an integral part of many family farms.

Industry Characteristics

The maple industry has relatively low economic barriers to entry and is considered a seasonal operation. Many maple syrup production activities occur when the farm has an excess of labor. Others can be scheduled as part of normal farm operations or when time is available during the summer and fall.

Production at some operations is done with traditional sap buckets, horse-and-sleigh gathering equipment, and wood-fired evaporators; at others, it involves sap collecting with plastic tubing, preheaters, reverse osmosis, oil-fired open-pan evaporators, and vapor compression evaporators.

Marketing techniques vary as much as the production systems: wholesale marketing to large reprocessors, selling from roadside stands, marketing through local retail outlets, and nationwide mail-order marketing.

Current Extension Programming

Cornell Extension has worked closely with the New York Maple Producers Association and maple equipment suppliers to develop and implement a successful maple education program. Past educational programs were production oriented. With so many new producers entering the maple industry, emphasis is shifting to market development, recordkeeping, and management alternatives.

Regional "maple schools" each January provide novices, hobbyists, and experienced producers with information on such topics as efficient production methods, new or improved processing technology, current research, and sugar bush management. Attendance has averaged nearly 1,100 over the past few years and is expected to increase because of the growing interest in alternative income sources and rural revitalization.

Producers On Tour

In 1988, about 400 people attended the 2-day "New York Maple Tour." Held in a different region of the state each year, the tour takes maple producers to several maple operations of various sizes. The audience has the opportunity to discuss specific aspects of the operations with the host-producers.

Through discussion with their peers, all producer classes are exposed to many views on production and marketing issues. At each tour site, speakers give research, educational, and industrial updates.

A New Component

Collecting and concentrating maple sap is energy and labor intensive. In New York, regardless of the fuel used, energy accounts for about 40 percent of all production costs for medium-sized maple operations, including annual discounted capital expenses. Therefore, it is important for producers to use management techniques that minimize energy costs.

In 1988, Cornell Cooperative Extension and the New York State Energy Office introduced the Small Business Energy Efficiency Program (SBEEP) to maple producers. The SBEEP offers free energy surveys and energy efficiency improvement recommendations to small businesses.

The surveys were conducted by certified technicians knowledgeable of the maple production process. They measured current energy consumption of maple operations and recommended improvements on the basis of the data they collected, the producer's management techniques, and other records the producer provided.

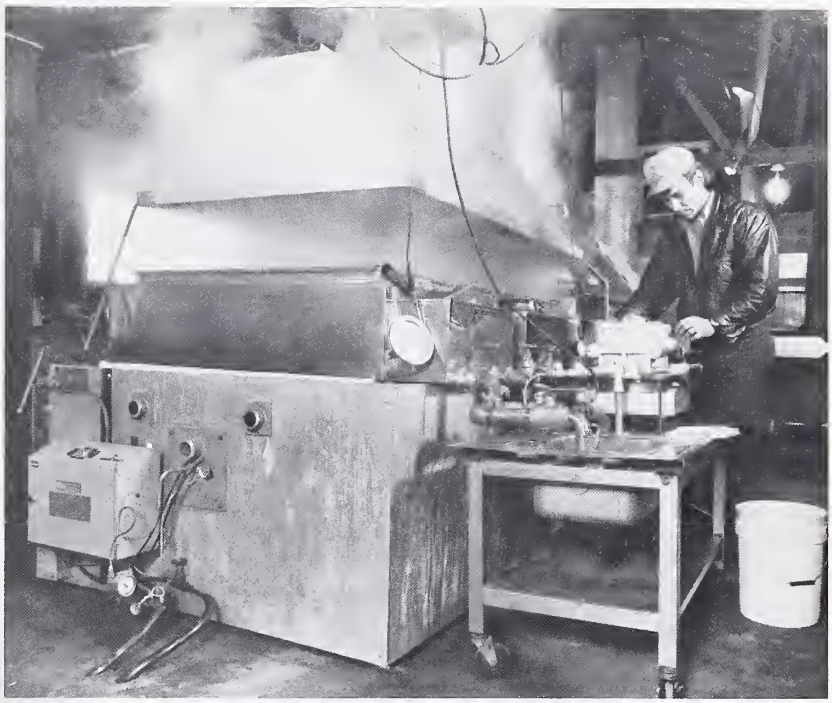
As a result of the 17 surveys completed in 1988, 11 maple producers saved money by implementing recommended energy efficiency measures. The other six operators also received recommendations for becoming more energy efficient, but because of longer payback periods or for other reasons, the suggestions were not acceptable to them.

If all the recommendations made in the energy survey had been implemented, the average producer could have reduced energy costs by more than 31 percent—for a savings of $640 per year.

Although about 80 percent of the typical maple producers in New York use wood to fire their evaporators, nearly all the producers selected to participate in the SBEEP used No. 2 fuel oil. This was because of the difficulty of establishing energy efficiency standards for wood-burning operations. In contrast, efficiency standards for evaporators fired with #2 fuel oil were much easier to establish. As a result, a certified technician's report for an oil-burning operation could be more informative and complete than a similar report developed for a wood-fired unit.

Future Programming Plans

The maple industry has several high-priority needs: Development of an efficient recordkeeping system; evaluation of the economic and managerial consequences of tap-hole renting and leasing agreements; determination of fertilization and nutrient requirements for the sugar bush; analysis of local, national, and international marketing opportunities;



and suggestions for minimizing the effects of pollution, diseases, and insects.

Research is especially needed on: Progeny testing of sugar maple from various genetic backgrounds for sugar content and environmental resistance; study of the effects of manmade influences on the health and vigor of the maple tree; definition of markets and their characteristics; and development of information to help expand domestic and international markets.

With this information, the Extension maple program can be more responsive to the needs of the state's rapidly expanding maple industry and the needs of a revitalized rural economy based in part on that industry. Continued coordination between Extension and the New York Maple Producers Association will help rural New York "taste the sweet flavor of success."

Cooperation Pays Off!

Hames Don Tilmon
Extension Farm Management Specialist,
and
Richard Fowler
Director,
Cooperative Extension Service,
University of Delaware, Newark

Delaware is a small state, with only about one-half million acres of cropland spread over three counties. The main crops are corn and soybeans, which are grown primarily for the broiler industry. Additional enterprises include 50,000 acres of vegetables, plus dairy cattle and hogs.

Delaware Cooperative Extension is also small, but the needs of the state's producers are much the same as those of any other agricultural state. When something new comes along, Delaware growers want to know about it, just as growers anywhere else do. When a new approach to the delivery of Extension programming comes along, state specialists must train county staffs, just as they do in the big states.

So how does Delaware accomplish all this with a small staff, particularly when also being challenged to support nine new Extension initiatives? The answer is, we cooperate.

Support From The Top

Richard Fowler, Delaware Extension Director, is also the ECOP liaison to the Alternative Agriculture Issue Task Force. When he learned about efforts to organize an area workshop for growers on the topic of alternative agriculture in nearby southeastern Pennsylvania, he immediately threw Delaware's support behind the effort and suggested that New Jersey and Maryland also be invited to join in to make it a multistate project.

As planning for the conference progressed, it became evident that the attendance could be significant and that extremely high-quality programming was demanded. Experts were brought in from Georgia, New York, and the U.S. Department of Agriculture. In addition, many local experts, such as buyers from the Philadelphia produce market and growers of alternative crops, were invited to speak.

To help hold down the cost to the growers, the departments of agriculture in each of the four states were invited to join in the sponsorship of the conference; two agreed to do so. The workshop was taking on a truly cooperative flavor.

Training Agents

During the planning, an important question surfaced: What would happen if the workshop primed many of growers with interest and they began coming to county offices with questions the agents were not prepared to answer? Obviously, agent training was needed.

The goal was to prepare agents to use an analytical approach to handle growers' inquiries on raising and marketing alternative crops. The best way to accomplish this seemed to be to incorporate inservice training into the conference.

Delaware personnel submitted a proposal to the Northeast Center for Rural Development for funds to be used for the agent training.

The inservice training portion of the workshop, which followed the grower portion, was designed to include indepth discussions with many of the experts who had appeared on the earlier program. The quality of the training was well beyond what smaller states could afford.

Cooperation Pays Off

The first Alternative Agriculture Marketing Conference took place in Reading, Pennsylvania, in November 1987. More than 350 people from 9 states attended. Local buyers of fresh produce participated, and one buyer came from Michigan to establish contacts with potential growers of edible flowers for the restaurant trade.

Forty-five agents and specialists attended the followup inservice portion of the workshop. This included 23 from Pennsylvania, 8 each from Maryland and New Jersey, and 6 from Delaware.

As a result of the success of this initial venture, all four state departments of agriculture cooperated with the four Extension Services to sponsor a second conference.

You Can't Fight Mother Nature!

George W. Dickerson
Extension Horticulture Specialist,
New Mexico State University,
Agriculture and Resource
Development Program Unit,
Albuquerque

Northern New Mexico farmers find farming a tough row to hoe. Their area is characterized by small farms, short growing seasons, cool weather, and limited markets. Turning such factors into assets, however, has been Extension's strategy for small farm profitability in the state.

One tool Extension is using is the appropriate selection of specialty crops to grow in environmental problem areas. This may range from growing broccoli or cauliflower in short, cool growing areas to production of asparagus on saline soils. In short, the motto has been to "flow with" and not "fight" with Mother Nature!

Risks Of Raspberries
The red raspberry has become one of New Mexico's most profitable specialty crops, but this crop is not without risks. Late frosts and desiccating winds in spring can devastate biennial canes of standard raspberries like the Latham. This problem has been overcome with the introduction of everbearing raspberries like Heritage.

One of the biggest problems with Heritage has been stand establishment in alkaline soils. County Agents William Neish and Gerald Chacon have worked with the author and local growers in trying to solve this problem through onfarm demonstration and research trials. Stand establishment has been improved through use of root stimulators, liquid gel treatments that attract moisture, and establishment of windbreaks.

Improving An Historic Staple
Occasionally, profitability involves improvement of old crops, or in some cases, even ancient crops. Few North American crops rival the history of the blue corn plant, a staple for many native Americans in the Southwest for hundreds of years. Classified as a flour corn, and used in traditional dishes like atole (cornmeal mush), it was later adopted by Hispanic settlers who used it in tortillas. It is now also used in pancake and muffin mixes.

Although blue corn is priced four to five times the price of yellow or white corn, it too has its problems.

For six years Extension in New Mexico has been conducting a blue corn improvement program. Extension's plant breeding program has been oriented toward increased yields, earliness, improved color, and lodging resistance. Researchers involved in the fertility project have evaluated the effects of nitrogen and potassium on yields and lodging. Both programs have been highly successful.

Working with Lawrence Montoya of Santa Ana Indian Pueblo and County Agent Rudy Benavidez, the author has also been evaluating the response of blue corn to various rates of nitrogen and potassium. Unlike hybrid corn, blue corn seems to require only moderate levels of nitrogen per acre.

High Tolerance
Blue corn appears to have a high tolerance for pest problems. Last year, blue corn trials in Alcalde were heavily infested with Bank's grassmites early in the season. It was decided not to apply any pesticides. By season's end, most plants were over 12 feet tall with no signs of major mite problems.

Specialty Crop Seminars
To inform growers of innovative ways of marketing produce, Extension specialists conduct specialty crop seminars and conferences. Growers who participate in marketing panels share successful methods they've used to market produce.

In the Sangre de Cristo Mountains of New Mexico, Mora County Extension Agent Skip Finley (left) examines a 'Heritage' raspberry crop with grower David Salman. Despite such risks as late frosts, the red raspberry has become one of the state's most profitable specialty crops. Extension has helped solve such problems as stand establishment through on-farm demonstration and research trials.

Market Identification Survey
Last summer, a unique marketing project was initiated at New Mexico State University. Kathleen de Sutter, an NMSU undergraduate business student, conducted a market identification survey of all known produce buyers and restauranteurs in New Mexico.

Five hundred people responded to the survey, and 304 of them indicated they would be willing to buy produce directly from a grower. This data will be inputted into a database computer program and will result in a publication for county agents to supply their growers with outlets for their specialty crops.

Diversification— The Name Of The Game

Daniel Putnam, agronomist at the University of Minnesota and a coordinator at the Center For Alternative Plant And Animal Products, examines buckwheat, one of many alternative crops he is researching.

Laura McCann
Program Coordinator,
Center For Alternative Plant and Animal Products,
University of Minnesota, St. Paul

Diversification of the cropping base and development of new products from existing crops are recognized as important sources of economic growth for the farm economy. The Center For Alternative Plant And Animal Products, a multidisciplinary unit within the University of Minnesota which generates and evaluates new crop ideas for agriculture, also emphasizes disseminating information to the public through in depth symposia on alternative crops and products.

In addition to a research project on the assessment and adaptation of lupines as an alternative crop, the Center has initiated research on the feasibility of producing and processing grain amaranth in Minnesota. Amaranth is a high protein pseudocereal which was historically grown by the Aztec and Mayan civilizations.

Several wild species of plants that are challenging to grow, such as milkweed and groundnut, have been identified as potential candidates for crop development. Certain minor crops, such as millet, buckwheat, or broccoli, show economic promise. Researchers are evaluating some alternative crops new to a region such as amaranth, adzuki beans, or comfrey.

Symposia With Published Proceedings

The Center acts as an information resource for the Extension Service and provides current research information to the public. Symposia on agricultural alternatives are offered periodically and the published proceedings are made available to the public. Discussion of research needs in the area is part of every symposium and stimulates further research.

Dairy sheep—A symposium on North American dairy sheep will be held at the Earle Brown Continuing Education Center at the St. Paul campus July 25-28, 1989. In addition to the technical presentations, the program will include a post-symposium tour, and a workshop on sheep milk products.

Shiitake mushrooms—On May 3-5, 1989, the Center conducted a symposium-trade show in St. Paul, Minnesota, assessing the current status of the shiitake mushroom industry with information on production and management systems. This was the first in a series of symposia planned for the area of forest products. The meeting included a trade show and tour.

Some of the symposia held during the past year include the following—

Soybean utilization alternatives—At this symposium in February 1988, which was supported by the American Soybean Association and several state soybean associations, speakers addressed such topics as the chemical characteristics of soybean components, methods of modifying soybean composition, and recent advances in industrial, human food, and animal feed uses for soybeans.

Cut and dried flowers—This symposium on the commercial field production of cut and dried flowers was held in December 1988. It was cosponsored by the American Society of Horticultural Science. Speakers discussed commercial production and handling information, and identified research needs in the industry.

Publications developed by the Center include proceedings from the symposia and a series of crop specific publications. In addition, the Center plans to distribute to county Extension offices a compilation of factsheets and bulletins dealing with alternative crops.

To receive information about the proceedings of these symposia, which are available for purchase, contact:

Extension Special Programs
405 Coffey Hall,
University of Minnesota,
St. Paul, Minnesota 55108

For further information on publications and activities of the Center, contact:

Luther Waters
Director,
Center For Alternative Plant And Animal Products,
305 Alderman Hall,
1970 Folwell Avenue,
University of Minnesota,
St. Paul, Minnesota 55108

The Risk Factor

The Center For Alternative Plant And Animal Products, at the University of Minnesota, evaluates new crop ideas for agriculture. Researchers and Extension workers are assessing the risks of growing white lupine—a legume cultivated for its seed—as a protein source for dairy herds.

Jack Sperbeck
and
Sam Brungardt
Extension Communications Specialists,
Communication Resources,
University of Minnesota, St. Paul

Developing alternative crops like lupines—legumes cultivated for their seeds—could increase dairy farm profits and help rural communities. But there are those who believe that such cultivation is a risky business.

"But if you never take a risk, things are never going to be any different," says C. Eugene Allen, acting director of the University of Minnesota's Agricultural Experiment Station.

Grants from the Central Minnesota Initiative Fund (CMIF) and the Bremer Foundation are helping researchers and Extension workers finish the first year of a 3-year lupine project. The project is assessing the risks involved in growing white lupines as a protein source on central Minnesota dairy farms where soybeans aren't reliable.

About 27 percent of Minnesota's dairy cows are in the 14-county CMIF area. Central Minnesota dairy farmers spend about $14 million a year for "imported" protein supplements for their herds. Purchased protein can account for 20 to 50 percent of a farmer's cash expenditures.

High Protein Source

Dan Putnam, coordinator of the lupine research project at the Center For Alternative Plant And Animal Products and for other lupine research at the Minnesota Agricultural Experiment Station, is optimistic. "Lupines have a high protein content of 32 to 39 percent," he comments, "and can be fed directly to farm animals. Lupines are frost resistant, fix their own nitrogen, and do well on the acidic, sandy soils of central and east-central Minnesota."

Putnam points out that the main obstacle to expansion of lupines is yield consistency, not market development. "Food companies already are buying lupines to make high-protein pasta and flour," he points out, "and they're using the hulls as a fiber additive."

"However, yields have varied tremendously from grower to grower and from year to year," Putnam says. "We need to find production methods that will result in consistently high yields. The potential is there. At Staples, Minnesota, yields have ranged from 20 to 70 bushels an acre. Therefore, lupines might be competitive with soybeans, which have averaged 27 bushels an acre over the 14-county area."

The project involves researchers from several university departments, the Staples Irrigation Center, plus Extension agents and dairy farmers in seven counties.

Demo Plots And Trials

Onfarm demonstrations are part of the project. Cooperating farmers grow 5 acres of lupines to feed to their cows. Experiment station and Extension personnel provide production and feeding recommendations and analyze the economics of growing and feeding lupines.

The farm research trials compare lupines, soybeans, and field peas as homegrown protein sources and assess various weed-control strategies for lupines.

In controlled trials at Staples and other sites, researchers will try to determine optimum plant density, row spacing, and seeding dates. They are investigating the best varieties to grow in different areas, the value of inoculation, developing pest control guidelines, and studying lupine response to irrigation.

Studies involving lactating dairy cows will compare lupines, field peas, soybeans, and soybean meal as protein sources and determine how lupines can be substituted for soybean meal.

Information on the potential of lupines as a grain legume crop will be communicated by the Center For Alternative Plant And Animal Products to farmers, Extension agents, industry members, and entrepreneurs.

"It is quite unlikely we will find a crop that will replace thousands of corn or soybean acres," says Acting Director Allen. "But when you add up many small niches where the crop can fit into farm operations, it can amount to something significant."

Why Not Kenaf?

Kenaf, the bamboo-like, fiber plant native to Africa, is currently being researched for use as poultry litter. The long stalk in the center shows kenaf in its fresh-cut form. To the far left of the stalk is a circle of freshly stripped outer fiber. Next to the circle is the fluffed form of the fiber used for carpet backing. Shown to the right of the stalk is the chopped inner core being researched for use as poultry litter.

Hames Don Tilmon
Extension Farm Management Specialist,
and
Richard Taylor
Extension Agronomy Specialist,
and
George Malone
Poultry Scientist,
University of Delaware

"Kenaf" may not be a household word across the country, but most people in the land-grant system who are interested in alternative crops have heard of it. A relative of okra and cotton, kenaf is a warm-weather annual that can reach 10 feet in height in less than 3 months. Soon, kenaf may become a well-known term in the poultry industry.

While most recent research on kenaf has been concentrated in the area of newsprint, printing, writing, and tissue paper, a major product from the plant is fiber or cordage, which is used for carpet pads, twine, rope, and fiber bags. The fiber represents 35 percent of the plant by weight. When separated for use as cordage, it leaves the core material as a byproduct.

Enter The Broiler Industry

Poultry is a thriving industry on the Delmarva Peninsula—the most concentrated area of broiler production in the Nation. The high concentration of poultry housing creates a tremendous demand for broiler litter materials, both for newly built houses and for the periodic cleaning out of existing housing. Wood chips or sawdust, the main materials now being used, are expensive and in short supply.

The search for an alternative source of broiler litter material has centered on kenaf core. Preliminary experiments with raising chickens on chips of this plant byproduct are yielding encouraging results.

During the winter of 1987-88, Extension Farm Management Specialist Don Tilmon approached Daniel Kugler, kenaf program manager at USDA, about getting samples of kenaf core for testing as an alternative litter material. A small sample of core was obtained, and in March 1988 the first chicks were placed on the experimental litter.

George Malone, poultry scientist at the University of Delaware, compared the kenaf core against sawdust (the industry standard on the Delmarva) and was "extremely pleased with the potential."

Replicated variety trials were begun in May 1988 by Extension Agronomist Richard Taylor. Six varieties were replicated on both dry land and irrigated plots. Kenaf International, a California company with whom USDA has signed a cooperative agreement for a kenaf crop demonstration project, advised on cultural practices.

Additional quantities of core materials were obtained from Kenaf International for replicated litter trials in early July. Six pens of 60 broilers each were grown on 2 types of litter. The preliminary results suggest that kenaf core is a suitable broiler litter material.

Additional studies will be conducted for verification and evaluation under various management situations.

Additional Uses

Evaluation of kenaf core material has not been confined to broiler litter trials. It is also being explored as a medium for urban sludge composting. In Philadelphia, for example, the composting of municipal sludge is currently being carried out through the use of wood chips. The supply of wood chips is not infinite, however, and to renew the resource requires 20 years or more.

Large-scale composting trials were recently carried out during the spring of 1989. The environmental implications of these trials are enormous. Every major metropolitan area creates sludge; kenaf offers an annually renewable answer to dealing with the problem.

Management Is The Key

William Liebhardt (right), Extension specialist and director of the Sustainable Agriculture Research And Education Program, University of California, Davis, discusses methodology with Mark Van Horn of the Student Experimental Farm. Liebhardt is involved in a farming systems comparison project which is investigating three different farming systems, conventional, "low-input," and organic.

Lyra Halprin
Writer,
Sustainable Agriculture Research and Education Program,
University of California, Davis

A comprehensive study at the University of California (UC) may help allay farmers' concerns about how to remain competitive while reducing the use of petrochemicals and using other "low input" farming practices.

Funded by the UC Sustainable Agriculture Research and Education Program, the study involves nine UC-Davis faculty and Extension researchers from the departments of entomology, agronomy and range science, nematology, plant pathology and botany, and two Extension farm advisers from Yolo County.

Researchers are growing tomatoes, field corn, beans, safflower, and lupines in three separate areas using three farming systems: conventional, "low input," and organic.

The conventionally farmed fields use external pesticides and fertilizers. The organically farmed fields use internal, environmentally sound products including manures, living mulches for weed control and nitrogen fixation, natural pest control, and reduced tillage. The "low input" fields also emphasize the use of internal, environmentally sound products, but may make minimal use of petrochemical fertilizers, herbicides, or insecticides.

The farming systems comparison project is a replicated experiment conducted under standard experimental procedures, but it is done in a systems context. "The management of the system is primary," comments Extension Specialist William Liebhardt, director of the Sustainable Agriculture Research and Education Program.

Two local farmers are advising the researchers on current best practices for conventional and organic farming.

Answering Other Questions

The sustainable agriculture program includes several other projects:

Postharvest handling—Waxing, the use of fumigants and other chemicals, or harvesting crops immaturely and then using hydrocarbon gases to artificially ripen them are the most common methods for getting produce to market without deterioration.

Organic grower analysis—Roberta Cook, Extension economist, and Gretchen Will of the Organic Market News and Information Service have completed an analysis of the organic growers in California, including marketing and production practices and needs.

Dairy waste management analysis—Leslie Butler, Extension economist, has completed a survey of California dairy farmers on current dairy waste management practices, equipment used, and disposal techniques and problems. Results and recommendations will be published as Extension bulletins, and the possibilities of establishing a market for dairy waste will be published in farming publications.

Natural nematode control—Mike McKenry, Extension nematologist, is looking at barley, vetch, sweetclover, marigolds, and other cover crops as possible natural nematode control agents that could replace the use of highly toxic soil fumigants.

Evaluating living mulches—Tom Lanini, Extension botanist, is working with a group of colleagues to evaluate the weed and insect management properties of legumes used as living mulches.

Strawberry "Conversion"—Stephen Gliessman of the Agroecology Program at UC-Santa Cruz is working with other researchers and a farmer to evaluate the effectiveness of converting to farming systems that greatly reduce or eliminate the use of synthetic fertilizers and pesticides in strawberries.

The researchers are looking for replacements for the fumigants traditionally used in commercial strawberry production.

These and other projects in the sustainable agriculture program are aimed at answering producers' questions about improving their profitability while protecting the environment.

Oklahoma Opens Up Opportunities

Opposite: Crops such as cabbage are giving Oklahoma farmers more options for diversifying their operations. This page: Fresh vegetable sales have become common at many roadsides in Oklahoma communities.

Robert Keating
Extension Editor,
Agricultural Information Department,
Oklahoma State University, Stillwater

In the 1980s, reliable information has been the key to opening up alternative opportunities for many Oklahoma agricultural producers.

Full-time and part-time farmers interested in diversifying their operations have been drawn to field days, videoconferences, seminars, and industry shows to gather information about commercial alternatives such as tomatoes, asparagus, Christmas trees, and aquaculture. They have found Cooperative Extension specialists from Oklahoma State University (OSU) ready to provide answers needed for decisionmaking about feasible alternative opportunities.

The Center For Alternatives In Agriculture at the university is coordinating information and offering assistance to Oklahoma farmers considering alternatives or actually implementing the changes.

Providing useful information and coordinating Extension information delivery are primary purposes of the Center, explains Ray Campbell, its coordinator. "Some producers have benefited from diversifying from traditional commodities such as wheat and cattle," he says. "Others have taken advantage of situations such as a strong potential demand for a particular product in their area or extra land that was conducive for a specific use. Still others simply have enjoyed producing something new from a small investment of time and money."

A Systematic Effort

Oklahoma agriculture has developed under striking diversity in climate and soil type within the state's borders. Oklahoma's climate and its favorable geographic location relative to markets and transportation sources offer opportunities for its agricultural producers to expand their economic base.

"Diversification can't be effective for the agricultural system as a whole if it's done haphazardly," Campbell points out. "A systematic effort is needed to coordinate and disseminate information about promising alternatives to potential users."

The Center For Alternatives In Agriculture provides OSU's Division of Agriculture with a coordinated means for evaluating new crops, livestock enterprises, and product ideas; for facilitating research and development efforts; and for disseminating practical information to the public.

OSU is maintaining fruit and vegetable research work at five of its experiment stations. Efficient production of many fruit and vegetable crops in counties surrounding the sites reflects the work being accomplished by OSU personnel at the stations. Detailed information about growing and marketing the crops is provided via field days, videoconferences, and numerous publications, as well as news releases and television segments.

Conferences And Horticulture Shows
In 1988, OSU sponsored a statewide Governor's Conference on Alternative Opportunities to follow up on its series of seminars and videoconferences.

Dozens of OSU personnel are involved every year in the statewide Horticulture Industries Show, which focuses on the production and marketing of vegetables, fruits, pecans, herbs, Christmas trees, and turfgrass. County and state Extension workers have provided expertise to the formation of popular farmers' markets in many Oklahoma towns. A network of Extension personnel with expertise in many different subject areas is providing local and state growers' associations with assistance.

When producers deal with a perishable product or an uncertain market, they need to be cautioned as well as encouraged. "Extension specialists at the university stress the importance of thorough planning that includes marketing strategy," comments Jim Motes, Extension vegetable crops specialist.

Viable Alternative For Few
Motes has preached for years that vegetables are viable alternative crops for only a small percentage of farmers considering them. Those producers, he declares, are the top managers. He has warned that "turning to vegetable crops is not a way out of a debt crisis situation for a farmer, and producing vegetables is much more labor and capital intensive than traditional agricultural enterprises in the state."

If a producer comes up with negative answers when evaluating such factors as financial resources, management strategies, potential marketing opportunities, and commitment to properly managing the enterprise, then moving into an alternative enterprise, Motes explains, probably should be discouraged or the plan revised.

Invaluable Info
Randy McGee, a southern Oklahoma producer who is growing vegetables commercially, believes OSU Extension specialists have been invaluable in providing information about vegetable production, irrigation, variety selection, and disease and pest control. "Many times when I was facing a problem," McGee says, "OSU's vegetable experts were the only sources I could turn to who could give me dependable information. I've received timely information from them many times."

Plan For Marketing First
Before financial commitments are made to produce an alternative commodity, marketing is an essential item in the planning process, emphasizes Extension Economist Jim Nelson. "If there is a single rule of thumb to guide farmers in marketing nontraditional commodities," Nelson says, "it is to plan for marketing before you plan production."

Nelson advises Oklahoma producers considering starting a vegetable enterprise to "think fresh." By this, he means that fresh market vegetables offer better profit potential for small, beginning producers. "Whether marketing is direct via a roadside stand, or a pick-your-own operation, selling fresh market vegetables through an appropriate outlet allows a producer to start small and learn as he goes," Nelson says.

OSU is implementing new ways every year to assist Oklahoma farmers in making decisions about alternative opportunities, Campbell points out. Among the newer thrusts are integrated pest management programs in vegetables and a research team approach to vegetable production problems in southern Oklahoma.

OSU has been at the forefront of the modern-day movement toward more diversification of Oklahoma agriculture, Campbell believes. OSU personnel, he points out, have worked closely within the state with such groups as producer cooperatives, the Oklahoma Department of Agriculture, and the Agricultural Research Service, USDA, in establishing viable production systems that offer Oklahoma farmers alternatives to their traditional commodities.

"I believe alternative agricultural opportunities in the 1980s are an example of an area where Extension has had a very significant impact on a large-scale agricultural trend," Campbell declares. "I believe some directions have been established that will benefit our Oklahoma farm families for generations." A

Raising Awareness In Berkshire County

John Pontius
Extension Small Farm Specialist,
Farm Economics and Business,
University of Massachusetts, Amherst
and
Cathy Roth
Extension Home Economist,
Berkshire County Extension Office,
Massachusetts

Providing farmers with the skills and knowledge to assess and try new alternatives in crops and marketing is important. Berkshire County, Massachusetts, has found it equally important to raise the awareness of the local community about the new ventures their farmers are trying.

The fabric of the county's communities is changing. An outmigration of permanent residents has been accompanied by an increase in second-home owners who are in the county in the summers and for ski weekends. Gentrified towns are replacing those that were historically farming communities which depended on the agricultural economy.

New residents have little sensitivity to the remaining agriculture other than the picturesque relief it provides to mountains and forests. Many communities want to preserve farms as open space, but have little understanding of the need for farmers to remain economically viable.

Determining The Situation

Needs assessments, community forums, and other means of data collection revealed three basic facts related to the county's agriculture:

1. Farmers needed ways to increase their income, either from alternative sources or from alternative agricultural strategies.

2. Communities generally wanted to maintain agriculture, but had little understanding of how to do so.

3. Many people, both farmers and nonfarmers, were willing to work to enhance the viability of local agriculture.

Program Development
As Extension began developing a program, all planning was aimed toward one overall goal—enhancing agriculture in Berkshire County. The Extension staff identified farmers and nonfarmers who were willing to participate in project development and implementation and included them in the activities.

The first focus of the Extension effort was to provide farmers with information and skills on new or alternative agricultural practices and marketing strategies. An ad hoc committee of Extension staff, farmers, and people interested in improving local agriculture began to develop educational programs.

In 3 years, three major conferences/field days for farmers focused on the following topics:

• Alternative agricultural practices and crops, such as organic production methods, dairy goat production, growing perennial flowers for sale, and herb production.

• Development of enterprises that make use of farm-based resources, such as forest-based enterprises, bed-and-breakfast businesses, and value-added businesses like catering.

Reaching Nonfarmers
The educational program provided farmers a background for trying new approaches. But the county also saw the need to promote local agriculture to nonfarmers. This second effort had a dual focus: to encourage local consumption of local farm products and to increase interest in local farms in a way that would enhance the county's agriculture.

Extension identified and brought together leading farmers and other citizens to identify problems and solutions relating to local agriculture and to develop a process for implementing them.

The process involved farmers, town officials, politicians, land activists, conservationists, educators, the media, and people with special concern for rural economic development. All had an interest in rural and farm issues and had reasons to work on behalf of the solutions they proposed.

Extension staff facilitated the meetings but allowed the process to take its own course. They knew that the local people needed to articulate the problems in their own way in order to be able to work to solve them.

A Council Is Formed
A major outcome of the series of meetings was the decision to establish a formal body and give it a name. As a result, the Berkshire Food and Land Council was born. In its early deliberations the council made several decisions that have been important to its actions.

First, they articulated a set of goals, which included: conserving natural resources and farmland; achieving sustainable local food production; establishing an activist model for other communities to follow; and increasing community and political support for local agriculture.

Second, they decided to generate "doable," affordable, and successful projects.
Third, they decided to recruit nonmembers when needed for specific projects.

Finally, they decided to involve the local press as much as possible and to help generate articles on local agriculture.

The council has undertaken several projects:

• Sponsorship of a World Food Day event that brings politicians and activists together to talk about food production locally and worldwide.

• Development of a map of more than 60 local farms that sell directly to consumers.

• Matching of available land with people who are trying to start or expand farming operations.

• Creation of study groups to educate council members about important agricultural issues.

• Planning of another conference/field day to discuss appropriate solutions to such local problems as making a living on a family farm, rural planning for sustainable farms and communities, and enhancing the resources of rural communities.

By creating the Food and Land Council, Berkshire County leaders believe they have found an excellent way to support alternative agriculture. ▲

Robyn Van En and Hugh Ratcliff, farmers from Berkshire County, Massachusetts, and members of the newly formed Berkshire Food And Land Council, proudly stand behind their produce. Extension's educational program played an important role in helping farmers like these identify problems and solutions relating to local agriculture.

Greening The Sunshine State

Opposite: In Florida, workers use a mechanical sprigger to establish St. Augustinegrass, a popular turfgrass species. This page: Trio carefully places sod on a golf course putting green. Many traditional Florida farmers are investigating sod production as an alternative market commodity.

L.B. McCarty
Extension Turf Specialist,
University of Florida, Gainesville

Sodding is a way to achieve instant green grass by covering the soil with strips of grass that have been grown in a solid stand and then harvested intact with a thin layer of soil and roots attached. The demand for quality sod has increased dramatically, and the sod-growing industry is expanding rapidly.

The short and intermediate outlook for sod production is good. Areas with new building construction are particularly "hot spots" for the sod industry. The growing population of the Southern United States makes it a high-demand area. However, competition is keen.

Farmers considering sod production as an alternative agricultural enterprise should make a careful evaluation of the local market and their own situation.

Production

Producers must consider these factors: establishment, water quantity and quality, inexpensive water sources, primary cultural practices, pest management, harvesting and marketing, and costs and returns.

Establishment—
Establishment involves land preparation, soil improvement, irrigation installation, and turf planting. Startup costs depend largely on existing equipment, degree of land preparation needed, and initial sod establishment.

Much of the necessary equipment is adaptable from traditional farming operations, but several specialized pieces are required. These include mowers, harvesters, forklifts, rollers, and possibly irrigation equipment. Additional costs would be incurred for tools and supplies to maintain and operate a mechanical shop, office computers, telephone, and secretarial services.

Water—Ample water quantity, as well as quality, should be a primary consideration. Water sources include deep artesian wells, ponds, streams, canals, and lakes. However, tighter governmental restrictions on well drilling and water allotment from public sources might limit available quantities during dry periods.

Inexpensive water sources—
Effluent water from municipal and industrial sites has become an alternative irrigation source. This effluent or "gray" water can be an excellent and inexpensive source of irrigation. Guaranteed chemical analysis and written contracts detailing the water's quantity and quality should be negotiated before use.

Primary Cultural Practices—
Cultural practices in sod production include fertilization, mowing, rolling, and water management. Fertilizer management depends on the soil type, grass species, and local environmental conditions. Quick, efficient crop production requires fertilizer programs that promote quick coverage and strong rooting without producing excessive top growth.

Turfgrass must be mowed frequently and at the proper height to prevent scalping, which delays regrowth and makes the grass weaker and more susceptible to pest invasion. A water-filled roller must be used several times during production to smooth the area.

Turfgrass needs irrigation during periods of drought, but drainage must be available during excessively wet weather. Turf grown in constantly wet soils develops a poor root system, becomes more susceptible to pest invasion, and prevents machinery

access. Lateral drainage ditches, natural sloping terrain, or installation of drainage tile are necessary for wet soils.

Pest Management—Pest suppression is a key to successful sod production. Any pest or management practice that affects the sod's appearance or root system causes a lower quality product.

Fields converted from traditional row-crop agriculture to sod production typically have some carryover pest problems. Sod growers must continually be alert for diseases, insects, nematodes, and vertebrate pests. By far the most persistent pests, however, are weeds. Once established, weeds are hard to control without affecting the quality of the sod.

Harvesting And Marketing—Sod is harvestable when enough root strength has developed to hold the cut strips together with minimum soil adhering. Most smaller operations (less than 100 acres) use a walk-behind sod cutter. Larger farms need a unit mounted on or pulled behind a tractor.

Wholesale buyers include landscape maintenance or installation contractors, garden centers, building contractors, homeowners, and golf course/athletic field superintendents. Growers with small acreage or limited shipping capabilities generally sell to homeowners and lawn care professionals. In addition to growing and shipping, many sod businesses offer contract installation services.

Shipping costs generally limit the competitive selling range for most producers. Most small to medium-sized growers restrict deliveries to a radius of less than 100 miles. Promotion opportunities include trade magazines, newspaper ads, trade show booths, word of mouth, yellow pages, and direct contacts with potential customers.

The keys to success are (1) establishing a market before planting and (2) ensuring repeat business by providing a quality product.

Costs And Returns
Costs and returns vary considerably with location, equipment, labor availability, and management practices. Generally, production costs increase as the farm size decreases. Time required to produce harvestable sod from initial establishment depends on the turfgrass species, soil type, and environmental conditions.

In Florida, for example, centipedegrass usually takes 18 months from the initial planting to harvest. Bermudagrass requires 6 to 12 months. Normal yields generally range between 30,000 and 35,000 square feet of usable sod per acre.

Capital investments for sod farms include land, buildings, and equipment. Variable costs include labor, fuel, fertilizer, pesticides, repairs, and parts. Fixed costs include insurance, taxes, depreciation, land charge, and management charges. Labor for a 250-acre sod farm is estimated at five full-time and two part-time (seasonal) employees.

In Florida, capital costs for Floratan St. Augustinegrass sod production are approximately $1,250 per acre, exclusive of land investment. Production costs per crop are about $550 per acre. Net profit per acre (return to risk), including interest and principal payments on capital expenditures, is about $275 per acre, assuming 100-percent financing of capital outlay. These figures should be adjusted for other grass species and geographic regions.

Proceed With Caution
Commercial sod production is both labor intensive and capital intensive. Keen competition, saturated markets, and a fluctuating economy make a thorough investigation of potential markets and costs of production necessary. Farmers considering investing in sod production should first consult with their county Extension agent, state or regional sod production/growers group, and a reputable local grower.

Software For Success

The farmers that are best suited for alternative agricultural opportunities often have unique values and farm characteristics.

Farm advising on alternative crops must consider the concerns of the farmers who grow them. So when we decided to incorporate computers into the complex advising process, our first step was to involve the farmers. This started us on a yearlong venture which resulted in an expert computer system for small-farm planning.

Farmer Interviews

St. Mary's County, in southern Maryland, offers a wide cross section of small-scale farmers, many of them making decisions about crops to plant in place of tobacco. We interviewed 14 such farmers on how they made decisions. The group included part-time, full-time, Amish, and Mennonite farmers of varying educational levels.

While a few farmers talked of profits as a decision criterion, there was little agreement on the definition of profits. For some, it was returns over cash production costs; for others, it was the equivalent of gross income.

We had several goals as we designed our new computer system:

Preserving interaction between agents and farmers—An agent's role is to help farmers decide what they want to grow, not to tell them what they should grow. To ensure that the computer system would maintain the interaction that occurs in this process, it was designed to be used by agent and farmer together.

Increasing user confidence and acceptance of results—Many of the farmers were reluctant to adopt new practices; none were eager to accept the advice of an unaided machine. Presenting the expert system as part of a consultation with an agent was expected to help overcome this problem.

Making the system adaptable—Prices, costs, available crops, and markets for crops can be quite different from season to season and from one geographic area to another. To make the system adaptable, we designed it as a "shell" which agents could use to build expert systems to suit current conditions.

Designing the system to run on personal computers—Typical county Extension offices are limited to PC-class hardware and may be located in remote areas where regular networking with central computers is difficult. Therefore, the system was designed to run on a PC.

Enterprise Requirements

Agents must initially work with specialists to set up the system for local conditions.

Basic budget data—Each enterprise must have a yield, price, production cost, and labor requirement for each month. The agent estimates these numbers initially, but they can be changed during a consultation.

Basic requirements—These are listings of things which a farmer must have to successfully produce a specific crop. For example: "If you do not have irrigation, do not grow tomatoes."

The enterprise groups and the basic requirements set the system apart from most other crop planning software.

Advising With The System

The typical farmer-client arrives at a scheduled appointment armed with information on land and labor available and a proposed plan for the farm. The agent enters this information into the computer, and the process of finding a satisfactory farm plan begins.

The system checks the basic requirements for each enterprise in the farmer's initial plan to ensure that the enterprises are suited to the farmer's situation. A plan that passes this step is next assessed in terms of its labor and land requirements and income potential.

If the farmer and agent think the plan needs improvement, the system can help with modifications. The basic logic of the procedure to modify a plan is simple. First, the program determines the highest income-producing enterprise in the group. Then it calculates how much of that enterprise can be grown with available resources.

If the new plan is acceptable to the farmer, the procedure ends. If not, the available resource levels are updated to reflect what has been used by other enterprises in the plan, and the program moves on by trying to add the next highest income crop in the group to the plan.

Farmers who reject the plans involving crops in the current group are asked to select another group. All enterprises in the new group are added and the process of suggesting maximum amounts of most profitable enterprises starts again.

Conclusions

Small-scale, part-time farmers seem to be particularly good candidates for advising with this system. So are new farmers and retired persons thinking about agricultural pursuits.

Coauthored by Daniel J. Donnelly and Edward Swecker, Agricultural Agents, Maryland Cooperative Extension Service, St. Mary's County; Richard A. Levins, Extension Farm Management Specialist, University of Minnesota, St. Paul; and Dewitt C. Caillavet, Research Associate, Department of Agricultural and Applied Economics, University of Maryland.

A Model Market For The Oregon Coast

William R. Rogers
Extension Agricultural/Forestry Agent,
Lincoln County Extension Office, Oregon

Unemployment was high along the central Oregon coast during the early 1980's as fishing and forestry, the once-dominant natural resource-based industries, experienced difficult times. As people began to look seriously for alternative ways to make a living, various agricultural options were a common choice.

Recognizing A Need

During the early 1980's it became relatively common for former fishermen, loggers, mill workers, or newcomers to the area to contact the Lincoln County Extension Service about how they could make a living from their land.

The time seemed right for a regional conference on alternative agricultural opportunities. Such a conference would allow people with similar interests and questions to get to know each other and share information.

Conference On Alternatives

Enthusiastic support for a coastal conference on agricultural alternatives came from the Oregon Coast Zone Management Association (OCZMA), an organization of county governments, port districts, and soil and water conservation districts.

Local agricultural organizations and the Oregon State University College of Agriculture administration also fully endorsed the effort. Grants and donations totaling $4,000 were obtained to cover preconference expenses.

At the first planning meeting, 27 people from six coastal counties discussed opportunities and limitations for coastal agricultural development.

The conference was held in January 1986. The first speakers provided an overview of economic changes that might affect agriculture and key ideas for becoming successful in any business. They were followed by panels of successful producers representing many types of agricultural enterprises, from sheep to Christmas trees, mushrooms, and mussels.

Second Conference

The general feeling of optimism that prevailed at the 1986 conference was reflected in the evaluations returned from 135 participants. Nearly all found ideas they felt they could use.

Frequent requests for more information on marketing led to a second conference, in March 1987, which focused on marketing alternatives and techniques.

Gerilyn Brusseau, restaurateur and author from Edmonds, Washington, provided an exciting keynote address on the opportunities for selling products to local businesses. Successful marketers gave advice about such products as fruits, herbs, mushrooms, beef, vegetables, specialty ornamentals, and forest products.

Attendance increased to 165 and included participants from all over the Pacific Northwest as well as the Oregon coast.

Model Market Plan

A model market plan was developed and presented at the 1987 conference. After the conference, more than 30 participants obtained assistance for their own personal marketing plans based on the model.

The model market plan has been incorporated as a central component of the statewide Extension Service initiative entitled: "Identifying Agricultural Alternatives for Oregonians."

Gross farm sales from farms in Lincoln County increased from $5.9 million in 1986 to more than $10 million in 1988. Some of this increase was due to a recovery of the forest products industry, but the production of vegetables, fruits, and miscellaneous specialty crops also increased over the same period—from $1.9 million to $2.8 million.

Many local grocery stores and restaurants now regularly purchase locally grown produce, and the farmers' market is booming.

There is a continuing demand for good information on alternative crops, and more workshops or conferences will be needed. But it is clear that Extension's efforts have already provided a beneficial start.

From Trees To Trout

Eight-five percent of Kentucky's farms are small farms and 96 percent are family-operated. Extension at Kentucky State University is encouraging low-cost alternatives for limited-resource farmers.

Marion Simon
Extension State Specialist for Small Farms and Part-Time Farmers,
Kentucky State University,
Frankfort

Extension paraprofessionals are a key factor in a Kentucky effort to introduce low-cost alternatives for limited-resource farmers and reduced-labor alternatives for part-time farmers.

The Kentucky State University (KSU) Cooperative Extension Program has taken a lead role in developing such alternative farm enterprises as aquaculture, rabbits, horticultural crops, and Christmas trees.

Of Kentucky's 99,000 farms, 85 percent are small farms; 96 percent are family operated. Sixty-five percent of the state's farmers have off-farm jobs. Through the Small-Farm Program at KSU, Extension paraprofessionals (small-farm assistants) in 11 counties are working one-on-one with these small, limited-resource farmers.

Trees For Marginal Land

Christmas trees have a minimum labor requirement and are well suited to marginal, hilly land. At maturity, they can yield a return of $6,000 to $14,000 per acre. A joint KSU/University of Kentucky project is introducing commercial Christmas tree production to Kentucky farmers. One result of this cooperative effort has been the formation of the Kentucky Christmas Tree Growers' Association.

The Small-Farm Program has used Extension demonstrations to introduce Christmas tree production into three counties. Jack Bransford, small-farm assistant in Allen County, reports that 2 acres of seedling Scotch, white, and Virginia pine trees were established on a cooperator's farm in 1988 for $700.

Aquaculture Efforts

Aquaculture, specifically channel catfish and rainbow trout production, is expanding rapidly in Kentucky. Through the efforts of Extension at KSU, the Kentucky Aquaculture Association (KAA) has been formed to coordinate efforts of the producers.

The total cost for producing a cage of fish is less than $500. After experimenting with this method, farmers can decide if open-pond, commercial production fits into their farm plans. Many of the demonstrations have been sponsored by KAA, KSU's aquaculture program, and TVA.

Berries Fit In The Farm Plan

Horticultural crops are being introduced throughout Kentucky. The Small-Farm Program has introduced blackberries, raspberries, strawberries, and blueberries through TVA-sponsored demonstrations.

For a $250 investment, Extension demonstrations at the university show that a 1/2-acre strawberry patch can yield $750 in produce annually. For a $250 to $400 investment, one-half acre of thornless blackberries or raspberries can be expected to yield $800 in annual sales for several years.

The major vegetable crops in Kentucky are tomatoes and peppers; cabbage, cucumber, and other vegetables play a lesser role.

In Wayne County, for example, the Extension paraprofessional has worked with small vegetable producers to achieve major impacts in the use of improved varieties, trickle irrigation, pest management, and soil fertility.

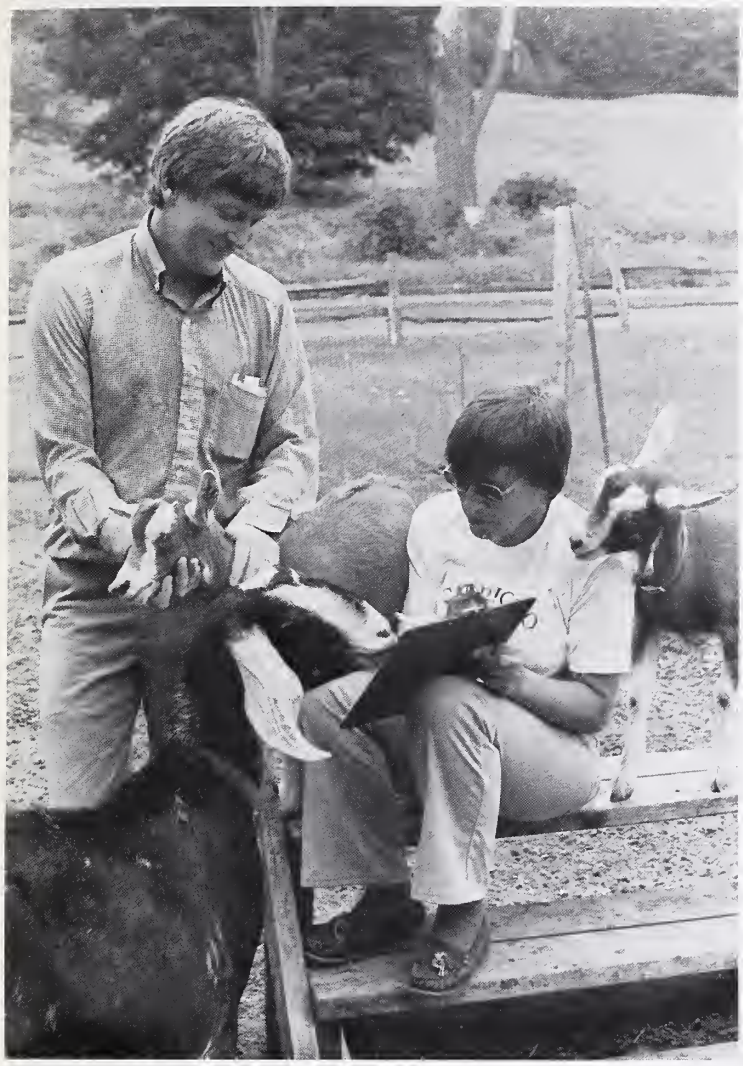
Rabbit Production

In 1985, the Small-Farm Program introduced rabbits as an alternative enterprise. For a $250 investment in cages and breeding stock, a farmer can begin rabbit production. Profits per doe average $29 to $31 annually. For the small producer, 100 does can yield approximately $3,000 for a few hours of labor per week.

Dana Lear of Lincoln County recently converted a swine farrowing house to a rabbitry.

Joe Lee and Fay Fooshe of Trigg County supplement their income by producing both rabbits and sorghum molasses. The rabbit herd they have developed within the last year is very productive. The Fooshes raise their own sorghum and produce sorghum molasses (syrup) on the farm. The syrup is sold locally via direct marketing. They also make and sell sorghum suckers.

So The Novice Farmer Gets Going



Grand Isle County Extension Agent Ed McGarry, University of Vermont, advises Mary LaVoie, Grand Isle, about her commercial goat farming enterprise. The business has grown steadily over the years aided by Extension advice and encouragement.

Sharon Gaudin
Journalism Intern, Editorial Assistant,
Cooperative Extension Service,
University of Vermont,
Burlington

How do two sisters with no previous farming experience—one a medical technologist and one a phone company employee—begin raising and farming goats commercially?

The sisters—Mary LaVoie and Marguerite Dorsey—claim it all began when they purchased a goat for its milk. "About 6 years ago, we bought a goat for its milk," explains Marguerite Dorsey. "She was lonely all by herself so we got another one to keep her company. Then suddenly we were raising anywhere from 2 to 20 goats at a time."

The sisters, who live on a farm in Grand Isle, Vermont, had only toyed with the idea of commercial farming. Then opportunity presented itself. "We only dabbled in the goat farming business until about a year and a half ago," says Mary LaVoie. "Then we heard of a goat farmer who wanted to sell his entire operation."

But a problem remained. The sisters had the farm but knew little about raising and farming goats commercially. Recognizing they were going to need quite a bit of help, they called the University of Vermont Extension Service.

Ed McGarry, Director and Extension agent for Grand Isle County, answered their call for help. "The sisters had done their homework," McGarry says, "but they needed some extra help."

Professional Advice

McGarry was able to get the novice goat farmers going, helping with aspects that ranged from herd management to hay choices.

McGarry is helping them design a new milking parlor. "The milking parlor we have now is really set up for cows," says LaVoie. "The new one will be set up specifically for goats. We knew what we wanted, but alone we never would've known how to put it together."

She remembers the time Ed McGarry helped with a goat's difficult birth. "McGarry happened to arrive when I was having trouble with a complicated delivery. He was a great help."

McGarry believes that giving the new goat farmers encouragement has been one of the most important ways he has helped. "When you are unsure of yourself," he says, "it can really help to have someone there to reassure you that you're doing all right ...someone who will point out better ways of doing things when that is what is required."

Plans For Expansion

Both sisters would like to devote themselves to full-time goat farming. They are now planning to expand their herd from 38 to 150 milkers and are adding on to the barn to accommodate the growth.

A Systems Approach To Agriculture

The University of California Sustainable Agriculture Research And Education Program is funding a project that compares rotational and conventional grazing systems. In this "systems approach" experiment, foraging animals are rotated regularly through pastures rather than being allowed to continuously graze a large pasture.

Lyra Halprin
Writer,
Sustainable Agriculture Research and Education Program,
University of California, Davis

"Systems approach"—it sounds like computer jargon, or the way jetliners land at fog-covered airports. It's actually a philosophic and scientific way to deal with large, complex issues, using researchers from many fields. And it's the method emphasized by the University of California (UC) Sustainable Agriculture Research and Education Program as it strives to help California farmers maintain profitability while remaining environmentally sensitive.

"Many of the projects we've funded have principal investigators in four or more disciplines, and most of them involve Cooperative Extension people," says Bill Liebhardt, Extension specialist and director of the Davis-based statewide program. He notes that one farming comparison project includes 11 Extension and research personnel.

"Using a systems approach is not easy," Liebhardt says. "It involves more management decisions, because you're dealing with many researchers. A project that looks at an agricultural problem from many angles and disciplines is likely to produce, long-term results, "because it takes the entire agricultural vista into consideration."

Addressing Continuing Concerns

The UC Sustainable Agriculture Research and Education Program was created in 1986, at the request of the California Legislature, to address

concerns about the economic viability of farming and the effects of current farm practices on the environment and on human health. The program is charged with funding competitive grants, disseminating new and existing scientific information, and coordinating long-term farmland research. A "systems approach" is the guiding principle of the 29 research and education grants the program has funded in the last 2 years for a total of $461,000.

Liebhardt emphasized that many of the continuing problems in agriculture cannot be solved by a single discipline. He cited floor management of orchards and vineyards as an example. "Changing one aspect changes the management of the entire system," he points out.

"If you evaluate the effectiveness of a legume cover crop only in terms of how much nitrogen it added to the soil, for example, you may believe it had a positive effect," Liebhardt explains. "But that approach doesn't tell you about the positive or negative effects that the cover crop may have had on pest dynamics. And, although cover crops may increase water infiltration, they also tend to cool an orchard or vineyard floor and may add to the risk of frost damage in cold weather. Simplistic solutions often lead to the creation of other problems."

Grazing Comparison Project

Eight UC-Davis researchers from the department of agronomy and range science and the department of animal science are engaged in an extensive grazing systems analysis designed to measure the systems responses at the soil, plant, animal, and consumer level. They are observing the changes that occur when foraging animals are rotated regularly through pastures. Conventional grazing management allows the livestock, or "harvester," to forage at will over every field.

"With intensive grazing management, we finally have control over our 'harvester'," states UC Extension Range and Pasture Specialist Mel George, one of the collaborators in the project. Their goal is to determine whether intensive grazing management can help ranchers produce leaner, healthier lamb and reduce synthetic nitrogen fertilizer use on 20 million acres of annual grassland.

Liebhardt points out that the conventional "bovine gymnasium" grazing method produces another whole syndrome: the need for silos to store extra feed when the grasslands give out, the thousands of gallons of gasoline needed to haul the feed to the cattle and to haul the manure away from feedlots, and the possible increased use of antibiotics when many animals are confined to feedlots.

Maintaining Forage Growth

UC-Davis Research Physiological Ecologist Jeff Welker believes that grazing management could be the key to maintaining clover growth in the grasslands. Rotational grazing, also called the Voisin grazing method, has been observed to be more useful in this respect than conventional grazing systems. However, no scientific data exist to show why it works better.

A systems-level approach will help farmers and researchers determine whether grazing management will maintain clover growth in the grasslands and how the lambs, energy use, and rancher profitability will be affected. Welker is examining the metabolic processes of nitrogen fixation, decomposition, and uptake by grass and clover in the experimental grazing pastures over a 3-year period. He is tracking how the plants fix atmospheric nitrogen over time and how much of that nitrogen is returned to the soil and absorbed by clover and grass in grazed pastures.

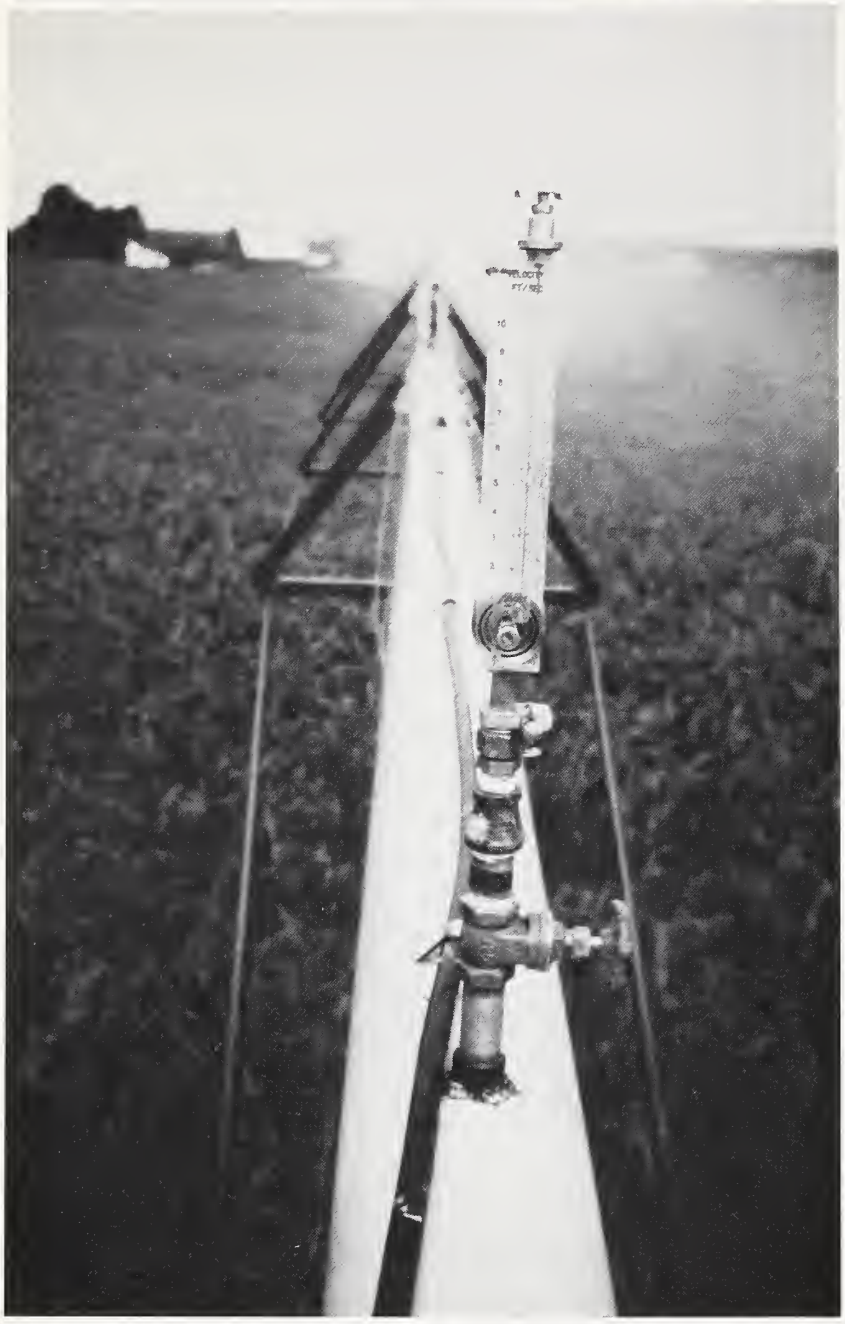
Other Investigations

Other researchers of the eight-member team are investigating: clover populations, including which genetic strains of clover plants survive a season of grazing; lambs' grazing habits and the forage capacity of the experimental fields; the fat content and other characteristics of lamb carcasses at the end of the season; sustaining high levels of pasture clover under different grazing regimens; and the best way to rotate animals to maintain the pasture clover and grass.

Economic Comparison

One part of the project most ranchers will be interested in is an economic comparison of the management systems. "Farmers ask if they can subdivide their pastures for controlled grazing and still get a return on their investment," George comments. "We will evaluate in a more controlled environment the impact of controlled grazing on productivity. We should be able to show them that subdividing pastures is economically feasible." ▲

Alternatives For Profitability



Flow meter checks the amount of water delivered by the irrigation system. Technicians working in the Michigan Energy Conservation Program For Agriculture And Forestry calibrated 50 irrigations systems for an energy savings of more than $300 per system.

William McLeod
Information Specialist,
Michigan Energy Conservation Program,
Michigan State University, East Lansing

Michigan farmers and forest product producers will save more than $100 million in energy costs through practical conservation methods fostered by a new statewide energy conservation program.

The state legislature established the Michigan Energy Conservation Program for Agriculture and Forestry (MECP) in 1988 and financed it with $16.5 million in energy overcharge funds. The program will continue through the 1990 growing season.

MECP is a cooperative effort of the Michigan Department of Agriculture, USDA's Soil Conservation Service, Michigan State University's Cooperative Extension Service and Agricultural Experiment Station, and Michigan Soil and Water Conservation Districts.

To help farmers and forest product producers implement energy-saving programs, MECP offers a one-time grant of up to $1,000 for each participant.

Energy Technicians

MECP is funding at least one energy technician in each of Michigan's 83 Soil and Water Conservation Districts. Trained by university specialists, Extension field staff, and Michigan Department of Agriculture project coordinators, technicians work directly with farmers and forest product producers to implement energy-saving measures in six areas: soil fertility and manure management; conservation tillage; integrated pest management (IPM); livestock facilities and waste management; irrigation management; and forest product production, which includes improved wood-burning technology.

"In the first year, MECP technicians have worked with more than 9,000 farmers and forest product-producing firms," says Ted Loudon, MSU's MECP program leader.

Fertility Management

To attract farmers to the program, Eaton County Extension Agent Roger Betz and Energy Technician Craig Binkowski offered 10 free soil tests. Farmers submitted soil samples representing more than 9,600 acres.

A computer program that compares previous fertilizer usage with soil test recommendations showed many farmers that phosphorus levels in their soils were adequate to maintain crop production without adding fertilizer. About 90 percent of the farmers followed MECP recommendations completely, for average savings of about $13 per acre.

Other fertility management programs designed to reduce energy consumption focus on improved nitrogen use. "Research shows that farmers get improved nitrogen efficiency when they soil-test for residual nitrate nitrogen and side-dress for the optimum rate," says Maurice Vitosh, the MECP fertility team leader.

Manure Management

Lee Jacobs, an MECP manure management specialist, explains that the manure management program is designed to reduce chemical fertilizer purchases, cut energy costs, and inform producers about potential groundwater contamination due to excessive manure applications.

MECP has distributed about 800 informational packets to livestock and poultry producers to explain how to calibrate spreaders and how to use a manure analysis.

Facility Ventilation
"About 10,000 Michigan livestock and poultry producers use power ventilation systems to cool their facilities," says Bill Bickert, MECP livestock team member. "If 10 percent of these producers would adopt modern ventilation technology principles, more than a million kilowatt-hours of electricity could be saved annually."

Installing easily removed polypropylene woven fabric sidewalls to provide full-wall natural ventilation reduces temperatures in dairy barns by 3 to 8 degrees during hot weather. This not only eliminates the need for electrical ventilation, but also reduces production losses caused by hot, humid housing. Three demonstration sites have been set up with MECP assistance.

Irrigation
After the 1988 drought, about 175 Michigan irrigators sought help from MECP technicians to improve the energy efficiency of their irrigation programs. Technicians evaluated and calibrated 50 irrigation systems for an average annual energy savings of more than $300 per system.

Growers also received assistance from "Scheduler," a computer program that projects when crops need additional moisture. "Scheduler adds up water additions from rainfall or irrigation and subtracts losses from evapotranspiration to give the technician a final soil water balance," says Edward Martin, MECP irrigation specialist.

By knowing how much soil moisture is available and the crop growth stage, the irrigator can pinpoint when the crop will need additional water and how much to apply. Eliminating one irrigation application can save growers with a large overhead sprinkler system up to $500.

Subirrigation, where water is pumped to the crops through drainage tile, is also promoted by MECP because it uses less energy than overhead sprinkler systems.

Conservation Tillage
Because of MECP's efforts, the impact of conservation tillage on Michigan's more than 58,000 farmers is expected to grow. "Our main thrust is to refine and promote conservation tillage systems for major crops grown by Michigan producers," says Francis Pierce, conservation tillage team leader.

"We want to demonstrate to producers that conservation tillage can be applied not only to traditional cropping systems, but also to specialty crops such as dry beans, sugar beets, onions, potatoes, and other vegetable crops."

The program also promotes zone tillage, which shatters compacted soil layers.

Pest Control Practices
Reducing energy expenditures related to pesticide practices is a goal of MECP's integrated pest management (IPM) program. "We eliminate unnecessary pesticide applications by actively monitoring pest populations and spraying only when pests reach an economic threshold," says John Hayden, IPM coordinator. "By following IPM principles, fruit growers have cut back from 8 to 3 insecticide sprays per season and reduced fungicide sprays from 12 to 7. This has had a major impact on profit margins for these growers and reduced the amounts of pesticides going into the environment."

Continuous corn growers who have adapted IPM principles of scouting rootworm populations to project future problems from the insect have been able to save up to $10 per acre by applying insecticides only when needed. This year 17,000 acres were monitored for pest problems regularly, and an additional 20,000 acres were scouted at least once by MECP energy technicians.

Energy technicians also calibrated 85 sprayer systems for growers. Technicians found that operators were applying an average of 20 percent more pesticides than they thought the sprayer was delivering. Improper calibration was costing the average farmer $5 to $10 more per acre.

Forestry Programs
The forestry component of the MECP has focused on helping sawmills improve their efficiency and increasing the use of wood for fuel, says Donald Johnson, MECP forestry specialist.

At a sawmill that produces 3 million to 5 million board feet of lumber per year, technicians saved the operator $60,000 annually by reducing the thickness of the cut.

To promote the increased use of wood as an energy source, MECP is offering grants of up to $75,000 to defer the cost of installing wood-fired systems for heat or industrial processing.

On The Way
"After 1 year, the Michigan Energy Conservation Program is well on the way toward helping producers save energy, increase profits, and implement conservation management practices that will reduce non-point-source pollution," Loudon says. "The interagency working relationships fostered by the project are expected to have continuing benefits as we jointly work toward improving profitability and protecting the environment."

FarmNet For Nonfarm Income

Carol Delaney
Extension Support Aide,
NY FarmNet,
Cornell Cooperative Extension,
Cornell University,
Ithaca, New York

The traditional picture of the self-sufficient farm family all working together has changed. In New York State and across the United States, family members' roles are diversifying and off-farm work is a major trend.

According to a recent survey of 738 New York farm family units completed by Jane W. McGonigal and Robert L. Bruce, Cornell University, over 37 percent indicated that one or more members (predominantly female) were employed off the farm. Nationally, 46 percent of all farm women are employed off the farm.

Ninety percent of the New York farm families used income from off-farm employment for family living and farm expenses. About half spent the income on some combination of family living expenses, farm bills, and special expenses such as college tuition or vacations.

Why Work Off Farm?
How and why do family members select off-farm employment? John Dennison, coordinator of the privately funded "Farmers In Transition" program at the State University of New York (SUNY) in Morrisville, which offers career counseling and funds for career retraining, says, "Thirty percent of the requests for training for off-farm work come from farmers who are planning on staying in farming."

One New York farmwoman said that she "got a job when the farm was doing well because that was when my husband didn't need me as much." Many career-oriented women with or without advanced education who marry into a farm family continue to pursue careers during marriage. Some of these women value a paying job as recognition for their efforts, something that may not happen on the farm. Another incentive for getting an off-farm job is to provide benefits including health insurance, social security, and disability credit.

NY FarmNet Role
NY FarmNet is an information, referral, and counseling system for assisting farm families. Since this Cornell Cooperative Extension administered program began in March 1986, only 10 percent of the callers to NY FarmNet's statewide, toll-free number have asked about help for finding employment opportunities. Men place 60 percent of these requests; women callers often ask about jobs for their husbands. Most of these calls come from families being forced out of farming.

Displaced farmers are unlikely to ask about career choices or job options to match their skills. "They call the 800 number with the attitude of, 'I need a job now! ' " says Karen A. Juenger, coordinator of the NY FarmNet office. NY FarmNet sends these callers a basic employment and job training packet and refers the callers to local community colleges, the New York Job Service, and the Job Training (JTPA) offices for counseling. A useful publication included is *Finding A New Career,* one of the "Farmers In Transition" program's factsheets written by Kate Graham, a Cornell research associate, and John R. Brake, agricultural economics professor and director of NY FarmNet. The factsheets are based on interviews with many farm families who had left farming due to financial problems.

County Job-Seeking Programs
Local Cornell Cooperative Extension agents have been assisting farm men and women in finding the right job through agency networking.

The largest program in New York State developed to assist farm families in assessing their goals and in retraining and developing new careers is the Farm Family Opportunity Program of Delaware, Otsego, and Chenango Counties. This program grew from a task force started by local Cornell Cooperative Extension staff.

With encouragement from NY FarmNet, Carl Crispell, the farm business management agent in Delaware County at the time, drew together a local agency task force to look at local farming problems. Representatives from the clergy, mental health, and employment agencies, the Private Industry Council (PIC), and others met and brainstormed.

Cornell Cooperative Extension agents from the three-county area recruited farmers for a Farmer Advisory Committee to work with Delhi's college committee. They came up with the idea of the Farm Family Opportunity Program (FFOP). The area PIC provided the startup money for the first year. Now in its third year of operation, the program has state funding.

Identify Resources
The program's chief goal is to help farm families identify what resources are available to help them stay in farming or to make a successful transition to a new career. Twenty-five percent of the clients, it has been estimated, want off-farm work and plan to continue farming.

NY FarmNet, Cornell Cooperative Extension, and the Farm Family Opportunity Program have formed a supportive network for financially stressed farm families in the three-county area.

Networking of communication and services is critical to meet the changing needs of today's farm families.

Focus Of USDA's 1988 Yearbook: Agricultural Marketing

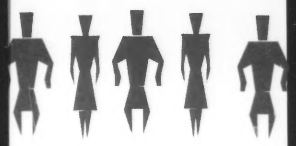
What do people want to buy? How many? Where? When? In what form? These are the crucial questions of marketing. Answers to these questions will help determine the kind of alternative product or service that could be produced and how it should be merchandised.

Marketing U.S. Agriculture, *The 1988 Year book of Agriculture,* with many of its articles by Cooperative Extension System staff, is a treasure chest of marketing ideas. Many articles provide case examples of individuals, firms, and commodity organizations discovering what consumers want and the organizations' strategies for satisfying those wants. For example, in 1978 Ben & Jerry's Ice Cream began in a converted gas station in Burlington, Vermont. By 1987, 50 stores rang up sales of $30 million for this old-fashioned ice cream.

The 1988 Yearbook of Agriculture also provides marketing ideas for more traditional farm enterprises as well as perspectives on the role of marketing in the global economy.

Limited free copies of this 336-page hardcover anthology are available from Members of Congress. Or order your copy for $9.50 from the Superintendent of Documents, Washington, D.C. 20402-9325.

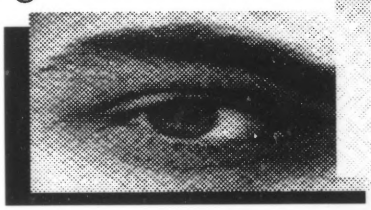
United States
Department of Agriculture
Washington, DC 20250



extension review

United States Department of Agriculture Summer/Fall 1989

Building Human CAPITAL



Educating People For Positive Living

Our Nation's economic productivity, international competitiveness, quality of life, and democratic form of government ultimately rest on the capabilities of its people. In today's highly complex, technological society, many people are facing barriers to achieving their full potential. To assure American competitive preeminence, society must invest in the education necessary to build human and intellectual capital.

Building human capital means increasing the ability of people to reach their full potential through involvement in families, organizations, communities, and the workplace. Investments in human capital provide people with the skills, ability, and understanding to function effectively in a complex, changing society.

Almost every American dreams of owning a house, cars, possibly a boat and maybe even a computer. But unless we are in a certain income bracket many of us will never realize this average American dream. There's another set of Americans that without some human empowerment will never rise above the poverty level.

For them, the thought of being born rich is out of the question, and only a few of them possess a unique talent that society demands. One solution for breaking the negative barriers existing in their lives is for Extension to do what it does best—educate people for positive living. This can be accomplished by building human capital that will enable people to reach their full potential and their own "American dream."

As we focus on the current trends, the declining participation of minorities, particularly Blacks and Hispanics, in higher education becomes even more disconcerting as we look at the future population of the United States. Demographic changes because of immigration trends and birth rates, promise an increasing proportion of minorities in society. Approximately 35 percent of the population of the United States will be nonwhite by the year 2020. The time is ripe to lay the foundation for a stronger and more effective human capital and youth focus.

Our Nation's future rests on the development of its human resources, particularly our youth. We cannot afford the luxury of ignoring the most basic philosophy of our land-grant mission, which is to assure an effective nationwide Cooperative Extension System that is responsive to priority needs and the Federal interests and policies with quality information, education, and problemsolving programs. The challenge belongs to us all!

The Extension Service National Initiative Team on Building Human Capital (BHC) is promoting educational programs that will address issues enabling people to reach their full potential. During the past year, BHC team members have worked with land-grant universities to develop curricula, pilot projects, and workshops. They have formed linkages and networks with other Federal agencies and private organizations.

The following list is to help you identify BHC's issue programs and their team contact(s):

Facilitating Career Preparation And Transition

- *Agricultural Sciences Career Institute:*
  Richard Reynnells
- *Family Counseling Clinic:*
  Jeanne Priester
  Richard Reynnells
- *Science And Technology Symposium 4-H Aerospace Design Team:*
  Allan Smith

Developing Leaders

- *Family Community Leadership:*
  Jeanne Priester
- *Organized Groups— Advisory Councils:*
  Jeanne Priester
- *Youth As Advocates For Youth:*
  Stephen Mullen

Renewing Volunteerism

- *Master Volunteer Programs:*
  Stephen Mullen
  Jeanne Priester
- *Volunteer Training (Middle Management):*
  Stephen Mullen
  Jeanne Priester

Preparing Youth For Responsibility

- *Making The Grade — A National Report Card On Youth:*
  Alma Hobbs
  Donald L. Nelson

This issue of Extension Review reflects state programs on Building Human Capital that educate people for positive living.

Alma Hobbs, Chair
V. Milton Boyce, Advisor
BHC National Initiative Team

Vol. 60, No. 2/3
Summer/Fall 1989

The *Extension Review*, quarterly publication of the Extension Service, is for Extension educators throughout the Cooperative Extension System in county, state, and USDA agencies. The Cooperative Extension System, a national educational network established through legislation, is a partnership of the U.S. Department of Agriculture, state land-grant universities, and county governments. The Secretary of Agriculture has determined that the publication of this periodical is necessary in the transaction of the public business required by law of the Department. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget. The *Review* is issued free by Law to workers engaged in Extension activities. For sale by the Superintendent of Documents, Government Printing Office, Washington, D.C 20402. Send manuscript inquiries to: Editor, *Extension Review*, Extension Service, USDA, Communication, Information, and Technology Staff, Room 33265, South Bldg., Washington, D.C. 20250-0900. Telephone (202) 447-4651.

Child Abuse—
Unlocking Closed Doors

Opposite and this page: Norma Codding is one of a network of trained volunteers in an ongoing Home Visitation program in six counties in Oklahoma. The volunteers are providing in-home services to teenage parents, who are a group at high risk of becoming child abusers.

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Extension Human Development Specialist,
Oklahoma State University, Stillwater
and
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Lincoln County Extension Office, Chandler, Oklahoma
and
Carla Earhart
Extension Home Economist,
Payne County Extension Office, Stillwater, Oklahoma

On a hot summer night in 1988, Oklahoma City police responded to reports of screams coming from an apartment. They found a 2-year-old and a 3-year-old, half-starved and hysterical. Their teenage father had abandoned his family, and their young mother was out on a date. Fortunately, these young victims of child abuse were found unharmed only minutes after accidentally starting a fire.

Similar stories appear in the news almost daily. Child abuse, often hidden behind closed doors, is devastating thousands of families and causing irreversible physical and psychological damage. It is a national problem of epidemic proportions.

Oklahoma's rate of increase of child abuse is significantly higher than the national average. Last year more than 30 of the state's children died from abuse and neglect.

A Coordinated Effort

The Oklahoma State University Cooperative Extension Service, the Oklahoma Extension Homemaker's Council, and the Oklahoma Department of Health have joined together to attack the child-abuse problem.

They have created a network of trained volunteers to provide supportive in-home services to teenage parents—a group at high risk of becoming child abusers. The "Home Visitation" program is being provided in six Oklahoma counties, creating a model that is being followed in other areas. The volunteers often can break down class and cultural barriers experienced by professionals.

Vulnerable Youth

Lack of experience and education makes teenage parents especially vulnerable to inappropriate behaviors. These new mothers face numerous dilemmas compounded by problems such as unemployment, low self-esteem, poor health, substandard housing, and lack of education. The problems are magnified when the young mother is raising her child alone—socially isolated from family and friends.

The existing network of professional services for young mothers is inadequate. Traditionally, child abuse and neglect services have focused on "after the fact" interventions. Home Visitation, in contrast, is a prevention program. A cost-effective method that uses volunteers to educate and encourage new parents in many aspects of infant care and safety, Home Visitation is providing young parents needed support and friendship.

Current Directions

One important goal of the Home Visitation program is to reduce stress and anxiety for young

parents. The building of trusting relationships among volunteers and young parents acts as an anxiety-reducing process. Concurrently, the teen parents' home environment will likely become a more humane place to live.

By establishing supportive relationships, Home Visitors help first-time parents learn basic child care and parenting techniques, stress management, how to access family and community resources, and how to provide a nurturing environment for their children. Specific goals of the program include:

Educating and training teenage parents—The volunteers offer information on such topics as infant nutrition, child safety in the home, and how children grow. Understanding child development stages and parent-child relationships encourages new parents to develop self-confidence and independence.

Linking with community resources—Volunteers provide new parents information about social services agencies and other local resources.

Organizing community support groups—New parents are learning how to help each other by developing a community spirit of "people helping people."

Program Effectiveness

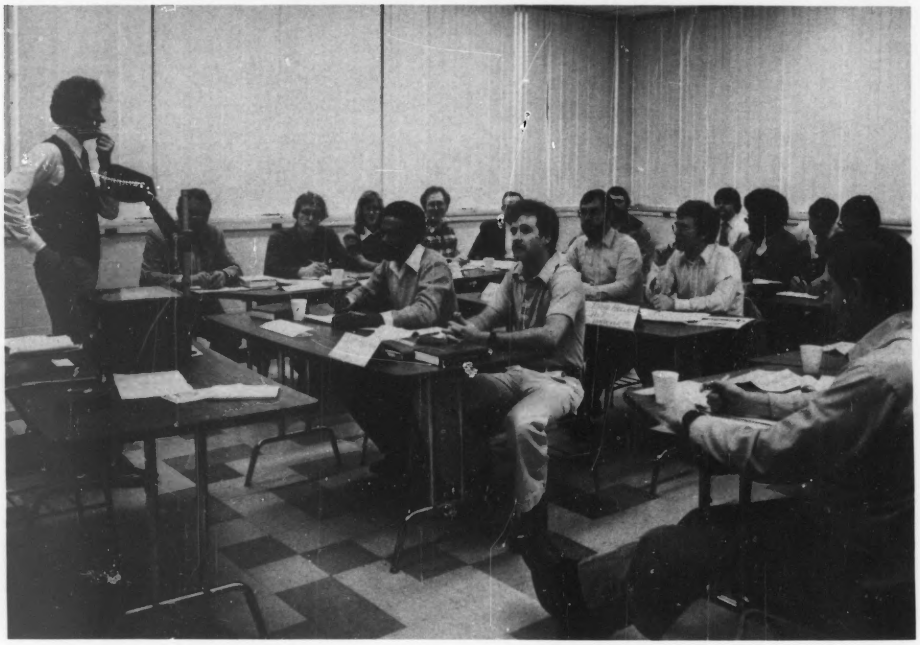
"Young mothers are very receptive to learning to interact with their infant," a Home Visitor comments. "I see myself as a friend who offers support and needed compassion during tough times. Informal education is one of my primary objectives. Young mothers ask a lot of questions, and even though I don't know all the answers, I try to find answers for them."

"The Home Visitation program has given me confidence in myself," one teenage mother says. "Even though I still feel frustrated and my parenting isn't the greatest, I love my child more now than when she was born."

The Home Visitors report an impressive array of accomplishments, including such things as neutralizing high-risk situations and increasing families' ability to trust and to establish support systems within the community.

They say that the families have learned social skills; improved their self-esteem; learned to recognize impending crises and to deal with them effectively; learned to see their children as individuals with thoughts, feelings, and needs; begun to derive pleasure from being with their children; improved their child-rearing techniques; and taken steps to establish a safe and nurturing home environment. ⁂

Food Safety—
Through Service Training



Max Gregory, Extension Food Science Specialist, North Carolina State University, leads a workshop in the "Foodservice Manager's Certification Training Program." To date, 65 of these workshops focusing on food safety and proper sanitation in food handling have certified nearly 1,500 foodservice personnel.

Max E. Gregory
Extension Food Science Specialist,
Food Regulation And Food Safety,
North Carolina State University,
Raleigh

Extension has always given its clientele a great deal of "one-on-one" help. But when financial resources are restricted, Extension must pinpoint more cost-effective ways to serve people's educational needs.

"Building human capital" is one way that Extension can resolve the problem, while at the same time strengthening its link with the clientele. When clientele numbers are great, as is the case in the foodservice industry, building human capital is a necessity.

The foodservice industry is the fourth largest in the United States, comprising more than a half million establishments that employ some 8 million people. Training this many people is a mammoth undertaking; however, the need is one of the most pressing in the Nation. More people are eating out and are becoming more conscious about food safety.

Education Is The Answer

During 1988, North Carolina had several outbreaks of foodborne illnesses. Several counties have had serious outbreaks of hepatitis A and Norwalk virus. Salmonella infections continue to be of public concern.

Food And Drug Administration scientists have estimated that the number of foodborne illness cases nationally could be as high as 81 million yearly, at a cost of as much as $160 billion. Health authorities agree that education is the best answer to reducing foodborne outbreaks of illness in foodservice establishments.

Training For Managers

During the last 5 years, the North Carolina Extension specialist in food regulations and food safety has been involved in a major effort to train foodservice managers. The program is a coordinated effort utilizing state and county personnel. The North Carolina Division of Health Services serves as a regulatory monitor and the certifying agency.

Since the North Carolina Extension Service "Foodservice Manager's Certification Training Program" originated, nearly 1,500 foodservice personnel have been certified in 65 training workshops. Assuming a multiplier effect of 20, since managers train their personnel, approximately 30,000 foodservice workers have been reached with Extension's information on food safety and proper sanitation in food handling.

The program has resulted in a substantial cadre of trained persons in the state's foodservice industry who are qualified to continue their training programs with older employees as well as new personnel.

Program Content

The training program includes 14 hours of instruction plus a certifying examination. Those who pass the examination receive a certificate and are eligible for reciprocal certification with other cooperating states.

The program emphasizes research-based practical information for managing a sanitary establishment and training foodservice workers. It relies heavily on a variety of visual aid materials to keep the students' attention. Included in the visual package are ten 16mm films, two videos, and two slide programs.

The number of participants in each session has been restricted to 25. This permits students to actively participate in the discussion and allows the instructor to give attention to the needs and interests of individual students.

The subject matter emphasizes food safety and food protection. The first day of the workshop concentrates on basic principles, such as food microbiology, foodborne illnesses, and ensuring sanitary food supplies (from the standpoint of receiving and storage, as well as time and temperature control).

The second day focuses on more practical and applied subject matter, such as personnel hygiene, personnel training, cleaning and sanitizing, housekeeping, and pest control.

Cooperation Is The Goal

Cooperation between foodservice workers, the University, county Extension personnel, and county health officials has been the goal of this educational endeavor. Sanitarians are encouraged to share personal experiences in order to put the local situation into perspective. Foodservice personnel are able to discuss ideas and concerns with local sanitarians in a nonthreatening environment.

The close working relationship between the local and state health agencies, county Extension, and North Carolina State University shows that this is truly a joint effort to protect the public health of the state's citizens. The result is that the program not only pays dividends to North Carolinians, but also improves conditions that stimulate tourism.

Voluntary Or Mandatory?

Although the training program for foodservice managers is now voluntary, its success has led the North Carolina regulatory agencies and the state's Restaurant Association to seriously consider making it mandatory.

For the past 2 years, the Extension food regulation and safety specialist has served as chair of an education committee established by the North Carolina Division of Health Services. One of the goals of the committee is to establish a mandatory training program. If such a program is mandated, it probably would be quite similar in content to the present voluntary program.

With or without a mandatory program, Extension has many opportunities to make contributions in planning, expediting, and teaching. Because of the enormity of the job, however, it cannot be done without a strong emphasis on "building human capital"—training foodservice managers who in turn train their workers.

The net result will be a food supply that is safer and an increased confidence on the part of consumers that proper procedures are being followed in the preparation and serving of their food. ▲

Take Charge!

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and
Theresa L. Coble
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and
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A new Minnesota 4-H program for youth—"I'll Take Charge"—emphasizes a life planning approach to career development. The program encourages teenagers to plan, be responsible, and increase their decisionmaking skills.

For young people, taking charge of the future is much more than finding a job. Dreams and expectations, family and sex roles, work, education, and lifestyle—these are topics every teenager must explore. For all young people, the challenge is great. For young people with economic problems, family instability, or failure in the formal education system, prospects for the future can be overwhelming.

Emphasizing Life Planning

A new Minnesota 4-H program emphasizes a life planning approach to career development education. The Pillsbury Company funded "I'll Take Charge" to increase career and life planning options for youth in rural areas.

The program promotes personal responsibility and economic self-sufficiency for young women and men. While the experiential curriculum was specifically created to address rural youth needs, the five focus areas are equally relevant for suburban and urban teenagers.

The Three T's

The research and scholarship of L. Sunny Hansen, professor, University of Minnesota, are fundamental to this contemporary life planning approach. Hansen writes persuasively of the three T's—the *traditions* to honor and the *transitions* to negotiate as young people anticipate the *transformations* of an uncertain future.

Employment preparation is important, but satisfaction ultimately comes from broader considerations such as planning for family and education, questioning self-limiting sex roles, and experiencing the empowerment of being in charge.

Studies show that young people's visions of future work and family roles are both contemporary and traditional without recognition of the inherent inconsistencies.

Flexible Design

"I'll Take Charge" is organized around five topics: Dreams and Expectations; Family and Sex Roles; Education; Work; and Lifestyle. The curriculum offers a three-pronged approach to promote learning:

Experiential activities—Each of the 5 units offers a choice of 12 activities that include a variety of learning techniques— creative visualization, affirmation, simulations, futuring, interviews, and group initiative games.

Video Interviews—Ten-minute video segments featuring young people and adults in frank conversation stimulate lively discussion on such topics as meeting parental expectations, working mothers, farm versus city living, and changing jobs.

Big Events—Because most adults know as little as young people about systematic life planning, "I'll Take Charge" encourages the generations to jump in and learn together. "Big Events" are 2- to 3-hour structured experiences that require all participants to risk, plan, question, and share. "The Crystal Ball" emphasizes futuring, while "The Three-Ring Circus" considers balancing life roles. "The Tall Glass Building Caper" sends teams of teens to dissect the workings of a corporation or office complex.

Consumer Response

Voluntary education programs prove their worth when people return for more. Consumer satisfaction with the "I'll Take Charge" program has been high.

"The Dreams and Expectations unit is proving to be the most difficult for youth to relate to," reports Ellen Murphy, an evaluator working with the focus groups. "But after learning how dreams tie into the total life planning package, it is the best part of the project for them."

While the program typically begins with the Dreams unit, the pilot group of young mothers rejected the idea of dreams until they completed Work, Education, and Family.Clearly, for these young women with great responsibility and limited resources, dreams are only possible when the necessities are in place.

Budgeting is one of the most useful and immediately adaptable parts of the Lifestyle unit. Teens report they did not realize that the amount of education they get is directly related to their earning power and the lifestyle they will be able to enjoy. Work futuring activities also emphasize the importance of education and training over the lifespan.

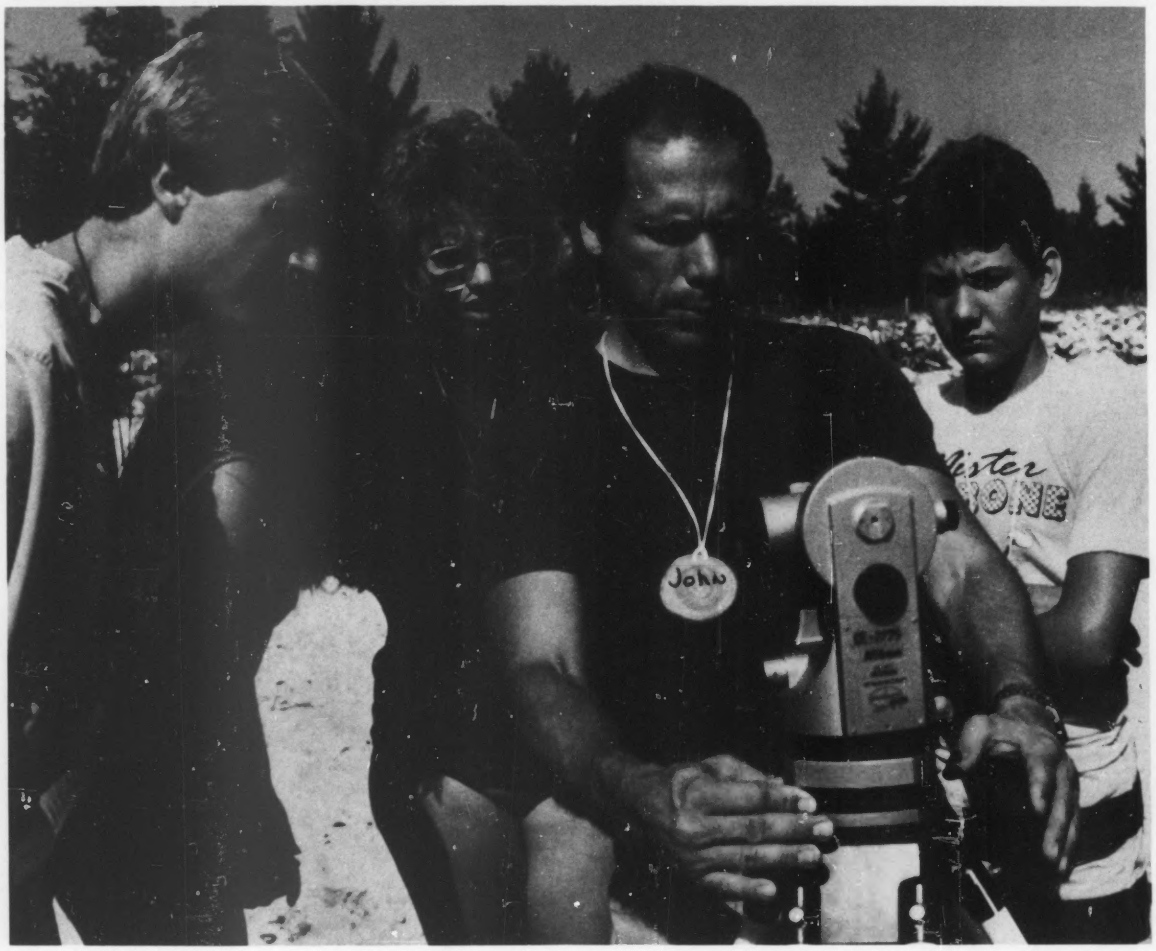
Lifetime Skills

The "I'll Take Charge" curriculum is working with young people 13 to 18 years old. Older youth are more developmentally ready to deal with these difficult issues in an integrative way. The curriculum can be used in club settings, in traditional or alternative schools, with urban single mothers, and with same-age and mixed-age groups.

The only requirements are an enthusiastic leader, an informal setting that encourages discussion and sharing, and a flexible schedule that allows 60-minute and 90-minute time blocks to develop activity units.

Taking charge of one's life is serious business. Working out the precious dreams and the seemingly impossible hopes of adolescence takes time and understanding. But young people who learn a new way of looking at change and growth have gained a skill that will last a lifetime. ▲

New Connections



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A fishing experience of a lifetime awaited a group of young people recently at the 4-H Great Lakes Natural Resources Camp based at Hammond Bay, Michigan, near Lake Huron. Charter fishing captains met the 13- to 15-year-olds at the dock in Rogers City to take them aboard their charter boats on a fishing adventure most teens could only dream about.

The skillful skippers showed the youth the tricks of the trade—deftly manipulating downriggers, lures, and other salmon fishing gear. Also aboard were Sea Grant Extension Agents Chuck Pistis and Ron Kinnunen who used the journey to explain how salmon got to the Great Lakes, what's happened to native lake trout and other species, and to discuss the Great Lakes ecosystem.

The Sea Grant agents also provided lessons in fish anatomy and demonstrated the proper techniques for cleaning and filleting a catch. On the last night of camp, the teenagers dined on the delicious salmon and steelhead (migratory rainbow trout) prepared by the Sea Grant chefs. Thus, these young people established some important connections among themselves and Michigan's most unique natural resource—the Great Lakes.

The camp is sponsored by Michigan 4-H Youth Programs of Michigan State University's (MSU) Cooperative Extension Service, Michigan Sea Grant Extension, and the MSU Department of

Sponsored by Michigan 4-H Youth Programs of Michigan State University, the 4-H Great Lakes Natural Resources Camp near Lake Huron provides campers with enjoyable adventures as well as insights into the area's ecosystem.

Fisheries and Wildlife. The Great Lakes Natural Resources Camp is also supported by Michigan Bell Telephone.

"I didn't know that much about natural resources when I started out," says camper Bob Wandel of Lake City. "But when I left this camp I had learned a lot. I'm going to try to be a biology and chemistry teacher, so I liked the pond study and the wildlife." Wandel, a 15-year-old, caught the largest fish when he first went to camp in 1987. He considers the charter fishing trip both recreational and educational. That is one of the connections most campers make—that learning about the Great Lakes and natural resources is really fun.

The camp's other classes are as adventurous in their own way as the fishing trip. The classrooms are mostly outdoors and the approach nonformal, appropriate for environmental education. Participants learn from knowledgeable professionals about such natural resource subjects as coastal processes, wetlands/limnology, wildlife, and plants.

Campers visit the shores of a Great Lake and study the dynamic interaction of water and land. From Sea Grant Extension Program Leader John Schwartz, they learn about littoral drift—the way material is moved along the shore by the force of the water. They also learn why shoreline homes and other structures succumb to unrelenting erosion.

Glenn Dudderar, fisheries and wildlife Extension specialist, Michigan State University, (MSU), helps the campers experience the sights and sounds of the environment. He helps the campers overcome

In addition to fishing and beachcombing on one of the Great Lakes, teenage campers learn from knowledgeable Sea Grant Extension agents about such natural resource subjects as wetlands, wildlife, and plants.

their reluctance about handling the wild things, while maintaining their respect for these "critters" and their special niche in the ecosystem. Jennifer Cottner, former Extension agent, divides the campers into groups to teach them the principles of "keying" or identifying plants. She teaches them to use their sense of touch to discover the unique characteristics of different species.

Willingness To Get Wet

Shari McCarty, 4-H Youth Extension specialist, Department of Fisheries and Wildlife, MSU, takes the campers into the mucky marsh at the north end of Lake Ocqueoc. There, she gives the campers a hands-on introduction to limnology (the study of freshwater lakes, ponds, and streams). She requires only curiosity and a willingness to get wet, qualities possessed by almost every one of these young people.

Campers and counselors alike make a solid connection with the camp's leaders—MSU faculty, Sea Grant Extension, and 4-H staff members and volunteers. Jennifer Dorset of Big Rapids has been a volunteer counselor for two years. "One of the reasons I really wanted to come was the people involved. They have been a really helpful force in deciding what career—biology, or aquatic biology—I'd like to go into," she says.

There is more to camp than formal instruction. Campers canoe around the mysterious island in the middle of Lake Ocqueoc. By light of dawn they go birding by the lakeshore. They scramble over the decks of the Coast Guard Cutter Mackinaw or the U.S. Fish and Wildlife Service research vessel, Grayling. They investigate the world's largest limestone quarry, near Rogers City, and learn that it contains fossils left by an ancient inland sea.

The Great Lakes Natural Resources Camp offers a unique opportunity to 50 young people every summer. Membership in 4-H is not required. Youth who desire advanced leadership experience in natural resources and natural science make the connection simply by contacting the 4-H Youth staff in the Cooperative Extension Service office in any Michigan county.

Extracted from an article in the March-April 1989 issue of Michigan Natural Resources Magazine, *Volume 58, No. 2, published six times each year by the Michigan Department of Natural Resources.* ▲

Making The Grade

Judy Rude
Extension Writer/Editor,
Extension Service, USDA

Barbara Walters, ABC-TV news anchor, hosted a TV news special in September 1989 which focused on the critical problems affecting a large number of America's youth. These problems were spotlighted in a recent National Report Card offered by the National Collaboration For Youth (NCY). "Making The Grade" is a project of NCY designed to raise public awareness of these problems at local, state, and national levels.

"Making The Grade" is an innovative project of the National Collaboration For Youth (NCY). Extension Service's 4-H Youth Development is a member of NCY, a consortium of 15 leading organizations serving over 30 million young people. The project is designed to raise public awareness and stimulate action on behalf of youth at local, state, and national levels.

The project seeks to educate the public about the critical problems affecting a significant number of America's young people, and provide opportunities for citizens at the community level to develop and implement viable solutions.

NCY recently issued a National Report Card that shows that America is currently failing or just barely passing in its efforts to eradicate these problems. These six youth problems and their "grades" were: Functional Illiteracy (F); Juvenile Crime (F+); School Dropouts (F+); Substance Abuse (D-); Teenage Pregnancy (D-); and Youth Unemployment (D+).

TV News Show

Recently, these problems were the focus of an ABC-TV news special—"Survival Stories: Growing Up Down And Out"—that aired in mid-September 1989. Hosted by Barbara Walters, ABC news anchor, the program examined each of the problem areas and explored various community efforts to find solutions.

This fall over 400 Town Summit Meetings are scheduled which will feature discussions of the telecast and the implications of the Report Card for each particular community. Building Human Capital state contacts, along with other state and county Extension specialists, have taken the leadership role in organizing over 200 of the 400 Town Summit Meetings.

The meetings will bring together educators, parents, policymakers, religous leaders, and representatives of human service agencies, civic organizations, youth advocacy groups, business, and labor. Together they will assess the current local network of youth services, identify unmet needs, prioritize local community concerns, and develop an action plan for addressing local problems.

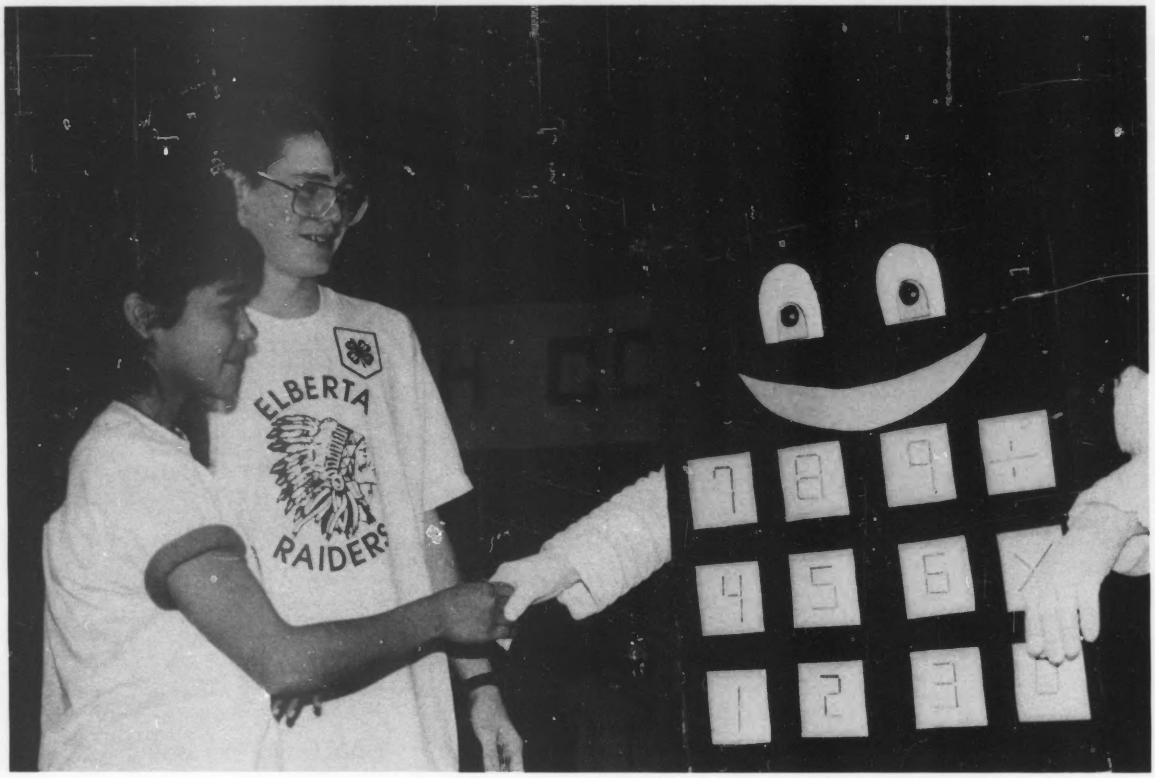
To facilitate the Town Summit Meetings, and continue the public engagement process, NCY specialists are providing issue and option papers on each topic. The materials are designed to define each problem, describe current efforts to address it, suggest guidelines for community deliberations, and present a series of program and policy options for local and national action. NCY specialists are also providing a workbook and videotape to guide facilitators through the process.

Keeping The Issue Alive

ABC-TV's "Youth PlusQProject Literacy U.S." campaign recently released six PSAs called, "Dreams vs. Reality." The essential message of the PSAs is, "what every child grows up to be is up to you ...is up to all of us. Wake up America!" It is hoped these PSAs will encourage continued national and local media coverage and support to implement the community action plans.

"Making The Grade" will serve as a catalyst for local groups to develop a cohesive, collaborative approach for dealing effectively with these problems in their community. ▲

Play Consumer Bowl To Win!



Two winning members of Elberta Elementary School in Baldwin County, Alabama, greet "The Calculating Consumer." Baldwin County Cooperative Extension cooperated with the county Board of Education in a skill-building school enrichment program that featured a school quiz on consumer education, a "4-H Consumer Bowl."

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Baldwin County, Alabama
and
Fred Waddell
Extension Family Resource Management Specialist and Associate Professor,
and
Deborah Stabler
Extension 4-H Specialist.
Youth Development,
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Typical of young Americans, youth in Baldwin County, Alabama, spend thousands of dollars on their wants and needs. But most have not developed skills in understanding how needs, wants, likes, and dislikes affect their choices. Like other teens, they need to better understand the rights and responsibilities of consumers, how advertising affects consumer behavior, and how to get the best buys for their money.

With a grant from the National 4-H Council, the Baldwin County Cooperative Extension office and the Baldwin County Board of Education joined forces to educate Baldwin County's youth in using their financial resources more wisely. The result was a unique skill-building school enrichment program called "4-H Calculating Consumer."

The program is the first of its kind in Alabama. Operating in three schools, it involved 200 eighth graders who were not enrolled in traditional 4-H school clubs.

Experiential Learning

The Board of Education's curriculum director recruited teachers for the consumer enrichment classes, which were held for one hour each day. Teachers stressed hands-on activities and invited speakers from the community, including bankers,

credit bureau spokespersons, grocery store managers, retail store security officers, and credit counselors. Class members toured a bank, clothing stores, and a grocery store.

The students practiced how to use unit pricing, how to identify misleading advertising, how to recognize peer pressure and other influences and to think for themselves, how to use their money wisely, and how to get the best buys.

They also learned how shoplifting increases the prices of goods, and how to exercise their rights and responsibilities as consumers. Students were shown that fad buying can be wasteful and that comparison shopping and careful purchasing can stretch their money and prevent costly mistakes.

Russel Ellis, an eighth grader, summed up student attitudes about the program, saying, "I learned lots of valuable consumer information. I learned to manage my allowance much better. The main thing I learned was the difference between needs and wants, and the need for making long-range financial plans. My parents really appreciated the course and the information I was sharing with my family!"

The students' "textbook" was a set of three manuals purchased from Oklahoma Cooperative Extension Service with the National 4-H Council grant. Each student received a regular class grade for the course.

Consumer Bowl

To reinforce the classroom experiences, the classes from the three schools competed in a "4-H Consumer Bowl." Each school selected a team composed of four students and two alternates, who were quizzed on consumer information covered in the Calculating Consumer class. Team and individual trophies were awarded, and the winning 4-H teacher-leader received a $50 gift certificate from a local store.

Featured in the 4-H Consumer Bowl were a group of students who performed a consumer education rap they composed and modeled a 4-H Calculating Consumer costume they constructed.

Auburn University Cooperative Extension specialists helped Joyce Staudt, Baldwin County Extension agent, to coordinate the competitive team event. The family resource management specialist and 4-H curriculum specialist designed the bowl format, wrote the questions, and helped with promotion.

An assistant attorney general in the Alabama Consumer Protection Division was guest speaker. He complimented the creative project and urged 4-H'ers to share their acquired consumer skills with fellow students, families, and area merchants.

A local news anchorman served as moderator. Scott Paper Company provided electronic equipment and hosted a VIP luncheon for sponsors, county and state officials, school personnel, classroom resource speakers, school board members, and media representatives. Local newspapers and television stations provided excellent coverage for both the classes and the Consumer Bowl.

Community Togetherness

The Baldwin County 4-H Calculating Consumer effort demonstrated that this subject matter can be made both relevant and interesting to students, while also engaging the interest and cooperation of county school officials and a widespread segment of the business community.

The Consumer Bowl aroused the interest and support of the entire student body, county school officials, media, business, and industry. It is an excellent example of how Cooperative Extension, and 4-H programs in particular, can serve as a catalyst in developing responsive community programs and stimulating community networking. Many people who attended said that they could not recall when such a wide variety of community groups had networked so effectively in any community endeavor, educational or otherwise.

The consumer program demonstrated that businesses and industries in the community are willing to provide funds and technical assistance for high-exposure programs that focus on building basic youth responsibilities and skills.

Expanding The Program

There is an interest in continuing this program and perhaps expanding it to other counties in Alabama. The key to success is a capable and dynamic county 4-H agent who is willing to undertake such a project as a "labor of love," and who is prepared to spend considerable time in the many details of implementation.

The county agent has received an additional grant of $1,400 from Auburn University. She plans to use the money to expand the 4-H Calculating Consumer program to eight schools next year. This will allow all Baldwin County eighth graders—some 800 students—to be taught consumer education skills.

Long-range goals include the hope that the calculating consumer students not formerly in 4-H will become involved and help strengthen the teen base. It is also expected that Baldwin County families will be better able to manage their available resources as the youth practice and share what they have learned through the program. ▲

This Little Lamb Goes To Market

Opposite: Extension Agent John Marra (center) shares a laugh with youngsters participating in the Special Market Lamb Project in Cabell County, West Virginia. This page: A handicapped youngster grooms his lamb with the help of his 4-H partner and Extension Agent Marra.

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Extension Press Specialist, and
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Southern District Office,
Charleston, West Virginia

Take one 4-H'er or Future Farmers of America (FFA) member. Also take a physically or mentally handicapped child who is eager to try something new. Bring the two together and give them a shared responsibility, a common goal, and a 40-pound lamb. What is the result?

The result is magic, claim the West Virginia families involved in the Special Market Lamb Project, the first project of its kind in the state.

In 1988, Extension agents of West Virginia University in Cabell County launched this innovative program. It began when a local farmer, Steve Wooten, noticed the fascination of handicapped youngsters as they watched the livestock shows at the annual county fair. "These kids were so taken with the animals," Wooten recalls. "I thought lambs would be ideal for them to work with because lambs are so gentle."

Wooten approached Cabell County Extension Agent John Marra. Then Marra brainstormed with a committee of community and educational leaders. Committee members decided to start a program pairing a 4-H or FFA youth with a handicapped youth. The task of each pair would be to work together to raise, show, and sell a market lamb.

Volunteer Training

Working with special education and vocational agricultural teachers, the Extension agents match handicapped youngsters with volunteer "sponsors" who are either 4-H or FFA members carrying

market lamb projects. The special education teachers train the volunteers to prepare them for the special needs of their partners.

Private donations help the agents purchase lambs for each handicapped youngster in the spring. The program also provides feed for the "special lambs" and for the sponsors' project lambs. The special lambs are housed at the 4-H or FFA member's farm. The handicapped partner visits the sponsor's farm regularly through the summer. As a team, they work with the lamb, care for it, and prepare to show it at sale time.

Extension Agent Marra admits that initially he was concerned about whether the children with more severe handicaps could handle the task. "I found out that they're not only handling it, but handling it very well," he comments. Marra trains each pair with the showmanship skills they employ at the county fair in August. "I have never seen a prouder bunch of kids bringing those lambs into the ring," he says. "There is something magical about it all."

The families involved say the program provides important learning experiences for all the of the children. It helps all of them to increase their self-confidence and their respect for individual differences. It draws the handicapped children out of isolation and into organized activities and groups. In addition, it allows families who have never met before to build strong bonds of friendship and trust.

Some Comments

Shirley Johnson, whose 15-year old handicapped son Marlin took part in the program, says, "It's been such a rewarding experience for him. He was able to do a little more each time he worked with the lamb. It gave him a sense of responsibility."

Mary Wooten, whose son Jeremiah was Marlin's partner in the program, believes he benefited just as much as Marlin did. "Jeremiah has learned to have patience," she says, "and a better understanding that handicapped children can learn."

Teressa Ramey, 17, says that her partnership with Bobby Jo Ragland, a handicapped 13-year-old, has given her a new friend as well as a feeling of accomplishment. "Bobby Jo was afraid of the lamb in the beginning," she says, "but she adapted really well. It makes me feel good that she learned how to work with the lamb. And, we have a friendship that will last long after the lamb goes to market."

Some of the handicapped children are joining their partners' 4-H clubs and getting involved in other 4-H activities. Their sponsors also are broadening their experiences. Jeremiah Wooten was his partner's assistant for the 1988 Special Olympics.

The handicapped youngsters receive 25 percent of the proceeds from the sale of the special lambs at the county fair. The remaining money goes to purchase lambs and supplies for the following year's Special Market Lamb Project.

"We hope to make it a self-supporting program," explains Don Mason, president of the Cabell County Fair Board. "It has benefits for all of the kids," he states, "because it exposes them to new situations and teaches them new skills." ▲

Agriculture Is More Than Farming!

W. Kirby Player
Coordinator, Student Relations
And Recruitment,
and
Diane G. Smathers
Extension 4-H Youth Development
Specialist,
Clemson University,
South Carolina

Across South Carolina, middle and elementary schools are initiating "career fair" programs and other activities to expose young children to career opportunities. These programs feature representatives from all types of careers.

The County Extension office is the group the school administrators usually contact to represent agriculture. Extension specialists regard this as an excellent chance to foster an interest in agriculture early in a child's life.

In the past, Extension has been asked to play this role often with high school students. However, considering that younger children are now a primary audience, the concerns and responses of Extension, and agriculture as a whole toward youths and career education must be even more carefully thought out.

In South Carolina, specialists from the Office of Resident Instruction and 4-H and Youth Development at the College of Agricultural Sciences, Clemson University, are seizing the opportunity to facilitate career preparation in agriculture. They are teaming together to develop models for communicating career opportunities in agriculture to each age group in school.

Breaking The Initial Barrier

What is the first thing that comes to mind when one says the word "agriculture" to a child? The response is usually "farming" and all that is associated with production agriculture. Children are intimately acquainted with the image of "Old MacDonald" and the "sounds farm animals make."

This image of production agriculture is important since the family farm and the production agriculturalist is the foundation of agricultural science and agribusiness. However, it is also important that the "whole picture" of modern day agriculture and its many career opportunities is understood.

Four major points that must be expressed to children are:

1. Agriculture is America's largest industry and it will continue to grow as the need for food and fiber grows.

Opposite: Youngster proudly displays his gardening success— a plant he grew as a classroom project. This page: Specialists in 4-H and Youth Development and the Office of Resident Instruction at Clemson University, South Carolina, are teaming to foster interest among young children in agriculture as a career. Planting "seeds for agriculture" in the classroom is one way to stimulate interest in agricultural careers such as horticulture or plant pathology.

2. For every one farmer there are five other people working in agriculture.

3. The future challenges of agriculture will require well-trained, enthusiastic individuals.

4. Agriculture is much more than just farming.

Communicating The Message
Imagination is crucial in career education. Even young children practice career imaging as they respond to the question, "What do you want to be when you grow up?"

In addition, it is important that agricultural sciences be represented as a viable career option for boys and girls, a career just as "traditional" as doctor, lawyer, or teacher. Older students tend to consider the more specific aspects of a career: money, job security, work environment, and other elements.

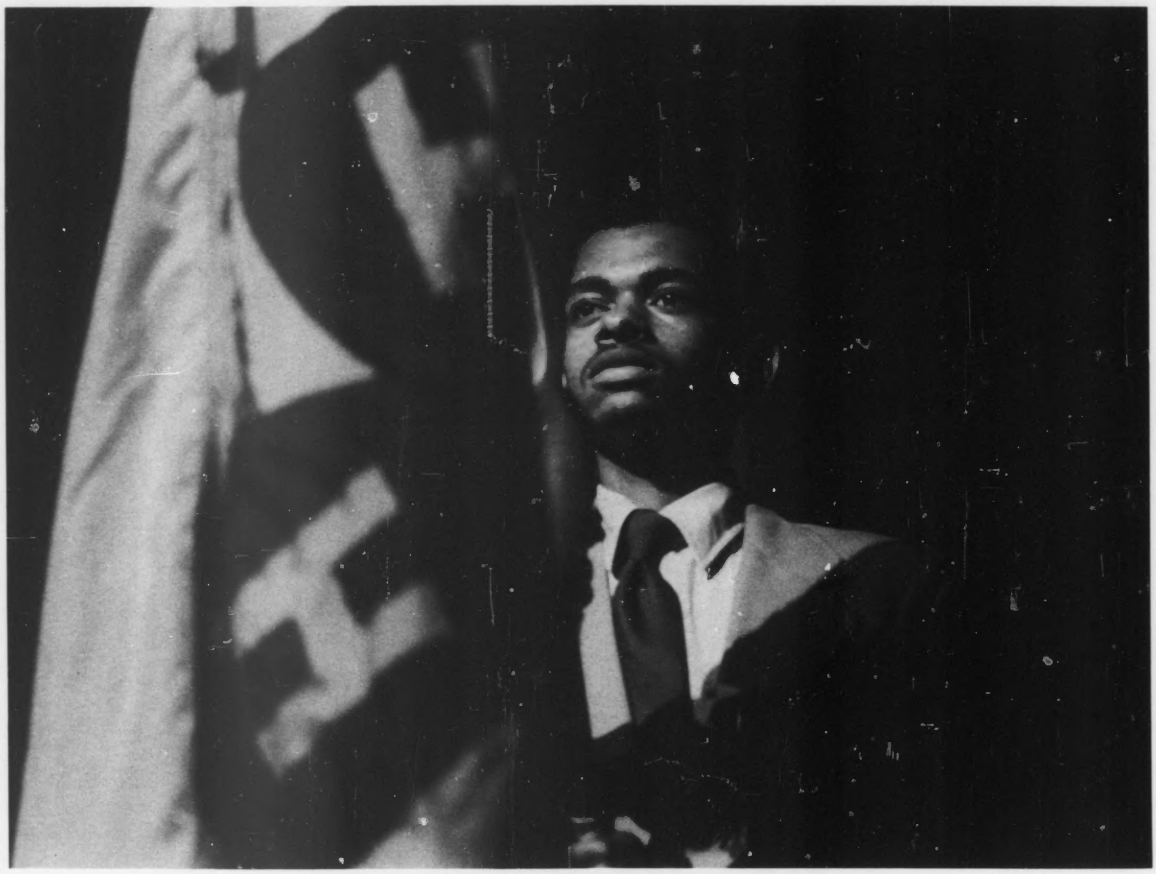
The Medium Of The Message
Today's younger generation wants to be entertained. To communicate the main points of modern day agriculture, one should select a novel and entertaining method. Presentations should employ participation and humor appropriate to the age level being targeted. The goal is to capture a student's mind so he or she can envision an agricultural career.

"Flashing lights, bells, and whistles" is a good description of what catches children's attention. The goal is to catch the eye whether the presentation is interactive video, touch machinery, a computer program, or a puppet show. Regardless of the format, the key principles to remember are to entertain, to capture both attention and imagination, and to plant the seed that "agriculture is more than farming."

We in agriculture have a great deal of direction to offer to young people in relation to a future career and extracurricular interests. Agriculture offers a variety of fields to match the interest of those who wish to work outdoors or indoors; those who prefer to work with either plants or animals or people or machines. Also, young people can begin to explore their careers now through involvement in positive, character-building experiences in such agricultural youth programs as 4-H, FFA, Farm Bureau, Soil Conservation Youth Commissioner Boards, and other related groups.

The collaborative efforts underway between the Office of Resident Instruction and the 4-H and Youth Development Department at Clemson University is an example of how those employed in the agricultural sciences can and should team together not only to promote agriculture but also to foster our truly greatest natural resource—our young people. ▲

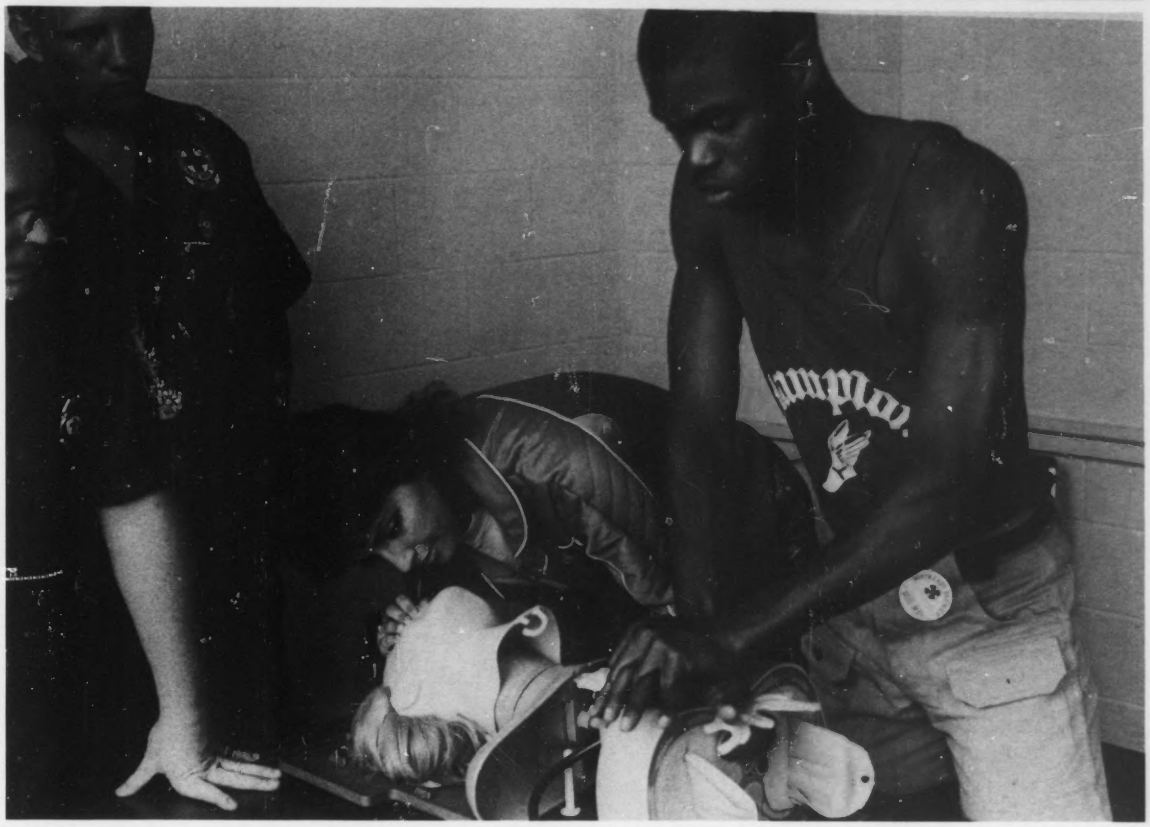
Measuring Self-Esteem



Opposite: Virginia 4-H members develop self-confidence by learning a life-saving skill—CPR (Cardiopulmonary Resuscitation). This page top: Ceremonies at the State 4-H Congress give many members a chance to be part of the honor corps. Below: 4-H'ers confidently discuss their fund-raising project with C. Ned Lester, associate dean of Virginia Cooperative Extension at Virginia Tech.

Penny Risdon
Extension Agent, 4-H Youth,
and
Evangeline Swain
Extension Specialist, 4-H Youth,
State 4-H Office,
Virginia Tech, Blacksburg

Young people in 4-H are just beginning to form impressions of themselves as individuals. The development of self-respect is especially critical at this stage, because 4-H'ers have had limited opportunities to demonstrate their abilities, and even less experience in the self-assessment of their behavior.



Because the development of self-esteem in youth is so important, the Virginia 4-H program conducted a study to assess the relationship between youth's interest in 4-H and the development of their self-esteem.

Dimensions Of Self-Esteem

Several dimensions of self-esteem interact for an overall assessment of how a person "measures up" to his or her own personal standards. These dimensions include: pride in achievements, communication abilities, healthy interpersonal relationships, leadership abilities, regard for personal well-being, and decisionmaking skills.

The study sample consisted of 223 4-H members randomly selected from six county programs across Virginia. The 4-H Interest Inventory included 25 statements that the members were asked to mark with a plus (for "sounds like me") or a zero (for "doesn't sound like me").

The responses were scored on a scale from 0 (very low interest and self-esteem) to 25 (very high interest and self-esteem). When the results were tabulated, they showed a high level of interest and self-esteem among the survey group. The overall mean was 20.35, with a standard deviation of 3.22. Responses were generally high in all areas except in the dimension involving confidence in front of others. The youth showed low interest in speaking or performing before a group; however, 94 percent said they were proud of their accomplishments in this area and 86 percent said these activities had helped them grow and learn.

Implications For 4-H

The response of Virginia youth to the 4-H Interest Inventory indicates that 4-H does help youth develop positive self-esteem by allowing them to "test their wings" in a supportive atmosphere.

The 4-H Interest Inventory could be used to identify youth who need additional encouragement to participate in activities that will promote self-esteem. Or it could indicate activities that would help a group to strengthen specific dimensions of self-esteem. In addition, the 4-H Interest Inventory may help leaders do a better job of serving their members' individual educational needs. ▲

Electrifying Moments: 4-H Amp Camp!

Deborah Stabler
Extension 4-H Specialist, Youth Development, Auburn University, Alabama

A tension resembling that of a primetime TV game show with thousands of dollars at stake coiled like an electric current through the room. "What is the positive electrode of an electron tube called?" asked the quiz master.

"The anode or plate!" a youthful voice sang out. The quiz master announced the answer was correct, good for five points. The team cheered.

"What is the common term for rating thermal insulation?" asked the quiz master.

Several hands in the audience shot up. "R-value!" a girl answered. When she was informed that this answer racked up five more points for her team, another exultant cheer sounded.

These were moments of high excitement at the "Electric Energy Bowl" during Alabama 4-H Amp Camp. 4-H'ers spent 3 days learning the principles of electricity and the impact it has on all of us. The "Electric Energy Bowl" was part of the "learning-while-having-fun" philosophy of Amp Camp.

"Some teams ran up scores of more than 2,000 points," says Tony Cook, Extension science and technology specialist and camp coordinator. "They correctly answered questions 400 times!"

Repeating questions and answers helped 4-H'ers learn the information. They also participated in workshops, tours, and make-it-yourself projects.

Now in its seventh year, 4-H Amp Camp began in 1982 as a form of recognition for 22 4-H'ers who had won their district electric energy demonstration events. In 1985, 4-H Amp Camp was opened to any 4-H'er interested in electric energy, and last summer nearly 200 attended the event at the Alabama 4-H Youth Development Center.

Cooperative Project

The Alabama Cooperative Extension Service and Alabama Power Company, a long-time supporter of the Alabama 4-H electric energy project, cosponsor the camp. At Amp Camp, there's even a mascot—Kilo, the Watts Dog. Kilo is a cartoon dog designed by Alabama Power Company personnel and appears on camp tee-shirts and on other promotional materials.

"Amp Camp is one of our favorite activities," comments Jim Edwards, supervisor of agricultural development for Alabama Power Company and one of the camp founders. "Our professional staff look forward to it every year."

About 20 power company professionals gave 4-H Amp Campers some 18 hours of instruction in concurrent sessions—all adding up to 400 donated volunteer hours. The Alabama Power Company supplemented campers' fees and paid the fees for leaders and junior leaders.

Workshops

Workshop sessions at the Amp Camp included principles of electricity, energy management, electronics, computers, lighting, microwave cooking, refrigeration, and safety measures. All workshops featured models or equipment that the youths could see and touch. The kids had a chance to construct photovoltaic collectors, volt meters, battery-powered motors, and work with transistorized sensors.

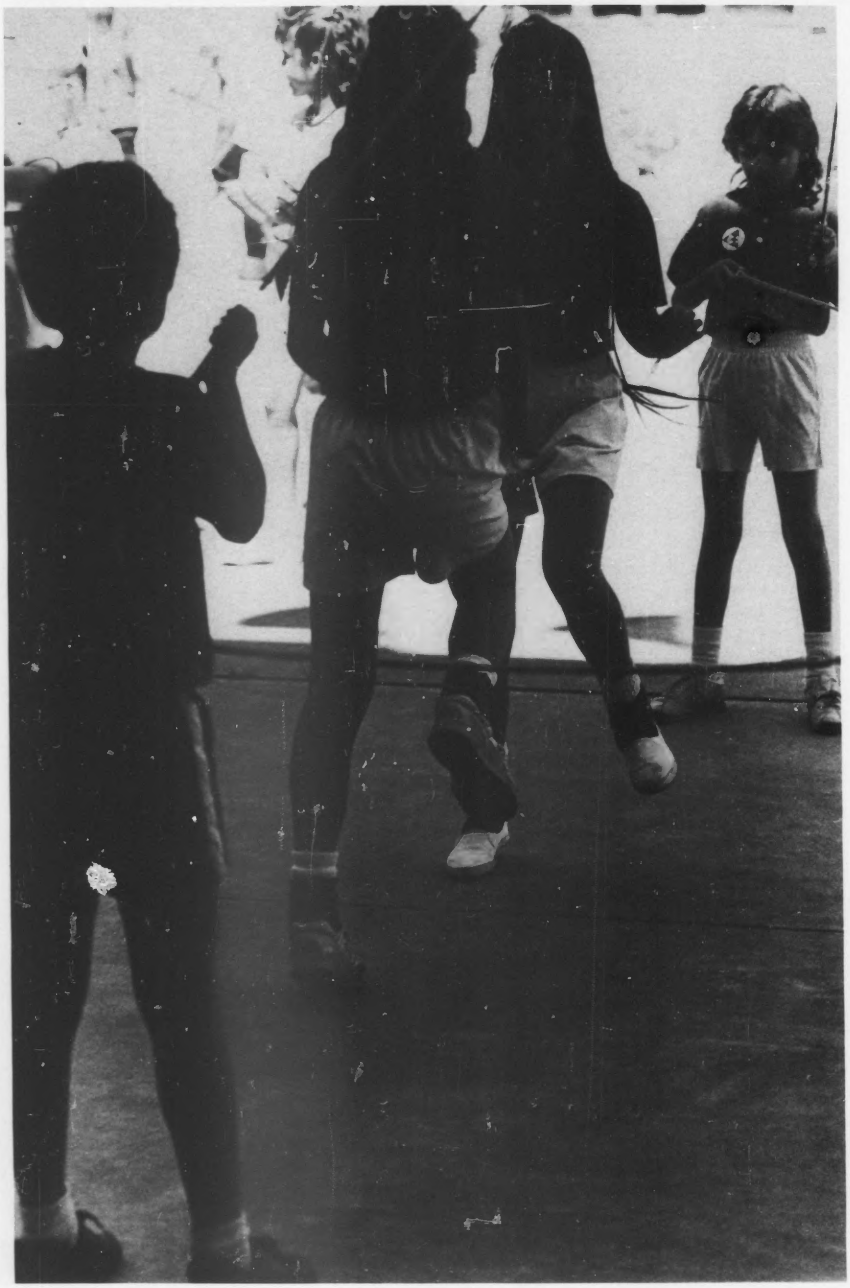
An important feature of 4-H Amp Camp, and one that keeps older youths involved, is the use of junior leaders who have attended camp in previous years and are well versed in electricity. These older youths help with workshops and serve as group leaders to make sure campers find their sessions.

Developing Human Capital

"One of the strengths of Amp Camp is the cooperative effort of Extension specialists, agents, 4-H'ers, and Alabama Power Company managers and engineers," says Tony Cook. "4-H Amp Camp is an excellent way to reach young Alabamians with information in a technical subject. At the same time, young people develop their leadership abilities, are exposed to potential careers, and learn constructive ways to employ their time. It fits very well into our development of human capital initiative." ▲

Opposite top: 4-H Amp Camp coordinator Tony Cook (left), 4-H science and technology specialist, Alabama Cooperative Extension, demonstrates how a lap-top computer can assist 4-H'ers with project and school work. Below: 4-H'ers discover the latest technology about producing energy from the sun in a workshop on photovoltaics. This page: Workshops conducted by Alabama Power Company professionals at the Amp Camp allow youth to try their hand at constructing various electric "gadgets."

An Inner-City Harvest



Julie Camp Adamcin,
Extension 4-H Agent,
and
Mary Dryden
Extension Assistant.
Pima County Extension Office,
Tucson, Arizona

In agricultural terms, youth development in the city of South Tucson has been like a field gone fallow. Each year, youth agencies tried to start organizations, but met with little success. The rocks and weeds were there, in the form of apathy, few resources, and volunteers.

South Tucson is a 1-square-mile incorporated city within the larger city of Tucson. Of its approximately 6,500 residents, three-fourths are either hispanic or native American. The mean household income is $7,625—half that of Tucson. School dropouts, drugs, and crime have been issues of concern.

Youth Coalition

With Arizona's 4-H program as a co-convener, 65 people representing government youth agencies, social service, and education met in January 1986 to discuss ways to improve conditions for the community's young people. The meeting resulted in the formation of the South Tucson Youth Development Coalition.

The coalition formed a task force to study the problems. The next summer, six young people were hired and trained to survey youth, parents, and community leaders about the needs and conditions of South Tucson. The survey revealed concerns about crime, drug abuse, and problems within families. All groups indicated needs for more recreational programs for youth, increased counseling, and help for parents. Coalition members used the survey results as they began making short- and long-range plans.

Taking Action

Some short-term city funding permitted the group to hire a youth development professional

to coordinate some of the activities and to speak to schools on behalf of the coalition. Agencies began working together to sponsor sports teams and organize tournaments. They cooperated in a leadership skills training program for teens and a Youth Expo to acquaint school-age youngsters with the opportunities of each youth agency.

One critical need was to increase the number of volunteers working with youth and to identify and acquire convenient, safe locations for the volunteers to meet. The coalition established three new locations and launched joint recruiting efforts that increased the number of volunteers. Two volunteer recognition programs gave the agencies a special chance to reward their volunteers.

The coalition members are pursuing joint funding possibilities, sharing contacts, coordinating their programs, and meeting monthly to share concerns and learn from each other.

Visible Results

When the coalition began in January 1986, it could identify only five young people involved in the Boy Scout program and 45 who "hung out" at the civic center. As of January 1989, there were four Girl Scout troops with volunteers, two 4-H clubs, and another 100 special-interest 4-H members. Camp Fire works with members at two local schools.

The civic center now has programs that involve nearly 90 young people daily. A local social service center not only permits youth groups to meet at their site, but conducts tutoring and recreation programs that serve 40 youth. Another agency conducts parenting classes and also uses young people as tutors for other students. Testing has shown improved study skills.

The police department notes a decrease in all crimes, but especially in crimes performed by young people. Arrests have dropped from 168 in 1985 to 97 in 1988, a 46-percent decrease.

Opposite and this page: Youngsters from South Tucson, Arizona, perform a rope jumping exhibition in front of the state capitol building. This followed a proclamation that was read in the state house and senate recognizing Extension work that has improved conditions for this community's youth.

Changing To Meet Needs

As notable as the changes in the clientele have been, the coalition probably has been more surprised at the changes within the agencies and the city. Some of the "grassroots" agencies believed that the more traditional, nationally recognized groups were not responsive to the needs of the low-income clientele and would not be willing to change to meet those needs.

Working together, however, the agencies identified problems and took the necessary action to address them. Youth agencies, including 4-H, have added special-interest programs and have employed staff to conduct them. Girl Scouts conducted a 3-week-long day camp in South Tucson especially to help the American Indian program. And 4-H conducted summer workshops at three recreation sites in the area.

The city itself has become more aware of youth needs and has reallocated funds to serve more youth. The city still funds the recreation program at the civic center and also has built recreation facilities at other sites in the community.

4-H continues to take a leadership role in the coalition. The 4-H representatives are finding themselves in new roles as advocates for other agencies and as mentors for agencies just beginning their youth development experiences.

Mutual Enrichment

Prevention programs and those that target youth at risk rely on acceptance by the community they wish to serve. Trust must exist between agencies and clientele. The coalition tilled the land in South Tucson with trust and patience. We can now see the results of that work in memberships and continuity.

As we look back on our 3 years in South Tucson, we can see ourselves enriching the field of youth development there and being enriched ourselves through the mutual support and encouragement of the coalition. ▲

Linking Science And Technology

Opposite: "Mission: Textiles" assists North Carolina 4-H Space Campers to understand textile science and technology...including space suits. This page: North Carolina 4-H Space Camp provides learning opportunities in aerospace, textiles, food, and computer sciences in a resident camp setting.

R. Dale Safrit
Extension 4-H Staff Associate,
School Enrichment Liaison,
and
Thearon T. McKinney
Extension 4-H Specialist,
North Carolina State
University, Raleigh

"Blue Sky Below My Feet—Adventures In Space Technology," a multimedia 4-H program, introduces youth to the world of science and technology. Blue Sky was developed in 1985 through a cooperative effort involving educators and specialists representing the Extension Service of the U.S. Department of Agriculture, State Cooperative Extension Services, the National 4-H Council, the National Aeronautics and Space Administration, and Arthur Young International.

Specifically, the program provides the subject-matter foundation upon which youth build positive experiences in consumerism, career exploration, and problemsolving. As a result, they increase their self-esteem through expanded knowledge and skills for daily living.

The 4-H and Youth Development Program of the North Carolina Agricultural Extension Service adopted Blue Sky in January 1987. Our goal was to use the program's research-based curriculum as the foundation for a statewide space-technology educational 4-H program.

We wanted educational experiences in the three basic Blue Sky subject matter areas: forces, fibers, and foods for 4-H school enrichment, project clubs, and resident camping. The final product would be a comprehensive, research-based science and technology educational program which county 4-H programs could easily use to address locally identified youth needs and issues.

Enriching The Classroom

The North Carolina State Department of Public Instruction audited and revised public school curricula, developing a "detailed, integrated basic course of study for all subjects at all grade levels" which has come to be known as the Competency Based Curriculum, or C.B.C.

Beginning in 1987, "Generation One" of Blue Sky in North Carolina, correlating with the science objectives as outlined by the C.B.C., was made available to sixth-grade teachers to supplement and enrich the classroom learning experience in the areas of space science and technology.

In the summer and fall of 1987, Extension 4-H professionals and master volunteers (such as school administrators, media specialists, and science teachers) were trained at eight regional "launch sessions" to implement the Blue Sky program. Under the leadership of 4-H agents, they coordinated the planning, implementation, and evaluation of the program in sixth-grade classrooms.

During the first year of Blue Sky 4-H school enrichment programming, 25,804 students participated in the classroom educational experience in 50 of the 100 counties in North Carolina—over 32 percent of the total sixth-grade enrollment.

From Classroom To Community

4-H in North Carolina is community based and locally determined. Since the early sixties, emphasis has been placed on volunteer-led community clubs. "Generation Two" in North Carolina was designed to provide lesson plans in forces, foods, and fibers for volunteers who wish to use Blue Sky subject matter in a 4-H community or project club setting.

Currently, 36 "4-H Missions In Space" are being written and piloted as the curriculum basis for such community or project club programming. These lesson plans, developed for use with a 9- to 15-year-old audience, emphasize a hands-on, experiential learning approach to topics ranging from thrust and propulsion to fabric testing. In late 1989, "4-H Missions In Space" will be available in a print package for general statewide distribution.

"Space Camping"

"4-H Missions In Space" has also been designed to serve as a subject matter nucleus for "Generation Three" of Blue Sky in North Carolina. This phase is targeted to provide resident and day camping experiences for youth studying 4-H science and technology curricula.

Since the summer of 1988, North Carolina 4-H Space Camp has provided accelerated learning opportunities for youth between the ages of 9 and 14 in basic and applied areas of aerospace, textiles, food, and computer sciences in a resident camp setting.

Conducted at one of the five state 4-H camp educational facilities, 4-H Space Camp provides such daily "missions" as the exploration of the physics of space flight, the construction of space suits, nutrition for space travelers, and computer simulation of space flight. Special guest speakers and field trips illustrate the core curriculum, and daily opportunities foster team building and leadership development among the campers.

Additionally, several county 4-H programs have used this program to conduct county 4-H space and technology day camps.

Impact Of Blue Sky

"Blue Sky Below My Feet" is having a real impact on the scientific literacy of the youth of North Carolina. From its beginnings, the objective was to take an excellent core curriculum developed by the National 4-H Council and adapt and expand it to meet the needs of the state's youth, public educators, and 4-H agents and volunteers. This was accomplished by packaging the program so it was attractive, accessible, and adaptable for school, club, and camping settings.

We at the state level—"Mission Control"—strongly believe that our success with Blue Sky stems from a conscious effort to plan and produce a totally integrated program package. The program design integrates principles of program promotion and marketing, management/staffing, and evaluation. We look forward to future efforts to expand the self-esteem, life skills, and scientific literacy of North Carolina youth. ▲

Turnaround In Texas

David Morris (left), chair of the Fisher County Economic Development Commission, and Richard Spencer, county agent, admire the internationally marketed "torch art" metal silhouettes of a Fisher County artisan. Through Strategic Community Planning, Texas Agricultural Extension is fostering the economic resurgence of many counties in the state.

Joseph J. Bryant
Extension Communications Specialist,
The Texas A&M University System,
Lubbock, Texas

High in the Texas Panhandle, Randall County crouches in the shadow of metropolitan Amarillo and struggles to maintain its equilibrium as one of the state's stronger farming areas. Almost daily, urban development eats away at pastures and cropland as bustling Interstate 27 whisks travelers rapidly out of reach of local merchants and businesses.

Some 250 miles to the southeast, Fisher County sprawls across U.S. Highway 180 midway between Fort Worth and the New Mexico line. It is one of about 700 U.S. counties that are totally dependent upon agriculture and natural resources. The county's population is dwindling, small family businesses close without being replaced, and industry passes it by.

Another 150 miles south of Fisher, the picture is repeated in Menard County. While much of the state made record growth, Menard saw its population decline by 6 percent, with more than half its 467 households classed as "low-income."

Finding New Life

Using a technique called Strategic Community Planning, and guidance from county agents and specialists of the Texas Agricultural Extension Service, these counties and more than 30 others across the state have achieved grassroots citizen involvement to analyze their community assets and debits; establish short- and long-range goals; set attainable timetables; and provide a framework for coordinated action by enthusiastic community members.

In Randall County, four volunteer task forces of "Randall Pride and Progress" (RP&P) began work last September. Already, the tourism task force has helped obtain colorful billboards on the interterstate highway to proclaim local attractions, developed a walking tour of historic sites, and begun a feasibility study on the need for additional motels.

The agriculture and industry group has promoted pheasant hunting as an "alternate crop" for farmers, coordinated hunting leases, and initiated efforts to attract light industry that can process and add value to local commodities.

The retail trade task force has conducted a customer relations workshop for retail employees and is promoting beautification of shopping areas. The fourth task force is compiling information for a campaign to attract retirees.

"These people are representatives of almost any group you could name within Randall County," notes Sara Wieck, farmer and chair of the RP&P steering committee. "They are all working together for one purpose: to improve the economic conditions in our county. And that hasn't been done before."

The strategic planning process "has brought a needed focus to the issues," says Steve Gamble, vice president of West Texas State University and an RP&P task force member.

Improvement Projects

Fisher County's turnaround began 2 years ago when County Agent Richard Spencer persuaded the Commissioners Court to establish an economic development commission. Under this umbrella, the citizens have conducted a cleanup campaign, attracted several new retail businesses and services, and launched a score of other improvement projects that have united the county's two towns.

The development commission purchased a former nursing home and converted it into a regional retirement complex. It created a team of specialists from state and federal agencies and universities to focus on critical issues in rural health care.

It has launched a crop diversification program, established what is believed to be the Nation's first day-lease bird hunting cooperative, promoted and conducted a successful hunting season capped by a quail cookoff and trap shoot, and established the headquarters for the National Domino Association and conducted a series of sanctioned tournaments.

"At one point, the people felt the county was going to die and they couldn't do anything about it," says David Morris, Roby business leader and development commission chair. "Ultimately, we realize we have our own future in our hands."

Focusing On History

Citizens of Menard County—population 1,670—have capitalized on local history in their initial efforts. A weekend celebration of "Jim Bowie Days" last September drew more than 3,000 visitors. Events included a historical drama, an arts and crafts fair, a black powder shoot, a pony express race, mock gunfights, dances, and a ranch trail ride and cookout.

A Menard task force is purchasing and renovating a historic downtown building to convert into a retail mall, using private donations rather than tax money. One group is promoting retirement living, while another seeks new businesses and provides assistance to existing firms. Another group has recruited a resident physician to work with the local nursing home and in private practice.

County residents were pretty pessimistic about their situation before becoming involved in the strategic community planning effort, says Menard County Agent Sam Kuykendall. "Now," says his coworker, County Agent Kathy Aycock, "there's more a feeling that something can be done. There's more working together instead of everyone doing their own thing."

A Self-Help Program

"For the most part, economic development in smaller Texas communities is a self-help process," says Don Stebbins, Extension community development specialist at College Station. Successful programs in nonmetropolitan areas "rely heavily on local leaders and residents who are willing to volunteer their talent and time to a joint effort," he says. To effectively use volunteer time, it is vital to have good planning procedures, Stebbins stresses. To assist with this, Stebbins prepared a manual that leads Extension personnel and volunteers step-by-step through the processes that involve citizens in identifying, prioritizing, and planning local economic development projects.

The manual was used and distributed at 6-hour training workshops in each of the state's 14 Extension districts last fall. These were attended by 243 county agents and 280 community leaders.

At the community level, the strategic planning procedure requires two public meetings. At the first, the coordinator, using the manual and the slides included with it, explains the purpose and the procedure. Participants are then divided into small groups to list and rank suggestions for improving the community's economy.

Before the second meeting, the coordinator takes the prioritized lists and categorizes them into a logical set of task forces. At the meeting, citizens may modify the task force list and select one with which they wish to work. Each task force selects a chair and sets goals that are feasible, measurable, and have a time limit. Task forces then work on their goals and report frequently to the organization.

"The procedures are very democratic," says Stebbins. "Everyone has an equal opportunity to support projects and an equal voice when setting priorities. ▲

Missouri Celebrates Families

Lucy J. Pearson
Extension Family Relations/Resource Specialist, Clemson University, South Carolina, and former Extension Area Specialist, University of Missouri
and
Glennis M. Couchman
Extension Family Resource Management Specialist, Clemson University, South Carolina

One of the most disturbing factors for today's rural families is the fluctuating agricultural economy. The results are unstable family incomes, disrupted family and community relationships, destruction of a lifestyle, and the ensuing loss of a "sense of place" and pride. Decline in the agricultural economy has resulted in a ripple effect on businesses in rural communities.

Such changes have destroyed the strong sense of community that once existed. A failure to bond with and place trust in communities is a serious issue resulting in wasted and underutilized human capital. "Celebration Of Families," a festive event sponsored by the University of Missouri Extension Service, has helped to reestablish and support the bonds vital to community and family life in northeast Missouri.

Empowerment Strategies
At the core of human capital development are empowerment strategies that strengthen social networks within a community. Empowerment strategies are directed toward helping people gain control of their own lives during economic and social transitions. The empowerment process focuses on helping people achieve a sense of worth and a place in life by recognizing and fostering individual strengths and competencies.

Additionally, empowerment acknowledges and utilizes the wisdom of life experiences, which reestablishes connection between generations. To achieve successful career transitions and cope with disrupted income levels, people must maintain a sense of dignity and self-worth.

Community Coalition
Missouri's "Celebration Of Families" demonstrated the use of empowerment strategies. The program centered on the concept that communities have the capacity to organize and develop effective support systems. The event renewed emphasis on the value of interdependence for strong families and communities.

The program facilitator, Extension Area Specialist Lucy Pearson, collaborated with a multitude of community groups to form a rural community coalition. Federal funds provided staff positions from the Department of Mental Health to serve as Rural Community Service Coordinators. They used the Extension offices as their base for reaching rural families.

An interdisciplinary Extension team consisted of area specialists representing community resource development, agriculture, home economics, and 4-H, as well as the Rural Community Service Coordinators. The community support coalition included area churches, mental health centers, Farm Bureau, public schools, utility companies, and farm credit lenders.

The Extension team and the community coalition demonstrated a willingness to accept diverse solutions to strengthen the human resources of individual dignity and self-worth. The "Celebration Of Families" was a proactive approach for revitalizing rural communities.

Keys To The Program
This first-time event was a salute to rural families with roots in northeast Missouri. "Celebration Of Families" provided "food for thought," as well as for body and soul, as neighbors gathered to share informative workshops, storytelling, cooperative games, and a soup supper.

The "Celebration Of Families" was publicized in area newspapers and on television and radio stations. Brochures were distributed through ministerial alliances and school systems in several counties. Contacts were made with NECAC (North East Community Action Coalition, a community service organization for low-income families) who helped distribute brochures and encouraged participation.

The event was strategically planned for an "off-season" time period in the rural area. "We hoped this would be a time for families to have an afternoon outing, to learn, and to share being together," states Nathan Larson, rural community service coordinator with University of Missouri Extension.

"The positive response and large turnout of folks was beyond our wildest dreams! I think our ideas for 'Celebration Of Families' struck a deep responsive chord in the rural counties of northeast Missouri," he comments.

The "Celebration Of Families" took place at a county high school on a Sunday afternoon from 1 to 5—a time that worked well for the more than 175 people who attended. Activities were planned to include the whole family in fun, informative workshops, and a free country supper prepared by Extension Homemakers. 4-H Club members provided child care for infants.

Program Options

During the 3 hours of "programmed time," the following options were offered:

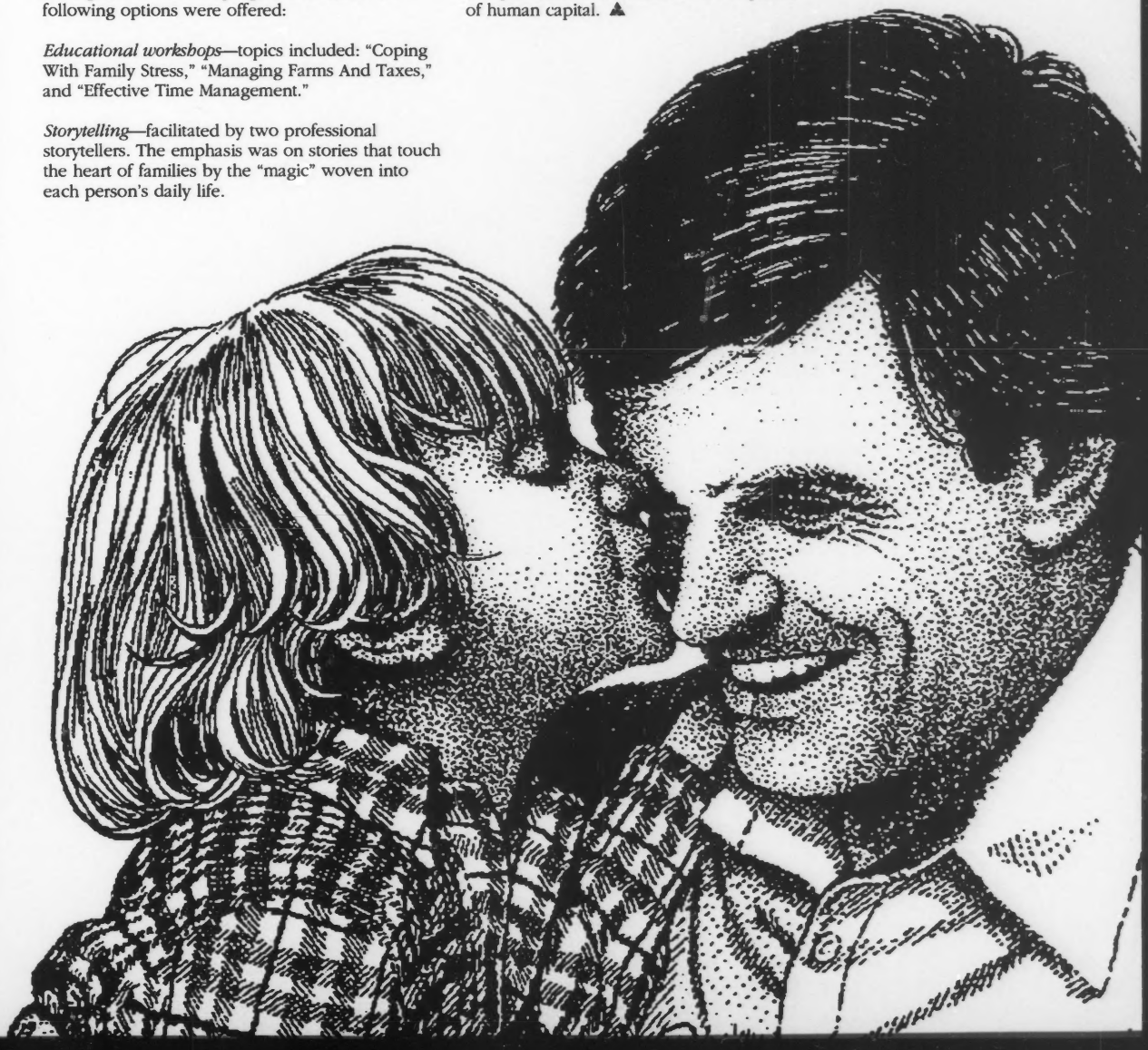
Educational workshops—topics included: "Coping With Family Stress," "Managing Farms And Taxes," and "Effective Time Management."

Storytelling—facilitated by two professional storytellers. The emphasis was on stories that touch the heart of families by the "magic" woven into each person's daily life.

Cooperative games—the "new games" approach, which promotes intergenerational sharing. Grandparents, toddlers, and teens shared energy and laughs as they played together.

The "Celebration Of Families" ended with a free "stone soup" supper with homemade cornbread, cookies, and apples. The idea for the supper was based on the theme from the old Russian folktale, "Stone Soup," which emphasized cooperation and sharing among rural people.

The concept of "Celebration of Families" embodied a positive and upbeat emphasis that communicated strengths of rural families. The synergism of strong families and communities is a dynamic force that provides a solid basis for development of human capital. ▲



Mastering The Master Volunteer Concept

Linda Flowers McCutcheon
Associate State Leader,
Extension Home Economics,
North Carolina State
University, Raleigh

In today's high-tech society, the Extension Service and its volunteers provide a human, personalized approach in the transmission of practical education and information to the public.

For years the North Carolina Agricultural Extension Service has sought to build human capital by making volunteers more visible and creating innovative ways to recognize their contributions. Volunteers need indepth training, and assignments tailored for their interests and skills. The master volunteer concept was a natural way for the home economics program in North Carolina to meet these requirements.

The master volunteer program has two key aspects: (1) it provides indepth training in a specific program area for volunteers with interest and experience in that area, and (2) in return, it asks them to share their expertise with others. This concept has been a winning combination in North Carolina.

Four master volunteer programs are being implemented in the state. They include: Master Volunteer in Food Preservation, Master Money Manager, Master Volunteer in Yarn Skills, and Master Parenting.

Program Design

The master volunteer program in North Carolina requires a set number of hours for training (usually 20 to 25 hours), with volunteers to return an equal number of hours of service. Approximately 95 percent of the volunteers graduate and complete the requirements for the program. The concept is based on establishing a nucleus of well-trained volunteers, usually 6 to 12 per county, rather than training all who are interested. They may then address a more general audience.

The specialists and county agents feel that the program is successful because it is highly structured, it clearly defines areas that volunteers are to address, and it sets definite boundaries within which the volunteers are to operate.

Volunteer Commitment
Volunteer commitment to the program and their sense of "ownership" of the program are also primary factors in its success. Volunteers are required to have a contract and must provide documentation to show progress at various stages.

Applicants are screened carefully to ensure that their goals are compatible with Extension's goals and that they fully understand the program and are willing to make the commitment. Volunteers need to identify with the program and the results and impact, not merely assist the home economics agent.

When volunteers are asked what they value most about the program, the two most frequent responses are, "I like my friends and neighbors describing me as the authority in a certain area," and "I like gaining knowledge and learning how to share that knowledge with others."

Production of a highly trained and proficient volunteer requires an Extension investment of personnel, time, energy, and resources. Most of this investment of resources is required at the beginning of the training period, but periodic updates are also necessary. Once a volunteer has completed the program requirements, a "domino effect" takes place, greatly enhancing Extension's outreach efforts.

As with any educational program, the master volunteer program can be greatly enhanced with adequate financial support. In North Carolina a master volunteer proposal was presented to the State Extension Homemakers Association, who agreed to provide seed money for the first program.

Since then, other support from industries and business has been obtained both statewide and at the local level. A successful method of obtaining program support has been through requests for scholarships for participants. Other programs have charged a registration fee to cover such items as instructional materials and demonstration supplies.

To be successful, a master volunteer program must be highly visible in all aspects. Volunteers have responded positively to formal graduation ceremonies that have included local decisionmakers and power brokers; they have also responded to mass media "blitzes" and the presentation of pins, certificates, and permanent nametags.

Program Results
More than 600 volunteers have successfully completed the requirements for the master volunteer program and have reported more than 25,000 documented returned volunteer hours. Nearly 60 percent of North Carolina counties have participated in one or more of the master volunteer programs. About one-fourth of the participants are from nontraditional audiences, including men and women who work outside the home and who use vacation time to complete their training.

The activities of these master volunteers have included one-on-one consultation and instruction; telephone conferences; classroom instruction, both formal and informal; radio and television appearances and presentations; and preparing and manning exhibits at fairs, field days, farmers' markets, and malls. Agents have been amazed at the creative ways that volunteers have found to return their committed hours.

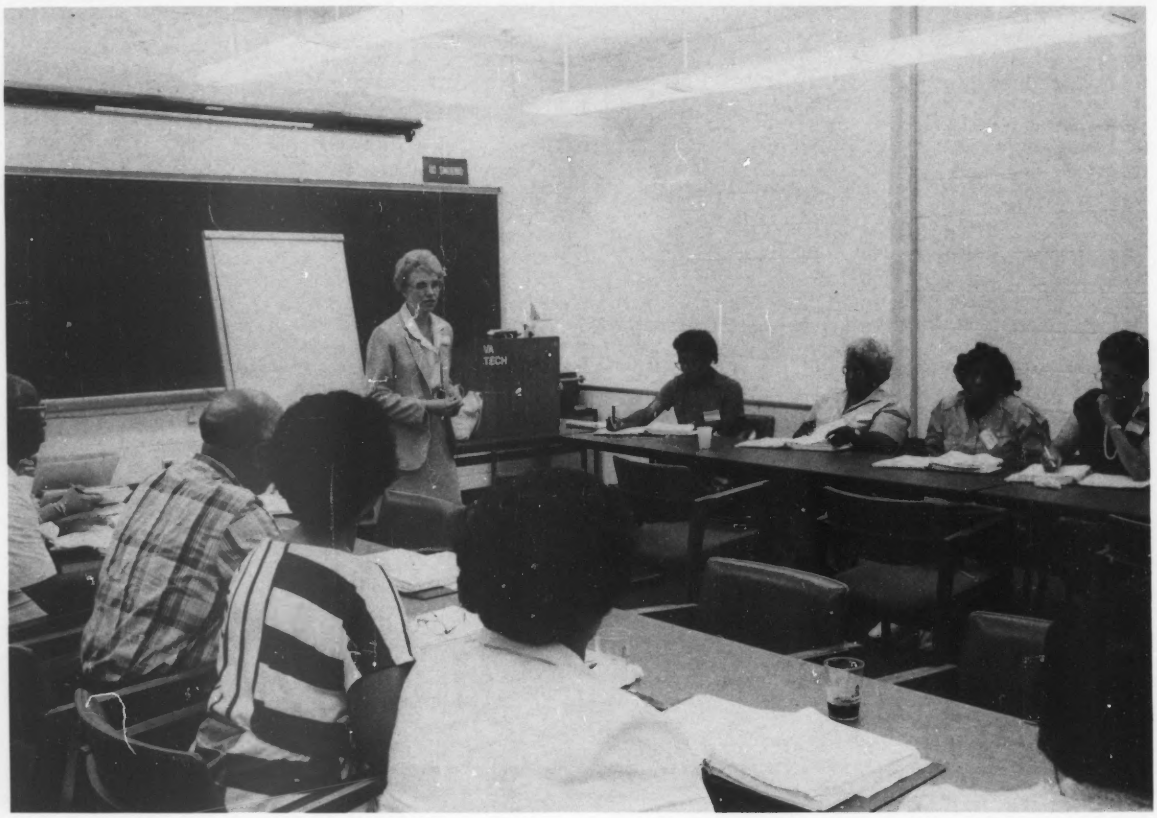
Recommendations
To be successful, a master volunteer program should be highly structured and well defined. These factors help to build a high level of confidence between the agent and the volunteer. Committed, knowledgeable volunteers are essential to the success of the program. A "masters" program requires a substantial investment from the Extension Service; however, if administered properly, it will be an asset to all involved.

Acquiring funds from some source outside of Extension, in combination with regular operating budgets and in-kind services, is essential. A variety of sources should be explored.

Rewards and recognition greatly enhance the "masters" program. Program results should be assessed and programs marketed by agents and volunteers. As the Extension Service continues to stress results, accountability, and impact, it will find that the well-trained volunteer offers a most viable option for extending outreach efforts. ▲

A handicapped volunteer tends the half-acre Master Gardener demonstration garden plot in Marysville, Washington. Currently, four master volunteer programs are being implemented in North Carolina in the subject areas of food preservation, money management, yarn skills, and parenting.

Building Minority Leaders!



Opposite: In a workshop for black community leaders, June Stanislas, trainer, (top right), helps participants process information about "Long-range Planning." This page: Jane Asche of the Center For Volunteer Development at Virginia Tech assists trainers with tips on "How To Have Good Meetings."

Jane P. Janey
Extension Specialist, Volunteerism, and
Oscar M. Williams
Extension Associate Director,
Center For Volunteer Development,
Virginia Tech, Blacksburg

"Where are the minority leaders?" Four years ago, this question was asked often by Extension staff members of the Center For Volunteer Development at Virginia Tech when they conducted leadership development workshops across the state. Staff members were puzzled—few attended the workshops even after they were wel! publicized in communities with large black populations. How could this situation be changed?

The staff decided to offer a series of leadership workshops targeted specifically for black community leaders. Local Extension agents helped identify core leaders and provided planning support.

Leaders were requested to do the following: determine the critical topics to be discussed; find a suitable location and set the time; establish fees for lunches and breaks; delineate the program role of leader(s), if any; and assume responsibility for recruiting participants.

Leadership Workshops

Twenty-seven workshops, each reflecting concerns identified by local planning groups, were held in 18 months. An overwhelming majority of the workshops focused on leadership (definitions, styles, and concepts); leadership qualities and leader roles; board-staff relationships; membership development; effective committee work; and parliamentary procedure.

The two-day workshops provided 12 or more contact hours for more than 1,250 black leaders from 52 counties and cities. Of this number, 1,025 received certificates for attending all the workshop sessions. The black leaders represented 57 branches of the NAACP, 420 churches, 87 lodges, and 150 civic and fraternal organizations.

Beginnings

Early in 1987, personnel at the Center for Volunteer Development realized that their time and resources were not sufficient to meet demands for minority-targeted workshops. They decided that selected black leaders would have to be trained in the workshop roles currently served by Extension agents, state specialists, and other resource people.

In July of that year, Extension agents selected 102 leaders who had completed the local workshops to come to Virginia Tech for intensive leadership training. Each person selected had to commit to work with at least six volunteer groups during the next year. The program was made possible by a $50,000 grant from the W. K. Kellogg Foundation.

Conducting the major workshops during the three-day program were such nationally known leadership development trainers as Violet M. Malone, Extension director of staff training and development, University of Illinois, and William R. Conrad, Center For Creative Management, Downer's Grove, Illinois. Staff at the Center For Volunteer Development and other Virginia Tech faculty assisted with the small group work.

The programs focused on concepts and qualities of voluntary leaders; methods of working with small groups; techniques and essentials for good meetings; functions of boards and board members; consulting techniques; long-range planning; and parliamentary procedures.

Increased Competency

At the end of the three-day program, data from participant questionnaires and focus group interviews revealed that a significant number perceived changes in leadership competency as a result of instruction. Participants expressed their appreciation for the workshop with a voluntary and unanimous decision to send the W. K. Kellogg Foundation a framed testimonial signed by each of them.

Center staff tracked progress that trained leaders made toward their commitment through reports they mailed to the Center and through informal networks.

In the summer of 1988, the black leaders were invited back to campus for additional training in public speaking, workshop planning, attitude/self-confidence building, and informal presentation methods. The 77 leaders who attended left with materials they could use as trainers—a book on how to write and make speeches; a training notebook; a lapel name-badge; and 500 business cards identifying the person as a trainer.

Fifty-nine of the 77 leaders said in a post-training questionnaire that they had positive feelings about being called trainers. They perceived an increased competency in each of the training topics as well as

heightened self-esteem. In addition, they indicated they had increased their willingness to serve on local boards, councils, and committees.

In November 1988, telephone interviews conducted with 55 of the minority leaders revealed that they had conducted 82 workshops with an average of 47 participants per workshop. They had made 93 speeches or special presentations that were hosted by 87 different groups before an audience of 5,115. They estimated that through their workshops and presentations they had helped 425 different organizations and reached 9,788 people.

One leader says the special training "has made the black community more aware of problems in voluntary organizations and to admit that organizations have to change."

Another says the special training "helped black leaders get the kind of knowledge they needed to serve on boards and councils."

Still another comments that the training "benefited the larger community because of the positive effect on the black community."

Through this program, staff members of the Center For Volunteer Development assisted in finding the grassroots minority leaders in Virginia and helped them make positive contributions to organizations in their communities. This benefits not only those communities with large minority populations, but all residents of the state. ▲

The Eager Beavers

Judy Rude
Extension Writer/Editor,
Extension Service, USDA

Our lives are expanded by people and by our feelings for others. Today, there is a need for youth to gain a realistic understanding about the mentally and physically handicapped citizens in our society.

William L. Nelson, Conway County agriculture agent, and 4-H Extension agent, Arkansas, was asked by a representative of the Conway County Center for Exceptional Children in Morrilton to give a monthly presentation to their mentally and physically handicappped youth.

Nelson was faced with a tight schedule. He had to find a solution or disappoint everyone. Nelson came up with an idea: to have his 4-H'ers establish and maintain a 4-H club at the Center. This program would allow 4-H'ers to gain self-esteem, poise, and many other personal and social traits. Nelson felt that volunteers should conduct the program. He proceeded to ask his 4-H clubs for volunteers to take his place at the monthly presentation. Thus began the "Eager Beavers 4-H Club."

Volunteers Begin Program

The first group of volunteers set the tone for the whole program and forged a unique relationship between the county 4-H program and the Center. Twelve senior and ten junior members of Conway County 4-H volunteered their time and services to work with the Eager Beavers. The activities chosen for the programs they conducted were primarily crafts such as Valentine Day cards, Easter baskets, and hand puppets.

Other program ideas involved the Eager Beavers Club in 4-H recordbooks, the county fair, county 4-H O'Rama activities, and a garden project.

4-H recordbooks—In 1988, the Eager Beavers Club turned in the highest percentage of recordbooks in the county. They had 20 craft and 2 photography books. Trophies were presented to all the 4-H'ers during the Annual Achievement Award Banquet, part of their National 4-H Promotion Week activity.

County fair—Each county 4-H club has an educational booth at the fair. At the 1988 county fair the Eager Beavers' fair booth won a blue ribbon. During the

Opposite: 4-H'ers at the Jerusalem 4-H Club in Arkansas create Valentine Day cards at the School For Exceptional Children. This page: 4-H'ers (left to right) Michelle Clairday, Stacy Bradley, and Renee Nicholson demonstrate to students how to make Christmas crafts at the Exceptional School.

fair, the county 4-H program operated the 4-H Kiddie Barn where students from the Special 4-H Club toured the barn and were allowed to pet the animals.

County 4-H O'Rama activities—The category of "exceptional" was added to all 4-H competitive activities, for example the talent contest, method demonstrations, clothing, and the bread and egg preparations. This category allowed those who wanted to participate the opportunity to do so. Ribbons, trophies, and certificates were presented to the Eager Beavers 4-H Club members for every activity in which they participated.

Garden project—Each Eager Beaver member started a tomato plant from seed. This project showed the students how to plant seeds and how to identify their different growth stages. Each student can pick a tomato from their plant at harvest time. Local businesses and organizations donate the garden site, seeds, tools, and fertilizer.

Community 4-H'ers and leaders play an important role in this highly visible project. Media coverage is provided throughout the project by the local newspaper and radio station.

Nelson found that the garden project had an additional benefit: when local residents phoned the county office with questions, for example, on plant diseases like tomato blight, he found he could use the club's garden to allow them to visually examine a diseased plant while he recommended treatment.

"Not everyone can deal with handicapped individuals," Nelson explains. "That's the main reason this program is voluntary."

He does not expect every one of his clubs or members to participate. However, the members who do volunteer, he points out, find the experience to be both positive and rewarding. "I've noticed," he says, "that the 4-H volunteers anxiously await their next visit."

This article was written from materials submitted by: *William L. Nelson, County 4-H Agent, Conway County, and Jo Ann Craig, 4-H Secretary, Conway County, Arkansas.* ▲

Getting The CareerSmarts

Meredith Renfrow
Extension 4-H CareerSmarts Coordinator,
and
Eddie Locklear
Extension 4-H Specialist,
North Carolina State University, Raleigh

The youth in school today are the entrepreneurs and employees of the future. They will determine national productivity, competitiveness, and quality of life. Business and industry officials already are expressing concerns about the work ethics, work habits, employability, and apathy of its teen employees.

Young people themselves say they need help; in fact, they have been saying so for more than a decade. In the early 1970's, a national American College Testing Study of the career development needs of 32,000 8th, 9th, and llth graders revealed that 84 percent of the llth graders could see a guidance counselor whenever they wanted, but 78 percent still wanted more help making career plans.

A second study by that institution in 1984 indicated that more than 70 percent of young people continue to say they want more help. A 1980 study by the National Center for Educational Statistics, which surveyed 58,000 sophomores and seniors, found that nearly three-fourths felt schools should emphasize vocational programs more and two-thirds felt they lacked practical experience.

A study by Luther Otto, head of the North Carolina State University (NCSU) Department of Sociology, followed the progress of nearly 7,000 young men and women for more than 10 years—from high school to age 30. Two-thirds of the participants cited difficulty in establishing careers and lack of career preparation as one of the biggest problems they faced.

4-H Can Help

As a nonformal education organization, 4-H is in a position to have a positive impact on youth self-awareness and on general career awareness. 4-H also impacts on the developing of responsibility, cooperation, and following directions.

The job is too big for the school system to tackle alone. 4-H needs to do its part in meeting the needs of the young people and the communities it serves.

Program Phases
One program already being piloted in North Carolina seeks to meet the needs of young people who are preparing to enter the work world. "CareerSmarts" is set up in three phases.

Phase 1 is based on the CareerSmarts curriculum, a set of 10 pre-employment discussion and activity booklets that help young people prepare to enter and maintain employment. The curriculum provides learning experiences that will help young people identify their career objectives, explain to them their career preparation options, teach them job-seeking skills, and help them develop work attitudes favorable to successful employment.

This phase is being delivered in one of three ways:

• *School enrichment in a traditional pre-vocation classroom*—Materials are taught during regular class time. Teachers have been trained by 4-H personnel on the use of the materials and the program design.

• *School enrichment in alternative school settings*—Materials are taught by school teachers in a pre-vocation classroom, but the students are high-risk youth who have not been successful in traditional schools. Instructors trained on the program design and implementation.

• *4-H project clubs*—Youth are recruited by 4-H volunteers to join a CareerSmarts project club. The club determines its own meeting schedule and activities. Volunteers have been trained on curriculum content and program implementation.

When students and club members have completed all the CareerSmarts manuals, they will be given the opportunity to enter the next phase of the program to examine their career options further.

Phase 2 is a 1-week intensive session conducted in the summer. Approximately 25 students in each pilot county are selected to participate. They will examine the nine occupational groups identified in CareerSmarts with their lifetime goals in mind.

They will begin by exploring economic principles and decisionmaking and by developing a tentative personal career exploration plan. Days 2, 3, and 4 of the week will be spent touring businesses representative of the nine occupational groups. Each participant will visit six sites, where they will receive company reports, hear about the organization of the company and career opportunities available, and tour the facility.

Phase 3 will be a mentoring relationship between Phase 2 participants and practitioners in fields in which they have indicated an interest. A planning session on the final day of the summer program will help set expectations for what mentor and protégé will do and learn during the minimum 16 hours of time spent together.

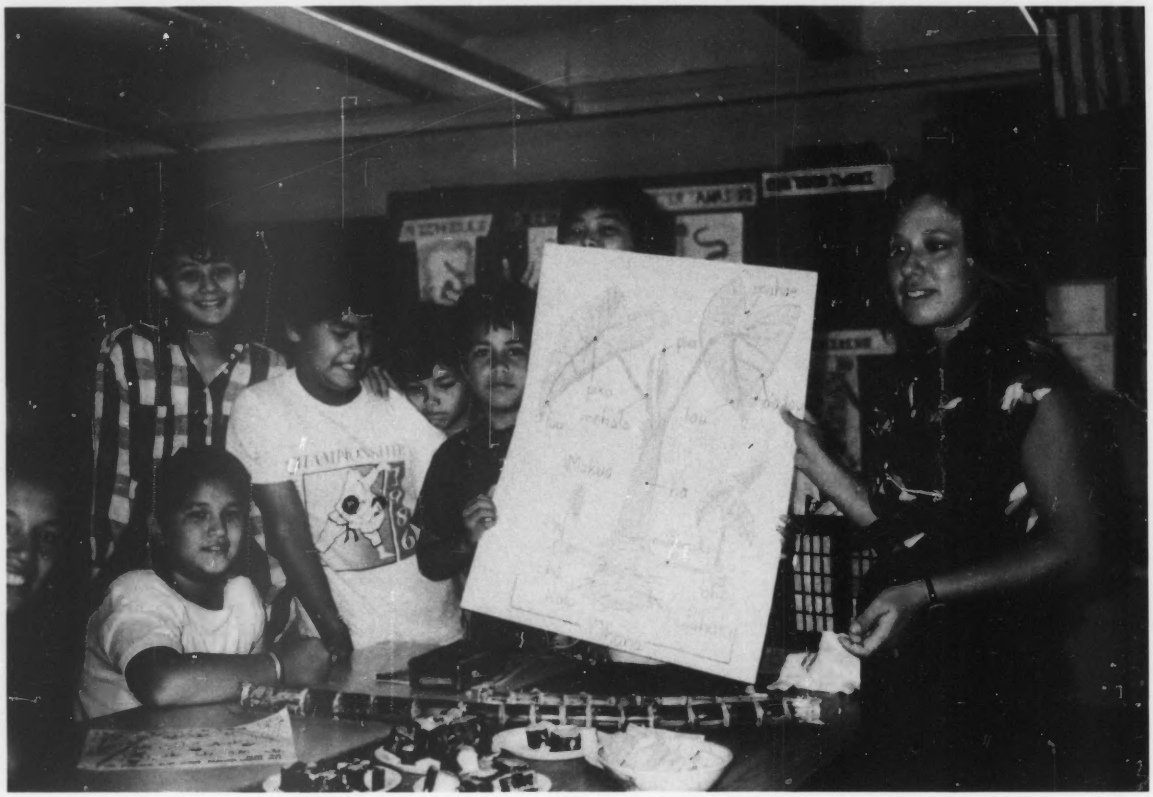
Protégés should meet periodically over the course of this phase, and a great deal of followup will be conducted by the county CareerSmarts coordinator to ensure that mentoring relationships stay positive. This phase will conclude with recognition for both mentors and participants.

Careful Evaluation
The North Carolina 4-H CareerSmarts program is being evaluated carefully. All school enrichment students and project club members will complete a pre/post skills checklist that indicates how much they feel they have improved their career preparation skills. Some of the students using the CareerSmarts materials will be tested for knowledge gained. Research results from Phase 1 are expected in July 1989.

Participants will evaluate both the format and content of Phase 2. During Phase 3, protégés will be asked to keep a journal that records what they have learned and their feelings about the meetings. Mentors will be asked to comment on program design and its value to themselves and to the young participants. ▲

Opposite: North Carolina youth review an activity booklet while taking part in the 4-H "CareerSmarts" program. This page: Youth in "CareerSmarts" program refines his computer skills. The program seeks to develop work competencies so that young people will be better prepared to enter the workplace.

Better Nutrition In The Islands



Opposite: Homemaker Mabel Vergara (left) and Expanded Food And Nutrition Education Program (EFNEP) Paraprofessional Rosella Powers flank Rep. Pat Saiki, (Hawaii), during their trip to Washington, D.C., to receive national recognition for their EFNEP program achievements. This page: Laurie Apiki, EFNEP program assistant on Oahu, pilot-tests a nutrition education lesson involving Hawaiian foods and Hawaiian history in an interdisciplinary approach to cultural values.

June V. Gibson
Information Specialist,
Agricultural Publication And Information Office,
College Of Tropical Agriculture And Human Resources,
University Of Hawaii At Manoa,
Honolulu

Quietly, but effectively, a nutrition education program has gone beyond its original mandate and become a force for developing of human potential in the 50th state. This force is, of course, The Expanded Food and Nutrition Education Program (EFNEP). This grassroots effort is based in the University of Hawaii at Manoa's College of Tropical Agriculture and Human Resources (CTAHR). Nationally, the program is celebrating its 20th year.

EFNEP paraprofessionals work with CTAHR's Extension home economists to teach by doing, not just basic nutrition, but food storage, meal planning, budgeting, and purchasing. By all available measurements, the program is working; the bonus is that two of its participants have recently been selected for national recognition.

In Fall 1988, Mabel Vergara, EFNEP homemaker, and Rosella Powers, EFNEP paraprofessional, both of Hawaii, were selected for national recognition for their work in EFNEP—out of only 21 chosen nationwide. Vergara, gained enough knowledge of food and nutrition in EFNEP to pass the examination to receive a home care license. She plans to return to school to earn a degree in nursing. Powers, who only became an American citizen in 1967, went on to work effectively in EFNEP with Hawaiian families from a wide range of cultural and ethnic backgrounds. She enrolled and graduated more families in EFNEP in Hawaii than any other paraprofessional in the past 5 years.

In EFNEP, one success, often small, builds on another. EFNEP clients feel better mentally as well as physically. They frequently lose weight when they cut down on junk food so they look better as well. And because they are well nourished, their children accomplish more in school. The widening circle of positive results supports the feeling of competence.

Careful Training

The program bases its success on CTAHR's careful training of program aides and its continuous inservice one-on-one assistance. This prevents "burnout" and fosters the team spirit and the sense of competence that characterizes EFNEP paraprofessionals. Often, they are similar in educational level, income, and ethnicity to those they serve. Often, they have met and mastered personal hardship, even crises; this helps them be a steadying force for clients who are contending with a host of family problems. They are good role models.

In Hawaii, resources can be committed to searching out long-term solutions to nutritional problems in a minicultural "living-laboratory" setting. But problems in nutrition do exist in paradise. Approximately 40,000 Hawaii residents suffer from malnutrition.

EFNEP in Hawaii is a grass-roots program that has recruited its participants door to door when necessary in socially isolated neighborhoods. Nutritional concepts are taught by preparing economical dishes that reflect the culture of the Island's ethnic groups. The educational materials, which employ local words and phrases, feature people who look uniquely "island" in clothing and appearance.

The success of this approach is borne out by what some participants say about their EFNEP experience:

"When I used to shop I'd pick up anything just because I felt like it. Sometimes I would run out of money to buy food. Now that I've learned how to budget, and watch what I buy, I find that buying things on sale saves me a lot of money."

"I used to tire during the day and sleep and I kept gaining weight. That depressed me. Now that I have a balanced diet, I have more energy. I'm losing weight, and I feel real good about myself."

As EFNEP celebrates its 20th anniversary, its achievements are a strong testimony not only to its mission but also to its development of human capital. ▲

Advisory Councils—Human Capital Investments

Volunteers for the Annual Conference Committee—representing an array of counties—gather before a meeting of the New Jersey Extension Home Economics Council planned for October 1989 at Rutgers University, New Brunswick, New Jersey. They are (left to right): Eleanor Hendersbot, Warren County; Pamela Sikkes, state council vice president, Warren County; Grey Schwarz, Burlington County; Mary Murphy, state council treasurer, Somerset County; Anita DeSena, Middlesex County; Joy Ricker, state council president, Sussex County; and Doris Reeves, Cumberland County.

Beatrice M. May
Extension Chair,
Department of Home Economics,
Rutgers University,
New Brunswick, New Jersey

During 1989, Cooperative Extension marks its 75th anniversary—its diamond jubilee. This milestone event prompts the thought that diamonds and advisory councils have some common qualities.

As diamonds come in different sizes, shapes, and colors, advisory councils with their volunteer members come in different sizes, structures, and colors. In some states, home economics councils are made up of representatives of Homemaker Clubs. In states without Homemaker Clubs, members may represent communities or counties.

Formative Influences
While being formed, both councils and diamonds are affected by natural forces and the environment. In contrast to other states, New Jersey's Extension environment has never contained homemaker clubs. There is evidence, however, that volunteer leaders and advisory groups have been utilized since the early days of Extension.

State Council
In 1953, shortly after coming to New Jersey as state leader of home economics, Elizabeth Graddy organized the New Jersey Extension Home Economics Advisory Council. Advisory councils existed in most of the counties and included trained teaching leaders and other interested persons.

Each county council named representatives to the state council's executive board, and all county council members automatically became members of the state council. The newly organized state council then joined the National Extension Homemakers Council.

The state council organized leadership institutes, established a scholarship fund, held annual conferences with invited speakers and workshops, and sent delegates to annual NEHC meetings.

Although the the New Jersey Council voted to withdraw from membership in NEHC in 1973, the New Jersey Extension Home Economics Council and the county councils continue to function. The structure of the state council is more streamlined now. Each county chooses two representatives and two alternates to the state council, with each representative having a vote.

Polishing Skills
The learning and practicing of leadership and communications skills are like the polishing a diamond or other precious gem undergoes.

A committee of state council members and Extension home economists is planning a fall conference to launch statewide programming on the issues of fitness and health, aging, the feminization of poverty, and children at risk. In previous years, joint committees have planned conferences on "Shaping The Future," "How To Influence Public Decisions," and "Starting And Managing Home-Based Businesses."

Members of the New Jersey Extension Home Economics Council are partners with volunteers from 4-H, agriculture, and Extension faculty on a Leadership Task Force. Leadership development will be a statewide program focus that Cooperative Extension will address using a multidisciplinary approach.

The task force wrote a proposal to the Kellogg Foundation for funds to begin a Family Community Leadership project. The State Home Economics Council will be the sponsoring group.

Reaching Out
Two representatives of the state council are part of New Jersey's delegation to the Lay Leaders' Conference in Washington each March.

County councils are continuing the scholarship projects originally begun by the state council 30 years ago. Supported by council-run fundraising projects, several scholarships are earmarked to help mature women update or gain skills in preparation for their return to work.

Impacts Of People
People with varying kinds and degrees of skills shape councils, as they do diamonds. A diamond cutter's experience affects the resulting radiance and brilliance of a gem. Likewise, members, officers, and Extension staff have had an impact on the nature and effectiveness of the state council in New Jersey.

The development of advisory councils in New Jersey represents a profitable investment in human capital. A diamond's value frequently is enhanced by placing it in a new setting. Similarly, the value of advisory councils appreciates as they acquire new members, move in new directions, and support Cooperative Extension in addressing new issues. ▲

Free To Face The Future

The Oklahoma Community Youth Effort (OCYE) helps young people develop leadership skills and deal with "real" community problems. Addressing other teens on the issue of drinking and driving are the OCYE team (left to right) from Tulsa County: Darcy Nave, Ricky Testerman, and Andi Peters.

Joseph A. Weber
Extension Human Development Specialist,
and
Sheila Forbes
Extension 4-H Program Specialist,
and
Sandra Gilliland
Graduate Assistant,
Oklahoma State University,
Stillwater

Many of the dilemmas young people face are a direct result of their inability to make logical, rational decisions. Adolescents are reluctant to heed the advice of adults, but the decisions they make on their own are often not in their best interest.

This is what the Oklahoma Community Youth Effort (OCYE) is all about—training youth in good decisionmaking skills. OCYE provides youth experiential learning opportunities as they deal with "real" community problems.

A Community Program

OCYE is based on the idea that teens learn more about themselves and gain a greater degree of personal maturity and responsibility when they apply newly learned skills and knowledge to real-life situations.

The objectives of OCYE include helping teens to: develop leadership skills; provide service to others and the community; believe in themselves and make the most of their potential; value a healthy mind and body; become self-sufficient, productive members of society; understand the problems facing them and their communities; encourage one another to make positive choices; and develop solutions to problems that affect daily lives.

Regardless of the issues youth choose, the OCYE program encourages them to follow seven basic steps for organizing a project:

1. *Determine needs*—List the needs and problems in the community. Get community input by asking the opinions of parents, local officials, service and civic club leaders, other youth groups, local media representatives, 4-H leaders, teachers, ministers, and law enforcement officials.

2. *Choose a project*—Select a project that is interesting and that can be completed in a reasonable amount of time. Try to pick a project that will succeed.

3. *Get approval*—Before proceeding, check with a 4-H leader or adult advisor to see if any type of permission or permit is needed. Check with city officials and police or other law enforcement people if the project will draw a crowd, involves streets or highways, or involves any unusual activity. If necessary, ask permission of landowners or business people.

4. *Check resources*—Be aware of what resources are available and how to get support for a project. Make a list of available resources within the club and community.

5. *Develop a plan*—Set goals and determine a plan of action. Outline the steps to carry out the project, and decide who will do what. Develop a timetable with starting and completion dates for all activities. Determine specific resource needs and costs of the materials. If possible, work with other groups within the community.

6. *Implement the plan*—Carry out the plan with total group involvement. Remember to let others know about the plan. Keep track of what happens by taking notes and pictures and keeping all records needed to evaluate the team's successes and failures. Stop, look, and listen occasionally to see if changes are needed.

7. *Evaluate*—Discuss how well goals were reached, what was learned from the activity, and what should be done differently next time. Publicize accomplishments in the local newspaper.

Youth Make A Difference

Teens across Oklahoma have become part of the OCYE program. A group in Tulsa County, for example, surveyed other teens and adults and decided to address the issue of drinking and driving. This team, composed of three members and an adult advisor, receives support from the Tulsa business community.

After hours of library work and contacts with law enforcement agencies, they developed a 15-minute skit, which has been presented at schools, civic organizations, and several 4-H functions.

Extension 4-H staff have incorporated the OCYE materials in a school setting.

The Oklahoma Community Youth Effort is providing youth with an opportunity to learn more about themselves and to assume significant community leadership roles while addressing many youth-at-risk issues. OCYE youth are developing life skills so that they and their peers can be "free to face the future." ▲

Youth As Advocates

William L. Peterson
Assistant Director, 4-H/ Youth Programs,
State 4-H Office,
Colorado State University, Fort Collins
and
Stephen Mullen
National 4-H Program Leader, Extension Service, USDA

Our Nation's most valuable resource is its human capital. How do we maintain this value resource? One way is by involving our youth in community problems through leadership.

Effective leadership programs can strengthen youth self-concept and self-esteem. Teaching youth leadership expands resources available to communities. Youth serving in local volunteer and leadership roles can apply and practice leadership skills.

To show communities, and present youth with models to serve as community advocates, the Extension Service's National Initiative on Building Human Capital and Colorado State University developed, "Youth Serving As Advocates For Youth."

This project presents four nationally known model programs for youth involvement in their communities based on their level of development: "DARE To Be You" develops interpersonal skills; "Project LEAD" develops leadership styles and behaviors; "Is Anyone Listening?" provides a "process skills" approach to identify community needs which youth can fulfill; and "Citizen Advocacy" provides participants with an awareness of how to bring about community change.

These four models will serve as the teaching curricula for Extension teams of youth and adults who participate in the 5-day training workshops.

First Workshop

This July 6 through 10th, Colorado State University Cooperative Extension, 4-H, and Extension Service's National Initiative on Building Human Capital conducted their first "Youth Serving As Advocates For Youth" National Invitational Workshop in Denver, Colorado.

Youth and volunteers from around the country met to receive rigorous training in citizen advocacy. The 144 participants, including 81 youth and 63 adults, experimented with the four model programs and plotted strategies to tackle projects in their hometowns.

Participants from 17 states and 12 Colorado counties made commitments to put their training to work. They will make presentations about the needs of youth to their county councils and commissions. They will initiate 4-H-sponsored programs for youth at risk and establish networks with other groups addressing the needs of youth. Several states will produce teen conferences, involve more teens as community leaders, and produce newsletters for youth to increase communication.

Team Commitments

The California team plans to create a County Youth Commission. The Texas contingent will develop a Teen Hotline and implement the DARE Program with teen mothers. The Washington team plans to establish a teen coalition in housing complexes. Members from Minnesota will take the DARE training to the Native American community. A Colorado team will launch "Teens Teaching Children" in their county. Another will introduce the DARE program in the local school system.

These team commitments to community action reflect the strength and validity of the conference. On a scale from one to six, participants gave the four model workshops average ratings of 5.2 to 5.5. Tom Brown, 4-H agent, Larimer County, Colorado, commented, "In my 35 years of association with 4-H, this 'Youth Serving As Advocates For Youth' Conference stands out as the most dynamic and challenging I have ever attended."

The second Invitational Workshop is scheduled for March 1 through 5, 1990, in Atlanta, Georgia. Sponsors will be the Southern Rural Development Center, southern region state Extension and 4-H offices, and the Extension Service's National Initiative on Building Human Capital. Within 2 years, it is expected that 25 to 30 states will become involved in one of the four model programs. ▲

Career Exploration For An Enhanced Tomorrow

For this youth, an interest in animal science may result in a future career as a veterinarian. Extension 4-H specialists at the Self-Directed Career Exploration Center, University of Illinois, are guiding youth through the many facets of youth career preparation.

Robert F. Long
Former Extension Specialist, Youth Development, University of Illinois, Urbana-Champaign

Participation in 4-H has a wide range of effects on young people. In addition to its "main effect," each 4-H experience also provides what might be called "side effects." 4-H exposes youth to experiences that have a positive influence on their knowledge and skills in citizenship, communications, leadership, and career education, to mention just a few.

The 4-H organization uses many special approaches to enhance these effects for participants. It is not necessary to look far to find many examples of successful programs that highlight these valuable "side effects."

Focusing on Careers
A group of Illinois 4-H professionals have created a special approach to increase the career education "side effects" for 4-H'ers. The identification of "facilitating career preparation and transition" as an issue within Extension's "Building Human Capital" initiative has provided further encouragement for program development in youth career preparation.

Just being involved in a 4-H education program exposes youth to many potential career alternatives. Because youth may not discover these career aspects on their own, Illinois is focusing on ways to enhance career exploration in 4-H programs.

Career Exploration Center
A primary result of this focus has been the development of the "Self-Directed Career Exploration Center." The foundation of the Center is a curriculum notebook designed to help in the development of resources upon which to build and support a 4-H career education program. The Center is organized into educational activities that support the career education process, including programs on self-awareness, decisionmaking, career exploration, and job search skills.

Through participation in the activities of the Center, youth have the opportunity to: engage in personal career development, increase awareness of related community resources, have access to a resource for small-group educational activities, and have a visual reference that can enhance the impact and development of individual career plans.

Building A Program
The materials in the Center provide a chance to build a stronger 4-H career education program. Each educational activity may be developed as a program by itself or as a part of a program that contains several or all of the activities in the Center.

The activities are titled: "How You Learn," "Know Your Alternatives After High School," "What You Can Do With College," "So You Want To Go to College," "Marketing Your Skills Into Profit," "Putting Your Best Foot Forward," "Making the Best First Impression," and "Job Shadowing for Career Exploration."

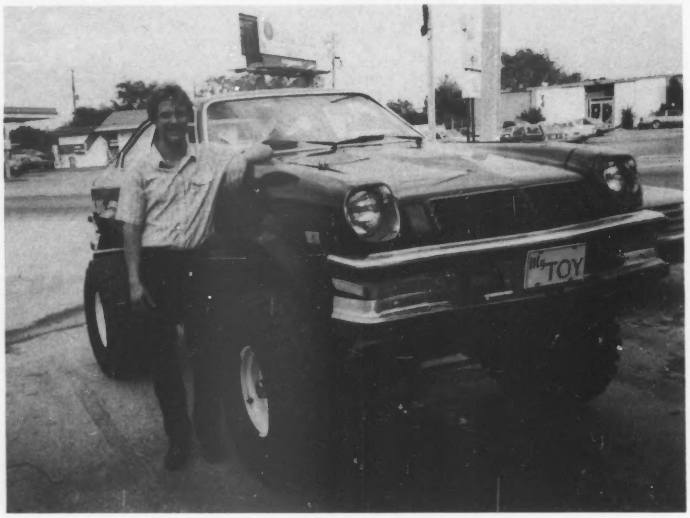
Everything is fair game for the users of the Center in developing career education programs. The materials were prepared to fit local situations and needs. Altering the activities and support materials is an important step in the developmental process.

The Center's activities can be arranged in any order, and program planners should give careful consideration to the sequence in which they are presented. For example, the Job Shadow program could be the final step in the process. It presents one approach to organizing practical on-the-job experiences to help participants explore career opportunities.

A Cooperative Effort
The Center was developed with a grant from the Illinois State Board of Education and pilot tested in local 4-H programs in cooperation with high school counselors. This program development process demonstrates a good approach to sharing resources and illustrates common philosophies regarding hands-on learning in career education. The opportunity to cooperate with the school system shows the extent to which local resources can be brought together in program development.

This is just one of many program approaches for expanding the career education value of 4-H. The important thing to remember is that with just a little special emphasis, one of the "side effects" of 4-H can become one of the "main effects" that may influence a lifetime! ▲

Teenager Builds His Dream



Michael Shaw of Florida, one of a dozen 4-H'ers selected nationally to receive a 1988 Presidential Award, displays his award-winning 4-wheel-drive car-truck he calls "Wild Thang." Shaw, a dyslexic teenager, credits 4-H with opening new horizons and changing his life.

Charles T. Woods, Jr.
Extension Science Writer and Associate Professor, Editorial Department, Institute of Food And Agricultural Sciences, University of Florida, Gainesville

A learning disability and a broken home didn't stop Michael Shaw from building his dream and helping others. The 19-year-old Florida 4-H'er recently earned top national 4-H honors for the courage to fight his handicap and the vision to build a car-truck called the "Wild Thang."

Shaw was one of a dozen 4-H'ers chosen nationally to receive the 1988 Presidential Tray, awarded for achievement, community involvement, and outstanding personal traits.

Along with the silver tray, Shaw received a $1,000 college scholarship from Reader's Digest Foundation. Earlier in the year, he earned a $1,000 scholarship from Amoco Foundation for his work in the petroleum power program.

Helping Others
While developing an impressive array of automotive skills in 4-H, he has helped other less fortunate kids in his neighborhood get off drugs and alcohol. He encouraged a group of runaways to join his 4-H club, the West Orange Winners, or WOW for short.

"We always hang out at a local fast-food restaurant," Shaw says. "A few weeks ago I noticed some kids living out back in the woods in tents. I talked to them and found out they were runaways. I told them how 4-H had helped me and got them to start coming to our club meetings."

Positive Outlook
Shaw, who has overcome the shyness and lack of self-esteem his learning disability caused, said he owes a lot to 4-H because it's helped him focus attention on achievements and develop a positive outlook on life.

"Ever since I can remember, my grandfather has worked on welding 18-wheel trucks and other heavy equipment," he comments. "That's how I became interested in automotive things. I started working with him when I was 5, and knew how to use welding equipment by the time I was 8.

"We worked on diesel trucks, cutting frames to lengthen them, removing axles, building sleepers on cabs, and all kinds of stuff," he adds. "But some kids poked fun at me because of my dirty clothes and greasy fingernails. They thought I wasn't good enough for them, and that's when my aunt got me involved in 4-H.

The Dream Begins
"One day I was with my mom at a convenience store and a 4-wheel drive vehicle pulled into the parking lot. As soon as I saw it, I knew what my own vehicle would be. Since everyone else had 4-wheel-drive trucks, I wanted something different—a 4-wheel-drive car," he explains.

He began mowing lawns, painting houses, and doing other odd jobs to save money to begin building his dream vehicle. Trips to various central Florida junk yards yielded needed parts—a $50 frame, a 1974 Chevrolet Vega GT body for $100, and a "free" 345-cubic-inch International dump truck engine.

"Two years later I finally got it on the road as a legal vehicle, and it ran great. Then in 1988 I took it to the Florida 4-H Congress and won in the state competition. This paved the way for my trip to the National 4-H Congress in Chicago, where I got the Presidential Award," he says.

Planning For The Future
Shaw's good work and hopes for the future didn't end with his national award. He plans to use the scholarships to attend a trade school.

Shaw expressed gratitude to Terry Floyd, the Orange County 4-H Extension agent who gave him the necessary encouragement to realize his full potential. "Terry has really helped me get my life together. He's been like a second father," Shaw concludes.

Hope And Direction
Susanne Fisher, assistant dean with the University of Florida's Institute of Food and Agricultural Sciences and chair of the Florida 4-H program, says that "instead of being part of the problem, Shaw has become a resource in his community and an inspiration for others. ▲

People Make The Difference!

Lois R. Bassett
Member, Extension Homemaker Council, and Consultant, W.K. Kellogg Foundation, Federal way, Washington
and
James C. Barron
Extension Economist, and Consultant, W. K. Kellogg Foundation, Washington State University Pullman

Learning new skills, personal growth, getting involved, and making a difference are all traits of participants in the Family Community Leadership (FCL) program. Developing leaders for involvement in communities is an important and badly needed component of human capital development for a wide range of people. The FCL program is a relatively new addition to the potential programs available through the Cooperative Extension System.

First developed from 1981 to 1986 in six Western states with W. K. Kellogg Foundation support (*Extension Review*, Winter 1987), it has spread rapidly to nearly all other states and Guam in the last two years.

FCL has the goal of developing leadership skills primarily (but not exclusively) for women to enable them to become actively involved in public policy issues of concern to families and communities.

The program, jointly sponsored by Cooperative Extension and Extension Homemaker Councils, has resulted in new and positive relationships between partner organizations. Working together, they have identified emerging leaders and prepared community members for active, effective roles in organizations and involvement in political processes. The following illustrates how FCL has been implemented in several states:

North Dakota—"Kid Power—I Am Somebody—I Can Make A Difference" were the themes for a program using FCL materials to enhance young people's self-esteem and to show that they had the power within themselves to improve family relationships and communications. The audience was 56 kindergarten through eighth grade children in a rural school south of Hettinger. The Adams County FCL training team presented the program developed by Carolyn Van Wyk.

The presentation was well received and information on the program has been requested by two nearby schools. The FCL team was pleased with the success they experienced in using FCL materials and techniques with younger audiences.

West Virginia—Preparing older youth for their future civic responsibilities is an important component of building human capital. It was important to residents of Preston County, West Virginia. After surveying about 500 high school students, an Extension Homemakers citizenship committee found that only 10 out of 410 eligible voters were registered. Due to budget constraints the county clerk's office could not do the registration but did agree to help the committee register students if they provided an educational program on voting rights and responsibilities.

The FCL team presented a program to seniors in five high schools on topics including: "Why Vote?"; "Responsibilities Of Voters;" and "Advantages Of Voting For The Citizen." Meanwhile, the county clerk trained and deputized 22 Extension Homemakers on voter registration procedures. The deputies followed the FCL team into each school and registered 345 of 395 eligible students.

A follow-up survey disclosed that 300 of the students voted in the spring primary election. Sixty-one percent of these students attributed their voting to the FCL education and registration program.

The students were contacted again in the fall and 241 reported that they had voted in the general election. It is not known how many others had left the county. Success of the program has led to the invitation from two of the high schools for FCL to present the training again this spring.

North Carolina—Recognizing the importance of adequate funding to provide educational programs for developing leaders, North Carolina FCL emphasizes resource development. Success is measured by the fact they have raised $56,615 for FCL through their programs at community, county, district and state levels. In addition, North Carolina General Assembly has approved an appropriation of $50,000 from the state General Fund for FCL.

Idaho—James Kissell, postmaster, and Renae Samples, a rural mail carrier from Burley, attended an FCL Institute to learn skills they could apply in the work setting. Kissell's interest in helping postal employees advance on the job led to a two-way workshop in leadership and communication skills for 24 rural mail carriers in a 5 county area.

One result has been requests for similar workshops in the spring. In addition, Samples and Kissell taught a workshop on organizational skills to local postal employees.

Human capital development is not only a goal but a reality in FCL programs across the United States and in Guam. Citizens have gained leadership skills that have enabled them to make a significant difference in their communities. The program is still young, but early results demonstrate the program is a success and that the partnership between Cooperative Extension and Extension Homemakers is a definite force for positive change in families and communities.

The following FCL coordinators contributed to this article: *Mary Lee Wood, Idaho; Linda McCutcheon, North Carolina; Ron Anderson, North Dakota; and Shirley Eagan, West Virginia.* ▲

Learn And Earn

Extension 4-H Agent, William Clark (standing), Baltimore City, Maryland, consults Maryland 4-H Learn And Earn Workshop participants on their "Clovergram Company" which netted the youths $56.

William A. Clark
Extension 4-H Agent,
Baltimore City, Maryland

Baltimore City's 4-H members are striving to develop relevant 4-H programs that foster youth self-esteem. The organization's Learn And Earn Program provides an opportunity for inner-city youth to explore the world of business as they learn how to apply basic business management skills to their 4-H project work.

This entrepreneurial 4-H project is open to all 4-H club members but is designed and targeted at youth ages 12 to 18 years. The goal of the program is youth economic empowerment. Program objectives are to enhance the youths' emotional, mental, and social development; to help teens learn organizational and business related skills; and to make youth aware of a variety of career options.

The program enhances self-worth and self-esteem through the use of local and minority business persons who serve as project consultants, advisors, and role models for participants.

Concerted efforts are currently being made to expand the program to reach youth residing in high minority populated neighborhoods. Targeted are those from single parent households; those who reside in public housing; and those who receive public assistance, and are unemployed.

To Fight Economic Instability

The Learn And Earn Program is designed to address the problems that contribute to the economic instability of targeted youth. Specifically, these six problems areas are: 1.-lack of motivation to achieve; 2.-low self-esteem; 3.-lack of job skills and knowledge; 4.-limited knowledge of entrepreneurship as a career option; 5.-lack of awareness of minority businesses and business owners; and 6.-lack of savings and recordkeeping skills.

For the past three years, 4-H members have turned their 4-H Club dish garden projects into a profit-making venture. Sales have been directed, primarily, toward such special occasions as Mother's Day and Secretary's Day.

When asked during a Channel 13-WJZ "Money Team" TV show interview, "What do you like about the Learn And Earn Project?" Calvin Coates, age 16, replied, "Making money!"

The Baltimore City Youth Business Cooperative, a city-wide youth entrepreneur development 4-H Club, sponsored by the Brantley group, offered an eight-week summer course whose focus was business skills. Fifteen teens, enrolled in the City's Blue Chip In Program, developed both business and leadership skills by taking the course. These junior leaders will, in turn, assist adult volunteer leaders to recruit and enroll potential 4-H Learn And Earn Club members in their communities.

Robert Brantley, 4-H Club leader, taught his club members how to develop computerized business plans as part of their class activities. "It is extremely important that our young people realize that owning and operating their own businesses is a legitimate career option," he says. "This business minded attitude must be reinforced in the home, school, church, and other community institutions."

Funding

The Learn And Earn Program has been funded, in part, through a $12,000 Associated Black Charities "Youth Economic Empowerment" grant. Funds are being used primarily for leader and member education, assistantships, and general program support, with, most importantly, a $5000 revolving loan fund for 4-H business development.

In support of this grant, the Cooperative Extension Service of the University of Maryland also awarded Baltimore City's 4-H program a $16,000 "Expansion" grant to employ a program assistant for the Learn And Earn Program.

With lots of hard work and perseverance, Brantley points out, 1989 should prove to be "an exciting time for developing a new generation of entrepreneurs in Baltimore City!"

Extracted from an article by William A. Clark in News And Views, *January 1989, a monthly publication of the National Association of 4-H Agents.* ▲

TRY—
Learning Program In North Carolina

Judy M. Groff
and
Thearon T. McKinney
Extension 4-H Specialists,
North Carolina State University,
Raleigh

4-H TRY—Teens Reaching Youth—is an issue-based program developed in North Carolina where those involved become both "learners" and "teachers." TRY was one of twelve national models for the 4-H Volunteers For The Future Grant. Funded by the W. K. Kellogg Foundation in 1986, TRY has been replicated successfully by five other states and found to be applicable with diverse populations and within varied institutional frameworks.

"Teens who implement TRY lessons probably profit most," says Sigrid Hice, TRY coach and 4-H volunteer leader, Catawba County, North Carolina. "Not only do the teens learn subject matter, they also learn about keeping commitments, responsibility, communication, and themselves. TRY helps narrow the generation gap between youths and adults."

Goals And Objectives
The goals of TRY are to improve self-esteem and to make teens feel like contributing members of their community. The TRY program objectives are for teens to be able to: (1) teach youth ages 6 to 11; (2) develop and test curriculum guides; and (3) teach teens to teach 4-H curriculum.

Through these goals and objectives, all four of the sub-issues within Extension's National Initiative "Building Human Capital" are addressed. The idea of preparing youth for responsibility while coaching and supporting them during actual program delivery best summarizes the program's impact.

Core Principles
The TRY program design employs three core principles: life skills, service learning, and peer programming.

Life skills—Four broad life skills, though not inclusive, provide a core content for the personal and group competencies. These core life skills are: communicating, decisionmaking, working in groups, and understanding one's self.

Service learning—Mentoring networks are designed to ensure immediate support for new skill development. Coaching becomes everyone's job. Coaches affirm existing skills and accomplishments.

Peer programming—This implies that teams are most productive when their members are peers who share a level of personal development and skill.

The above core principles are integrated into the TRY program design in the following manner. TRY teams (two teens and at least one adult coach) participate together in TRY training. The TRY curriculum has six major components: team building, designing learning, marketing, coaching, curriculum practicum, and team planning. Approximately 12 hours of instruction are included in an informal retreat design. Team members and coaches assess their existing skills and have the opportunity to discuss new skills that TRY will help develop.

Each team also conducts a curriculum practicum—the choice of subject matter a TRY team choses to teach is usually of interest to all members of the team. Possibilities range from self-esteem to money management.

Contract Agreement
At the end of TRY training, the TRY team develops a "team agreement," a written contract signed by team members and the team coach. The team agreement specifies delivering a minimum of 6 hours of subject matter to youths ages 6 to 11. The TRY teams can select any audience they wish to teach during a 6 month timeframe.

Impacts of TRY
In one urban county in North Carolina, TRY programs are underway in three pilot locations and involve over 200 youths. The subjects being taught are spelling, reading, writing, and singing. TRY programs in another group of counties in northeastern North Carolina are teaching teens, pre-teens, and adults about alcohol and drug prevention. This program is called, "Caution: Adults Under Construction."

In Tyrrell County, the county director reports that teen retention has jumped 25 percent since TRY began 2 years ago. Teens, she points out, are now serving in a wide range of leadership roles very effectively. Many have become community club leaders for clubs whose members range in ages from 6 to 8.

This past year, reports from 12 counties in the state indicate that 128 teens have reached over 2,200 members who are younger than they. As of this writing, the TRY program is operating in approximately 75 of the 100 counties in North Carolina.

Participation in TRY and enthusiasm for its concepts have surpassed expectations. In 1987, 256 teenagers participating in TRY reached 4,000 members. In 1988, 520 teenagers participating in TRY reached 10,000 members.

In counties where TRY started in 1987, 4-H agents report that teens are assuming a large share of the overall volunteer leadership responsibility. They are giving leadership to clubs, planning and conducting county events and activities, staffing day camps and after-school special interest programs, and serving as 4-H Ambassadors with other groups throughout the country. ▲

Food And Ag Science: 4-H Focus

Judith E. Wormal
Extension Project Director,
The University of Wyoming,
Laramie

What do microscopes, computers, eggs, onion skins, and food labels have in common? These items are all part of a new adventure in Wyoming 4-H. They are used in the hands-on activities for "Introducing Food and Agriculture Science and Technology Applications Into the 4-H Curriculum."

These exciting new 4-H lessons are part of a project funded by the U.S. Department of Agriculture to provide 4-H members greater exposure to food and agriculture science and related educational and career opportunities; produce new, innovative model project ideas in food and agriculture science and technology; add a focus on the science aspect of 4-H food and agriculture projects to the traditional food preparation and agricultural production aspects; and develop and test educational aids and strategies designed to help young people develop an interest in science.

Instead of establishing a 4-H science curriculum, Wyoming 4-H has chosen to provide this series of pilot lessons to be incorporated into current 4-H projects. The lessons are being prepared for use with 4-H members who are at the junior high school level.

Lesson Content
Topics of the pilot lessons for the foods and nutrition projects include: the purpose and use of food additives, the concept of emulsifiers, food packaging technology, a diet analysis by computer to check the nutrients in a day's food intake (including suggested additions to meet the USDA Dietary Guidelines).

Topics for 4-H agriculture members include the concept that every living thing is made of cells, the important components of cells, an introduction to genes and chromosomes and what they do, genetic probability, and a computer activity to help understand inherited traits.

Each lesson is a self-contained unit introducing one idea and presuming no subject-matter knowledge on the part of the leader. Each lesson package contains: an information package on the lesson topic, a complete list of supplies and/or equipment needed by the leader, a complete lesson plan for presenting the information and activities, one or more hands-on activities to illustrate or reinforce the concept, a "Going Further" section with ideas for additional activities for members who want to learn more about a particular topic, and a "Careers" section telling what a professional in the field might do, what education is needed, and what high school classes are important as a background.

Some lessons present a controversial topic such as the importance of using food additives or the positive and negative aspects of genetic engineering. Group leaders will handle these topics in accordance with the interests and maturity level of the members of the group.

Project Development
This project began when a committee of Wyoming people met to assess the interest in the topic and to determine the most important areas that were not being covered. A survey of Wyoming 4-H leaders, youth, and high school science teachers identified other areas of science that could be included. Then a national committee was assembled for more specific input into the procedure and methods to be used.

Two teams of writers were selected, one for foods and nutrition projects and one for animal science projects. Each team has a county staff person from the Cooperative Extension Service, a University of Wyoming faculty member, and a Wyoming high school teacher. Each team developed a plan for their area and wrote several lessons. The lessons were evaluated by Bill Gleason, a specialist in curriculum development from the Wisconsin 4-H staff, and were revised in accordance with his suggestions.

Pilot Testing
The program will be tested in five Wyoming counties—Campbell, Park, Lincoln, Laramie, and Natrona. 4-H agents in these counties have selected clubs with junior high age, science-oriented members and with leaders willing to become involved. The leaders will attend a leader training session.

The package will include a pretest and posttest in both foods and nutrition and animal science and an evaluation for both the leaders and the members. The lessons will be reviewed by the writing committees and the consultant during the pilot testing. After the Wyoming test, they will be piloted in a limited number of other states. In October 1989 the results will be presented at a national meeting in Washington.

Project coordinators are W. Dee Whitmire, Wyoming state 4-H leader, and Joseph Kunsman, dean of resident instruction, University of Wyoming. Project director is Judith E. Wormal. ▲

Roots In Space

Edward L. Frickey
Extension Specialist, 4-H Youth,
Purdue University,
West Lafayette, Indiana

In May 1988, astronaut Lt. Colonel Jerry Ross and his wife, both former members of 4-H in Indiana, contacted the state 4-H office at Purdue University. They wanted to know how they could show their support in appreciation for the many ways the Indiana program had helped them.

Lt. Colonel Ross and the state 4-H specialists agreed he would carry tree seeds aboard the next flight of the Atlantis space shuttle. Once the seeds returned to earth, members of Purdue's Forestry Department would plant them. Each Indiana County would receive a year-old-seedling to plant representing "4-H Roots In Space." The seeds selected were of the Sycamore tree and Indiana's state tree, the yellow poplar. To commemorate his 4-H experience, Colonel Ross also intended to carry a 4-H flag on his December 2, 1988 space flight. Certificates of authenticity would accompany each of the trees and would be exhibited with the flag when they were delivered to the counties.

Back From Space
On January 13, 1989, after a successful space flight, Lt. Colonel Ross returned the seeds and flag to the university. Forestry Department personnel planted the seeds with hopes of sending tree saplings to county offices in April 1990. During this summer's 4-H Round-up, 4-H'ers had an opportunity to see the flag whose permanent home will be at the State 4-H Office. Plans were under way to display the flag at this year's State Fair and Farm Show.

Career Choices
This activity has focused attention on the way 4-H affects the lives of youth, particularly showing their development in clarification of values and life skills. It also calls attention to the part 4-H plays in youth career choices because of their learning experiences.

What do astronauts Captain Don Williams and Lt. Colonel Ross have in common? Other than the obvious, they both prepared space projects as former 4-H members.

Along with Williams and Ross, John Vellinger—a Purdue engineering student and 10-year 4-H member—can take pride in his contribution. Vellinger designed and built a science experiment that was on the recent flight of the space shuttle Discovery. The experiment provided data for studying the effects of weightless conditions on developing chicken embryos.

Value Of Perseverance
While a high school freshman, Vellinger first submitted his idea in a contest sponsored by the National Science Teachers Association. His idea was not accepted in that contest.

Vellinger was persevering and he tried again and again. Finally, on his third try, his idea was accepted. "You don't really know at the time you are doing something," he says, "what kind of impact it will have on you down the road. By putting the extra work in, I got so much more out of this project."

On March 18, 1989, the experiment returned from space. Vellinger introduced the chicks to the public at a campus news conference. "We are seeing some definite lines in the experiment at this point," he stated, referring to the 9-day-old chicks and the 2-day-old "control" eggs that lived, and all the space eggs that died.

"It is still to early to draw any definite conclusions," he said, "but it certainly looks like whatever caused the development of the embryos to stop is due in some way to weightlessness and is influenced by the age of the eggs." Vellinger noted that it appeared the embryos were still alive for some time after launch.

When asked how 4-H helped him with this space project, Vellinger gave away his secret: "In 4-H I learned how to set goals," he said, "and then how to achieve these goals through perseverance!" ▲

Future Issues: Extension Review

We are combining the *Summer and Fall REVIEW* into this issue on *Building Human Capital.* The revised schedule and article deadlines for future issues of the magazine are as follows:

The *Winter 1990* issue will focus on *Youth At Risk.* The article deadline for this issue has been rescheduled for October 16, 1989.

The *Spring 1990 REVIEW* will celebrate the *75th Anniversary of Extension* with an all-photographic issue.

The *Summer 1990* issue will have *Food Safety* as its theme. The article deadline for this issue has been rescheduled to February 1, 1990.

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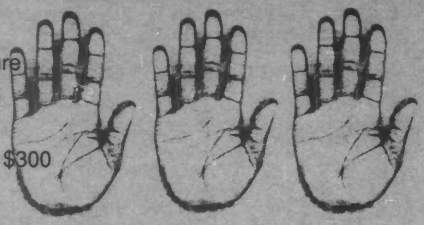

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U.S. Dept. of Agriculture
Permit No. G-268

extension review

United States Department of Agriculture Winter 1989

Electronic and Educational Technology

Risk Taking On The Road To Success

Myron D. Johnsrud
Administrator,
Extension Service,
USDA

Nothing ventured. . . nothing gained.

Fortune favors the bold but abandons the timid.

They are able because they think *they are able.*

Nearly all ages and cultures have framed sayings and admonitions to encourage risk taking, courageous action, and innovation.

And yet in the next breath these same ages and cultures have seemed to counsel against it.

Better safe, than sorry.

Tried and true.

Or more humorously framed by Mark Twain: *Put all your eggs in one basket and watch that basket!*

Risk taking is essential to dealing with uncertainty. And yet just stating that fact creates tension and anxiety in the many who are more comfortable with the fantasy of a certain world...a world that behaves within *our* control and predictions.

Certainty/uncertainty tug-and-pull can hold us in a grip that may blind and paralyze us. I've long been fascinated with the idea that by improving our risk taking ability we can create an improved tomorrow and also be free to enjoy more intensely the road to the future.

Robert Lewis Stevenson once wrote that, *Success is not a destination. It is a journey. To travel, hopefully, is a better thing than to arrive.*

It is in this spirit that I would challenge each of you today to become a more proficient risk taker...in your personal, professional, and organizational lives.

Some have described risk taking as deciding to embark on a *reasonable* adventure. I would like to emphasize the notion of reasonable. For Greg Louganis, the US Olympic star, to risk the high dive, even after injury, may be reasonable—but for many of us trying such a feat with or without injury would be foolish. No, I'm *not* talking about foolish risks—I'm talking about being courageous enough to engage in the exciting adventure of living. To be bold enough to go on even if you can't see around the curves of life, even if you can't see everything ahead.

Irony Of Avoiding Risk

It is ironic that sitting and watching eggs in one basket may be *more* risky than moving forward on the fully uncharted course. The history books are filled with lessons of what happens when people, organizations, and nations wear blinders to the forces of coming change. When people and groups are afraid to take risks, are afraid to fail, and afraid to lose their existing identity, money, power, and possessions, they are usually more prone to failure.

Take the Dutch of the 17th Century. They were the vigorous economic and social innovators of the time. But within only a hundred years they were overtaken by the English. Why? Because a risk avoidant, fearful attitude settled over Holland. Those who had accumulated fortunes in the years of prosperity attended exclusively to keeping them. Politics turned ugly. Public spirit disintegrated. The Dutch became slow to adopt new advances in shipbuilding, weaving, fishing, mapmaking, and navigation. They clung to the established order, threatened by new ways of doing things. They refused to risk rearranging the safety of the present and thus missed the chance to have the talents, skills, and organizational arrangements on line when these were needed.

Many skilled observers of the U.S. organizational and economic scene fear we may also be taking the risk avoidant path of the 17th Century Dutch. Bestselling author and organizational researcher, Tom Peters, warns us that predictability is a thing of the past and all safe bets are off. In *Thriving On Chaos* he seems to have gone beyond his earlier *Search For Excellence* by declaring there are no excellent companies. He proposes revising the old saying, *If it ain't broke, don't fix it* ...to, *If it ain't broke, you just haven't looked hard enough. Fix it anyway.*

Flexibility, action, and risky innovation are among his prescriptions for coping in a world turned upside down. He says we must all learn to *love* change as much as we've hated it in the past.

Let me quote his views in *Thriving On Chaos:* "Every variable is up for grabs ... we are meeting the challenge with inflexible factories, inflexible systems, inflexible front-line people—and worst of all, inflexible managers who still yearn for a bygone era where presiding over the opening of a new plant was the most strenuous chore to be performed. Today, loving change, tumult, even chaos is a prerequisite for *survival*, let alone *success*."

He argues that we must stop organizing for stability...that only organizations structured for change will survive. That managers must take much greater risks...get better at seeing the whole picture...listen, listen, listen...trust people to innovate and insist on absolute integrity.

(Continued on page 50)

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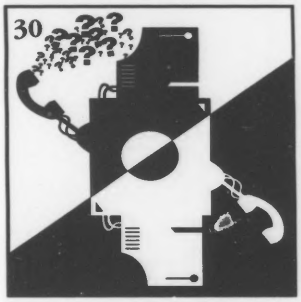
Winter 1989



The **Extension Review**, quarterly publication of the Extension Service, is for Extension educators throughout the Cooperative Extension System in county, state, and USDA agencies. The Cooperative Extension System, a national educational network established through legislation, is a partnership of the U.S. Department of Agriculture, state land-grant universities, and county governments. The Secretary of Agriculture has determined that the publication of this periodical is necessary in the transaction of the public business required by law of the Department. Use of funds for printing this periodical has been approved by the Director of the Office of Management and Budget. The **Review** is issued free by Law to workers engaged in Extension activities. For sale by the Superintendent of Documents, Government Printing Office, Washington, D.C. 20402. Send manuscript inquiries to: Editor, **Extension Review**, Extension Service, USDA, Communication, Information, and Technology Staff, Room 3328S, South Bldg., Washington, D.C. 20250-0900.Telephone (202) 447-4651.

Video Teleconferencing—Its Time Has Come

William F. Murphy
Extension Satellite Programming Coordinator, Virginia Tech, Blacksburg

To encourage adult volunteers to attend the state 4-H Congress, Extension at Virginia Tech, Blacksburg, beams a video teleconference to 54 Virginia downlink sites. Engaging in a live panel discussion on the satellite broadcast are (left to right): Lynwood Christian, president, 4-H state cabinet; Frederick Custis, county Extension agent; and Irene Leech, state 4-H and Youth Development specialist.

When Virginia Tech installed its satellite broadcasting facility, the purpose was to transmit 35 hours of graduate engineering classes each week. The Virginia Cooperative Extension Service (VCES) quickly realized the potential of the technology for Extension education, and now VCES is the system's second largest user, broadcasting from the television studio or one of two electronic classrooms.

Extension has installed 54 downlink sites throughout the state. Four are in district offices, four are in 4-H Continuing Education Centers, three are in research stations, and 43 are in local Extension offices.

Establishing Downlinks
In choosing the downlink sites, Extension considered not only geographic location, but also several other factors. They wanted each facility to have classroom space to accommodate 15 to 25 people; be controlled by the local Extension office or easily accessible to Extension; have a classroom located within 100 feet of the satellite dish; have a telephone in the room or nearby; and be approved by the Extension district.

Each site received a 25-inch color monitor, a monitor stand, and a VCR. The cost of establishing the downlink sites (including both installation and equipment) varied from $2,600 to $3,800, depending on the engineering requirements at each location.

Varied Audiences
Twenty-nine video teleconferences were produced in the first 15 months of operation, and 24 more are being developed in the current fiscal year. Programs so far have included, for example:

Thirteen marketing updates that followed release of major USDA crop and livestock reports;

. A broadcast for Extension homemakers on the national Family Community Leadership project;

. A session to prepare adult volunteers to attend the state 4-H Congress; and

. A program explaining the new Immigration Reform and Control Act to clients who employ migrant labor, with 4 hours of followup programming on labor laws for farmers.

The most unusual satellite system broadcasts were two live feeder-cattle "tele-auctions." Conducted by VCES in cooperation with the State Department of Agriculture and Consumer Services, the cattle sale was underwritten by the Virginia Cattlemen's Association. This marketing effort attracted buyers from all over the Midwest, exposing them to the high quality of cattle raised in Virginia. Virginia producers found new buyers for their cattle and earned excellent prices. Two more such sales are planned.

A Cost-Effective Method
The cost effectiveness of satellite technology was demonstrated by two broadcasts on pesticide training and recertification. At 36 sites around the state, 576 clients were recertified for their pesticide applicator's license.

The participants were able to call in their questions "live" to on-air experts. Extension agents accompanied the broadcasts with their own "wrap-around" educational sessions on local pesticide issues. Tapes of the broadcast were made available for further use.

Production costs for 4 hours of training, including the cost of the uplink and satellite time, were $3,845. Travel costs alone would have amounted to an estimated $4,320 if specialists had conducted the meetings in person; the difference becomes far more significant when salary costs and time savings are considered.

Learning From Experience
VCES is finding that video teleconferencing works well when directed to small, geographically dispersed audiences. Live interaction is not always necessary. The system is being used increasingly within Extension for staff development and organizational communications.

It has become clear that video teleconferencing must be part of a much larger educational effort. On-site agents must have a clearly defined role, and the program must be supported by printed materials and visual aids. Broadcasts that stand alone will always have a role, but the real value in using this system for "distance learning" is to make it part of a series of learning experiences, such as mini-courses and other types of continuing education programs.

Some Surprises
The VCES experience with satellite technology has led to two surprising developments. First, secondary usage of tapes of the broadcasts is very high. This indicates that "live" programming is not always at a time or place convenient to both staff and clients, and it also reflects the popularity of viewing videotapes in the home.

The second surprise has been the interest of other groups—such as lawyers, pharmacists, health professionals, the FBI, and volunteer fire departments—in using the Extension downlinks to receive programming. Having this capability has enhanced the community visibility of Extension throughout the state, as well as its image as a progressive organization.

National Programming
A local Extension office with a satellite downlink can receive not only its own state's programming, but also programs that originate in other locations. The growing demand for quality satellite programming is spurring efforts toward national coordination. The DIALCOM system, for example, provides information on satellite broadcasts in its SATCAL program. RFD-TV is a satellite broadcasting network devoted to 24-hour farm programming.

The interest and the demand are there, and the technology is in place. Extension must take advantage of the situation in order to move its educational programming effectively into the 21st century. ▲

The County Office Of Tomorrow

James Summers
Extension Director,
Office of Evaluation Studies,
and
William McFarland
Extension Director,
Extension Technology And Computing Services,
University of Missouri, Columbia
and
Don R. Day
Extension County Program Director,
Boone County Extension Office,
Columbia, Missouri

Extension's continued success depends on its effective adoption of new technologies. Recognizing this fact, Missouri Extension has set up one of its county Extension centers as a "Model County Office"—a test-demonstration site for new and emerging technologies.

With financial support from the university, the county commission, and the private sector, the Boone County Extension Center in mid-Missouri is the model test site for computer hardware and software, video technology, and satellite equipment.

The model office is helping Extension to do the following:

. Determine which technologies can best enhance Extension's educational programs;

. Learn what technical modifications are necessary;

. Assess staff acceptance of the new technology;

. Determine training requirements;

. Discover how much time is needed to implement the new technologies and integrate them into regular programs; and

. Study client reactions and acceptance.

Experimental Technologies

The Boone County Extension staff is testing the following technologies:

. *Local Area Computer Network (LAN)*—By linking the computers of 12 specialists and their secretaries, the LAN helps the staff communicate effectively. The system uses an IBM PS/2 Model 60 as a dedicated file server; each staff member's individual work station is equipped with an IBM Model 30. A Hewlett Packard Laserjet Series II serves as a network printer.

. *Graphics Work Station*—The network includes a graphics work station provided by a second IBM PS/2 Model 60 with a Hewlett Packard 7550A color plotter and a Hewlett Packard Scanjet. This graphics work station has significantly improved the quality of the visuals used in educational presentations and desktop publishing.

. *Desktop Publishing*—Use of PageMaker software with the graphics work station equipment and the laser printer provides desktop publishing at near-offset quality.

. *Remote Access*—An IBM-compatible computer, connected to the network, is used exclusively to provide staff members with access to the network from any remote location.

. *Software Testing*—Commercial software in the system includes network versions of Lotus 1-2-3, WordPerfect, and Revelation, together with network access to Chartmaster, Signmaster, Overhead Express, Atlas, and PageMaker. Also available are application software packages developed to assist in delivery of specific programs.

. *Portable Computing*—Two Zenith Model 181 laptop computers make powerful comput-

ing in the feedlot or on the fairgrounds a reality. The laptop computers are accompanied by two battery-powered Hewlett Packard Thinkjet printers. A Kodak Datashow allows the screen images from these portable computers to be projected onto a standard audiovisual screen for viewing by larger groups.

. *Satellite Downlink*—To establish the Boone County Extension Center as a satellite receiving facility, the Boone Electric Cooperative donated a Chaparral Sierra II satellite receiver/controller and motorized 9-foot mesh dish. The dish receives signals from approximately 24 satellites. The Center has received satellite programs produced by Oklahoma State, Ohio State, Iowa State, and the National University Teleconference Network.

. *Interactive Video Disk*—The Center's interactive video disk station consists of an inexpensive laserdisk player connected to an IBM PC serial port. Programs available so far include a tutorial on identifying and preparing meat cuts and a module on insect identification. These demonstrations, available in the county office, have been taken to shows, fairs, and shopping malls.

. *Two-Way Radio Communications*—Throughout Missouri, Extension uses a two-way radio system for communication between offices and specialists' automobiles. The county office base radio can be operated using the office telephone system. This provides specialists with convenient access to the central radio from their desks.

. *CD-ROM*—The CD-ROM player which is being added to the system will provide access to large databases stored on removable compact disks. A single disk can hold 550 megabytes (roughly 250,000 pages of text). The data will be accessible from any of the LAN stations and from the field through the remote access computer.

Opposite: At the Boone County Extension Center, Missouri, Extension specialists share expensive hardware and software. Here, Kay Hargis, secretary at the Center, designs a publication cover for a conservation field day. Dan Cotton, specialist, Extension Technology and Computing Services, advises her on the PageMaker computer program. This page: Don R. Day, Extension county program director and agricultural engineering specialist, displays the Zenith laptop computer he used to help design a syphon flush-tank system. The system was installed in a swine finishing building for Jim Abolt, a Glasgow, Missouri hog farmer.

Photographs courtesy of Jim Sbaner, Extension information specialist, University of Missouri, Columbia.

Preliminary Conclusions

Boone County staff members have raised their technical skill level through the training they have received and through their experience in using the hardware and software. Their motivation for learning has increased. Staff members are anxious to explore new opportunities for expanding the use of the equipment to enhance delivery of educational programs to Extension audiences. The personnel in the county office need advanced training to more fully utilize the capabilities of the hardware and software. Specialized software is needed in order to further integrate the existing technology into program delivery. There is a continuing need to provide introductory training to new staff members. ▲

Video Technology— Innovative Uses In Wyoming

Jan Scholl
Former Extension 4-H Specialist, Home Economics, and
Randy L. Anderson
Extension Media Specialist, University of Wyoming, Laramie

Reaching the scattered population of Wyoming with educational programs is a challenge in such a vast state. Use of video technology has increased the effectiveness of educational efforts in many communities.

In the 2 years since the state Extension office and the 26 county Extension offices were equipped with camcorders, VCR's, and television monitors, videotapes have been used to document events, teach skills, and evaluate performance in some very innovative ways.

Agricultural specialists and agents use videos as a measurement tool to check test plots and as a report for on-site weed, insect, and range problems to agricultural groups in addition to funding bodies. Marketing agricultural products takes on a new meaning when native hay, alfalfa, and cattle can be shown to buyers in other parts of the country and the world.

4-H Video Planned

4-H grants from Fleischmann's Yeast and Kodak have helped develop award-winning videos about food service careers and breadmaking. 4-H members and leaders wrote the scripts, performed the roles, and consulted with experts to produce these educational aids. Efforts are now underway to design a 4-H project video.

On the state level, only 4-H professional staff member need attend each district leader's meeting since new programs and educational methods can be introduced by video. Special inserts are made of project materials and on-site locations. Because the tapes are multidisciplinary, leaders also begin to recognize those responsible for their programs of interest.

In the home economics area, the EFNEP program has produced a series of 15-minute video segments to show how to make the best use of the food dollar nutritionally. Called, CENTSIBLE NUTRITION, the videos cover these topics: supermarket persuasion; fruits and vegetables; meats; legumes; eggs, milk, and cheese; and grains.

In these videos, computer graphics and special effects help explain such difficult educational concepts as food marketing, the effect of atmospheric pressure on high-altitude cooking, and how to use a variety of incomplete protein sources in diet. Guest appearances by nutrition experts clarify the major points, and a university Extension agent guides the viewer from one topic to another.

Enhancing home-based business efforts is the goal of Wyoming's Home-Based Business Program coordinator. Showing others how to operate a successful bed-and-breakfast establishment is just one of the ways videotape is used to achieve this goal.

Sharing Program Ideas

Extension administration benefits from the ability to tape county programs, review meetings, and analyze clientele input. Videos of activities, demonstrations, speeches, and teleconferences generate interest and provide agent training. They are a means of sharing program ideas with business, community groups, and other agencies.

Videotapes also serve as excellent feedback devices for professional presentations. At meetings and on television, videos are a means of marketing Extension and keeping the public informed of their educational opportunities. Candidates being interviewed have been videotaped, and those tapes used to make staffing decisions.

Videos have also served as program supplements for many Wyoming programs. "Our kids come so far into town...having a video or other educational activity helps 4-H members extend their learning experiences," says Denise Smith, university Extension agent from Niobrara County. Denise shows commercial and Extension - developed videos at her county meetings and encourages leaders who may have missed an important meeting to update themselves by viewing a previously recorded tape in the office or at home. It is now estimated that one-third of the families in Wyoming have VCR at home.

Multiple Uses

Videos also "stretch and make multiple use of our resources," according to Darryld Kautzmann, east district director. They are often combined with a skill-a-thon or program package in which all the equipment to carry on an activity is provided. Videos extend Master Gardener training programs and find their way to national meetings, classrooms, fairs, exhibit booths, and television.

Videotape and associated video technology make other forms of educational media more convenient to use, particularly when old films and multimedia slide sets are dubbed onto the new format. Titles, graphics, photographs, slides, and motion picture footage are often recorded along with "live action" on videotape. Only selected parts of the tape may need to be shown for a specific educational purpose and videos can be stopped and rerun on regular or slow-action speeds for detail, skill reinforcement, and retention.

The presence of video technology in Wyoming has allowed many university Extension agents and specialists to develop further their media skills. After receiving initial training on video operations and usage, many university Extension agents train volunteers in video techniques and uses. Often, these leaders have trained teens who then use videos for junior leader activities and their own special interest projects.

Previewing At Home

Professional staff with personal VCR's often find previewing videos easier at home, while relaxing or doing household chores. Many professional staff members have taped educational programs on television during the day for their own enjoyment and education at home.

Videos let Wyoming citizens learn on their own schedule. They have provided professional Extension staff a means to reach a larger audience with additional avenues of training. .But most of all, video technology has proven versatile as a tool to extend information to a small and scattered population within the state's 98,000 square miles. ▲

Sid Chopping, University of Wyoming, College of Agriculture, left, sets up his video camera at Green River Lakes, Wyoming, assisted by Dave Hobl of the U.S. Forest Service. The video they are preparing to film promotes the Wyoming Continental Divide Snowmobile Trail.

Photograph courtesy of Diane Essington, the ***Pinedale Roundup****, Pinedale, Wyoming.*

Classroom TV Comes Alive!

Larry R. Whiting
Head,
Information and Applied Communications,
The Ohio State University, Columbus

Watching a professor clean a beehive on television and understanding what he's doing is no big deal. But if that instructor asks if you understand what is being done and you can not only see but hear your reaction instantly—that's something new!

That new experience is happening for Ohio State University College of Agriculture students and faculty, since the installation in April 1986 of an instructional television system that allows live audio and visual interaction between the college's Columbus and Wooster campuses.

Students in Columbus can be taught by faculty at Wooster or vice versa. Students or several faculty members can participate at both locations—depending on specific needs of the class.

In fall 1986, James Knight, professor of agricultural education, used the television link for the first time. He taught Ag Ed 790, a graduate course about creating better learning environments for students. Enrollees were 22 teachers from elementary and secondary schools—11 in Wooster and 11 in Columbus.

"The students participating at Wooster probably would not have had a chance to take this course without this television system," Knight explains. "Both teacher and students were apprehensive about television at first, but after two or three weeks our being on television was secondary.

"We all became comfortable with the technique and with each other," Knight says. He contends that teaching by television helped him improve his teaching methods. Some of the classes were taped and self-critiqued.

Sight And Sound Interaction

"This experience was not at all like television teaching of the past," Knight explains. "The possibility of immediate response, total sight and sound interaction, enhanced the procedure."

Some student reactions included: "There is excellent camera work and visual quality and good sound during the discussion sessions. It is human and interactive."

"I would rather be in a conventional setting, but this system makes it possible for those of us in the Wooster area to take classes."

"I am enjoying this experience. At first the idea of a television course sounded boring, but this is not the same at all."

Students were asked: "Would you take a course again using this system?" All students in Ag Ed 790 said, "Yes." Two said, "Absolutely."

Linking Campuses

The idea to link the two campuses in this way had long been the dream of Kenneth Reisch, associate dean, and Harold Bauman, assistant dean and business manager, both of the College of Agriculture. Ohio Agricultural Research and Development Center (OARDC), Wooster faculty needed more classroom teaching opportunities. Traveling 90 miles to Columbus one, two, or three times each week to teach students essentially cost an entire workday plus travel and meal expenses of $40 to $60 per trip.

Two almost identically equipped classroom-studios are located in 244 Kottman Hall on the Columbus campus and 121 Fisher Auditorium at the OARDC campus in Wooster. Each classroom has three broadcast-quality cameras which can be operated by one person from a control room at the rear of each facility. One camera is mounted on the wall in the front of the room and another at the back. An overhead camera is fixed to a portable cart and is used with visuals such as overhead transparencies or printed matter. The cart also houses a VCR which permits the instructor to play videotapes.

The classrooms are electronically connected by a microwave signal between Columbus and Wooster via the Ohio Educational Broadcasting Network (OEBN). This state agency is located on North Star Road in Columbus and is the program distribution service for the public broadcasting stations in Ohio. A microwave transmitter on the roof of Kottman Hall sends the signal on its way over the OEBN network. At Wooster, a fiber optics cable carries the signal from a state-owned microwave tower near OARDC to Fisher Auditorium.

Opposite: An instructional television system now links the Columbus and Wooster campuses at The Ohio State University College of Agriculture. The facility is converted to a typical studio set when it is time for live satellite television. Here, one of three live satellite programs is under way during last summer's emergency drought crisis. This page: "Agri-Trends" is one of Ohio's more popular satellite programs and is used by several public broadcasting and many cable systems throughout the Nation.

Funding

The system and installation cost approximately $250,000 and was funded by the College of Agriculture and OARDC. The Ohio Cooperative Extension Service purchased a video editing system and some additional accessory equipment for the control room in Columbus. Extension and OARDC are funding three television technicians to operate the system as well as to produce other video materials needed for teaching, research, and Extension.

The television system operates up to 15 hours each week, generally from 8-9 a.m. and 3-5 p.m. In September 1986, OEBN installed a half-million-dollar satellite uplink transmitter. The uplink also benefits the College of Agriculture, because the Ohio Cooperative Extension Service plans to eventually teach via satellite to its five district and many of its 88 county offices. In 1987, satellite receiving dishes were installed in the district offices and satellite teleconferences were conducted.

Links Departmental Meetings

In addition to classroom teaching, the television link is used for departmental meetings and seminars. Research faculty members in the Department of Agronomy located in Wooster, for example, do not need to drive to Columbus for a departmental meeting. Furthermore, the College of Agriculture has had several faculty meetings with the television link saving travel time and costs for several dozen faculty members. In fact, the first use of the link was a faculty meeting which featured Fred Hutchinson, Vice President for Agriculture and Dean of the College of Agriculture, and Edward Jennings, OSU President.

Besides live television classroom teaching, each facility can be used as a production studio for taping and editing educational presentations for

View from the control room depicts studio/classroom during two-way video class.

later classroom use or other teaching such as the educational programs conducted by the Ohio Cooperative Extension Service. The facilities can also be used by students or faculty who want to improve their speaking and presentational skills. Many do that by watching themselves on tape. These same classroom studios are the originating studios for satellite teleconferencing programs.

Input From Graphic Artists

How does OSU counter dull television teaching? Instructors are encouraged to meet with graphic artists of the Information and Applied Communications Staff in advance to make sure visual instructional materials such as slides, overhead transparencies, and videotapes are in a good television format. Conversation and discussion among students at both locations also are encouraged so neither group feels isolated by the 90 miles. Panel discussions and oral reports by students enhance the effectiveness of the classes. Those instructors who rely solely on the lecture method and blackboard notes are not fully using the capability of the system.

Television tends to accentuate both good and bad teaching methods. Excellent instructional skills generally look even better on television but the not-so-good techniques look even worse. Full-color graphics designed for use on television, and live interaction between Wooster and Columbus students help television teaching immensely.

Faculty, staff, and students in agriculture welcome the challenge television instruction brings. The increased use of relatively inexpensive home video recorders, the use of satellite transmission, which now costs under $1,000 per hour, and society's growing interest in electronic audiovisual media may mean television will become a major communications tool for agricultural programs at The Ohio State University. ▲

Extracted and updated from Ohio 21, *Vol. 1, issue 1, March 1987, published semiannually by the College of Agriculture, the Ohio Agricultural Research and Development Center, and the Ohio Cooperative Extension Service of the Ohio State University.*

Crops Need Irrigation? Consult Your Weather Station!

Joseph J. Marks
Extension News Director,
Extension Information,
University of Missouri, Columbia

This summer southeast Missouri growers received weather information critical to the efficient scheduling of irrigation from weather stations established by Extension specialists at the University of Missouri.

This is only the beginning, reports Van Ayers, Extension agricultural engineering specialist at Delta Center, Portageville. "We set up a weather station at the Delta Center that recorded soil and air temperature, wind speed, solar radiation, and relative humidity. Now there are plans to establish three more computerized stations next year at Cape Girardeau, Poplar Bluff, and Charleston, he says.

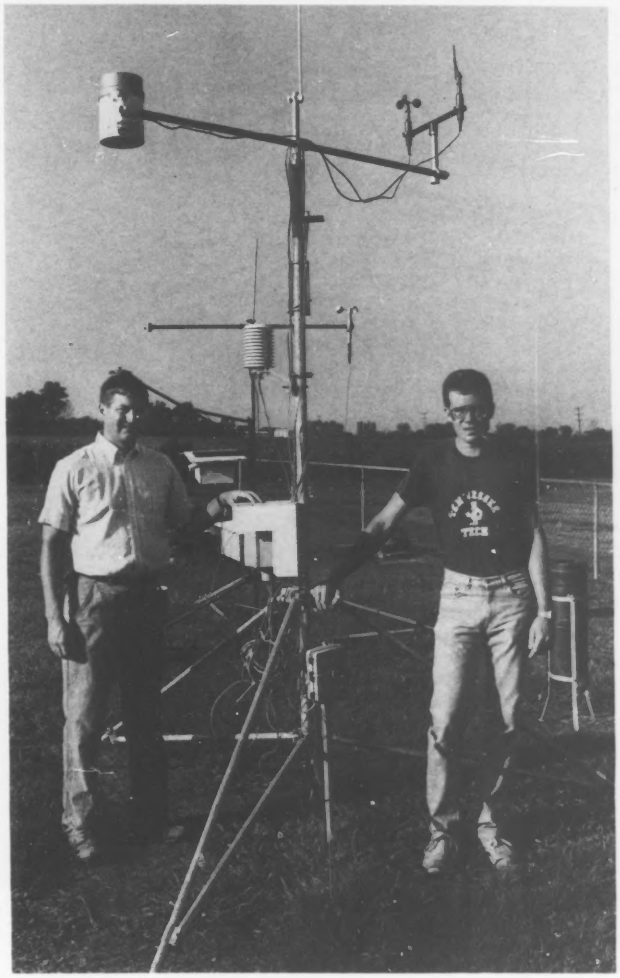
From the middle of June to the middle of August, weather information was sent to a weekly and two daily newspapers and five radio stations. "We'll start earlier next year," Ayers says, "probably in mid-May."

Computer Calls

Steve Honeycutt, a University of Missouri graduate student, calls up the weather stations on a computer and runs the data through a series of equations. "Doing this," Honeycutt says, "gives us information on evapotranspiration—water use—for corn, cotton, soybeans, and grain sorghum.

"We can tell farmers the amount of water each crop has used since it emerged and predict how much more water plants will need to keep from suffering stress," he points out. "With this information farmers know how much irrigation water to apply to make up for lack of rainfall."

A $38,000 grant from the Missouri Department of Natural Resources' Division of Energy provided the money to buy the weather stations and for personnel to implement the program.



Van Ayers (left), Delta Center agricultural engineering specialist, and Steve Honeycutt, a University of Missouri, Columbia graduate student, set up a weather station in Portageville to gather information critical to effective and economical irrigation.

Photograph courtesy of Duane Dailey, ***Exclaimer****, a publication of the University of Missouri, Lincoln.*

"The information we can gather through these weather stations is critical to effective economical irrigation," Ayers believes. "We'll spend this winter telling growers how to use the weather data we can provide. They will have to take their soil types into consideration and keep careful track of the rainfall at several locations on their own farms.

"Our aim," Ayers concludes, "is to obtain the most efficient use of the energy dollars spent by irrigators in operating their systems. This will ensure the crops on these farms do not suffer any stress from lack of moisture." ▲

Extracted from an article in Exclaimer, *Vol. 16, No. 5, October 1988, a University Extension publication, published by University Relations at the University of Missouri, Columbia.*

On The Road—With Technology

B. K. Lilja
Extension Public Information Editor, Fort Valley State College, Fort Valley, Georgia

Sometimes the mountain can come to Mohammed! That was the idea last fall when the Fort Valley State College (FVSC) Cooperative Extension Program unveiled its 45-foot mobile teaching unit.

The customized trailer has visited small Georgia towns, showing community leaders new educational technology.

The three-compartment trailer is financed by W.K. Kellogg Foundation grants. The Track III New Educational Delivery Systems Mobile Teaching Unit for Adult Learners houses computers, a satellite receiving system, and audiovisual equipment. Extension wants the unit to promote an awareness of teaching technology, FVSC Extension Education Specialist Mercedes Parker says. "Computers, video equipment, satellite programming, interactive video—all of the technology that can bring a community information."

In the front compartment, visitors can work with the satellite system, a video cassette recorder, two laser disk systems, a slide-tape projector, and an audio cassette recorder.

The trailer's middle and rear sections house six computers: four IBM Personal System 30s, an Apple II-GS, and an IBM PC Convertible.

Rural Focus

"Over 300 people in six counties have visited the unit since I took it on the road," says Parker. "The self-powered trailer is part of an FVSC Extension effort to provide rural communities with modern educational tools."

Recent history has excluded small towns from education's mainsteam, Parker explains. Facing hard financial times, many have settled for less than the best ways to educate their citizens.

The Extension specialist says the one-of-a-kind unit was designed to meet several objectives. "It puts new technology in town settings, so that no matter what the future brings, community leaders will be familiar with technology and its basic applications," she says. "It helps them move from the print age to the video and microprocessor era."

The unit, she points out, is also expected to meet the needs of community educators competing with sophisticated technology and communities unable to support their own modern education programs.

Parker calls it "a learning center for community leaders" because the equipment does most of the teaching. "Leaders," she explains, "include Extension agents, librarians, health officials, vocational teachers, adult tutors, the clergy, and others who provide adults with some form of knowledge, skill, or service."

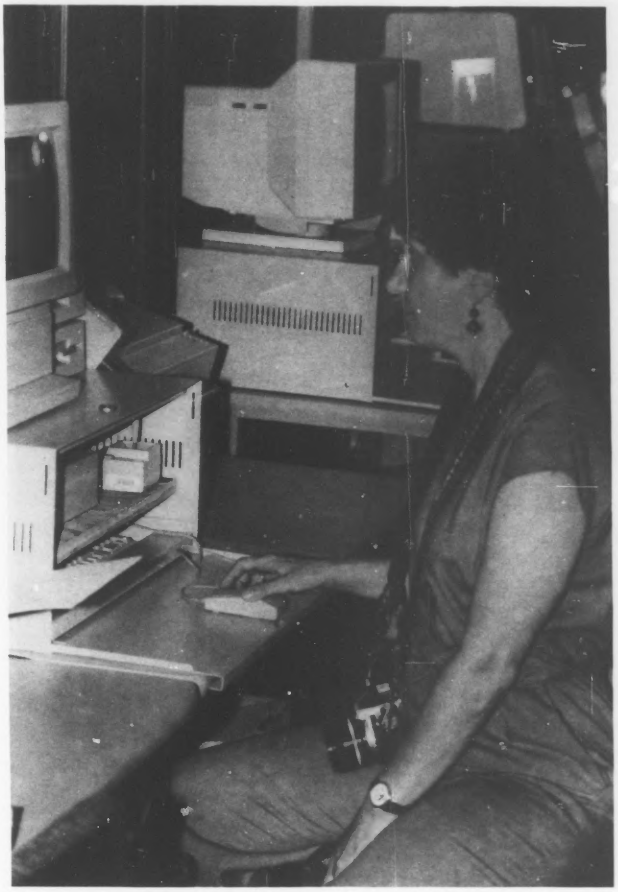
Hands-On Learning

"I'm there to instruct visitors on how to use the equipment," she quips. "The systems actually interact with their users to create the learning situations. Once they've started, people teach themselves how to use the technology."

While visitors look everything over, she says, the computers and their programs attract most of the attention. Those who want to learn computer basics "hands-on" can work with an interactive video or Apple II-GS program, she comments.

"Our graphics system teaches a user how to draw with a computer," she says. "It shows how to create charts, landscapes, drawings,and graphs."

The word processing program teaches how to use a computer to prepare and edit manuscripts, letters, memos, and forms. The Desktop Publisher teaches how to design and lay out newsletters, bulletins, brochures, posters, flyers, and newspapers.



Opposite: Parked in a farmer's market, the exterior of the Mobile Teaching Unit from Fort Valley State College, Georgia, gives little indication of the high-tech educational equipment housed inside. This page: Janet Rodekohr, Extension news editor, The University of Georgia, tries her hand at the computer graphics program while doing a story on the mobile unit.

A CD-ROM (Compact Disk-Read Only Memory) system teaches users about the new compact disk technology and its applications. An IBM PC Convertible and a LAPLINK database expose visitors to lap-top technology, where they can take a computer out in the field.

Parker says the unit's selection of database programs expose users to everything from bookkeeping to problem-solving by computer.

Other Technology

While the computers are popular, it doesn't mean the rest of the trailer's technology sits idle.

The satellite receiving system allows users to view educational programming from universities and colleges across the Nation. Audiovisual equipment demonstrates how even modestly priced technology augments and complements educational programs.

Parker says public response has been good. "People usually aren't prepared for what's inside the trailer," she says. "But, once they're over their initial reaction, they quickly turn to whatever technology they want to study."

Sandra Williams, Crawford County Cooperative Extension director, rated the unit excellent. "It provides an opportunity for people in rural areas like ours to learn what is available, how to operate computers and specific programs, as well as ways that they can better do their work through the use of computers," Williams notes.

She voices her only complaint when she adds, "I would suggest a 6-week county visit instead of 4 weeks, if possible."

Annette Lucear, director of the Community Improvement Coalition of Monroe County, Inc., comments: "My co-worker, Cynthia, and I received 24 hours basic training that we will use in the near future as we change our office records over to computer."

Future Direction

The unit's future? Parker says its possibilities are expanding. While continuing to educate community leaders in middle Georgia, she says, the unit can also familiarize small businesses with the uses of modern technology.

A number of small businesses in the counties she's visited have told her they're interested in seeing the unit set up at their facilities.

"It has an impact on people," Parker says. "By making new—and sometimes threatening—technology familiar, we open people's eyes to possibilities."

Whatever comes, she adds, every community—large and small, urban and rural—has a future filled with new technology.

As long as Extension technology is on the road, community leaders in Georgia will have a chance to learn and include technology in their future plans. ▲

The Magical World Of Computer Graphics

Barbara Rixstine
Extension
Project Assistant,
Department of
Agricultural
Communications,
University of Nebraska,
Lincoln

In 1900, author L. Frank Baum dreamed up an effervescent "horse of a different color" for his imaginative classic, *The Wonderful Wizard of Oz.* Less than a century later, computer graphics technology enables artists to create—on screen, of course—a "horse of a different color" in a matter of minutes.

In fact, they can make 12 horses from one, change their sizes, and even adorn them with bells and whistles, if a client so desires. And it all comes at the push of a button—well, maybe a few buttons—and the results are getting some very positive attention.

Clients Are Enthusiastic

Extension administrators and specialists at the University of Nebraska, Lincoln campus, are enthusiastic about the high-quality visual presentations that have been made possible by the computer graphics capability of the Department of Agricultural Communications.

"We've used computer graphics extensively for talks and slide-tape programs," says Alice Jones, Extension agronomist, "and have found that they enhance the effective transfer of research-based soil information to producers. The high-quality slides do a better job of helping the audience visualize changes in the soil's physical environment as a result of farming practices. In fact, farmers are making changes in their farming practices based on this information."

Multi-Level Services

Agricultural Communications offers two levels of computer graphics service. The low-end service, using a software package called Lotus Freelance, allows specialists and secretaries in other departments to produce graphics on their own computers and bring a disk to Agricultural Communications for imaging on a matrix camera.

A system now being developed will allow slides produced on Lotus Freelance to be transmitted to the matrix camera via telephone through a mainframe computer. This will allow district research and Extension centers, and perhaps even county Extension offices, to utilize the system.

The high-end service involves several sophisticated software packages that allow the graphics staff to use their artistic talents to produce more creative slides. Programs in use include West End Artwork, Brushwork, Chartwork, and Zenographics Autumn.

The software enables the artists to do freehand drawing and create 3-D images; airbrush text, texture maps, and create transparent effects; program for special effects, such as dropshadows, that can be further enhanced with only a few keystrokes; and draw on an extensive library of symbols, typefaces, and chart forms.

Hardware Increasing

The software, of course, does not work without hardware. The equipment consists of two workstations: an AT 286 with a Mitsubishi RGB monitor, and a Summasketch plus digitizing tablet and enhanced keyboard. This system, which has a Revolution number nine card to drive the graphics programs, is used as the high-end station for maximum-quality work.

The other workstation is an AT with an EGA monitor and Microsoft mouse. This system, driven by an ATI Wonder Card, is used to produce training materials and many low-end graphics projects.

A third station, which drives the Matrix QCR D 4/2 camera, is used to image the department's slides. An AST Turbo Laser/PS printer is used for hard copies and transparencies.

Word Processor Versus Quill Pen

Even artists who at first resisted plying the computer trade find they like the system. Artist Sheila Smith, who admits she had to be "dragged kicking and screaming to the computer," now compares working by computer instead of by hand to "writing with a word processor instead of with a quill pen and parchment."

Melanie Eirich, computer graphics specialist, agrees. She says that by using the computer "artists can get a better product in a fraction of the time required to do the job by hand."

Benefits For Nonartists

One new nonartistic use of the software is that of crop analysis by color, a procedure that allows a user with the right equipment to produce a program that defines data by color analysis. Bruce Sandhorst, audiovisual specialist, explains, "We go into a field, record images of specific plot areas on videotape, bring the tape back, put the image through a frame grabber, and do a color analysis based on what we see on the computer. It's really an excellent application for computer technology."

Increased Productivity

Does the system's increased efficiency outweigh the expense? Sandhorst thinks so. "The real key," he says, "comes in increased productivity and creativity in computer graphics methods." He says that once the staff gets past the learning time, the system begins producing real benefits.

Eirich points out that production of a slide show without the use of computers requires coordination among the client, a layout artist, a photographer, and sometimes an art director. Thumbnail sketches and rough drafts must be sent back and forth, sometimes with only minor changes, making the process very time-consuming.

"But when both the artist and the client can see everything at one time right up there on the screen," she says, "it makes the editing process so much simpler. The computer really makes it easier for both the artist and the client." ▲

Opposite: The Agricultural Communications Audiovisual Unit at the University of Nebraska, Lincoln uses high-tech equipment to produce professionally designed slides and videos. Here, Melanie Eirich, a graphics specialist, works on a visual using an AT-286 computer hooked to a Mitsubishi RGB monitor. Employing a stylus, she draws on a SummaSketch Plus digitizing tablet. This page: Randall Paul, communications illustrator, discusses a map's design and format with Eirich. Both believe the computer has increased their productivity and creativity.

Cost-Effective Network In North Dakota

David G. Rice
Extension Computer Applications Specialist, and
Roger Egeberg
Extension Programmer/ Analyst,
Agricultural Communication,
North Dakota State University, Fargo

Gathering around the new cost-effective NDSU ExtNet microcomputer system are (left to right): Roger Egeberg, programmer/analyst for ExtNet; David G. Rice, computer applications specialist; Andy Swenson, AGNET manager; and Bev Trittin, secretary, Extension Computer Services.

The North Dakota State University Extension Service spent several months evaluating the change from a very successful mainframe electronic mail and file transfer network (AGNET) to a microcomputer-based network providing these services. We estimated a payback of about 3 months to recover the $6,500 we would spend on a state-owned system. Actual cost figures indicate a monthly savings of $3,373, which resulted in a payback of less than 2 months. The ExtNet system along with the use of more microcomputer-based programs saves North Dakota Extension about $40,000 a year.

NDSU ExtNet

North Dakota Extension used the AGNET computer system for electronic mail and file transfer for over 10 years. More than 5,000 electronic mail messages and over 10,000 news stories were transmitted a year. Reduced operating budgets meant we had to find a less costly way to send information electronically.

Our new electronic mail and file transfer system, NDSU ExtNet, runs on an IBM PC/AT compatible. It is Bell Technologies MPE with 4 MB RAM, a 72 MB hard disk drive, a 60 MB backup tape drive, and a six-port serial expansion card which supports multiple users.

We selected Microport System V/AT, a version of the UNIX operating system, because of the large body of UNIX experience on the NDSU campus and the portability of software to other UNIX systems. We believe an upgrade to a larger computer (running UNIX) could be made without major revisions of our software.

Total system cost was approximately $6,500. It took 6 months' staff time to select, buy, program, operate, and debug the system.

File Transfer

A generic news program was developed to replace some of the file transfer programs previously available on AGNET. Our news programs allow individuals to upload text files (reports). Users can list the reports available and select those they want to download. We have four versions of the news program on NDSU Extnet:

1.- *County Agent's News* - News releases sent to County staff.

2.- *Markets* - This includes USDA reports, commentaries, and cash/futures prices.

3.- *News Release* - This covers agricultural and consumer topics.

4.- *Pest Report* - This provides updates on pest, disease, and weed control.

Extension Calendar

Our Calendar program maintains a database of events involving Extension staff. Information on dates, individuals involved, location, and a short description of the event are stored.

Costs

Electronic network costs consist of communication (phone) and processing (CPU) charges. The 1987 average AGNET CPU charges were $2,369 per month. AGNET communication charges are much higher than similar charges for accessing ExtNet. The fixed communication charges for AGNET consisted of a high-speed leased transmission line and port rental at the host computer. The average leased line charge for AGNET access in 1987 was $1,100 per month. The average AGNET port rental in 1987 was $1,181 per month.

The cost of the ExtNet microcomputer system was $6,500. The capital cost is interest rate times average value plus depreciation allowance. Although the machine will be used for many years, the reality of technological obsolescence requires a 3-year depreciation, or $2,167 per year. Using an average value of $3,250, an interest rate of 6 percent gives an annual capital cost of $195. Maintenance cost calculated as the equivalent of contract cost is 10 percent of purchase price, or $650 per year. System operation is estimated at $1,000 per year. The total cost of this microcomputer central site is about $4,010 per year.

The NDSU Extension Service supplied WATS lines to access AGNET and switched those lines over to ExtNet last November. Our WATS line charges averaged $2,109 per month in 1987 and over the last 3 months averaged $1,000 per month.

Much of the decrease in CPU and communication costs results from the fact that more problem-solving computer applications (FEEDMIX, DIETCHECK, FARMPROGRAM, etc.) were run on the microcomputer than on AGNET or ExtNet. ▲

Communicating For The Future

Patricia Kovel-Jarboe
Extension Project Director, Telecommunications Development Center, University of Minnesota, St. Paul

The Minnesota Extension Service has taken a step toward the future by creating a unit whose mission is to design, develop, produce, and disseminate all Minnesota Extension materials, regardless of content or medium.

The Educational Development System (EDS) comprises more than 100 faculty and staff members who were formerly part of four separate units: Communication Resources, Computer Information Systems, Extension Office Resources, and Office of Special Programs.

Strategic Planning
As part of an ambitious statewide Extension strategic planning effort, administrators of the four staffs had identified opportunities and potential barriers facing their units. They began informal discussions with the staff development leader to see what changes might be possible.

The four units found that they had overlapping, and sometimes confusingly similar, responsibilities and expertise: Communication Resources (CR) handled print materials, video and audio projects; it also handled distribution of educational materials.

Computer Information Systems (CIS) was responsible for design, development, and maintenance of computer software—both educational and administrative—as well as the organization's relatively new microcomputer network.

Office of Special Programs (OSP) managed conferences and correspondence study in a variety of content areas, handling all aspects from market research to local arrangements.

Extension Office Resources (EOR) provided the Extension organization with overflow clerical support, managed mail services, and maintained an extensive supply inventory.

Each unit carried out some training activities for others in Extension; CIS had the most intensive training role.

Finding A Solution
Extension faculty and administrators expressed concern and outright confusion about which unit was responsible for specific functions, especially those changing as a result of the adoption of new technology. The initial administrative discussions centered on ways to make the systems of the various units more compatible with each other. Eventually, however, a consensus developed that a more effective solution might involve some kind of reorganization.

The resulting proposal identified three working groups, specified several state leader positions and described their roles, proposed that the new unit be headed by an assistant Extension director, and discussed how the new unit would relate to other Extension units.

As the staff considered the proposed change, meetings were held, voices were raised, and opinions were shared. The proposal, essentially unchanged, was slated for implementation. An assistant director was named to head the unit, and a staff advisory committee was appointed.

Plan Becomes Reality
The impact on soon-to-be EDS staff and faculty was tremendous—anger, excitement, fear, relief, and a flurry of activity characterized the response. At times, then and now, the reasons for the new structure, its goals and purposes, are lost from view.

The new unit consisted of three work groups functioning across media and program areas: program design, product design, and product development.

Staff assigned to program design were responsible for working with specialists and agents to identify learner needs, develop behavioral objectives, and specify programs, activities, and products to accomplish these objectives.

Product design staff pulled together EDS teams to design, develop, and disseminate specific program components and educational materials and to coordinate these processes.

Members of the product development group brought specialized skills to the product teams; they also maintained a variety of systemwide support systems.

Refining The Structure
Both the mission and structure of EDS made assumptions about issues-focused programming that, to some extent, underemphasized the continued importance of traditional emphases tied to specific program areas and departments. After EDS had been in operation about 4 months, its structure was modified to better accommodate and support the major program areas. Although the functions of program design, product design, and product development were retained, EDS staff and faculty were given relatively permanent team assignments.

These core teams, ranging in size from 4 to 20 members, are assigned to program areas, issues, or organization-wide systems. Each team represents the organization's personnel and fiscal commitment for communications and educational products in a particular program emphasis. Freelance assistance is secured to support temporary grant-funded projects.

Assessing The Benefits
It is too soon to make a final assessment of the success of the Educational Development System and the strategy it provides for meeting Extension's needs for design, production, and dissemination of education and information resources in an increasingly technology dependent era. However, as a means of integrating technology systems and instructional design principles into ongoing development of educational and informational products, EDS clearly is working. ▲

Concepts Versus Keystrokes

David G. Rice
Extension Computer Applications Specialist, North Dakota State University, Fargo

Opposite: Attendance at microcomputer training by Extension at North Dakota State is limited to allow maximum hands-on practice. This page: All participants at these workshops sit at 8-foot tables equipped with microcomputers and printers; classroom is also equipped with an overhead projector system.

Most North Dakota farmers and ranchers considering the purchase of microcomputer systems 5 years ago had very little knowledge on which to base their decisions. Microcomputer training and assistance from the private sector was available only from vendors who sold the systems; they often had little expertise concerning agricultural applications.

To answer this need, the North Dakota State University (NDSU) Extension Service launched a major effort to provide microcomputer training to Extension clientele at sites throughout the state. Since the workshops began in 1983, the level of training has advanced steadily as clients have become more sophisticated computer users.

Hands-on Training

For the average microcomputer user, hands-on training has been found vastly superior to textbooks, manuals, lectures, or even the common demonstration-style presentation. North Dakota's hands-on microcomputer workshops have used a variety of hardware and software configurations. In each case, the instructors' table includes a microcomputer system and an overhead projector system that permits projection of the monitor's screen for viewing by the group.

Participants are seated at 8-foot tables arranged in classroom style. Each table has two microcomputers and printers. Because the workshops are taught by teams of two instructors, participants receive considerable individualized help.

Maintaining Flexibility

The range of expertise among participants presents a challenge for the instructors. They vary the number and types of examples according to the general competency of the group. Maintaining flexibility permits the instructors to challenge the advanced user while not losing sight of the beginner.

Workshop registration fees, which are collected in advance, have ranged from $10 to $75; most have been in the $10 to $25 range. Reduced fees for the second family member encourage farming partners to attend. The fee covers notebooks, handouts, and, in some cases, software diskettes.

What To Teach?

The content of microcomputer workshops must be continually evaluated and revised to meet current concerns. The subjects covered in the North Dakota workshops are chosen largely on the basis of requests from clientele and county Extension staffs.

The multitude of programs and systems in use makes it impossible to offer specific training for all software on all systems. Thus, the instructors are careful to teach "concepts" rather than "keystrokes."

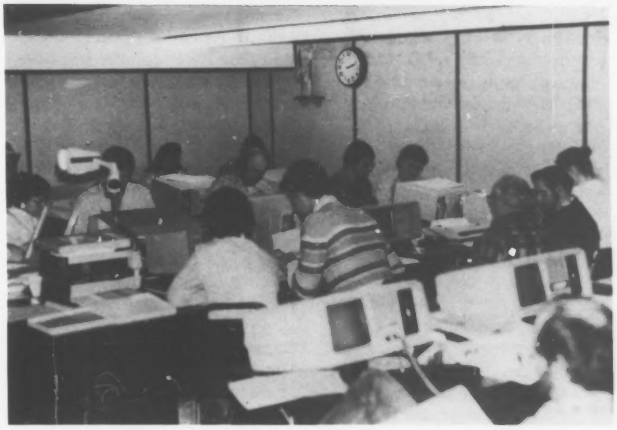
The NDSU Extension Service has reached more than 2,200 people in the last 5 years through 72 microcomputer workshops, most of which involved hands-on training. Topics have included, for example:

Introduction To Microcomputers—This workshop is for people considering the purchase of a microcomputer system. The 2-day general sessions included possible uses of farm-based microcomputer systems, how they operate, and what a typical system would cost. Instructors demonstrated several software packages and applications.

Participants received hands-on training on booting up the microcomputer and using elementary operating system commands. A taste of BASIC programming was included, and most of the sessions offered hands-on experience with electronic spreadsheets and database managers.

Accounting and Financial Management—Demonstrations covered the many features of farm accounting programs, cashflow analysis, computerized cost-of-production analysis, farm program analysis, and market information retrieval systems. The hands-on training consisted mainly of adding to an existing chart of accounts, entering income and expense transactions, and printing out reports from the farm accounting program. Instructors stressed the importance of a complete farm management computer system.

Farm Accounting Symposiums—These workshops brought Extension clientele together with several computer software vendors, each of whom paid $50 for the opportunity to participate. Extension provided lists of features to look for in a accounting program; participants met with vendors to determine which packages included the features of most importance to their individual operations. The vendors welcomed the opportunity to



demonstrate their software, and symposium participants appreciated the chance to view and compare farm accounting programs with no pressure to buy.

Electronic Spreadsheet Clinics—After a basic introduction to electronic spreadsheets, these workshops provided hands-on experience in developing spreadsheet templates. The As-Easy-As electronic spreadsheet (user-supported software) was used for the training, and a copy was distributed to all workshop participants. Instructors demonstrated advanced spreadsheet features using Lotus 1-2-3.

AGNET Seminars—These seminars focused on how to log on and off the AGNET marketing information system and the most cost-effective methods for retrieving information. Instructors helped participants identify what information is available among the hundreds of marketing reports accessible through AGNET.

Database Management—Using the PC-File III program, instructors guided participants through many farm-related database management applications. They received hands-on experience with field records, cow-calf records, checking accounts, grain tickets, maintenance-repair logs, and mailing labels. Each participant received a copy of PC-File III. Instructors also demonstrated the use of more powerful database programs.

Advanced Spreadsheet Clinics—These clinics were for experienced users of Lotus 1-2-3 or similar programs. Topics included design and time-saving tips, how to minimize errors, macros, database features, and printing and graphing options.

Traveling Computer Lab

The experience gained through these workshops has illustrated the importance of bringing the computer lab to the people. Participants throughout the state said that they appreciated not having to drive 100 miles to attend a workshop. Attendance in some of the more rural communities exceeded that in larger cities.

The North Dakota Extension Service remains committed to providing this type of training for its clientele because it is needed and appreciated. It comes at great cost, however, mainly because of the time involved. The 7- to 16-hour hands-on workshops presented over the last 5 years have required nearly 900 hours of staff time.

As a result of learning the concepts of microcomputer use and data analysis, Extension clientele are becoming more efficient managers. The "keystrokes" come easier after the "concepts" are understood. ▲

Is There An Uplink In Your Future?

James L. Hamilton,
Head,
Extension
Communications,
Iowa State University,
Ames

Extension at Iowa State University (ISU) is using satellite technology to deliver educational materials to all corners of the state. The satellite medium has proven to be a practical, cost-effective, and efficient delivery mechanism for timely messages. Although still experimenting with the medium, Iowa can offer some recommendations based on its 3 years of activity.

The first recommendation is to assess the need. Satellite distribution works well for timely messages, such as drought information. Programs that otherwise would require travel by campus specialists to deliver information to small groups in many locations are also candidates for satellite.

Target audience selection is critical. Printed support materials and time for telephone response and feedback seem to be necessary. Programs range from a simple discussion filmed in the studio (often referred to as "talking heads") to full productions created in the field with multiple cameras, crew, and remote truck. There will be a surprise along the way as choices and adjustments are sometimes required on the air.

Campus Infrastructure

The second recommendation is to examine the existing campus infrastructure. This will affect the available options.

Some factors to examine are level of budget, TV production capacity, administrative support, and attitudes toward cooperative activities.

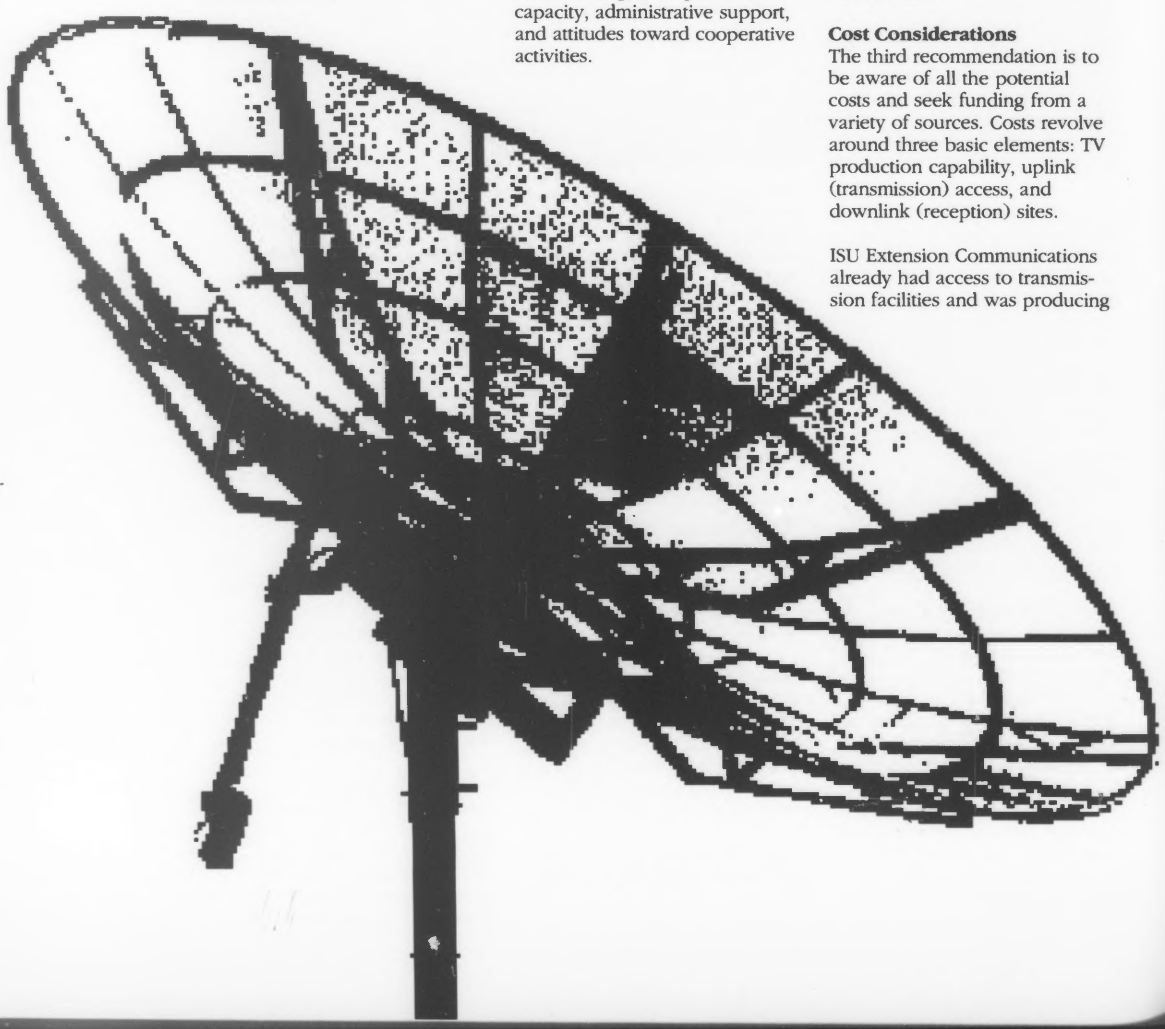
ISU's situation is unusual, since it is one of only two midwestern universities that have a commercial television station on campus. The university operates WOI-TV, the ABC affiliate for the Ames/Des Moines area. The purchase of a satellite uplink came about for many reasons having little to do with land-grant educational outreach.

Another important factor is that ISU operates its own phone company and has a new fiber-optic telephone system. As a result, programs for satellite transmission can originate not only from the five TV studios on campus, but also from any room with a telephone jack—including labs, classrooms, theaters, and lecture halls.

Cost Considerations

The third recommendation is to be aware of all the potential costs and seek funding from a variety of sources. Costs revolve around three basic elements: TV production capability, uplink (transmission) access, and downlink (reception) sites.

ISU Extension Communications already had access to transmission facilities and was producing



daily TV programs. This talent and equipment was redirected to production of satellite programs in support of high-priority Extension emphases in the state plan of work and the Extension National Initiatives. Extension sometimes charges limited user fees ($5) for noncredit programs; underwriting grants from commodity/producer groups help pay some production costs.

After renting and borrowing receiving equipment during the first year, Extension was convinced that downlinks require more time and trouble than programming. In summer 1986, satellite receiving equipment was installed at each of the seven area (regional) Extension offices and at 30 county Extension offices throughout the state. During the next phase Extension added 42 more sites; soon, no one will have to drive more than 20 minutes to reach an ISU Extension downlink site.

The receiving equipment for each site includes a mesh-design steel antenna dish designed to withstand the wind and snow of Iowa's winters. The fully automatic motorized dual band system features a top-of-the-line automatic satellite receiver with pre-programmed memory. The large volume of the purchase and the fact that it was subject to the state bidding process resulted in a price of a little over $1,000 per site for a system that retails for more than $2,500. Installation costs varied from $200 to $1,600 per site depending on local factors. At the county Extension offices, Extension paid for the equipment with campus funds; in most cases the Extension council paid the installation costs.

Other equipment, such as color monitors, videocassette recorders, camcorders, and rolling cartswere supplied as needed.

Statewide Tool

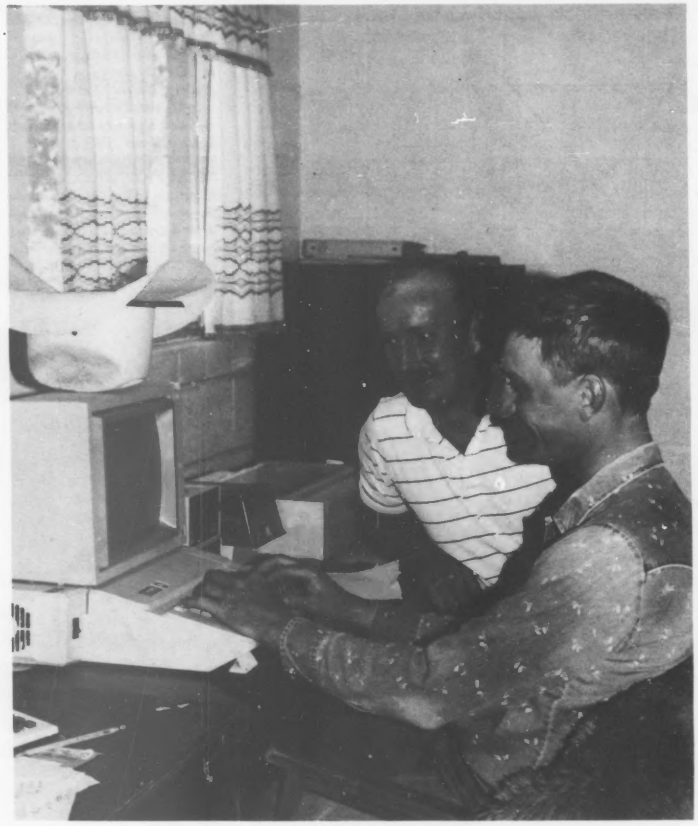
Iowa's decision to build an uplink was made in late May 1985, and the unit was operational in only 72 days. The first Cooperative Extension program aired on January 13, 1986, linking 4-H members statewide for the first time. Four more programs were delivered that semester. A total of 19 satellite Extension programs aired in the 1986-87 school year. The 1987-88 school year also had 19 programs, including the longest (6 hours) and the one with the shortest lead time (2 weeks from planning to air time).

This satellite dish at the County Extension office in Marshalltown, Iowa, was installed on a tall pole beside the building both for better reception and as a security measure against vandalism. Since summer 1986, enough satellite receiving equipment has been installed at county Extension offices throughout the state so that no one has to drive more than 20 minutes to reach an Iowa State University Extension downlink site.

ISU Extension has decided to adopt the satellite television system throughout the state as one of its standard tools for delivering educational programs. Soon, this equipment will be as common as telephones, computers, and photocopiers in Iowa Extension offices.

ISU Extension designs most of the satellite programs for Iowa audiences, but makes them available to other states free or at cost of educational materials. The programs are listed on Dialcom under the "Sat Cal" heading. ▲

Keeping Nevada Ranchers In Business



Lora Minter
Extension Publication Writer,
University of Nevada, Reno

On the one hand you have the Maytag repairman of that well-known TV commercial—bored, lonely, yearning for that eternally elusive phone call promising work.

On the opposite hand you have Ron Torell. The phone in his Elko, Nevada office rings incessantly; his busy schedule allows no room for boredom.

In spite of the demands, 33-year-old Torell insists he has the best job not only in the state, but in the entire country. He is the Extension livestock specialist for northeastern Nevada.

Torell believes some of the most progressive cattle-producing families in the Nation live in the northeast corner of Nevada. He also suspects a portion of their success can be attributed to a willingness to explore new technologies.

"These people are searching for ways to make their industry competitive," he notes. "My job is to help them do just that."

Consigned Cattle Samples

Bob Reed, chair of the Nevada Cattlemen's Research and Development Committee and owner of a ranch near Elko, is just one livestock producer who utilizes Torell's expertise. Reed is one of six livestock producers who consigned a "representative sample," of cattle to a 1987 retained ownership/feedlot program initiated by Torell. As part of the program, producers traveled to an Idaho feedlot to inspect their fattened cattle, toured a meat packing plant, and received performance and carcass desirability data on the just-slaughtered animals.

Producers were told how their cattle rated in quality grade, marbling, fat thickness, and size of rib eye, among other things.

"This program provides ranchers with an opportunity to discover if they are producing the genetic type of animals that will hang a choice carcass at a young age and still appeal to consumers," says Torell. "Without this information ranchers cannot accurately adjust the genetic makeup of their herds to provide a more desirable product."

"In the future, cattle will be sold based on the quality of the finished beef hanging on the rail, not by the pounds of live beef across the scale," notes Torell. "Today's health conscious consumers are demanding lean beef and forcing ranchers to change the way they produce and market cattle."

In 1987, six producers provided 50 cattle for the retained ownership program; last year 22 producers volunteered 220 steers for the experiment.

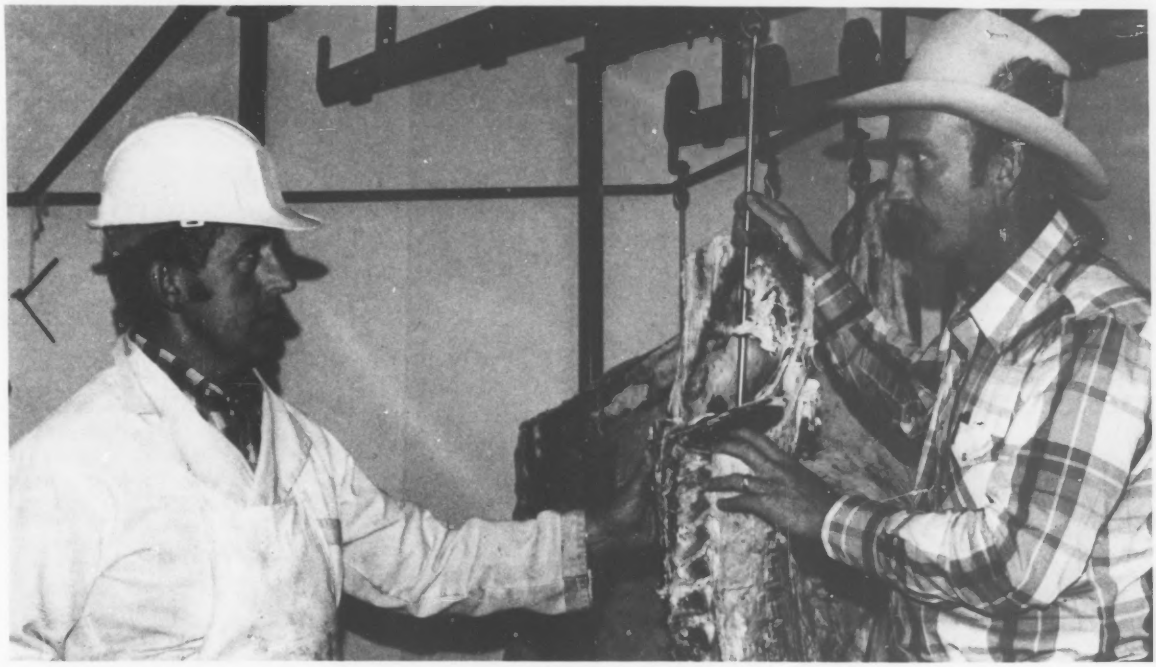
Satellite Auctions

Retained ownership is one marketing option that may increase the price a rancher receives for cattle. Another alternative introduced by Torell is selling animals via satellite auctions.

The vast majority of the area's cattle traditionally have been marketed through a few order buyers, Torell reports. In a satellite sale, however, buyers from across the country bid on cattle after reviewing a videotape and herd data sheet.

Satellite sales were introduced to northeastern Nevada producers in early 1987 during an Extension-sponsored marketing workshop. In July that year, Lee Livestock owners Ed, Paul, and Mike Sarman became the first ranchers in the area to sell cattle via satellite. Since then, 2,000 head of local cattle have been sold in this manner.

"The average sale price has been $.03/lb. profit above the local market," Torell says, adding, "Producers feel that local buyers have been forced to offer a price 3 percent higher than in previous



years because of the increased competition. Satellite sales are now setting the local market."

Breeding Soundness Program

As a livestock specialist, Torell also addresses the profitability concerns of Nevada's sheep producers. Torell, Area Chair A.Z. Joy, and Extension Veterinarian Bill Kvasnicka have created a breeding soundness program designed to eradicate ram epididymitis, a disease that reduces fertility in approximately 41 percent of Nevada rams.

The program is designed to educate producers about the cause and control of the disease, determine the extent of infected rams, and identify rams that need to be culled. So far 65 percent of Nevada range rams have been tested and 90 percent of Nevada's range sheep producers have attended the educational seminars.

Torell and Joy have earned a national, first place award from the National Association of County Agricultural Agents (NACAA) for their ram epididymitis program.

In another trial, personnel from seven ranches are cooperating with Torell to obtain pelvic measurements on first calf heifers. Approximately 1,400 heifers have been measured; results will be distributed to all producers in the area.

One thing comes out loud and clear when talking to northeastern Nevada ranchers—they want to obtain the best prices they can for their beef, and they want to diversify to increase profitability. Their future depends on it.

Torell and his programs influence the future of these ranching families—in more ways than one. Many of the 4-H youth he teaches today will operate ranches in the future.

Information From 4-H Program

Torell's "4-H Live Animal to Carcass Evaluation" has provided more than 300 4-H youth and 200 producers with detailed animal and carcass information. 4-H'ers in the beef project raise an animal while being taught about animal health and nutrition, halter breaking, handling, financing, fitting, and showing. Torell then prepares a slide presentation that shows pictures of each animal—side and rear views of the feeder, a ready-for-slaughter animal, and the hanging carcass with rib eye exposed.

Because of this program, Torell was selected from county agents nationwide to receive a "Search For Professional Excellence" award, presented at the NACAA's 1988 convention. ▲

Extracted from an article in AGFORUM, *Fall 1988, Vol. 4, No.3, a quarterly newsletter published by the Agricultural Information Office, College of Agriculture, University of Nevada, Reno.*

Opposite: To increase the firm's ag profitability, Mike Sarman of Lee Livestock (foreground) reviews a computer program with Ron Torell, Extension livestock specialist. This page: Torell (right) discusses a beef carcass with Buddy Legarza, an Elko, Nevada slaughterhouse operator.

The Software Solution

Carol Y. Swinehart
Extension Communication Specialist,
Sea Grant Extension,
Michigan Sea Grant College Program,
East Lansing, Michigan

The demand for boat slips like these along the River Raisin south of Detroit makes many marina operators consider expanding their facilities. Sea Grant Extension software helps district agents analyze and explore options before clients make investments of capital.

The telephone rings in Stephen Stewart's office in Mt. Clemens on Lake St. Clair, 30 miles north of Detroit. Stewart is a district agent for Michigan Sea Grant Extension.

The telephone call is from Pam Schmitz of Monroe. Schmitz explains that she and her partner Terry Runyon are hoping to build a new marina on the River Raisin, a sluggish stream that meanders through the agricultural area of southern Wayne and northern Monroe counties and empties into Lake Erie at the city of Monroe, 30 miles south of Detroit.

Schmitz has heard that Stewart may be able to help them develop their marina business dream into a reality.

Since 1977, Stephen Stewart has served the seven counties that extend from the Ohio border near Toledo on Lake Erie north through the Detroit River, Lake St. Clair, the St. Clair River, around the "thumb" area of Michigan's lower peninsula, and along the eastern shore of the Saginaw Bay to Bay City. The population of this 475-mile stretch of shoreline is 4 million people—roughly half the state's population. Also to be found there are a quarter of Michigan's anglers, 22 percent of its recreational boaters, 40 percent of the state's marinas, and 59 percent of the total dockage for recreational vessels.

Developing Tools

With this much territory, dozens of coastal communities, and a variety of clientele, Stewart has had to develop some efficient and effective tools. About 5 years ago, Stewart realized that software could help solve some peoples' basic problems with their coastal property and businesses.

Since them, Stewart has developed several spreadsheet programs to assist various groups in making decisions. He schedules an appointment with his new clients, Pam Schmitz and Terry Runyon, and mails them a questionnaire about their proposed project to complete and return before their meeting. How many slips (seasonal or transient, wet, dry stacked, or trailer) do they intend in their new marina? What revenue do they hope the marina will produce? What are the marina's total projected operating expenses? What's the projected capital budget?

The questions continue—and include specifics about personal investment, short- and long-term loans and interest, projected life of new construction for depreciation purposes, and other important factors.

When Stewart receives their questionnaire, he enters the responses in the computer model. Within moments, the computer produces an analysis of the total investment the partners can afford. It tells them how they might break even by charging certain rates for their slips and other services. The partners have also been given the building blocks of a business plan, and begin to realize how they will need to organize certain aspects of their operation.

Stewart examines the printout and meets with the partners. At the meeting, he suggests they contact the Michigan Boating Industries Association which can offer them valuable information. He also recommends they call former directors of the Association who can provide the perspective of a successful marina operator and legal expertise.

Support For A Dream
Schmitz and Runyon are elated at the free support they have received from a single phone call. Their dream is taking shape—they can evnvision a marina that can handle large power and sail craft, with accommodations for captains and crews at a hotal on the premises. They decide to maintain contact with Stewart and the others and continue to benefit from the organizational and management information provided by the Sea Grant Extension agent.

To Grow Or Not To Grow
A hundred miles north of Mt. Clemens lies Huron County with 93 miles of Great Lakes shoreline—the longest of any in the state. This area is largely undiscovered as a major tourist destination, but because of its proximity to the state's major metropolitan area is expected to attract visitors and permanent residents in the future.

Several Huron County communities are coming to grips with various aspects of growth related to their Lake Huron location. Although major expansion is probably 10 years away, numerous spots are blossoming in anticipation of waterfront development. Carl Osentoski, executive director, Huron County Economic Development Corporation, knows they need help, especially research-based information that can help them choose the right path, whether they are ready to embrace development or believe it more advantageous to resist it.

Caseville, for example, is ready to expand its marina. Business leaders there need additional information on the number and size of slips to build and ways to handle the increase in customer traffic. The village council in Port Hope has decided the community needs to evaluate how much growth it can sustain. And community leaders in Harbor Beach and Port Austin are attempting to quantify impacts of increasing boating activity and waterfront development.

Stewart has created models that can assist communities in determining how much economic return they will get from an influx of boaters or the building or expansion of a marina.

Osentoski has called on Stewart numerous times for community evaluations and believes that this factually based approach lends credibility to the plans developed by local governments. "Sea Grant information gives local people making decisions an edge," he says. "It has helped them, not only with planning and development, but also with marketing and promotion."

Other Clientele
Some of the other clientele who have benefited from Stewart's spreadsheet approach are charterboat captains, members of bottomland preserve committees, and owners of shoreline property and commercial fishing operations.

Great Lakes shoreline property owners, for example, have had some particularly difficult decisions to make in recent years, with widely fluctuating water levels, accelerated erosion, and coastal flooding problems. Their questions usually involve knowing whether it pays them to invest up to several times the value of their land and structures in erosion mitigation and floodproofing measures.

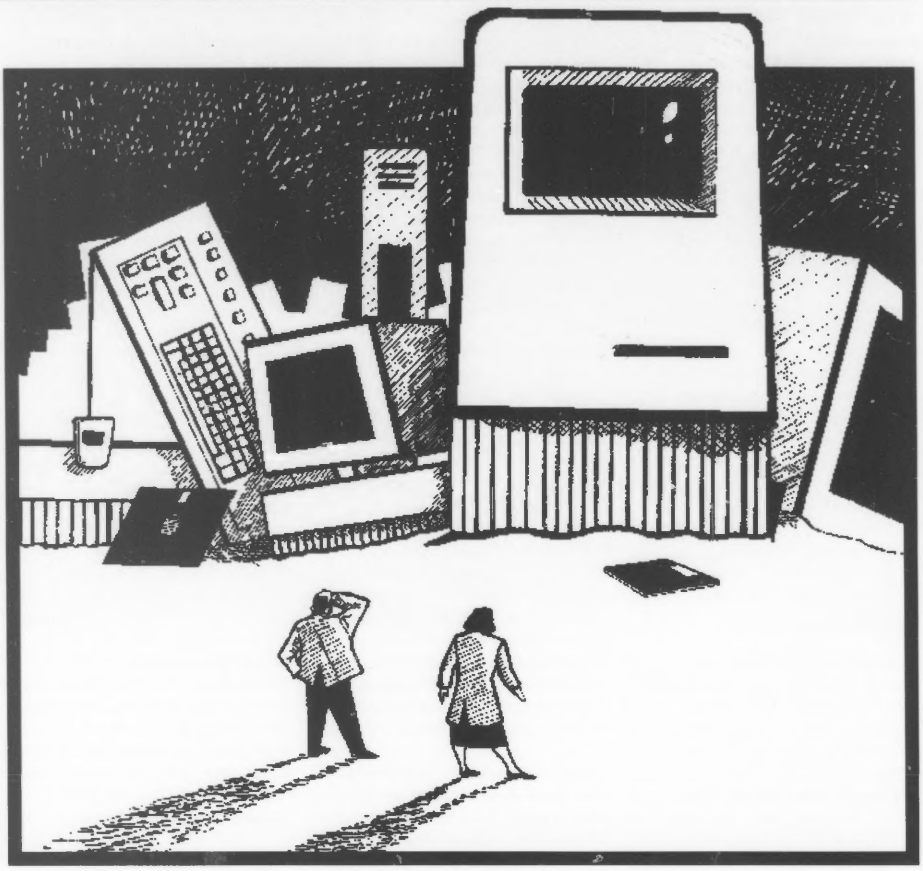
By completing one of the Sea Grant questionnaires with information about their use of the property, its physical characteristics, their ability to invest financially in short protection and other data, they can receive an analysis of options for shore erosion mitigation.

Informed clientele can influence others. Stewart tells of one property owner who, after receiving his analysis and information about proper design of seawalls, convinced a local coastal contractor to modity his installation procedures to improve drainage.

The software has definitely been valuable to Stewart and his Michigan Sea Grant Extension colleagues in managing clientele information. And Carl Osentoski, Pam Schmitz, Terry Runyon, and many others would definitely agree that it has helped clients with their decisionmaking needs. ▲

Choosing The Right System

Esther Maddux
Extension Financial Management Specialist, and
Tom H. Broom
Extension Head, Computer Services Department, University of Georgia, Athens



Computers are a fact of life for today's educators. Unfortunately, the system you purchased a few years ago may not meet your current requirements. When the time comes to upgrade or replace it, careful planning will help you select the best equipment for your money.

The first and most important step in choosing the right equipment is to define the educational tasks for which you will use it. Next, determine what software and hardware will be required to carry out those objectives. Here are some guidelines for the computer system requirements for several typical Extension education tasks.

Desktop Publishing Task:
To produce materials that have columns, pictures, graphs, and a variety of type styles.

Software And Hardware Requirements:

. Word processing program

. Desktop publishing program

. Graphics program

. Hard disk drive

. 640K memory (minimum)

. Color monitor

. Laser printer

. Mouse

The software and the laser printer must be compatible and correctly interfaced. The desktop publishing program must be able to "read" and manipulate both the text and graphics files. It also must have a print driver program that will enable the laser printer to produce the finished product. The printer must be able to print text and graphic images at the same time. Be aware that a significant amount of time must be invested to learn all the features of this hardware and software.

Financial Materials Task:
To produce educational resources concerning farm, business, or home finances.

Software And Hardware Requirements:
. Electronic spreadsheets

. 640K memory (minimum)

. Hard disk drive

. Printer with graphics capabilities

Choose an electronic spreadsheet that will meet your immediate needs and that the manufacturer will support in the future. If you are producing spreadsheet templates for distribution to your clientele, determine which spreadsheet the majority are already using.

Program Evaluatio Task:
To produce program evaluation summaries and reports.

Software And Hardware Requirements:
. Database program

. Electronic spreadsheet

. Statistical package

. Communication program

. Computer with minimum cpu speed of 10 MHz

. 640K memory (minimum)

. Hard disk

. Modem

. Printer with graphics capabilities

A database or spreadsheet is necessary to input data. A spreadsheet will allow you to do elementary statistics and graph the results. To make an indepth analysis, such as determining the relationship between variables, you will require a more powerful statistical package. After you enter the data in a database file, you can either analyze it with your own statistical package or use a modem to access the statistical capabilities of a mainframe computer. In either case, the computer can generate descriptive statistics as well as show relationships.

Visual Presentations Task:
To produce visuals.

Software And Hardware Requirements:
. Word processor

. Electronic spreadsheet

. Graphics program

. Slide show presentation package

. 640K memory (minimum)

. Hard disk

. Mouse

. Color monitor

. Overhead projector

. Camera and program (to capture screen image for slides)

. Plotter or printer to produce transparencies

. Projection device to show PC screen

Any image that can be produced on a PC screen can be converted into a transparency, slide, or visual show. To make an overhead transparency, you need a printer or plotter to produce the image. To make a slide, you must transfer an image from the screen or disk file, through the computer's serial port, to a camera.

In addition, you can create visual shows from computer screen images that are projected one at a time, in any order. Presentations can be either black and white or color, depending on the equipment. You may need an adapter card to interface the projection device with your PC. Some of these devices require an overhead projector. The images may be blurred unless you use a late-model projector with a good cooling system.

Electronic Communicationv Task:
To communicate electronically.

Software And Hardware Requirements:
. Communications program

. Modem

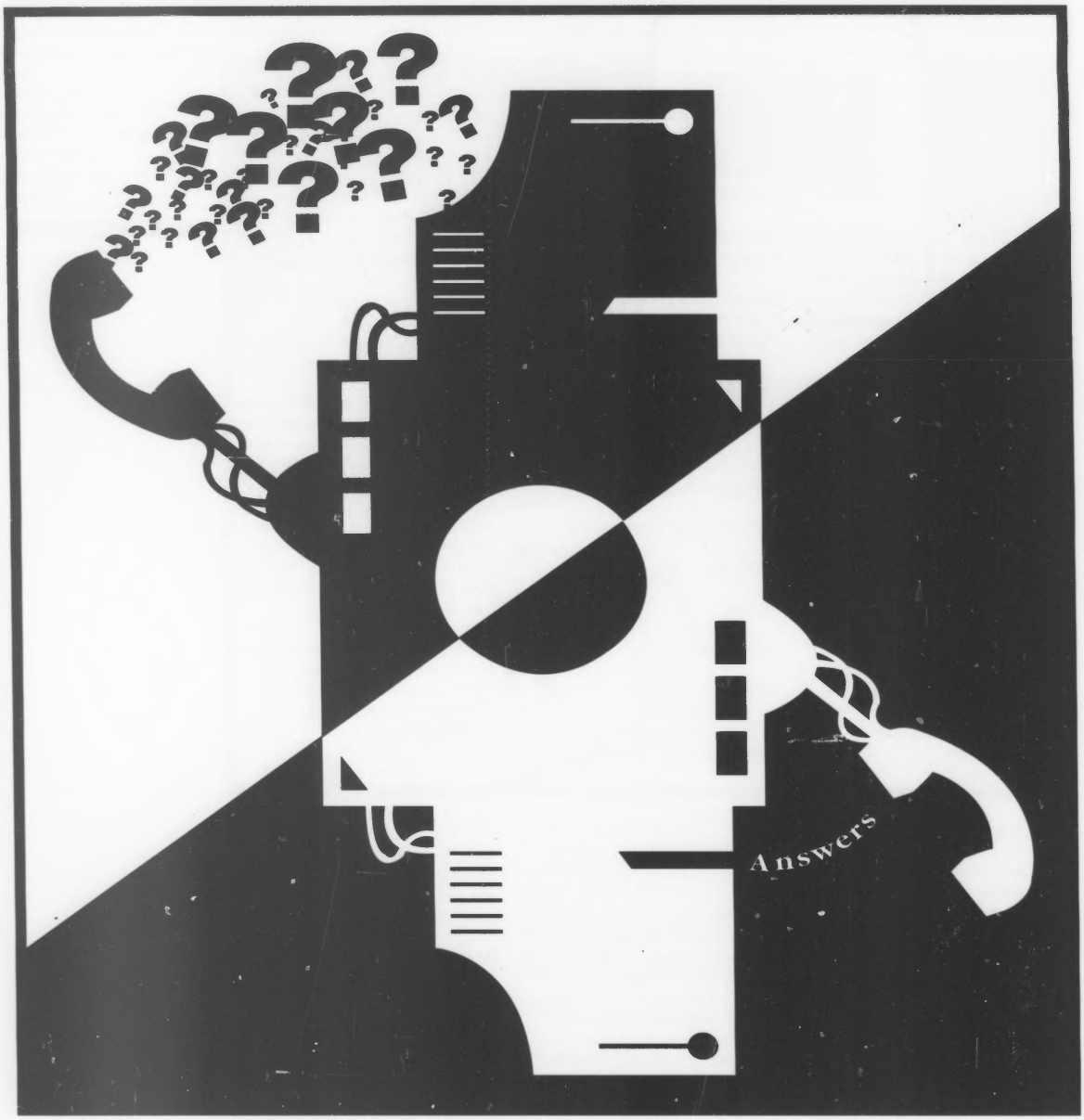
By sending articles electronically to a newspaper's typesetter, you can save time and reduce the possibility for errors. Some state Extension Services use electronic mail as a way to communicate timely information promptly to county offices. Local and national databases accessible from your office can give you information on virtually any subject. Prices vary widely, depending on the type of specialized information you need.

Existing technology would permit NARS reports to be submitted electronically at the state and national levels if funding were made available.

Extension at the University of Georgia is currently using IBM PC's or IBM-compatible computers. WordPerfect 5.0 is used as a word processing program. Those involved with desk-top publishing use Pagemaker for layout and laser printers to produce copy.

Portability
After you evaluate the computer potential of all your educational tasks, consider this final question: Will you be working mainly in one location, or will you need to carry a computer with you as you travel? If the latter is the case, today's portable computers have most of the features that you will require. ▲

INFO-U Answers You!



Sharon K. Conlan
Extension Educator and Assistant Professor, University of Minnesota, St. Paul

One of the most visible needs in a county Extension office is for an efficient way to answer the multitude of home horticulture and food processing/preservation queries that peak during the growing season.

INFO-U, an automated telephone information service (audiotex), is being tested by the University of Minnesota Extension Service. INFO-U has two major advantages: it does not require a live operator, and the cost of its hardware and software is sufficiently low to encourage its use at the county level.

The system was originated by the Wisconsin Extension Service, who agreed to help with the

installation in Minnesota. Wisconsin received funding from Minnesota for the sharing of their scripts, software, and experience.

Trial Period
Minnesota's INFO-U is now in operation in the county Extension offices in Duluth (St. Louis County) and Rochester (Olmsted County.) The 14-month trial period began in September 1987.

The goals of the project are: To reduce the burden on existing Extension faculty caused by budget cuts accompanied by increased demand for popular information services; to extend Extension information services at non-traditional hours to sites other than the county office; to directly involve faculty in the design and testing of new technologies; to explore the potential for regional Extension cooperation and resource sharing; to determine if the audiotex system should be extended statewide; to increase recognition of the Minnesota Extension Service; and to assess the effectiveness of the audiotex project in meeting the needs of consumers. Other objectives are to identify factors which will promote or limit the effectiveness of the audiotex system as it is implemented in other areas, and ways to improve the audiotex system before it is extended statewide.

Using The INFO-U System
The INFO-U system is being used in five ways:
1.- To respond to clients who call the system directly to request specific messages. Clients with touchtone phones can refer to a brochure to choose the message they want and activate the message by pressing the corresponding 3-digit number on their telephone touch pad. At the end of each message, the caller may activate another by entering a new number. The caller with a rotary-dial telephone hears a special tip of the day.

2.- To serve clients transferred into the system by county office staff. When a caller phones the office to ask a question and no agent is available to respond, the staff member who answered the call checks to see if there is an audiotex message on the subject. The caller is invited to listen to the recorded message and then call back immediately if the question has not been answered.

3.- To promote Extension publications. At the end of each message, callers may leave their name and address if they want to receive a list of available publications. These mailings are done daily.

4.- To make local announcements. Custom messages might include information about special classes; crisis situations (such as a sudden insect infestation); special local events; or the activities of organizations (such as 4-H clubs).

5.- To serve callers transferred into the system after talking to an Extension agent. This option is not used often, but it is available to the agents.

System Description
The audiotex system, as developed by Wisconsin Extension, is a cost-effective, flexible, and useful outreach service based on a PC-AT compatible computer with an 80mb hard disk drive. The size and number of hard disk drives can be increased to provide a larger information base.

Voice messaging activities, such as sound digitizing; file compression; and telephone call handling are managed by an expansion board from the Dialogic Corp. Programming the events and activities of the system is accomplished with a separate software package from Telephone Response Technologies. An applications program developed by the Wisconsin and Minnesota Extension Services is specifically designed to work with the system. The cost of the hardware is approximately $6,500.

While extensive programming experience is not needed to manage this combination of hardware and software, many offices for which this technology can be useful will not have the expertise to comfortably assemble the components. Users without substantial computer experience would need to arrange for some technical assistance, particularly in the beginning. As used in Minnesota and Wisconsin, however, the system is easy to maintain once it has been placed in operation.

Future Plans
The pilot testing of the system in the two counties is meeting the goals of the project, and INFO-U is expected to continue to operate beyond the pilot period. Other areas in Minnesota are being explored as possible sites for an INFO-U system.

Both the University of Wisconsin and the University of Minnesota are interested in helping other states get started with an audiotex system.

For further information about INFO-U, contact Bob Ellison, Wisconsin Extension, at (608)263-4928 or Bob Rubinyi, Minnesota Extension, at (612)624-2708.

Research Report Available
To obtain a free monograph reporting the Minnesota INFO-U research results, contact:

Telecommunications
Development Center
Minnesota Extension Service,
University of Minnesota,
43 Classroom Office Building,
St. Paul, Minnesota 55108
Phone: (612)624-3616 ▲

Video Beams A Forest Education

Steven Anderson
State Extension Forester and Assistant Professor of Forestry,
Department of Forestry, Oklahoma State University, Stillwater

Videoconferencing is a recent effective method used in natural resources educational programming. Videoconferencing, involving the production of a satellite broadcast which subsequently can be received at any location that has a satellite dish, can employ a variety of formats. They can be previously taped and edited, they can be a "live" broadcast, or they can be a combination of both. They can include presentations by professional personnel, interviews with landowners, computer graphics, and action "cutaways" of appropriate subject matter. The format also lends itself well to panel discussions where questions can be received from the audience via telephone and answered immediately on the air.

The educational possibilities for this method of communication become apparent when one considers that as of March 1988, the National Satellite Broadcasting Corporation had installed 2.8 million satellite dishes in the United States. Seventy percent of these satellite dishes are on farms and ranches. Rural homes are installing dishes at the rate of 20,000 to 25,000 per month.

In March 1988, Oklahoma Extension—in cooperation with the Texas Agricultural Extension Service and the Texas Parks and Wildlife Department—produced a 1-1/2 hour videoconference titled "Management For A Hunting Lease Operation."

Although dealing specifically with lease hunting, the program was applicable to recreational leases in general. The program provided a history of lease hunting and the pros and cons of this type of operation. In addition, the program was designed to address identification of management objectives, marketing techniques, the elements of a lease, and liability considerations.

The intent was to provide practical information to the farmer, rancher, or landowner who is examining a recreational lease as an alternative enterprise. The target audience also included natural resource managers.

Viewing Sites

In Oklahoma, 16 locations were designated as viewing sites. At each site a representative from the State Department of Wildlife Conservation was present to answer any questions not answered during the program.

In Texas, county Extension agents arranged for viewing sites that had access to a satellite dish. Five locations—including a local rancher's house and a Vo-Ag building—were used.

The night of the program 20 other states received the program. Approximately 1,500 to 2,000 land managers and landowners viewed it.

Effect On Wildlife Habitats

In Oklahoma, the participants who returned an evaluation form indicated that they have a combined ownership of over 80,000 acres. Our follow-up phone survey, performed 6 months after the videoconference, revealed that some landowners had or were going to make improvements on over 16,000 acres as a result of the program.

The videotape has been used in landowner programs in Oklahoma concerning forestry and wildlife and will be used as instructional material for a range improvement class.

Other State Responses

One of the bonuses of producing videoconferences is the residual value since programs can be taped and reused in total or in part. Over 15 organizations have purchased copies of the program to use in further educational efforts.

The following is a list of how Extension personnel in various states intend to use the program—

. *New York* - Plans are under way to use the videotape in a program on hunting lease alternatives. It will be made available to county agents and representatives of outside organizations.

. *Maine* - The videotape will be used in the state's alternative agriculture and small business issues programming. There is a possibility of it being used in public policy classes.

. *Tennessee* - Since the initial broadcast, 300 farmers have viewed the videotape. The tape was edited into a 15-minute segment and shown at four landowner meetings.

. *California* - The state included the program in their video library. They plan to show the tape at a membership meeting for a new trade organization.

Delaware, Vermont, and Wyoming will use the program in their videotape loaner systems and in future workshops.

Videoconferencing represents a large investment in hardware and effort to produce quality programs. However, the natural resource community must utilize all available avenues to produce the most effective educational materials. Although not a panacea for all future educational efforts, videoconferencing must be considered in our educational programming. As landowners and natural resource managers become more familiar with the medium, and as the delivery infrastructure improves, videoconferencing will represent an effective means to involve a national audience and segments of the target population difficult to reach. ▲

Challenges Of The Computer Age

Thomas J. Hoban
Extension Sociology Specialist,
Department of Sociology and Anthropology,
North Carolina State University, Raleigh

Computers will play an increasingly important role in Extension at all levels. Vance Hamilton, Assistant State Director for Support Services at North Carolina Agricultural Extension Service (NCAES) puts it this way: "We started with the assumption that computers were tools for providing educational programs for clientele. We now realize they are important management information tools for us and a means for delivering information more efficiently."

Computers are used in information management (e.g., mailing list), document processing, and communications. A major use of computers at NCAES is the electronic mail system that has been running for over one year.

According to Ed Mrozek, computer services supervisor with NCAES, all parts of Extension are now "hooked up to the rest of the world." County offices are able to obtain accurate and up-to-date information on a variety of topics. Most departments at NCSU maintain active news services. The Department of Agricultural Communication provides news articles that can be "down-loaded" and used by counties in local newspapers. "Computers," says Mecklenburg County Extension Director Neill Cameron, "allow information to be customized for clientele."

Computer education, Ed Mrozek believes, must occur at several levels. "We first have to educate the administration on the uses of computers so they can become strategic planners," he says. "They must be kept up to date on important technological developments." Middle managers, such as district directors and specialists-in-charge, need education, he points out, so they reinforce the importance of computers and instruct their staff on what to do and how to use computers correctly.

"As for Extension personnel becoming computer users," Mrozek comments, "we need a multi-faceted education involving hands-on experience, repetition, and reinforcement."

Strategic planning must also provide a vision of what the ultimate computer system would look like. "County offices must be sure which direction to take," says Cabarrus County Extension Director Alvin Stanford, "to insure technology is compatible and up to date. State Extension needs to determine what the most applicable system would be. After this is well thought out, then we need to commit ourselves to one system so that we can build on it."

Overcoming Obstacles

"Our challenge," says Vance Hamilton, "is to find ways to finance the technology." In North Carolina, the funding, to date, has been a combination of state funds and private sector contributions. Some county offices have been able to purchase additional computers with county funds.

Limited staff access to computers is a related constraint. "With 10 to 20 people in some offices and only one computer," Mrozek says, "each person will be lucky to get one hour every other day. They need time to practice."

This is a particular concern to Neill Cameron who adds that, "we are running so fast to carry out programs that we don't have enough time to familiarize ourself with computers."

Extension Sociology Specialist Steve Lilley suggests giving agents more time to learn to use computers. He cautions that we must recognize the costs of learning a new technology. "We may see some short term drop in productivity," he says. "The technology itself is unnecessarily complicated. Novices have to learn too much at one time. In fact, many people are not comfortable with the most basic computer skill, namely, typing. It will take time for everyone to become comfortable with computers."

Dan Hoag, Extension economics specialist, feels that Extension spends a lot of money and effort developing computer materials (software) for clientele. However, Hoag believes that little time and effort are spent helping clientele learn why and how they should use it. The traditional mode of conducting a 2-hour workshop will not work, Hoag comments. "People need hands-on experience with computers," he says.

Future Opportunities

"In the future we will discover more new educational uses for computers," Hamilton says. "We can help build the interest and skills of our clientele, but first we need to become more knowledgeable ourselves."

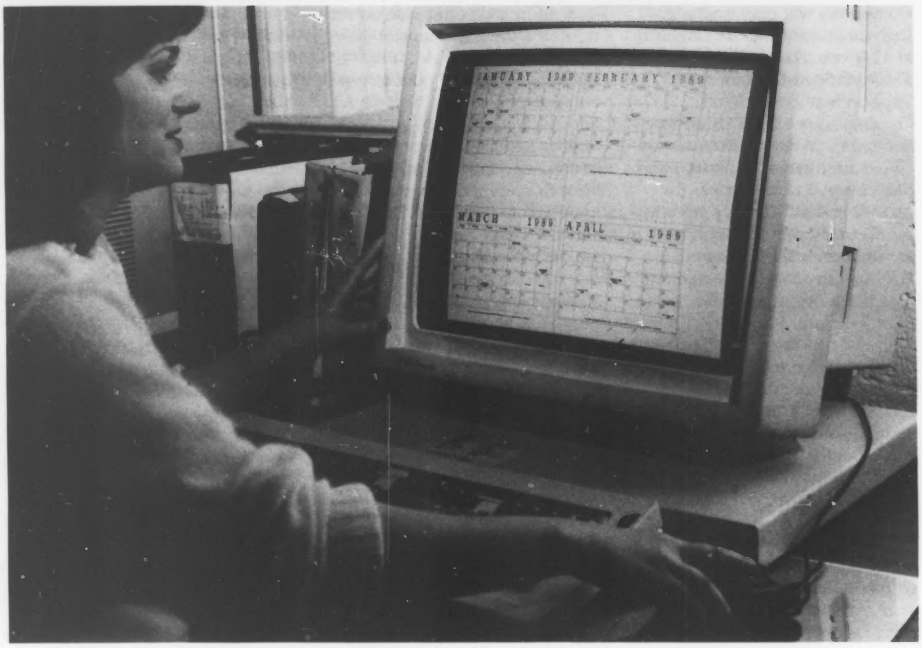
Computers, Cameron believes, will be particularly important for reaching new audiences, especially in urban areas.

Mrozek point out that we are "seeing many technologies coming together to greatly increase our capabilities. It's a really exciting, but challenging, time."

From the county perspective, Stanford agrees that "Computers offer us a lot of opportunities. We can't afford not to move as quickly as possible."▲

When Electronic Publishing Pays Off

Colleen Kelly Clark
Extension Head,
Office of Information and Publications,
University of Maryland,
College Park



Opposite: The Office of Information and Publications at Maryland Extension used its integrated publishing system to create this 75th Cooperative Extension Anniversary Calendar cover with its February page and historical photograph. This page: Julie Perrotta, senior computer operator at Maryland Extension, prepares the Anniversary Calendar for production on the page makeup terminal.

As the state sweltered in record heat and crops cooked in the fields, Maryland Extension published almost daily bulletins and factsheets advising farmers on ways to weather the drought of 1988.

An integrated publishing system from Penta Systems International, Inc. and Data General enabled Extension's Office of Information and Publications to quickly send out a steady stream of vital information from specialists and researchers throughout the state.

Reaching Every Citizen

The goal of the Office of Information and Publications is to provide educational information and delivery systems that reach every Maryland citizen. As a first step in meeting this challenge, the university installed a highly flexible and versatile integrated publishing system in 1987. Grant income provided the down payment on a 5-year loan, and printing income pays the annual loan payment.

Maryland selected the Penta system because it provided a departmental network including individual equipment and software for various job functions—ranging from editing and typesetting to word processing, office management, and telecommunications. The system could drive the department's Allied L300 laser typewriter. With capability for 250 simultaneous processes without loss of speed, the new system has future port and memory expandability. Use of the system allows Information and Publications Staff to expand their services, improve the quality of printed documents, and free them from repetitive jobs for creative design work.

Since early 1987, a Data General MV/7800 DC running DG's Comprehensive Electronic office (CEO) and Penta software has helped the office meet its goals. In fact, in the first 18 months the system was installed, the amount of publication work produced by the office increased 60 percent.

Penta's editorial and publishing software provides the university's editors and publications specialists with an array of electronic tools that help them transform articles written by Extension specialists and scientists into publications that can be used by farmers, gardeners, agribusiness people, 4-H club members, consumers, and members of community groups.

The Process

The articles sent to the Office of Information arrive as "electronic manuscripts." The vast majority are created on IBM PC's using WordPerfect. The manuscripts are transferred into the publishing system by Penta's communications software.

Articles are also developed by the staff writers who work at CEO terminals, either DG 210's or 416's. When they are ready to be typeset, these manuscripts flow directly to the composition department through the CEO Publishing Interface.

Publication editors mark the copy while editing it—indicating heads, subheads, bold and italics, etc.—with video attributes and established formats.

Once edited, an article is printed out on a laser printer. The author receives a copy of the article which shows side by side the edited version and the original manuscript. This allows the authors to easily compare the two versions and check for accuracy.

Once approved by the author, the document is prepared in final form for output on the L300 typesetter.

Penta software handles even the most sophisticated layouts, including multi-column tables, word wraps, multiple typefaces, and mathematical and scientific formulas.

The new integrated publishing system has enabled the Office of Information to receive, edit, and produce a fully typeset article in one day. Since the printing is done by the Office's Agricultural Duplicating Service, documents can quickly be turned around and sent across the state.

Easy Access

The Office of Information's faculty, associate staff, classified employees, and part-time student workers and interns have access to 12 CEO and 5 Saturn terminals, two laser printers, and one letter-quality printer.

Telephone messages, memos, meeting announcements all reside on CEO, not on paper. With CEO's electronic mail, the office was able to eliminate one support position. This savings was applied to maintenance contracts and security for the system.

CEO is used for correspondence as well as the marketing and direct mail lists for media and special events. Writers can use the public drawer capability to merge stories for a press packet. The office also uses CEO data tables for its news and clipping service logs, publications, production and video resource center tracking. A "Present" business graphics package allows the user to prepare special reports creating pie charts and bar graphs from data table information.

CEO provides the telecommunications link that enables the university to electronically send press releases to wire services, newspapers, and radio and television stations throughout Maryland and bordering states, and to take advantage of national databases and networks.

The Office of Information subscribes to Dialcom, Farm Bureau's ACRES, and other information services. These services provide a daily early morning synopsis of all the agriculture-related news stories that have appeared within the last 24 hours in papers across the country and access to Dialcom's SATCAL and video database. News writers are also being trained to use the DG One laptop portable computer so they can work at remote locations.

With any new technology there are changes and unforeseen complications. The entire staff spent a profitable week at Data General's training center becoming "computer literate." However, systems management continues to be an additional time factor. The department hired a computer science graduate student and upgraded the two phototypesetter positions, but the largest responsibility continues to be on the Publications Manager Anne McLaughlin.

Future

Information technology continues to advance, and as the consumer buys new digital systems for the home, Extension must gear up for new delivery systems and opportunities. The Office of Information also has purchased state-of-the-art SVHS video production equipment for its educational video and teleconferencing section.

The staff is also investigating a computer graphics system for the designers, and interactive video public information kiosks. Technology is a tremendous challenge — knowing where to sink time and resources. However, our first major investment, the electronic publishing system, has really paid off! ▲

Touch Video At Governor's Conference

Colleen Kelly Clark
Extension Head,
Office of Information
And Publications,
University of Maryland,
College Park

Tom Tate (left), program analyst, Extension Service, USDA, discusses new Touch Video with prospective user at the Governor's Conference On The Future Of Maryland Agriculture in Baltimore. After the Governor's Conference, the kiosk with its public information delivery system was used at various national conferences and at USDA headquarters in Washington, D.C.

Attendees at the Governor's Conference On The Future Of Maryland Agriculture in Baltimore last Fall had an opportunity to see—and try—an information tool that has the potential to educate a growing audience of Marylanders about various consumer and agriculture-related issues. Called Touch Video, this tool allows urban and suburban residents to learn at their own pace about nutrition, horticulture, conservation, Maryland agriculture, and food products at such diverse locations as libraries and shopping malls.

"Interactive video holds great promise as a public information delivery system for Maryland citizens," says Craig S. Oliver, director of the University of Maryland Cooperative Extension Service. "For example, it can provide a directory of Extension state services and county programs as well as pertinent research-based information from the University. While increasing the availability of Extension assistance to the Maryland community, it may reduce routine telephone requests to county offices. Touch Video users can get answers to their questions both on the screen and on paper to take home."

Presentation

Housed in public service kiosks that can be stationed permanently at selected locations or moved for special events, interactive video systems present information using narration, music, still and motion photography, graphics, and text. Users can make choices and have questions answered by simply touching the screen. An attached printer allows them to print out the answers.

The kiosk on display at the Governor's Conference is one of several prototypes being evaluated by Extension's Office of Information and Publications. It is sponsored by the Maryland Cooperative Extension Service and the Maryland Department of Agriculture and Extension Service, Communication Information and Technology staff.

In addition to the interactive video system, the six-sided kiosk features a VCR and playback monitor showing a series of videotapes on Extension and 4-H initiatives, the Governor's Maryland with Pride campaign, and the Chesapeake Bay. The remaining four sides display posters focusing on Maryland Department of Agriculture Extension, the Maryland Agricultural Experiment Station, and the University of Maryland Colleges of Agriculture and Life Sciences at College Park.

After the Governor's Conference the kiosk was used at various national conferences and at USDA headquarters in Washington, D.C. Other state leaders in Touch Video technology are Virginia, South Carolina, Maine, Wisconsin, and New Mexico.

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Information Transfer In The Pacific Basin

The Pacific Basin is the area of the Pacific Ocean bounded on the east by the United States, on the west by the Phillippines and Japan, on the north by the Aleutian Islands, and on the south by Australia and New Zealand.

In this basin are five American-affiliated island groups, each of which has a land-grant institution. The island groups are Hawaii; American Samoa and Guam, both unincorporated U.S. territories; the Freely Associated States of Micronesia, a union of three newly independent nations—the Federated States of Micronesia (Pohnpei, Truk, Yap, and Kosrae), the Marshall Islands and the Republic of Belau—all in close association with the United States; and the northern Mariana Islands, a commonwealth state in association with the United States.

The islands are far from the U.S. mainland, and many of them are far from each other. Hawaii is about 2,500 miles west of California; American Samoa is more than 2,000 miles south of Hawaii; and Belau is 4,500 miles west of Hawaii. The population of the Pacific Basin is only 1,237,000, of which 965,000 are in Hawaii.

Cooperation

Administrators in the five land-grant institutions in the Pacific Basin realized that, because of their limited resources, they could more effectively promote agricultural development as a group. In 1987, the directors met to form the Agriculture Development in the American Pacific Project (ADAPP).

Among the task forces formed to guide the ADAPP was what has become known as the Communications and Databases Action Group (CDAG). Consisting of one member from each institution, plus a chairperson, the CDAG is responsible for:

. Enhancing electronic mail and document facsimile capabilities not only between the five institutions but also between the institutions and local and national administrative agencies;

. Organizing a computer database development unit at each institution; and

. Coordinating and supporting computer database development.

Selecting Equipment

The CDAG is installing database development and telecommunications computers at each institution. An analysis of cost-effectiveness, compatibility with other U.S. systems, and the amount of agricultural software available led to the selection of IBM-compatible computers that use the MS-DOS operating system.

The telecommunications computer has facsimile transmission capability and will be set up with computer bulletin board software to handle messaging, file transfers, and conferencing.

The database computer is equipped with state-of-the-art color graphics, a high-capacity hard disk drive, a graphics and text recognition scanner, word processing, desktop publishing software, and a laser printer.

Choosing Software

In its attempt to select the best programs for inclusion in the system, the CDAG reviews both commercially produced and university produced database software. Several packages have been chosen for use in the development of bibliographic and human resources databases. For example, a videotex agricultural information system developed at the University of Florida (known in Florida as FAIRS) is being adapted to the needs of the Pacific institutions.

CDAG looks at several factors as it selects software for the system: ease of use of the software; flexibility of the software to be adapted for Pacific institution needs; compatibility with the hardware and with other software; portability of database information to traditional print and visual media; and cross-compatibility, wherever possible, with Apple Macintosh computers.

Enhanced Communication

All computers and an enhanced telecommunications link were scheduled to be in place by mid-fall 1988. Database development has begun; several databases will be nearing completion later this year. The coming year should see further advances in the use of electronic technology, such as possible introduction of laptop computers and graphics production equipment.

The Pacific Basin islands have much to offer each other through information transfer. They also have much to offer the U.S. mainland, especially in the area of tropical crop production. The land-grant institutions of the Pacific Basin are looking forward to an enhanced information and communication exchange with each other and with their counterparts throughout the land-grant system. ▲

I. Scott Campbell
Extension Assistant Crop Management Specialist,
College of Tropical Agriculture And Human Resources,
University of Hawaii at Manoa

Nutrition—On Tap With DAP

Beth Branthaver
National Program Leader,
Food Marketing,
Extension Service, USDA
And
Alyson L. Escobar
Nutritionist,
Human Nutrition Information Service,
USDA

Opposite and this page: Pilot testing by Extension has indicated that USDA's Dietary Analysis Program (DAP) can be used to teach Extension clients how to make healthy food choices. Here, the menu-entry approach allows consumers to enter foods for analysis. The USDA DAP database consists of nutrient values for about 850 commonly used foods.

People are increasingly interested in analyzing their personal eating habits, and advances in computer technology are making this kind of analysis easier and more accurate. Feedback from computerized dietary analysis allows educators to personalize nutrition education programs and to more easily set and evaluate specific, measurable goals.

Though both Extension and its clients can benefit from dietary analysis software, use of these programs raises some concerns. Since consumers are likely to be impressed by the appearance of the printout, they may give undue credibility to the data. They may find the printout hard to understand or they may draw unwarranted conclusions from it.

As with any educational method, computerized dietary analyses are more effective with some audiences and settings than with others. In addition, there are wide variations in the features and capabilities of software programs.

USDA Software

USDA's Dietary Analysis Program (USDA DAP) is a software package developed by the Human Nutrition Information Service in cooperation with the Cooperative Extension Service. Designed primarily as an educational tool for Extension agents, it was pilot tested by Extension in Maryland, Tennessee, Illinois, and Oregon.

By entering food consumption data covering a period of 3 days or less, consumers can get information on their intake of 28 nutrients and food components. A user-friendly menu-entry approach allows consumers to use the program with a minimum of staff involvement.

Program Output

Information that users can get from USDA DAP includes:

. A complete listing of foods and quantities reported;

. The percentage of Recommended Dietary Allowances (RDA) for 15 nutrients;

. The percentage of calories from protein, carbohydrates, fat, saturated fatty acids, and alcohol;

. Estimated Safe and Adequate Daily Dietary Intakes of sodium, potassium, and copper; and

. Dietary totals for selected nutrients and food components such as fiber and cholesterol.

The program also will produce data for any single nutrient or food component of interest to the user. Interpretive materials that accompany the program explain the nutrient standards, make general dietary recommendations, and provide guidelines for making healthier food choices.

DAP Database

The USDA DAP database consists of nutrient values for about 850 commonly used foods. Nutrient values—the most up-to-date available—were derived from the USDA nutrient database for the 1987-88 Nationwide Food Consumption Survey. Values were estimated for foods on which no data were available. The program allows for easy updating of values as new data become available.

Special Features

The program contains many special features that enhance its use as an educational tool. The menu-entry approach allows consumers to enter foods for analysis without looking up code numbers. Professionals may select a direct-entry approach that uses codes.

Users may change the food and quantity entries and then re-analyze the data to see the effect that small changes have on total dietary intakes. Users may store diet records in computer files, then re-analyze or make changes later.

Menu entry is facilitated by the classification of foods into 13 groups. Users can find the food of their choice by moving quickly through increasingly specific menu screens.

Serving sizes, customized for individual foods, are listed in common household measures. The program stores nutrient totals and user information in computer data files. Extension can use these

files with other software to perform special data analyses such as assessing diets of clientele before and after educational intervention.

Evaluating Potential Uses
Extension received USDA funds to identify and evaluate uses of USDA DAP in Extension programs and activities. Eight States are participating.

At Colorado State University, Patricia Kendall, Extension food and nutrition specialist, is evaluating the use of USDA DAP with Extension homemakers, 4-H youth, Elderhostel program participants, and adults attending Healthy Heart classes. The evaluation will focus on how the program changes nutrition knowledge, attitudes, and behavior, and it will identify the most useful and least useful program features for these audiences.

At the University of Connecticut, Jean Ann Anliker, Extension nutrition specialist, will compare USDA DAP use in single-session versus multiple-session programs and will evaluate its effectiveness with EFNEP participants and as part of a correspondence course for day care providers.

The project at the University of Delaware involves comparing USDA DAP to other methods used to assess dietary changes in EFNEP audiences. Sue Snider, Extension food and nutrition specialist and principal investigator, will use USDA DAP as part of a workshop series on fat and cholesterol and with 4-H youth enrolled in foods projects.

At Mississippi State University, Melissa J. Mixon, Extension human nutrition specialist, will determine whether USDA DAP is effective in weight-loss programs, which usually incorporate lifestyle changes and behavior modification as well as dietary guidance. The project will evaluate the impact of USDA DAP on changes in nutrition knowledge, percent of weight loss, and dietary behavior changes.

At Rutgers University, New Jersey, Audrey C. Burkart, Extension food and nutrition specialist, will compare USDA DAP to the Nutrient Profile Program as an educational tool with adults ages 19 to 40. She also will compare the effectiveness of the program used alone to its effectiveness when accompanied by professional guidance or printed materials.

At Cornell University, New York, Ardyth Gillespie, Department Extension leader, Division of Nutrition Sciences, will coordinate an assessment of the impact of USDA DAP on the behavior of participants in a multi-session diet and heart disease program.

At North Carolina State University, Carolyn Lackey, Extension food and nutrition specialist, will use USDA DAP as part of a rural health screening program conducted with the state's Center for Health Promotion and Disease Prevention.

At Ohio State University, Alma Saddam, Extension nutrition specialist, will evaluate the use of USDA DAP with several traditional Extension audiences, including EFNEP, 4-H youth, weight control groups, the elderly, and pregnant women. The educational impact will be compared to that of more traditional program delivery methods.

Nationwide Use
USDA released USDA DAP for nationwide use as an Extension educational tool. Copies are available for purchase from the National Technical Information Service at a cost of $60.

To order copies call:
(703) 487-4807 and specify Accession Number PB89-138275 and the type of diskettes needed. ▲

Help At Your Fingertips!

Mary Harvey
Extension Information Coordinator,
Michigan State University,
East Lansing

Opposite: A mother and son enjoy the computer interaction at a day-long school computer workshop called "Kids, Parents, And Computers." Extension home economics at Michigan State University has developed comprehensive databases on foods and nutrition and home maintenance. This page: Irene Hathaway (left), Extension specialist in resource management, explains the fine points of the computer forms for the Dollar Watch Program with a client.

It's 9:30 a.m., and you've already had three calls on home canning, someone wanted to know about repairing screens, and another caller asked how many zucchini plants to put in a 4- by 6-foot garden.

What if someone offered you computer disks that would access and print out answers to hundreds of questions on growing, canning, or preserving fruits and vegetables, and on home maintenance?

Imagine, for example, typing the word "zucchini" and getting a menu that lets you access categories such as growing, preserving, or recipes. Think of having the new USDA canning guidelines at your fingertips. Think of the desk and file cabinet space you could clear out.

Now imagine training a secretary or a volunteer to field these routine calls! Or how about having a computer access terminal right in the front office where visitors could call up and print their own information.

Disks Available

The best part of this scenario is that these disks are available to you. Extension at Michigan State University (MSU) has developed and made available two comprehensive databases—one on foods and nutrition; the other on home maintenance.

The MSU Extension Home Economics Program has a long and successful track record of developing and using computer programs. The potential of microcomputers as retrieval systems was recognized and work was begun on developing the two bases to allow county agents to more efficiently generate and provide specialized information to clients.

Successful Uses

These databases can also relieve agents of the necessity to answer routine and repetitive questions. A volunteer can be trained in the use of the databases and then answer these calls.

Both databases have a common interface, which makes it easy for field staff members to operate them. The database program also allows you to import all text into your word processing package.

In the early 1980's when the two programs were being produced and used, staff also were learning to become computer literate. From training staff members, it was only a small step to begin to train clients.

A first Michigan effort in that arena was entitled "Kids, Parents and Computers." The objectives of this program were twofold—to teach some technical skills to kids, aged 9 to 14, and their

parents, and to foster positive interaction between the kids and their parents about the topic of computers.

Daylong workshops were held in school computer laboratories. These began with a math game that served as an icebreaker and helped the parent and child get used to the computer keyboard. The second exercise involved writing, editing, and printing a letter—often to the child's grandparents. The parents viewed a Nova program on the computer language Logo and then parents and children experimented with the Logo program and other software packages.

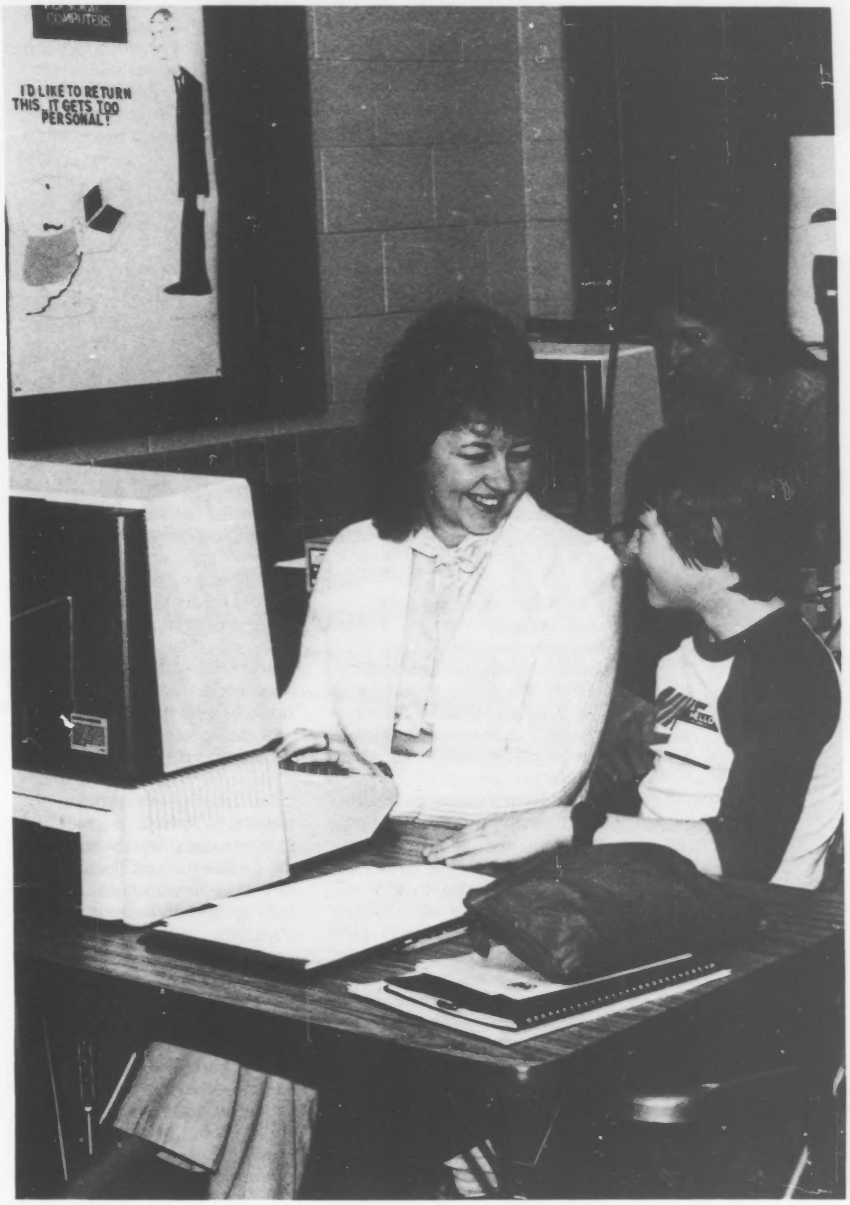
Other Training

Another successful training venture was undertaken with the Michigan Association of Extension Homemakers (MAEH). Training helped MAEH members acquire new skills and strengthen the organization through improved recordkeeping, mailing list management and registration.

Several county offices participated, sending their home economist and two MAEH members to the training sessions.

In 1986, the Michigan Home Economics program developed a home maintenance laser disk that randomly accessed video on how to make simple home repairs. The home maintenance laser disk was displayed at a number of county fairs two summers ago.

The MSU Home Economics program continues to explore computer-assisted programing and education. The Family Data Project, in the east central region, expanded throughout Michigan last October. This project will, in effect, make each home economist the family data expert in the county, and involves using demographic information from a central database and computer-generated reports and graphs to target programs to fit specific audiences in the county.



For more information on the Family Data Project or the food preservation or home maintenance databases, contact:

Mary Lou McPherson
103 Human Ecology Building,
Michigan State University,
East Lansing, Michigan 48824
Phone: (517) 353-9353. ▲

Extension Videotape Network—An Update

Charlotte Travieso
Former Extension Staff Leader, Management Systems, Extension Service, USDA

A review of the Extension Video Network's (EVN) activities reveals that in this short period it has already made significant progress.

When Cooperative Extension System (CES) information technology specialists created EVN they determined that the mission of EVN would be to:

. Develop criteria for the review and distribution of Extension-produced videotapes;

. Coordinate videotape contacts through the Cooperative Extension System;

. Disseminate information on high-quality,general-use tapes;

. Negotiate tape exchanges and cooperative production of tapes; and

. Explore videotape markets.

. *Accomplishments*
In its first year, through regular telephone contact and with only the personal efforts of the involved members, EVN has accomplished a number of tasks.

. *Establishing Contacts*—EVN asked each state Extension Service to appoint a videotape contact person; these names and addresses make up the EVN mailing list.

. *Review Of Tapes*—EVN members developed criteria for reviewing tapes and assigning them one- to four-star ratings. EVN suggests that Extension producers who submit tapes to ES-USDA for review have them reviewed first "at home" for content by a subject-matter peer using the EVN rating form. ES-USDA then obtains an objective quality review. In the first year, more than 75 tapes were submitted for review.

. *Preview Broadcast*—In cooperation with the Iowa Extension Service, EVN produced a preview tape to help states select videotapes. EVN chose 15 tapes that had received three- or four-star ratings for general use, content, and production quality. James L. Hamilton, Head, Extension Communications, at Iowa State University, pulled highlights into a 50-minute show that included information. In April, the preview was broadcast from the Iowa State campus.

. *Catalog And Leaflet*—ES-USDA has assembled a catalog of three- and four-star rated tapes. It includes the names of CES videotape contacts and lists tapes by state, with ratings and reviewer comments. A companion leaflet includes a brief description of EVN.

. *Technology Conference Booth*—EVN hosted a booth at the 1988 Extension Technology Conference. All of the EVN-reviewed tapes were available for preview, and at least 10 institutions signed up to borrow the preview tape. The supply of catalogs and leaflets was depleted.

. *Cost-Sharing*—Even before the birth of EVN, ES-USDA had been in the business of cost-sharing the production and distribution of Extension videotapes. The EVN group fully supports this objective.

. *For The Future*
Videocassette recorders are becoming as common as television sets in both urban and rural homes. The videocassette lends itself well to delivery of Extension programs and information. EVN has plans to foster the continued use of videotapes as an educational tool.

. *Outreach And Outside Review*—The need for Extension-type videotapes is strong, both here and abroad. By using outside sources for tape review, EVN also alerts marketing sources to the existence of some excellent tapes.

. *NAL Acquisition*—EVN has met with National Agricultural Library officials to discuss the idea of supplying Extension videotapes to the library for storage and checkout and for listing in the library's AGRICOLA database.

. *Satellite Preview Broadcasts*—EVN has had satellite preview broadcasts that showed highlights from some of the best available Extension videotapes. The broadcasts are publicized to groups outside the Extension system, such as state departments of education, as well as internally.

. *Shared Production*—In addition to the ES-USDA cost-sharing program, EVN members are looking for ways to support multistate tape production. Tape production can be costly; networking can reduce costs, save time, and result in a higher quality product.

. *EVN Contact*
If you have ideas or comments about the Extension Video Network contact Cathy Selberg, ES-USDA, by calling (202)447-6084 or by using Dialcom AGS 082. ▲

NOTE: In the article, *When Counties Take The Initiative* (page 14, Fall 1988 issue), Faribault County Extension, one of the three major participating counties in the rural Minnesota project known as WATER (Water-Quality Assessment Through Education and Research), was inadvertently omitted.

High-Tech War Against Plant Diseases

Richard Meronuck, Extension plant pathologist at the University of Minnesota, examines a bean leaf in his laboratory. He and other specialists there are using artificial intelligence keys, interactive video, and satellite teleconferencing to help control plant diseases and pest problems.

Jack Sperbeck
Extension Communications Specialist, Communication Resources, University of Minnesota, St. Paul

Minnesota agricultural specialists are employing such high tech weapons as artificial intelligence "keys," interactive video, and satellite teleconferencing in their war against plant diseases.

Extension Plant Pathologist Richard Meronuck, University of Minnesota, has developed an artificial intelligence key using a computer and color video monitor that is effective against bean diseases.

"If you see bean leaves in your field or garden that are wilting and spotted," Meronuck explains, "you pick a few, take them to a home or office computer equipped with my program, then spend just 5 minutes to diagnose the specific bronzing disease. The program can be adapted for other crops."

The program is ready for use in classroom and pest management training, and by county agents. "We use digitized colored pictures from plant disease bulletins for the video. And they can be updated very fast as new information becomes available," he adds.

User Friendly

"The program is very user friendly. If you make a mistake, you can start over by using just one key on the computer," Meronuck points out. "It is also relatively inexpensive. If you have an IBM computer with a hard disk and the right kind of color monitor, you can install the color cards to run the program. Purchase of the additional hardware costs about $3,500 including the software, color monitor, and color and digitizing cards."

Meronuck sees the program being expanded to diagnose diseases in other crops, plus insect and other plant pest problems. "The 'shell' of the program," he says, "will be available for other specialists to use in developing specific programs."

The program currently handles 15 dry edible bean diseases. With the bronzing disease as an example, here is how the program works:

The computer screen asks if lesions are present on the plant. The user inputs "Y" for "yes." Are the plants wilting? Once again, the user inputs "Y." Are certain plants uniformly bronzed or brown? A third "Y" response informs the user of a possible answer: bronzing.

During this program, the color monitor displays a leaf that has bronzing caused by sunlight and air pollution. It is on the left of the monitor, next to a normal leaf on the right half of the screen. The database part of the program (being developed) can inform the user of the latest information on available controls, the disease organism's life cycle, susceptible crops, and other data.

Training For Applicators

Meronuck and other specialists are also developing an interactive video program to help train private pesticide applicators. The program is being used in three Minnesota counties on a pilot basis. "Minnesota has 35,000 to 40,000 private pesticide applicators who need to be trained every 5 years," Meronuck says. "We see the interactive video segment as another training option, in addition to classroom instruction or a home study course."

Stored grain management is another program where new communications technology is being used. Early in 1988, the country's first stored grain management videoconference was held, a cooperative effort of the Extension Services of Oklahoma, Minnesota, Kentucky, and Indiana.

The teleconference was available to anyone able to receive satellite communications. Presentations included videotaped, onfarm demonstrations. Specialists from the four states answered telephone questions from the audience. Many receiving sites had local experts—like county agents—on hand to respond to questions.

"There were questions from all corners of the country," says Philip Harein, Extension entomologist at Minnesota. The program originated at Oklahoma State University.

"Improper stored grain management is a big problem," Harein states. He estimates that stored grain insect losses in 1988—in just Minnesota—at over $100 million.

"Quality of our stored grain must be improved or we will suffer competitively. We need a national push in this area," Harein says.

Everyone believes the national stored grain videoconference was a good beginning. ▲

Dual-Language Videos—Expanding The Outreach

Ellen Ritter
Extension Communications Specialist, Texas A&M University, College Station

At an Austin, Texas, housing project a group of women, men, and children crowded around the television set in a small community room to see a videocasette called "Planner Lo Que Come" ("Planning What You Eat").

In Centerville, Texas (population 900), 40 women came from their jobs in downtown banks, offices, and stores to the village meeting room for an Extension "lunch and learn" series.

Although separated by distance, age, ethnic background, and language, these people and thousands like them have been learning about nutrition from the same resource—a video series produced by the Texas Agricultural Extension Service.

The Family Nutrition Series

The Family Nutrition video project grew out of continuing discussions among Extension home economics and communications faculty at Texas A&M University and Extension agents in the field. "For some time our goal had been to develop innovative teaching resources which would expand the outreach of the EFNEP program and support our efforts to teach basic nutrition to more limited income and young families across the state," says Jennie Kitching, assistant director for home economics.

The result was production in 1987 of a "Family Nutrition" video series in English and Spanish.

To help market the Extension Service as a credible source of nutrition information, several programs present a county agent as the expert conducting a food demonstration.

Several programs depict people of different ages, sexes, and racial/ethnic backgrounds to reach diverse audiences. Other videos were designed for specific target groups, such as young mothers in "Healthy Eating For Young Children."

Volunteer Talent

Locations included a county Extension office, demonstration kitchen, homes, offices, a supermarket, and outdoor sites.

Nutrition De La Familia

Of the 21 percent of the Texas population that is Hispanic, vast numbers are bilingual. However, a significant proportion of Hispanics speak only Spanish, and that number is highest among recent immigrants and low-income audiences. In addition, those who speak Spanish do not necessarily read Spanish. Those who speak both languages may read neither, especially if their only education was 2 to 3 years of elementary school in Mexico. Thus, effectively reaching Hispanic audiences, including the 69 percent of Texas' EFNEP clientele which is Hispanic, often requires oral teaching in Spanish.

To accommodate dual-language production of the Family Nutrition series without incurring prohibitive costs, we planned programs to contain mostly narration.

After a year of use in the field, reports indicate that the Family Nutrition Video series has successfully supported Extension teaching. For Texas EFNEP staff, the series has become a standard teaching resource.

The videos also have given county Extension home economists opportunities to teach low-income families in areas without EFNEP units. Dee Money, Ector County home economist in Midland, Texas is a prime example. Economist Money made the videos available to organizations working with limited-income families in economically distressed west Texas. Under her leadership they formed the Permian Basin Nutrition Council. It includes 17 member organizations, such as Meals On Wheels, a food bank, church outreach groups, the Health Department, medical centers, pre-natal clinics, and senior citizen centers. Through the Food Bank, this educational outreach has been extended to 105 agencies in 22 counties.

Joan Gillespie is a Webb County Extension agent in Laredo, Texas, where, like her, 93 percent of the population is bilingual. She has used both the English and Spanish videos in teaching programs at worksites, hospitals, senior citizens homes, the health department, and the National Guard.

The video series has also been used extensively for other than limited-income audiences. Throughout Texas, county Extension home economists have shown the programs to numerous health-nutrition groups.

In rural Leon County, for example, agent Margaret Caldwell has integrated some of the programs into nutrition workshops for working women and for weight control groups. Other agents report using them as resources for teaching new parents, dual-career families, senior citizens, and Extension Homemakers.

In urban Tarrant County, Extension agent Jalyn Burkett uses the videos to enhance Extension's community profile as a provider of nutrition information. She set up a loan system for the videos and publicized their availability in the media.

The Texas Family Nutrition series exemplifies how Extension has used such technology to reach and teach diverse audiences. ▲

Windows Of Access

Mary Ochs
Document Delivery Librarian,
Albert R. Mann Library
Cornell University,
Ithaca, New York

"How can I find out more about a chemical called DCD?" a farmer asks a local agricultural Extension agent. Traditionally, the agent will seek an answer from a state or regional Extension agronomist. Today, computer technology offers the agent access to another option—bibliographic databases.

Bibliographic databases are computer files of references to journal articles, reports, books, and other sources. Ten years ago they were searched only by librarians or other information specialists. Recently, however, the companies who sell access to these databases have developed menu-driven, user-friendly software that makes searching easy enough for anyone.

A great number of bibliographic databases contain information of use to Extension field staff; the following is only a sample:

AGRICOLA—This National Agricultural Library database contains information on agriculture and related subjects, including agricultural economics and rural sociology, animal science, agricultural engineering, entomology, food and nutrition, forestry, home economics, and resource management.

CAB(A)—A comprehensive database of worldwide agricultural information produced by CAB(A) International. Its many component databases include Nutrition Abstracts, World Agricultural Economics, Rural Sociology Abstracts, Field Crop Abstracts, and Forestry Abstracts.

BIOSIS—The BIOSIS database provides easy access to biological and medical information gathered from government documents, journals, and books, as well as hard-to-find symposiums and proceedings. It is produced by BioSciences Information Services.

CRIS—Provides coverage of the current research projects of the USDA, State Agricultural Experiment Stations, and other cooperating institutions.

Agribusiness USA—Provides a centralized resource for timely, comprehensive information on all facets of the business of agriculture.

NTIS—The National Technical Information Service provides multidisciplinary coverage of unclassified technical reports generated by U.S. government-sponsored research.

Enviroline—Provides interdisciplinary coverage of the scientific, technical, and socioeconomic aspects of the environmental literature.

ERIC—This database of educational materials collected by the Educational Resources Information Center of the U.S. Department of Education contains both journal articles and unpublished reports dealing with education and curriculum materials.

Magazine Index—Indexes more than 400 popular American and Canadian magazines; all articles, news reports, editorials on major issues, product evaluations, biographical pieces, short stories, poetry, recipes, and reviews are included.

Family Resources—Combines material from the National Council on Family Relations with a file called Inventory of Marriage and Family Literature. Covers psychological and sociological literature pertaining to the family and related fields, as well as information on programs, services, and experts in the field.

Telecommunications

Databases are accessible through many vendors, two of which are BRS (Bibliographic Retrieval Service) and DIALOG.

To connect with a database system, a user must have a microcomputer with a modem and telecommunications software.

Some bibliographic databases are also available on compact disks (CD-ROM.) Heavy users of particular databases might consider purchasing the information in this form.

Searching The Databases

A carefully planned strategy is necessary for searching a database effectively. The first step is to choose the most appropriate database(s). Then the question must be broken down into searchable components, and keywords must be assigned to those components.

The finer details of searching cannot be covered here. Documentation from the vendors is helpful, but some instruction from an experienced searcher, plus a lot of practice, is the only way to become a skilled database user.

Document Delivery

The final step is to obtain copies of the text of the articles you want to read. You have three options: (1) Many public libraries provide interlibrary loan service through which they can obtain materials not owned locally. (2) Document delivery services are also available from state land-grant university libraries, many of which are installing computerized catalogs so their holdings can be checked remotely. (3) Commercial document delivery services specialize in providing documents quickly.

A Valuable Tool

Bibliographic databases are a valuable addition to Extension's repertoire. With this tool, Extension staff members will be better equipped to gather the information they need and to provide continued quality service to their clients. ▲

BITNET/INTERNET

Margaret P. Ezell
Former Extension Southern Regional Computer Coordinator, University of Georgia, Athens

Fifty-eight percent of all business telephone calls fail to reach the person being called. Because Extension personnel do much of their work away from the office, they are particularly subject to what is often known as "telephone tag."

A growing percentage of internal Extension communication is being conducted through electronic mail (e-mail) rather than by telephone and U.S. mail. Many states in the Southern Region have extensive e-mail networks that connect all Extension staff members within the state.

International Network
In an attempt to find ways to communicate electronically with associates in other states, many have been surprised to find that they have access to a little-known and under-utilized resource known as BITNET or INTERNET, an international electronic mail network. Through its gateways with other networks, it permits communication with almost all universities and research centers here and abroad.

Diane Relf, Extension horticulture specialist, Virginia Tech, uses Virginia's e-mail system to distribute press releases, monthly notes, and a question-and-answer series geared to home gardeners. She shares her work with other horticulture specialists around the country via the Virginia system's connection to BITNET/INTERNET.

To ease the work involved in distributing multiple copies of the same information to numerous recipients, most e-mail systems have a facility for setting up distribution lists.

Advantages And Disadvantages
E-mail has several advantages: The two parties need not be in at the same time; messages can be received at a time of the recipient's choice, rather than constituting multiple work interruptions; messages can be distributed to multiple addresses; the system is well-suited for limited-size text documents; e-mail may reduce telephone and copy machine usage and interoffice memos; and with a portable computer, users can check messages from almost anywhere in the world.

E-mail also has some disadvantages: It is awkward, semi-formal, and does not reveal "body language" or voice inflection; it does not deal well with diagrams or extremely long documents; and it has a limited directory for addressees not located at the sender's institution.

Access To The Network
To find out whether your university is connected to BITNET/INTERNET, contact your state Extension computer coordinator or university computer center. Access to the network at most land-grant universities requires a university mainframe computer account or a mailbox on Extension's e-mail system, a personal computer, communications software, a modem, and a phone line.

The only additional cost may be an account with the university's mainframe and the cost of the call to the mainframe. At the University of Georgia, for example, a mailbox on the system is $6.84 per month. There is no additional cost to send electronic mail anywhere in the world.

How The System Works
Major U.S. universities and research centers set up the network several years ago with the help of IBM. Each participating university has a phone connection to other institutions and must be willing to pass messages through their system.

Eventually, every campus and Extension phone directory will include e-mail addresses. Within 5 years, many Extension professionals will be using two forms of electronic mail—text and voice. A network of Extension electronic bulletin boards will act as holding sites for information and will route messages to corresponding bulletin boards nationwide. Extension professionals will be able to communicate directly with their colleagues at home and abroad without needing specialized computer skills. They will be able to choose from a wide array of special interest groups. "Personal publishing" will bring in a daily packet of information gathered automatically on topics preselected by the recipient.

Margaret Ezell, former Southern Regional computer coordinator, has compiled a national Extension BITNET/INTERNET directory that lists nearly 2,000 Extension staff members, university departments, and county offices from 37 states and two foreign countries. This BITNET/INTERNET directory can only be obtained as a dBase file or a text file via BITNET and not by mail. The directory has separate listings for Agricultural Research Service personnel, climatologists, and other special interest groups.

Important BITNET/INTERNET contacts are:
BITNET: MEZELL@UGA

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Extension Computer Division,
Agricultural Administration Building,
Pennsylvania State University,
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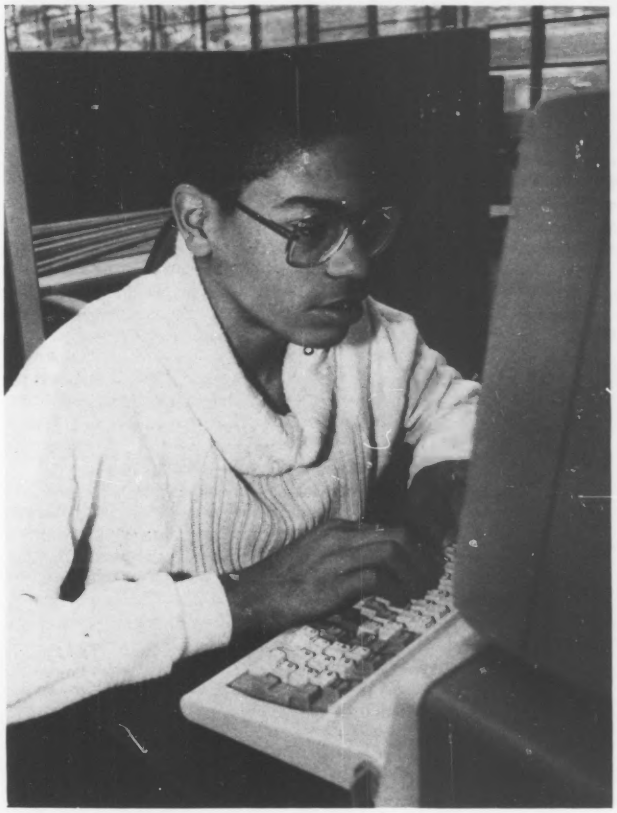
SPACES—For Tomorrow's Adults

Laura K. Probyn
Extension 4-H Information Officer, ANR Information Services, Michigan State University, East Lansing



Michigan 4-H member involves himself in an interactive video program designed to show youth the kinds of careers that will be available to them in the future. SPACES—Michigan 4-H Youth staff's innovative program—has as its goal the introduction of new technologies and ideas that will help youth envision themselves as adults of the 21st century.

Today's young people—tomorrow's adults—face a steady stream of changes that make it difficult for them to imagine the future or, more importantly, to see themselves in that future.

When this disturbing lack of vision is coupled with a lack of self-esteem, many teenagers may engage in destructive behaviors such as substance abuse.

Young people need to be able to see themselves as successful, productive adults in the fast-paced world of the future. To help them learn how, Michigan 4-H Youth staff developed an innovative program—"SPACES: Preparing Kids For A High Tech And Global Future."

Visions Of The Future

"The goal of SPACES," says Leah Cox Hoopfer, Michigan 4-H program leader and director of the project, "is to help young people develop visions of their futures—visions that are important to healthy and successful development into adulthood."

Young people, Hoopfer points out, will be introduced to three life SPACES—'inner space,' 'outer space,' and 'shared space.' She expects "30,000 kids to participate in the SPACES project statewide, and about 3,500 4-H adult volunteers to be involved in helping these young people explore future options." Through Inner Space, youths will learn personal coping skills for the present and the future. Outer Space will encourage the exploration of advancing technologies, and the careers and industries that are expanding as we move toward the 2lst century. In Shared Space, youth will learn to view the world as a global community where factors such as economics, ecology, and communication technology bring people of the world closer together.

Special videotapes, interactive video programs, "live" space experiences in camps and workshops, and satellite telecommunications with youngsters and leaders around the world are opportunities that will be available to Michigan young people involved in SPACES.

Model Efforts

Four Michigan areas—Kalamazoo, Allegan, Lapeer counties, and the Upper Peninsula—received SPACES grants and are 3-year models for the program. 4-H staff and volunteer leaders are implementing SPACES with help from local businesses for field trips, after-school activities, and career exploration.

SPACES is being made possible by a grant from the W. K. Kellogg Foundation of Battle Creek, Michigan.

For additional information contact:
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4-H & Youth Development,
Cooperative Extension Service,
Michigan State University,
Berkey Hall,
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Exploring The Human Element

Patricia Kovel-Jarboe
Extension Project Director,
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University of Minnesota, St. Paul

With major support from the W.K. Kellogg Foundation, the Minnesota Extension Service has established a Telecommunications Development Center (TDC) to encourage the use of new and emerging electronic technologies.

Extension became concerned about the role of technology in its educational programs about 5 years ago. A key question was whether there were program access inequities between rural and urban areas of the state and how new electronic technologies were likely to affect those inequities.

The Kellogg Foundation agreed to provide MES with $1.89 million over a 5-year period to explore the "human element" in educational technology and to help Extension identify and adopt appropriate technologies

At first, the TDC emphasized training, development, and financial support of innovators and "early adopters" among the Extension faculty. That emphasis has shifted to applied research and development of small, staff-initiated demonstration projects.

Pilot Projects

In the past 2 years, TDC has conducted 15 pilot projects. While the results have been somewhat uneven, the projects have sparked interest in the potential uses of electronic technologies for Extension education. The following are some examples of the technologies being explored through TDC—

Satellite Video Teleconference—This award-winning program on teen depression and suicide, titled "Fragile Time," reached participants at eight sites. Made available for sale in connection with the program were a 30-minute documentary, the 2-1/2 hours of teleconference proceedings, and a conference handbook.

Interactive Video—A two-way interactive cable system was used to transmit video programming and viewer interaction on four topics related to family stress. Edited videotapes of these programs are being used on other cable systems and in other educational settings.

Selecting And Working With A Lawyer—Targeted to rural families, this was a collaborative effort between Extension and the University of Minnesota Law School. The programs were broadcast over both radio and television; both versions had a call-in segment.

Consumer Information—Two county Extension offices worked together to develop a computerized system for answering common consumer questions.

Telecommunications Network—A coalition of 14 agencies, including educational institutions, health care associations, a county Extension office, a public television station, and a library system, is working to form an integrated telecommunications system for northeast Minnesota.

Interactive Videodisc—With support from the U.S. Environmental Protection Agency and the U.S. Department of Agriculture, Minnesota Extension has developed an interactive videodisc for use in its pesticide applicator training program.

Bulletin Board Service—This project has developed and implemented a regional electronic bulletin board service that enables rural Minnesota farm and small business operators to use the power of the computer and telecommunications to access Extension software and informational services.

Interactive Television—The goal of this project is to use the interactive television system in central Minnesota to train community leaders.

National Videoconference—Minnesota and Oklahoma produced and delivered a nationwide satellite videoconference on management of stored grain. This program, in combination with a "train the trainer" conference, has provided programming support to Extension specialists in 40 States.

EFNEP Education—Minnesota's Expanded Food and Nutrition Education Program is transferring much of its printed lesson materials to audiocassettes to provide better access for nonreaders and new readers.

Home Landscape—Through a series of videotapes for the home video market on home horticulture and landscaping, Extension is exploring ways to work with commercial producers and distributors while retaining a high degree of control over content.

Family Education—This prototype project involves distribution of audio and videotapes on family life through high-circulation public libraries in metropolitan areas.

Looking To The Future

At least five new projects are planned this year, exploring such areas as satellite delivery, two-way (interactive) television, and videodisc and CD-ROM applications. A series of research reports will describe the findings of the TDC projects in detail and make recommendations based on the TDC's experiences.

The original plan was for TDC to attain financial stability through a combination of grants, legislative and university funding, and income from the sale of products and services. Such a funding base now seems unlikely; the Center's role beyond the expiration of the Kellogg grant in 1990 is not yet clear. The staff will be exploring options for continuing the Center's research agenda. ▲

Tools Of The Tech Trade

Glenda M. Herman
Extension Housing Specialist,
North Carolina State University,
Raleigh

"Power up!"

"Adjust horizontal!"

"Rewind!"

Familiar phrases? Extension professionals are becoming, if not experts, at least knowledgeable about the confusing array of words and functions which apply to the videocassette recorder and computer worlds.

No longer do Extension agents and specialists rely solely on slides, overhead transparencies, publications, and demonstrations to get their educational messages out.

The world of electronic technology has proven to be ready-made for Extension's delivery methods, and when they are combined, everyone benefits—agents, specialists, and most importantly, the clientele.

"Kitchen Update" was a comprehensive program developed by a housing specialist and a food and nutrition specialist-in-charge at North Carolina State University. This program package incorporated the unique advantages of computer software (decision-aided instruction) program and a videotape to enhance an Extension educational thrust.

The program began in 1985 when the two specialists assessed the need for inservice training for home economics agents in various areas of kitchen update such as design principles, space considerations, storage needs, and appliance products. Planning effective training presented a problem. How could 100 agents have the opportunity to see and become familiar with a whole range of new design ideas and products?

Videotape Produced
One of the main training tools developed to solve the problem was an hour-long videotape produced on location in cooperation with several kitchen design and appliance stores. The objective was to provide an overall view of current market trends, design concepts, and products available.

The videotape was designed to be used by clientele as well. There are major urban areas in the state with a wide range of products and services available; those living in the rural counties of North Carolina do not have local access to such information.

Many Loan Requests
The Kitchen Update video has been extremely popular in North Carolina and the Agricultural Communications Visual Library at the university reports a full schedule of loan requests. In addition, it has been requested for purchase or loan by 25 other state Extension organizations and various groups, including home economics classes.

When the videotape was updated in 1987 to incorporate changes in the appliance and kitchen design markets, a new electronic teaching tool was added to the program package—a "Kitchen Design By Computer " software program. This program, developed at North Carolina State University, helps the user learn basic kitchen design principles, space requirements, and safety considerations.

The program enables the client to work with three standard kitchen designs (U-shaped, L-shaped, and Island), and 6 to 7 work centers. The program was designed to run on IBM-compatible computers and has proven to be very user-friendly. In the past, principles of kitchen design have been taught in seminar or workshop settings taking from one to three hours of agent time.

Wide Distribution
Each North Carolina Agricultural Extension office has the kitchen design software program and it has been requested for review by 7 other state Extension organizations plus American Samoa University. In addition, the program was presented at the 1987 Annual Conference of the American Association of Housing Educators in New Mexico, at the 1987 Sunbelt Expo in Georgia, and during the 1988 Extension Southern Region Plan Exchange Meeting in Louisiana.

The success of the total Kitchen Update program and its use of both videotape and computer programs delivery methods has encouraged further use of these combined techniques. Currently being developed at NCSU is a moisture identification computer program and plans are to tape one or two video segments on moisture problems. Also underway is a housing and clothing computer program on care of surfaces.

Decision-aided instruction (computer programs) and videotapes have been welcomed in North Carolina. They save agent time in working with small groups and individuals, allow the program participant to experience a wider range of information, and help clientele find answers to particular problems.

Reaping The Benefits
Extension professionals are change agents who utilize many methods to help clientele make decisions and resolve problems. Videotapes and computer learning programs are just two of the tools available for assisting in the delivery of educational programs. However, to make the maximum use of these methods, they must be developed and made accessible. As North Carolina State University Agricultural Extension Service moves rapidly in this direction, the citizens of the state receive the benefits. ▲

(Continued from page 2)

He says we must *all* get going and try something and it is the job of the team leader to create enthusiasm, join in the hands-on work, break down barriers to change, and help rid all minds of the fear of taking a risk.

In doing this he says leaders must create more open climates for innovation. Just because someone holds a job in a particular unit or division this should not exclude him or her from producing ideas applicable to other units. Once the ideas are produced, the leader decides upon the "best," most workable, quality suggestion irrespective of where it came from.

Overcoming Fear And Failure

Fear...we don't talk about it very often. For some reason we find it hard to admit that change makes us fearful...it brings up that old certainty/uncertainty tension. But to become better risk takers we have to face these fears directly...our own and those within those we teach and lead.

Research has identified some of the most paralyzing barriers to change.

These include: *Fear of losing control.* When we can recognize ourselves and encourage others to see that having control is a myth, maybe we can stop worrying about it.

Fear of conflict. As many of you know, if you want to make enemies just try to change something. Change nearly always requires the opening of communication channels to help unfreeze established patterns and ideas. This unfreezing is nearly always accompanied by a sudden increase in the communication of hostility. Rather than fearing it, we must come to accept this type of conflict as a normal part of the change process. If we don't learn ways to work through this productively, we are almost certainly guaranteeing continuation of the status quo.

Fear of rejection. Will my job be abolished? Will my program become obsolete? Will I lose status and power—be rejected in the eyes of others? Dealing with this fear in ourselves and others requires competence and confidence building. It requires helping people to see themselves in much broader, more flexible terms—as multifaceted contributors to teams not necessarily defined by program, discipline, or profession.

Fear of failure. Some of us have to let go of the drive for perfection. We simply can't wait for the perfect plan, the perfect tool, the perfect organization. And because we can't wait—and because in most areas we lack the certain knowledge to blueprint the perfect solution—we must risk many experiments. Many small, risky experiments will fail and this failure will be compounded into more failure if we don't learn from them and immediately get up and try again.

As leaders and professionals we must rid ourselves of these fears and decide to be confident and build confidence in others. We must learn to shrug off quickly and even laugh about our personal and organizational disappointments and failures. Peters calls this creating and encouraging "small wins" and "fast failures."

Meaning For Extension

So what does all this mean for the Extension professional and the Extension System? I think it means tremendous change in the business we do and the way we do business. We've now been through a period of self-examination, soul-searching, and public and self-critique. We've decided to give up the old false security of simply *doing things right* and added *doing the right things.* We must combine future thinking and innovation with quality delivery. We've agreed that as a system we must position ourselves in the middle of all this uncertainty and take the risks required to demonstrate that we have tremendous untapped potential. Potential, not only to do the right things ourselves, but, in keeping with our educational mission, potential to help others see and take risks to do the right things as well.

We have established nine initiatives in some of the thorniest issue areas on the public agenda today: Alternative Agricultural Opportunities; Building Human Capital; Competitiveness And Profitability Of American Agriculture; Conservation And Management Of Natural Resources; Family And Economic Well-Being; Improving Nutrition, Diet, And Health; Revitalizing Rural America; Water Quality; and Youth At Risk.

Embedded in these broad initiatives are high-priority problems of urgency at the center of the national agenda. As Extension, we must be at the heart and head of the struggle to assist people to cope with the effects of agricultural chemicals on the environment, develop a safe food supply,

search for means to add value to traditional agricultural and forestry products, find new ways to catalyze socio-economic development in rural communities, build and sustain a profitable and environmentally sound agricultural base for the future, and provide child and youth development programs worthy of an organization with an unparalleled national network and 75 years of successes and failures. These are problems of urgency for which we have a research base with which to connect and from which to build. This is an agenda that can be addressed by a cadre of professionals that can reteam and when necessary retool. And these are the problems we are mandated by our institutions and our clients to address.

Yes, this 75th Anniversary year is not the time for Extension to merely talk about creating change—how we will do something in the future. We must start now, with raging impatience, to tackle a more risky, action-packed agenda. It will certainly result in some wins and some losses.

We Will Act

And in acting—we plan to forget our losses, learn from them, and build on our wins. We intend to face up to conflict and see it as a natural part of the creative process. We have already opened communication channels to new audiences and new organizations in the public and private sector and we don't intend to leave our traditional clientele behind. We want to work with our traditional clientele to shed the possibility of return to the certainty myth and join in the reasonable adventure.

We are encouraging what Peters calls *skunkworks*...with innovative testing of model programs. We are restructuring for improved teamwork—searching out and using talents regardless of disciplinary training or programmatic location. And we are committed to hard, *intelligent* work. Some of us may have gotten a little lazy in serving only the easy-to-reach-and-teach clientele...a little lazy in really listening to what our clients see as the priority issues today...a little lazy in considering changing our office hours when many of our clients can't be reached eight-to-five, Monday through Friday...a little lazy in neglecting to invest the energy required to become early users and understanders of the new technology that is rapidly changing the way Extension will do business in the future...and, finally, a little lazy in seeing the massive global and demographic changes already on the move.

This hard, intelligent work should be no stranger to most of us in Extension. It is the ethic cornerstone of what helped bring American agriculture to its envied and imitated world position today. It is an American agriculture and rural way of life that spawned most of us in this room.

But *today* isn't tomorrow, or next week, or next year. And even if unpopular with some, we must move quickly to risk going beyond the tried and true—the *better safe* and *it ain't broke* view. The future *is* uncertainty. We simply can't sit and guard a single basket of aging eggs, if we hope to enjoy any flirtation with success. Unless, we think we can market the eggs to those preferring the 30-year-old variety.

As Extension professionals we must begin optimistically carving out a whole network of still uncharted roads. Roads that will lead to a more dynamic, risk-seeking, creative, flexible, action-oriented organization. And we expect in all that digging and earth moving and rearranging that we will probably also change ourselves as well. With a bit more risk taking, I think many Extension professionals will learn to meet the challenge of change head-on. They will reap the exhilarating rewards of that success and eliminate the possibility of paralysis because of occasional failures.

I, for one, think there has never been a more exciting time to be an Extension professional...to be able to say, on this our 75th Anniversary, we are investing in America's future in ways never dreamed of before.

In closing, let me share the sage advice of an anonymous Spanish bullfighter:

"To fight a bull when you are not scared is nothing. And to not fight a bull when you are scared is nothing. But to fight a bull when you *are* scared...that is *something*!" ▲

Remarks by Myron D. Johnsrud, Administrator, Extension Service, U.S. Department of Agriculture, 1988 National Distinguished Service Ruby Award Recipient, Epsilon Sigma Phi, National Honorary Extension Fraternity, at the NASULGC Annual Conference, Dallas, Texas, on November 14, 1988.

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